YUNUS *Araştırma Bülteni 2016 (3): 163-182*

www.yunus.gov.tr
ISSN 1303 - 4456
DOI: 10.17693/yunus.74544

Araştırma Makalesi
Research Article

Distribution of Fish Fauna in Adıyaman Region, Turkey

Cemil Kara[1*] Ahmet Alp[2]

[1]Kahramanmaraş Sütçü İmam University, Faculty of Science and Arts, Department of Biology 46100 K.maraş, Turkey.
[2]Kahramanmaraş Sütçü İmam University, Faculty of Agriculture, Department of Fisheries 46100 K.maraş, Turkey.

*Sorumlu yazar tel: +90 344 280 14 02
E-posta: cemil@ksu.edu.tr

Geliş Tarihi: 26.01.2016
Kabul Tarihi: 14.04.2016

Abstract

The distribution of the fish fauna and some diagnostic characteristics of the species in the region of Adıyaman located in the Euphrates basin were identified between July 2012 and December 2013. A total of 649 fish samples were obtained using by electroshocker and gillnets from 3 natural lakes, 2 reservoir and 10 streams. Totally, 26 taxa belonging to 8 families were identified and these are *Mastacembelus mastacembelus*, *Cyprinus carpio*, *Carassius gibelio*, *Acanthobrama marmid*, *Alburnoides bipunctatus*, *Alburnus caeruleus*, *Alburnus mossulensis*, *Squalius berak*, *Cyprinion macrostomum*, *Garra rufa*, *Chondrostoma regium*, *Aspius vorax*, *Arabibarbus grypus, Carasobarbus luteus*, *Barbus lacerta*, *Luciobarbus mystaceus*, *Caopeta trutta, Capoeta damascina, Cobitis elazigensis, Oxynemacheilus frenatus, Oxynemacheilus kaynaki, Silurus triostegus, Glyptothorax kurdistanicus*, *Aphanius mento*, *Liza abu, Oncorhyncus mykiss.* From these, *M. mastacembelus*, *A. marmid*, *A. bipunctatus*, *A. caeruleus*, *A. mossulensis*, *S. berak*, *C. macrostomum*, *A. vorax*, *C. luteus*, *B. lacerta*, *L. mystaceus*, *C. elazigensis, O. kaynaki, O. fenatus*, *S. triestegus, A. grypus* were endemic species. *A. grypus*, *A. marmid, Liza abu* and *Silurus triostegus* were only determined in the lentic systems. *Capoeta damascina*, *Cyprinion macrostomum* and *Garra rufa* were the dominant fish species and they have wide distribution area in the region. However, *Aphanius mento* were only found in a canal connected to Lake Gölbaşı.

***Keywords*:** Fish fauna, Adıyaman region, Distribution.

Öz

Adıyaman Bölgesi Balık Faunasının Dağılımı, Türkiye

Fırat havzasında yer alan Adıyaman Bölgesindeki balık türleri, dağılımı ve diagnostik özellikleri Temmuz 2012 ve Aralık 2013 tarihleri arasında belirlendi. Elektroşok ve balık ağları kullanılarak; 3 doğal göl, 2 baraj gölü ve 10 akarsu sisteminde toplam 649 balık örneği yakalandı. Toplam 8 familyaya ait 26 takson tespit edildi ve bunlar; *Mastacembelus mastacembelus*, *Cyprinus carpio*, *Carassius gibelio*, *Acanthobrama marmid*, *Alburnoides bipunctatus*, *Alburnus caeruleus*, *Alburnus mossulensis*, *Squalius berak*, *Cyprinion macrostomum*, *Garra rufa*, *Chondrostoma regium*, *Aspius vorax*, *Arabibarbus grypus, Carasobarbus luteus*, *Barbus lacerta*, *Luciobarbus mystaceus*, *Caopeta trutta, Capoeta damascina, Cobitis elazigensis, Oxynemacheilus frenatus, Oxynemacheilus kaynaki, Silurus triostegus, Glyptothorax kurdistanicus*, *Aphanius mento*, *Liza abu, Oncorhyncus mykiss*'dir. Bunlardan *M. mastacembelus*, *A. marmid*, *A. bipunctatus*, *A. caeruleus*, *A. mossulensis*, *S. berak*, *C. macrostomum*, *A. vorax*, *C. luteus*, *B. lacerta*, *L. mystaceus*, *C. elazigensis, O. kaynaki, O. fenatus*, *S. triestegus, A. grypus* endemik türlerdir. *A. grypus*, *A. marmid, Liza abu* ve *Silurus triostegus* sadece lentik sistemlerde tespit edildi. Bölgede geniş dağılım gösteren *Capoeta damascina*, *Cyprinion macrostomum* ve *Garra rufa* yaygın olarak bulunan balıklardır. Bununla birlikte *Aphanius mento*, sadece Gölbaşı Gölü'ne bağlanan bir kanalda belirlendi.

***Anahtar Kelimeler*:** Balık faunası, Adıyaman bölgesi, Dağılım.

Introduction

The Euphrates is the longest rivers (2800 km) of Western Asia and originating from the eastern Turkey. It flows through Syria and Iraq to join the Tigris in teh Shatt al-Arab, which empties into the Persian Gulf. The Euphrates river has 10 main streams in Adıyaman Region and these are the streams of Kahta, Eğri, Çakal, Göksu, Bulam, Sofraz, Aksu, Ziyaret, Kömür, Kalburcu connecting to Atatürk Reservoirs. The largest streams of the Euphrates in Adıyaman region are Göksu and Kahta. Majority section of Kahta Stream bed are now under the Atatürk Reservoir. In addition to the streams, 4 natural lakes present in Adıyaman region. These are Lake Göbaşı (2.19 km^2), Lake İnekli (1.09 km^2), Lake Azaplı (2.72 km^2) and Lake Abdulharap (5 km^2). The Çat Reservoir under the Southeastern Anatolia Project (GAP) was established on Lake Abdulharap. Many floating islands present on the Lake of Abdulharap but these island have been destroyed in recent years.

There is not a comprehensive study covering all fish species in Adıyaman Region. However, many studies present about the fish species and fisheries in Euphrates River (Bayhan and Göçer, 2012; Duman and Çelik, 2001; Can and İğne, 2005; Kuru, 1975; Kuru, 1978-1979; Çolak, 1981; Erdemli and Kalkan, 1996; Oymak et.al. 2009; Örün and Erdemli, 2000). This study aimed to determine distribution of the fish species and fish fauna in Adıyaman region of Euphrates River.

Materials and Methods

The fish specimens were collected from 10 streams (Kahta, Eğriçay, Çakal, Göksu, Bulam, Sofraz, Aksu, Ziyaret, Kömür, Kalburcu), two reservoirs (Atatürk and Çat) and three natural lakes (Azaplı, İnekli, Gölbaşı) located in the Adıyaman region (Table 1, Figure 1).

The fish samples were caught by electroshocker in the streams and different gill nets (mesh size of 18x18 mm, 22x22 mm, 32x32 mm) in the reservoirs and lakes. Geographic positions of the working stations were determined by a hand GPS. The pictures of the fish samples were taken in the study area and then they were preserved with ice boxes on 5-10 liter plastic jar. Then, the fish samples were brought to the laboratory and were stored at -4^{0}C freezer.

Morphometric measurements were carried out with a 0.1 mm digital compass. Identification of the specimens were determined by Fischer et al. (1987), Geldiay and Balık (2009), Balık (1988), Nelson (1994), Wildekamp et al.(1999), Erk'akan et al. (1999; 2007; 2008a, 2008b), Banarescu and Boguts-kaya (2003), Bogutskaya (1997), Coad and Sarıeyyüpoğlu (1988), Kottelat and Freyhof (2007), Turan et al. (2013; 2014). Fish samples are stored in Kahramanmaraş Sütçü İmam University, Faculty of Science and Arts, Biology Department.

Results

Twenty six fish species were found in Adıyaman region and presented in the Table 2. These fish species, *M. mastacembelus*, *A. marmid*, *A. bibunctatus*, *A. caeruleus*, *A. mossulensis*, *S. berak*, *C. macrostomum*, *A. vorax*, *A. grypus, C. luteus*, *B. lacerta*, *L. mystaceus*, *C. elazigensis, O. kaynaki, O. fenatus*, *S. triestegus* are endemic species.

Table 1. Geographic locations of the streams during the study area

Localities	Latitude(N)	Longitude(E)	Date
Kahta stream, Cendere bridge around	37^0 56' 06"	38^0 36' 36"	12.07.2012
Kahta stream, Teğmenli village	-	-	20.09.2012
Göksu stream, around Gölbaşı-Malatya	37^0 54' 03"	37^0 59' 46"	20.09.2012
Kalburcu stream	37^0 45' 44"	38^0 30' 15"	21.09.2012
Sofraz stream, Üçgöz	37^0 37' 20"	37^0 57' 09"	19.10.2012
Ziyaret stream	37^0 46' 02"	38^0 20' 10"	11.07.2012
Çakal creek	37^0 43' 21"	38^0 09' 51"	21.09.2012
Aksu stream, Güneykaş village	37^0 44' 541"	37^0 50' 23"	20.09.2012
Atatürk Reservoir, Samsat region	-	-	20.09.2013
Atatürk Reservoir, Çamgazi region	-	-	20.09.2013
Azaplı Lake	37^0 44' 39"	37^0 33' 18"	21.09. 2013
Eğri stream	37^0 46' 40"	38^0 11' 36"	21.09. 2012
Ziyaret stream, around Zey village	37^0 48' 13"	38^0 16' 29"	21.09. 2012
Bulam stream	-	-	12.07.2012
Bulam stream, Koçali	-	-	30.05.2012
Kömür stream	-	-	11.07.2012
Çat Reservoir	-	-	22.09.2012
Göksu stream, around Tut district	-	-	20.10.2012
Gölbaşı Lake	-	-	21.09. 2013
Aksu stream	37^0 44' 54"	37^0 50'23"	19.10.2012

Family: Mastacembelidae

***Mastacembelus mastacembelus* (Banks & Solander, 1794)**

Number of specimens: 25

Diagnostic characteristics: Dorsal spine: 33 (30-35), dorsal fin rays: 75 (69-79), anal spine: 3, anal fin rays:76(74-79), pectoral fin rays: 19 (18-21), (**Figure 2**).

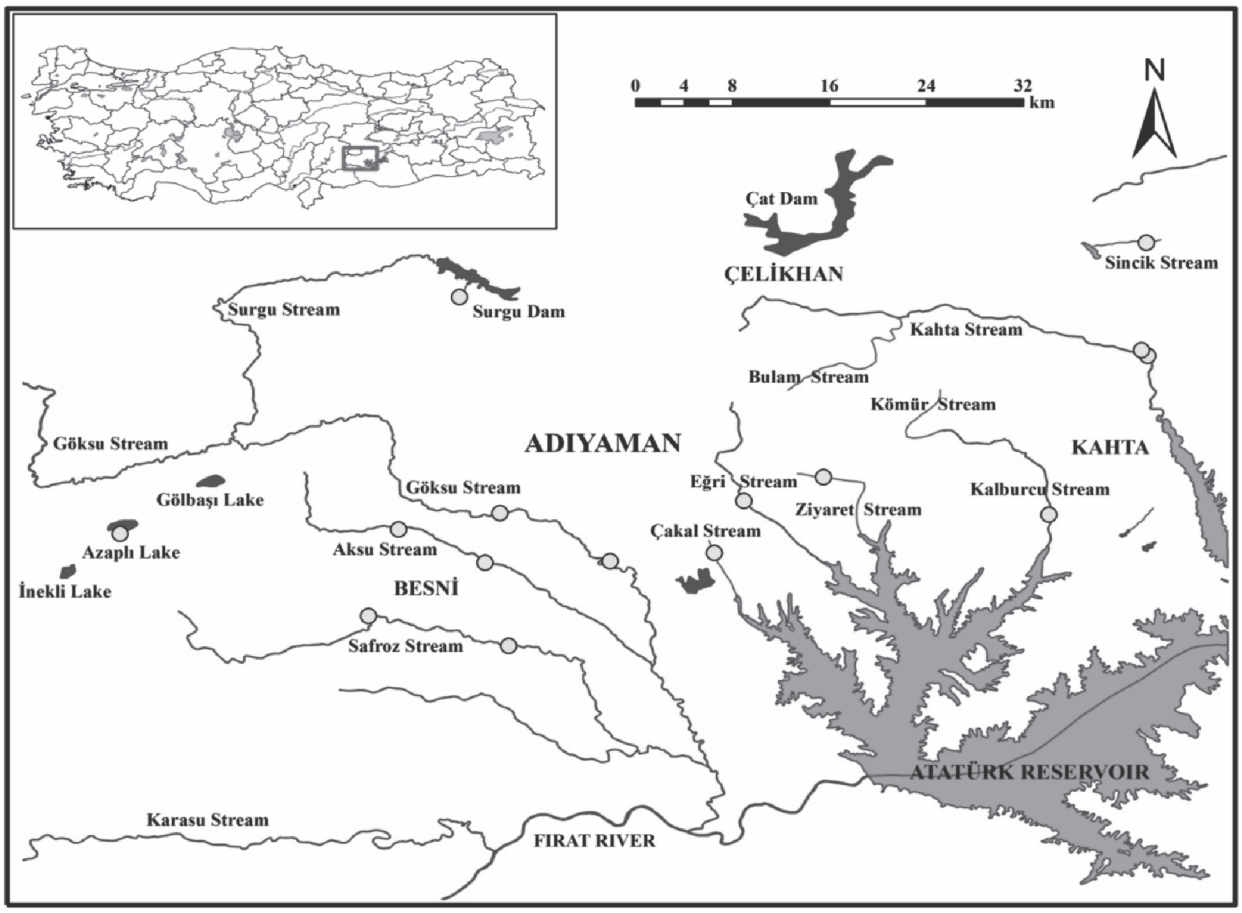

Figure 1. Map of the sampling area and sampling stations.

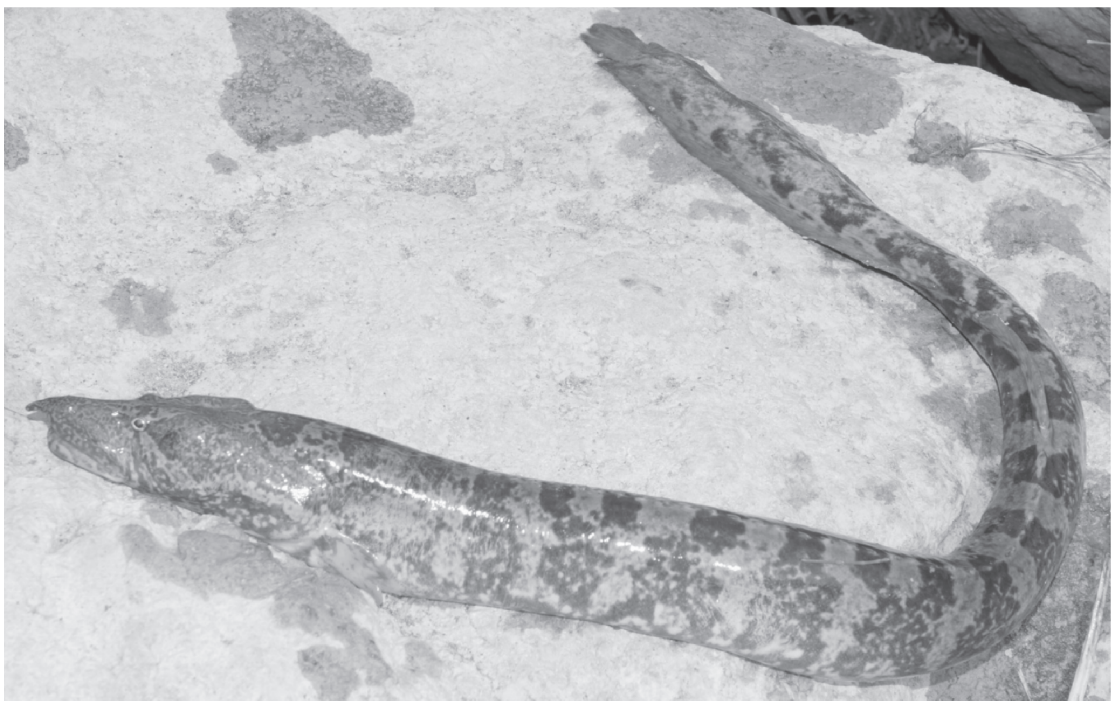

Figure 2. *Mastacembelus mastacembelus* (Banks&Solander, 1794).

Table 2. List of fish species in Adıyaman region, Turkey

Family	Species
Mastacembelidae	*Mastacembelus mastacembelus* (Banks&Solander, 1794)
Cyprinidae	*Cyprinus carpio* (Linnaeus, 1758)
	Carassius gibelio (Bloch, 1782)
	Acanthobrama marmid (Heckel, 1843)
	Alburnoides bipunctatus (Bloch, 1782)
	Alburnus caeruleus (Heckel, 1843)
	Alburnus mossulensis (Heckel, 1843)
	Squalius berak (Heckel, 1843)
	Cyprinion macrostomum (Heckel, 1843)
	Garra rufa (Heckel, 1843)
	Chondrostoma regium (Heckel, 1843)
	Aspius vorax (Heckel, 1843)
	Arabibarbus grypus (Heckel, 1843)
	Carasobarbus luteus (Heckel, 1843)
	Barbus lacerta (Heckel, 1843)
	Luciobarbus mystaceus (Pallas, 1814)
	Capoeta trutta Heckel, 1843
	Capoeta damascina (Valenciennes, 1842)
Cobitidae	*Cobitis elazigensis* (Coad& Sarieyyüpoglu, 1988)
	Oxynoemacheilus frenatus (Heckel, 1843)
	Oxynoemacheilus kaynaki (Erk'akan, Özeren & Nalbant, 2008)
Siluridae	*Silurus triostegus* (Heckel, 1843)
Sisoridae	*Glyptothorax kurdistanicus* (Berg, 1931)
Cyprinodontidae	*Aphanius mento* (Heckel, 1843)
Mugilidae	*Liza abu* (Heckel, 1843)
Salmonidae	*Oncorhyncus mykiss* (Walbaum, 1792)

Material examined: Kahta stream, Teğmenli village around (7 specimens, TL:183.1-455.0 mm), Kahta stream, Cendere bridge around, region with canyon (1 specimen, TL:257.28 mm), Göksu stream (1 specimen, TL:402.18 mm), Sofraz stream (8 specimens, TL:270.1-574.0 mm), Ziyaret stream (6 specimens, TL:134.8-528.73 mm), Çakal creek (1 specimen, TL:408.16 mm), Aksu stream, Güneykaş village (1 specimen, TL:601.87 mm).

Family: Cyprinidae

***Cyprinus carpio* (Linnaeus, 1758)**

Number of specimen: 2

Diagnostic characteristics: D IV 21, A III 5, V I-8, P:I-14, L. lateral scale: 36-40, pharyngeal teeth: 1.1.3-3.1.1 **(Figure 3).**

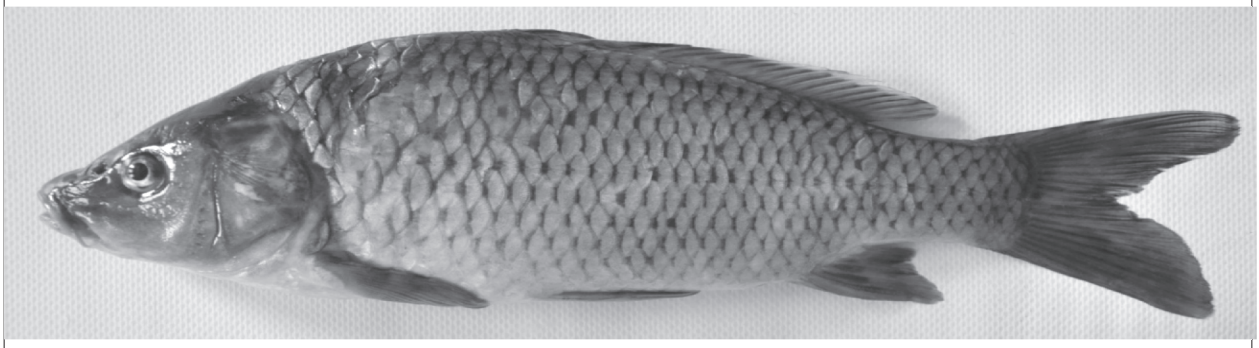

Figure 3. *Cyprinus carpio (*Linnaeus, 1758).

Material examined: Azaplı lake, 1 specimen, TL:307.49 mm; Atatürk Reservoir, 1 specimen, TL:387.29 mm.

***Carassius gibelio* (Bloch, 1782)**

Number of specimens:2
Diagnostic characteritics: D III-IV 14-15, A II- III5-6,V I-II 7-8, P I-13, line lateral number of scale:30-32, pharyngeal teeth: 4-4 (**Figure 4).**

Figure 4. *Carassius gibelio* (Bloch, 1782).

Material examined: Atatürk reservoir, 2 specimens, TL:241.72-276.82 mm.

***Acanthobrama marmid* (Heckel, 1843)**

Number of specimens:11
Diagnostic characteristics: D III 8, A III 18, P I 14-15, C 24, line lateral: 66-68, pharyngeal teeth: 5-5 **(Figure 5).**

Figure 5. *Acanthobrama marmid* (Heckel, 1843).

Material examined: Around Samsat in Atatürk Reservoir (7 specimens TL: 156.14-226.78 mm), around Çamgazi in Atatürk Reservoir (2 specimens, TL:175.65-199.26 mm), lake Azaplı (2 specimens, TL:148.41-172.44 mm).

***Alburnoides bipunctatus* (Bloch, 1782)**
Number of specimens: 9
Diagnostic characteristics: D III 8, A III 12, V II 7, P I-14, line lat., 46-49, pharyngeal teeth:2.5-5.2**(Figure 6).**

Figure 6. *Alburnoides bipunctatus* (Bloch, 1782).

Material examined: Eğri stream (7 specimens, TL: 75.13-86.63 mm), Ziyaret stream, around Zey village (2 specimens, TL: 90.77-92,29 mm).

***Alburnus caeruleus* (Heckel, 1843)**
Number of specimens: 12
Diagnostic characteristics: D III 8, A III 15-16, V I 8, P I 11-12, pelvic fin rays: 7-8, line lat.: 57-58, pharyngeal teeth: 2.5-5.2 (**Figure 7**).

Figure 7. *Alburnus caeruleus* (Heckel, 1843).

Material examined: Bulam stream, around Bulam hydroelectricity station (4 specimens, TL: 111.73-173.76 mm), lower part of Sofraz stream (5 specimens, TL:74.47-83.26 mm), Çakal stream (3 specimens).

***Alburnus mossulensis* (Heckel, 1843)**
Number of specimens: 21
Diagnostic characteristics: D III 8, A III 11-12, V II 8, P I 14-15, line lateral.: 70-75, pharyngeal teeth:2.5-5.2 (**Figure 8**).

Figure 8. *Alburnus mossulensis* (Heckel, 1843).

Material examined: Parting of the Besni way on Aksu stream, around bridge (7 specimens, TL: 103.28-152.36 mm), Göksu stream, around Gölbaşı-Malatya way (2 specimens, TL: 124.57-155.05 mm), Ziyaret stream (6 specimens, TL: 113.6-132.02 mm), Aksu stream, around Güneykaş village (6 specimens, TL: 76.8-122.5 mm).

***Squalius berak* (Heckel, 1843)**

Number of specimens: 101

Diagnostic characteristics: D III 8, A III 8, V I-8, P I14-15, line lateral scales: 41-43, above lateral line: 7-8, below lateral line: 3-4, pharyngeal teeth:2.5-5.2 (**Figure 9**).

Figure 9. *Squalius berak* (Heckel, 1843).

Material examined: Kahta stream, around Cendere bridge (19 specimens, TL: 85.04-197.54 mm), Adıyaman-Çelikhan way, around marble quarry (3 specimens, TL: 119.86-153.73 mm), Ziyaret stream, around Kahta way (13 specimens, TL:70.57-258.46 mm), Eğri stream (7 specimens, TL: 100.95-171.4 mm), Kalburcu stream (3 specimens, TL:118.69-143.79 mm), around bridge parting of the Besni way on Aksu stream (5 specimens, TL:113.15-165.08 mm), Aksu stream (4 specimens, TL:154.08-172.27 mm), Göksu stream around Gölbaşı-Malatya way (6 specimens, TL: 112.61-197.5 mm), Sofraz stream, Sugözü (7 specimens, TL:113.78-191.72 mm), Sofraz stream (12 specimens, TL:137.01-229.62

mm), Ziyaret stream, around Zey village (15 specimens, TL: 109.75-219.18 mm), Çakal creek (3 specimens, TL:58.71-192.81 mm), lake Azaplı (4 specimens, TL:126.97-217.2 mm).

***Cyprinion macrostomum* (Heckel, 1843)**
Number of specimens:84
Diagnostic characteristics: D IV 14-15, A III 7-8, V I-8, P I 12-13, line lateral scale: 36-41, pharyngeal teeth: 2.3.4-4.3.2 (**Figure 10**).

Figure 10. *Cyprinion macrostomum* (Heckel, 1843).

Material examined: Kahta stream, Cendere bridge, around Teğmenli village (8 specimens, TL:81.43-176.56 mm), Ziyaret stream, around Kahta way (18 specimens, TL:86.29-157.92 mm), Eğri stream (4 specimens, TL: 103.18-134.05 mm), Göksu stream around Gölbaşı-Malatya way (8 specimens, TL:88.21-134.86 mm), Kalburcu stream (14 specimens, TL:97.79-159.01 mm), Aksu stream (5 specimens, TL:101.62-157.08 mm), Sofraz stream (1 specimen, TL:100.45 mm), Çakal creek (7 specimens, TL:104.4-158.7 mm), Ziyaret stream, around Kahta way (13 specimens, TL:94.03-180.21 mm), around Samsat of Atatürk reservoir (3 specimens TL: 129.4-142.03 mm), Aksu stream, around Güneykaş village (3 specimens, TL:79.97-101.19 mm).

***Garra rufa* (Heckel, 1843)**
Number of specimens:120
Diagnostic characteristics: D III 8-9, A II 5, V I 7-8, P I-12, line lateral scale: 34-37, pharyngeal teeth: 2.4.5-5.4.2 (**Figure 11**).

Figure 11. *Garra rufa* (Heckel, 1843).

Material examined: Kahta stream, around Cendere bridge (28 specimens, TL: 72.02-129.05 mm), Ziyaret stream, around Kahta way (23 specimens, TL:59.83-123.33 mm), Eğri stream (14 specimens, TL: 82.33-125.85 mm), Göksu stream around Gölbaşı-Malatya way (8 specimens, TL:88.46-118.22 mm), Kalburcu stream (7 specimens, TL:85.25-119.96 mm), Aksu stream, parting of the Besni way (9 specimens, TL:70.12-108.97 mm), Göksu stream, around Tut district (7 specimens, TL:106.43-138.15 mm), Sofraz stream, Sugözü (6 specimens, TL:138.71-100.18 mm), Ziyaret stream, around Zey village (10 specimens, TL:79.6-126.05 mm), Çakal creek (3 specimens, TL:88.32-117.07 mm), Aksu stream around Güneykaş village (5 specimens, TL:101.59-120.24 mm).

***Chondrostoma regium* (Heckel, 1843)**
Number of specimens: 10
Diagnostic characteristics: D III 9, A III 11, V II 8, P I 15, line lateral scale: 68-75, pharyngeal teeth:7.6- 6.7**(Figure 12)**.

Figure 12. *Chondrostoma regium* (Heckel, 1843).

Material examined: Kahta stream, around Teğmenli village (5 specimens, TL: 129.19-111.37 mm), around Samsat of Atatürk Reservoir (4 specimens TL: 212.39-214.71 mm), around Çamgazi, Atatürk reservoir (1 specimens, TL:310.28 mm).

***Aspius vorax* (Heckel, 1843)**
Number of specimens: 1
Diagnostic characteristics: D III 9, A III 10-11, V I 8, line lateral: 92, pharyngeal teeth:3.5-5.3 (**Figure 13**).

Figure 13. *Aspius vorax* (Heckel, 1843).

Material examined: Around Samsat of Atatürk Reservoir (1 specimen TL: 510.18 mm)

***Arabibarbus grypus* (Heckel, 1843)**
Number of specimens:2
Diagnostic characteristics: D IV 8-9, A III 5, P I 13, V I 7, L. lateral scale:36-37, pharyngeal teeth:2.3.5-5.3.2 (**Figure 14**).

Figure 14. *Arabibarbus grypus* (Heckel, 1843).

Material examined: Around Samsat of Atatürk reservoir (2 specimens TL: 422.0-462.11 mm).

***Carasobarbus luteus* (Heckel, 1843)**
Number of specimens: 34
Diagnostic characteristics: D IV 11-12, A III 6-7, V II 8, line lateral scale:27-30, pharyngeal teeth:2.3.5-5.3.2 (**Figure 15**).

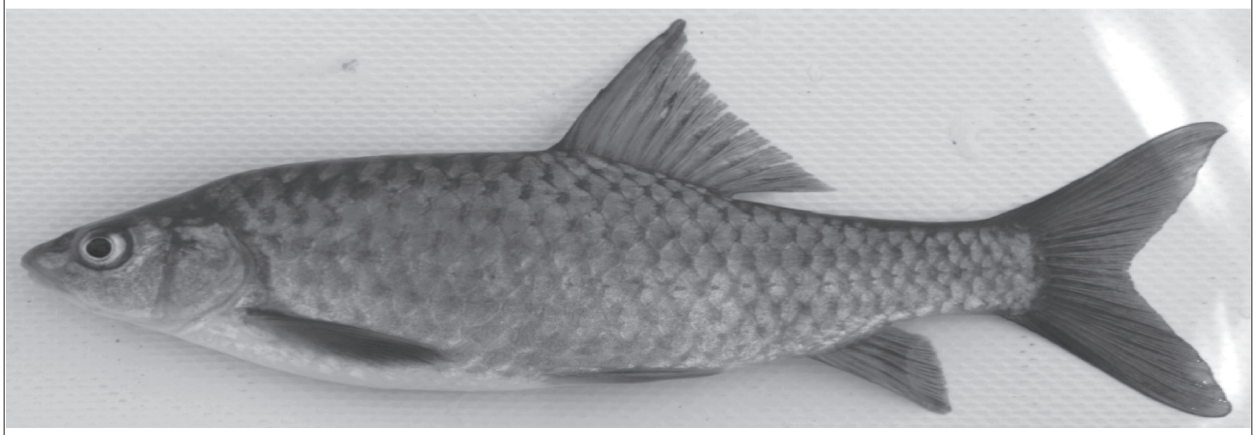

Figure 15. *Carasobarbus luteus* (Heckel, 1843).

Material examined: Kahta stream, around Teğmenli village (4 specimens, TL: 148.0-mm), Ziyaret stream, Kahta way (22 specimens, TL: 101.7-280.0 mm), Kalburcu stream (2 specimens, TL: 153.52-178.61 mm), Aksu stream, around bridge parting of the Besni way (1 specimens, TL: 145.3 mm), Çakal steam (1 specimens, TL: 143.1 mm), around Samsat of Atatürk Reservoir (4 specimens TL: 120.98-141.57 mm).

***Barbus lacerta* (Heckel, 1843)**
Number of specimens:15
Diagnostic characteristics: D III 8, A III 5, V II 8, line lateral scale:60-69, pharyngeal teeth: 5.3.2-2.3.5 (**Figure 16**).

Figure 16. *Barbus lacerta* (Heckel, 1843).

Material examined: Bulam stream, around Bulam hydroelectricity station and Koçali(3 specimens, TL:87.15-120.52 mm), Eğri stream (7 specimens, TL: 70.96-127.67 mm), Ziyaret stream, Kahta way (1 specimen, TL: 101.7-280.0 mm), Adıyaman-Çelikhan way (2 specimens, TL: 95.12-105.79 mm), Sofraz stream (2 specimens, TL: 123.08-163.0).

***Luciobarbus mystaceus* (Pallas, 1814)**
Number of specimens: 1
Diagnostic characteristics: D IV 8, A III 3-5, P I 16, V II 9, scale number of line lateral:68, pharyngeal teeth:2.3.4-5.3.2 (**Figure 17**).

Figure 17. *Luciobarbus mystaceus* (Pallas, 1814).

Material examined: Around Samsat of Atatürk reservoir (1 specimens, TL: 550.46 mm).

***Capoeta trutta* Heckel, 1843**
Number of specimens: 30
Diagnostic characteristics: D III-IV 8, A III 3-5, V II 8, P I 14-16, line lateral scale:77-86, pharyngeal teeth:2.3.4-4.3.2 (**Figure 18**).

Figure 18. *Capoeta trutta* (Heckel, 1843).

Material examined: Ziyaret stream, Kahta way (9 specimens, TL: 180.8-262.82 mm), Göksu stream around bridge Gölbaşı-Malatya way (1 specimen, TL:155.07 mm), Göksu stream, around Tut district (1 specimens, TL:116.92 mm), Aksu stream parting of the Besni way (12 specimens, TL: 101.39-242.85 mm), Sofraz stream, Üçgöz (1 specimen, TL: 180.95 mm), around Samsat of Atatürk reservoir, (1 specimen TL: 332.88 mm), Aksu stream, around bridge parting of the Besni way (5 specimens, TL: 152.94-185.84 mm).

***Capoeta damascina* (Valenciennes, 1842)**
Number of specimens: 137
Diagnostic characteristics: D III 9-10, A III 3-5, V I 8-9, P I 15-16**,** line lateral scale:80-86, pharyngeal teeth: 4.3.2-2.3.4 (**Figure 19**).

Figure 19. *Capoeta damascina* (Güldenstaedt, 1773).

Material examined: Bulam stream, around Bulam hydroelectricity station (18 specimens, TL: 122.84-309.26 mm), Kahta stream, around Teğmenli village (16 specimens, TL: 91.82-171.86 mm), around marble quarry on Adıyaman-Çelikhan way (4 specimens, TL: 87.26-127.76 mm), Çelikhan, floating islands (2 specimens, TL: 122.83-129.38 mm), Ziyaret stream, Kahta way (21 specimens, TL: 180.26-121.08 mm), Göksu stream, around Tut district (2 specimens, TL: 127.07-129.11 mm), Kalburcu stream (14 specimens, TL: 183.90-130.02 mm), Aksu stream, around bridge parting of the Besni way (4 specimens, TL:114.35- 161.95 mm), Göksu stream, around bridge Gölbaşı-Malatya way (5 specimens, TL:111.92-214.58 mm), Sofraz stream, Üçgöz (15 specimens, TL:125.68-324.49 mm), around Zey village of Ziyaret stream (11 specimens, TL:116.56-197.19 mm), Ziyaret stream, Kahta way (18 specimens, TL: 123.01-288.59 mm), Aksu stream, around Güneykaş village (7 specimens, TL:107.85-176.81 mm).

Family: Cobitidae
***Cobitis elazigensis* (Coad& Sarieyyüpoglu, 1988)**
Number of specimens: 2
Diagnostic characteristics: D III 6, A III 5, V II 5, P I 7, caudal fin rays 13(14), (**Figure 20**).

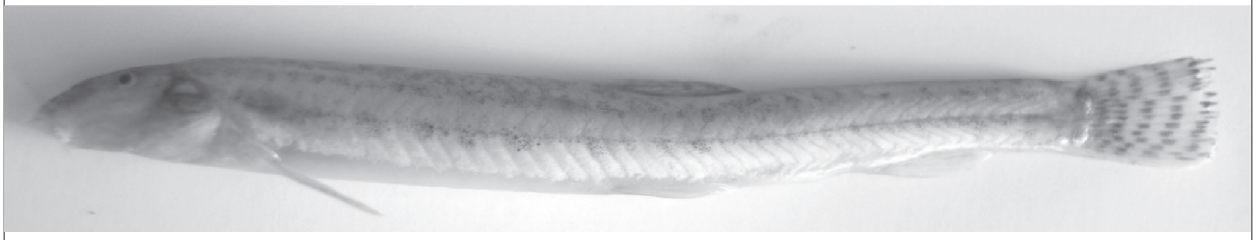

Figure 20. *Cobitis elazigensis* (Coad& Sarieyyüpoglu, 1988).

Material examined: Kahta stream, around Cendere bridge (2 specimens, TL:97.88-106.5 mm).

***Oxynoemacheilus frenatus* (Heckel, 1843)**
Number of specimens: 17
Diagnostic characteristics: D II-III 8-9, A II 5, V II 6-7, P I 8-9 (**Figure 21**).

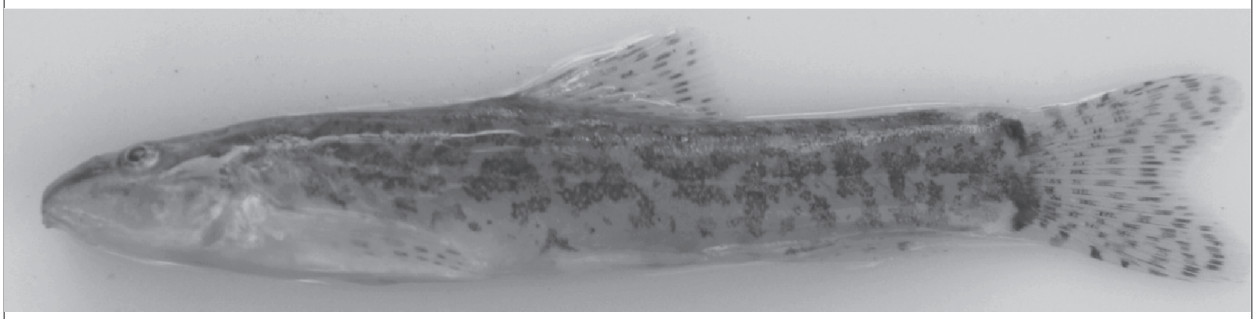

Figure 21. *Oxynoemacheilus frenatus* (Heckel, 1843).

Material examined: Bulam stream, around Bulam hydroelectricity station (1 specimen, TL: 67.81 mm), Kahta stream, around Cendere bridge (3 specimens, TL:48.71-74.46 mm), Kalburcu stream, upper part of sand quarry (13 specimens, TL:58.05-76.89 mm).

***Oxynoemacheilus kaynaki* (Erk'akan, Özeren & Nalbant, 2008)**
Number of specimens: 4
Diagnostic characteristics: D III 8, A II 5, V II 6, P I 10 (**Figure 22**).

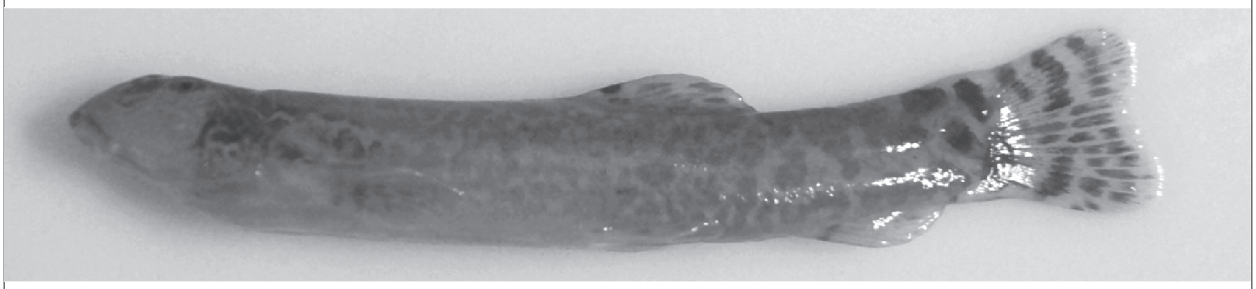

Figure 22. *Oxynoemacheilus kaynaki* (Erk'akan, Özeren & Nalbant, 2008).

Material examined: Sofraz stream (4 specimens, TL:51.3-66.4 mm).

Family: Siluridae
***Silurus triostegus* (Heckel, 1843)**
Number of specimens: 1
Diagnostic characteristics: Dorsal fin rays: 4, Anal fin rays: 84-86; PI 13-14 (**Figure 23**).

Figure 23. *Silurus triostegus* (Heckel, 1843).

Material examined: Around Samsat of Atatürk reservoir (1 specimen, TL:851.00 mm).

Family: Sisoridae
***Glyptothorax kurdistanicus* (Berg, 1931)**
Number of specimens: 8
Diagnostic characteristics: D II 5, A III 7, V I 5, P I- 8 (**Figure 24**).

Figure 24. *Glyptothorax kurdistanicus* (Berg, 1931).

Material examined: Kahta stream, around Cendere bridge (6 specimens, TL:43.53-74.15 mm), Sofraz stream, around Üçgöz (2 specimens, TL:54.97-65.79 mm).

Family: Cyprinodontidae
***Aphanius mento* (Heckel, 1843)**
Number of specimens: 3
Diagnostic characteristics: D I 8-12, A I 7-12, V I 5, P I 10-14, scale number of line lat.:23-28., **Figure 25.**

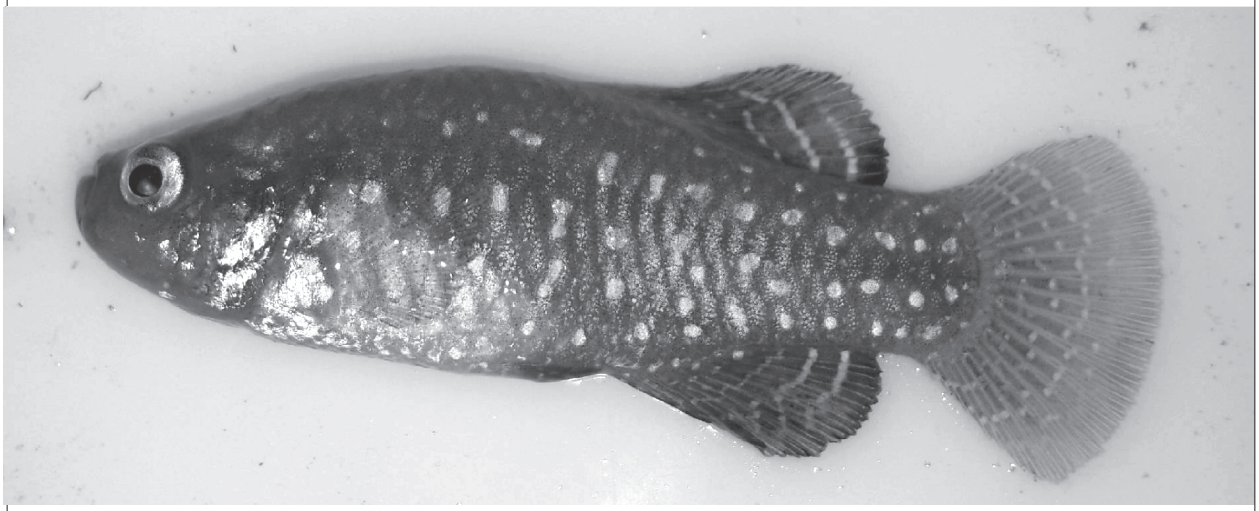

Figure 25. *Aphanius mento* (Heckel, 1843).

Material examined: Watering canal connected to Adıyaman Gölbaşı lake (3 specimens, TL:23.48-58.14 mm).

Family: Mugilidae
***Liza abu* (Heckel, 1843)**
Number of specimens: 3
Diagnostic characteristics: D_1 IV, D_2 II 7, A III 8, V I 5 (**Figure 26**).

Figure 26. *Liza abu* (Heckel, 1843).

Material examined: Atatürk reservoir (3 specimens, TL: 155.14-162.7 mm).

Family: Salmonidae

***Oncorhyncus mykiss* (Walbaum, 1792)**

Distribution: Bulam Stream, around Bulam hydroelectricity station, Çat Reservoir.

Mentioned *Oncorhyncus mykiss* individuals were participated to stated streams and lake system escaping cages which trout production plant.

Discussion

A total of 26 taxa belonging to 8 families were identified in Adıyaman region. *Mastacembelus mastacembelus* distributed in Tigris, Euphrates and Orontes River systems (Coad, 1996; Geldiay and Balık, 2009; Dağlı and Erdemli, 2009; Kara et.al., 2014). In the present study, it was determined in the streams of Kahta, Göksu, Sofraz, Ziyaret, Çakal and Aksu. *M. mastacembelus* individuals were not consist of large populations in the studied area. All of the examined specimens of *M. mastacembelus* were identified in the area with aquatic plants and shallow streams habitats. Morphometric characteristics of *M. Mastacembelus* were similar to diagnostic features reported with the previous studies (Geldiay and Balık, 2009; Çakmak and Alp, 2010).

C. carpio inhabit a large area in Turkish imland waters (Geldiay ve Balık, 2009). In the present study, *C. carpio* individuals were not present river systems, especially it was determined in the reservoirs of Atatürk and Çat and lake Azaplı.

Carassius gibelio can be easily distinguished from the carp with a single row of pharynx teeth and it was determined in the Atatürk reservoir. *Carassius gibelio* that is an exotic fish species by its high reproduction capacity by means of gynogenesis and tolerance to environmental changes, considered as a successfull invasive (Yerli et. al., 2014). This species may lead to a catastrophy in Atatürk Reservoir because it may cause injury native fish populations the food chain and can lead to changes at the ecosystem (Kalous et al., 2004).

A. marmid was reported by Geldiay and Balık (2009) in the Tigris-Euphrates system. In the present study, *A. marmid* individuals were not present in the streams and it was only determined in the lentic systems. *A. marmid* has an economic value and it is caught in Atatürk

reservoir and marketed in the fish bazaar in Adıyaman and Kahramanmaraş.

Alburnoides bipunctatus inhabits in the upper part of the Tigris-Euphrates basin (Kuru, 1986). Kara and Demirci (2009) reported the existence of this species at the upper tributaries of the Göksu Stream (Nurhak, Kahramanmaraş) which is a tributary of the Euphrates river. Lusk (1995), also indicated that *Alburnoides bipunctatus* inhabits in the barbel zone of the streams. In this study, *Alburnoides bipunctatus* individuals was also determined in the clear and clean habitats in Eğri stream and Ziyaret stream.

Alburnus recepi was identified as a new fish species in the Merzimen Stream that is the upper branch of Euphrates River (Turan et.al., 2014).

However, the specimens obtained from Eğriçay and Ziyaret streams close to the Merzimen Stream were identified as *Alburnus bipunctatus* and these specimens were different from the *A. recepi* morphologically. So, in the present study this species can not be determined.

Alburnus caeruleus was reported in Tigris-Euphrates and Kueik systems by Coad, 2010. *A. caeruleus* was also reported in the tributay of the Euphrates river in Gaziantep and Adıyaman district (Birecikligil and Çiçek, 2011; Freyhof, 2014). In the present study, *A. caeruleus* were determined in the Çakal, Bulam and Sofraz stream. *Alburnus caeruleus* are under threat in the IUCN red list (Freyhof, 2014). Due to these reasons, it is extremely important that habitat of *A. caeruleus* in Adıyaman district should be protected and this species should be conserved.

Alburnus mossulensis distributed in Iran, Iraq and the Persian Gulf with Tigris-Euphrates river system (Mousavi-Sabet et.al., 2013; Kuru, 1978-79; Coad, 2010). In this study, *A. mossulensis* was not form large populations and it was determined in the area of clean and in a rich aquatic plants.

The type lokality of *Squalius berak* is Kueik River in Syria (Turan et.al., 2013).

S. berak distributed a large area in the region and it was determined in the all streams and Azaplı Lake in Adıyaman region.

In Turkish inland waters, two Cyprinion species, *Cyprinion macrostomus* and *Cyprinion kais* in habit (Geldiay and Balık, 2009). *Cyprinion macrostomus* is a native and endemic species of Tigris-Euphrates river system (Banarescu and Herzig-Straschil, 1995; Coad, 1996; Geldiay ve Balık, 2009). *C. kais* was also reported in Karakaya Reservoir (Daştan et.al. 2012; Uçkun and Gökçe, 2015). *C. macrostomus* was reported in Topardıç Stream and Kangal balıklı kaplıca in Sivas and it can adapt until 35°C (Metin and Akpınar, 2000; Daştan et.al., 2012; Duman and Şahan, 2014). *C. macrostomus* was not determined in the lakes of Gölbaşı, İnekli and Azaplı however it distributed a large area in the stream of the region. In addition, *C. macrostomum* indivi-duals formed dense populations in Ziyaret and Kalburcu stream.

Garra rufa usually present on the Tigris, Euphrates, Seyhan and Ceyhan river system (Geldiay and Balık 2009). Kara et.al. (2010), reported that this species inhabit in a very large area in the streams of Ceyhan river systems. In this study, *G. rufa* presented in the all streams of Adıyaman district. In addition, *G. rufa* individuals formed dense populations in the streams especially summer months.

C. regium inhabits Orontes, Tigris, Euphrates, Göksu, Seyhan and Ceyhan river systems (Geldiay and Balık, 2009). *C. regium* forms a dense population in Atatürk Reservoir (Oymak, 2000). It is a benthopelagic species inhabiting both lentic and lotic environment (Geldiay and Balık, 2009). *C. regium* also presents in Kahta stream close to Atatürk Reservoir.

Aspius vorax that is an endemic species of Tigris-Euphrates system distributed within a limited area (Al-Saleh et al., 2012). The Asp, *Aspius vorax* is a native and highly commercial cyprinid species inhabiting Euphrates-Tigris Basin in Turkey, Syria and Iraq (Kuru, 1986; Coad, 1996; Geldiay and Balık, 2009; Oymak et al., 2011). In the present study, *A. vorax* was only determined in the Atatürk Reservoir.

Arabibarbus grypus known as "Şabut" is a large freshwater cyprinid distributed in the Tigris-Euphrates basin. It has high economic value and commerically caught in the region. *A. grypus* was identified only in Atatürk reservoir.

The main distribution area of *Carasobarbus luteus* was reported as Tigris and Euphrates river system (Geldiay and Balık, 2009). *C. luteus* is an economic fish species in the region and it commercially fished in Atatürk Reservoir. In this study, *C. luteus* was determined in the streams of Ziyaret, Aksu, Kahta and Kalburcu but didn't form large populations in these river systems.

Barbus lacerta were determined in Bulam, Ziyaret, Eğriçay and Sofraz streams. *Luciobarbus mystaceus* has a high economic value. It is caught commercially in the Atatürk Reservoir.

Capoeta has a wide distribution area in Turkey (Balık, 1988). In this study, C*apoeta damascina* and *C. trutta* commonly found in the rivers of Adıyaman district, particularly large sized of *C. trutta* individuals live in Atatürk Reservoir.

Oxynemacheilus kaynaki, Oxynemacheilus frenatus, Cobitis elazigensis, *Glyptothorax kurdistanicus*, *A. mento* do not form large populations in the research area. In addition, rainbow trout escaped from trout farms present in the upper part of Bulam stream.

L. abu is found in the Tigris-Euphrates and was recently reported in the Orontes river system in Turkey (Yalçın, 2004). In the present study, *L. abu* was determined in the reservoirs, while it was not present in the streams and natural lakes. Similary *Silurus triostegus* inhabits only Atatürk Resrvoir and it was not found in the streams.

Consequently, 26 fish species were determined in the streams, reservoirs and natural lakes in the region of Adıyaman located in the Euphrates River system. Many hydroelectric power plants (HPP) and sand pit facilities constitute a threat for fish species in the region.

Acknowledgements

This study was financed by the Research Fund of Adıyaman University as Project no. 2012/001.The authors would like to thank two anonymous referees of their helpful suggestions, which considerably improved the manuscript. We also thank Dr. Davut Turan for his valuable comments on the taxonomic position of the fish species.

References

Al-Saleh, F., Hammoud, V., Hussein and A., Alhazzaa, R. 2012. On the growth and reproductive biology of Asp, *Aspius vorax*, population from the middle reaches of Euphrates River. Turkish Journal of Fisheries and Aquatic Sciences 12: 149-156.

Bayhan, Y. K. and Göçer, M. 2012. Atatürk Baraj Gölü (Adıyaman) balıkçılığı ve kullanılan av araçlarının teknik özelikleri., Journal of Fisheries Sciences.com. 6(3): 232-242.

Balık, S.1988.Türkiye'nin Akdeniz Bölgesi İçsu Balıkları Üzerinde Sistematik ve Zoocoğrafik Araştırmalar, DOĞA TU Zooloji D.12,2, 156-179.

Banarescu, P. M. and Bogutskaya, N. G. 2003. The freshwater fishes of Europe Cyprinidae 2. Part II:Barbus. The Freshwater Fishes of Europe: 454 pp.

Banarescu, P. M. and Herzig-Straschil, B. 1995. A revision of the species of the *Cyprinion macrostomus* group (Pisces: Cyprinidae), 411-420, Ann. Naturhist. Mus. Wien.

Birecikligil, S. and Çiçek, E. 2011. Gaziantep İli Sınırları İçindeki Fırat ve Asi Havzası Akarsuları Balık Faunası, Biyoloji Bilimleri Araştırma Dergisi 4 (2): 29-34.

Bogutskaya, N. G. 1997. Contribution to the knowledge of leuciscine fishes of Asia Minor. Part 2. An annotated check-list of leuciscine fishes (Leuciscinae, Cyprinidae) of Turkey with descriptions of a new species and two new subspecies. Mitt. hamb. zool. Mus. Inst., 94: 161-186.

Can, M. F. and İğne, K. D. 2005. Atatürk Baraj Gölü'nde Kullanılan Aynı Donam Faktörüne Sahip Dört Farklı Göz Açıklığındaki Sade Uzatma Dip Ağlarının Yakaladıkları Türlerin Kompozisyonu, Avlanma Etkinlikleri ve Ekonomik Analizleri, Ege University Journal of Fisheries & Aquatic Sciences, 22(1-2): 143-147.

Coad, B. W. 1996. Zoogeography of the fishes of the Tigris-Euphrates Basin. Zoology in the Middle East 13: 51-70.

Coad, B. And Sarıeyyüpoğlu, M. 1988. *Cobitis elazigensis*, a New species of Cobitidid Fish from Anatolia, Turkey. Japan. J. Ichthyol. 34(4), 426-430.

Coad, B. W. 2010. Freshwater fishes of Iraq. Pensoft Publishers, Sofia, Bulgaria, 274 p.

Çakmak, E. and Alp, A. 2010. Morphological Differences Among the Mesopotamian Spiny Eel, *Mastacembelus mastacembelus* (Banks & Solander 1794), Populations. Turkish Journal of Fisheries and Aquatic Sciences 10: 7-92.

Çolak, A. 1981. Keban baraj gölünde bulunan balık türleri, Ankara Üniversitesi, Vet. Fak. Dergisi, 28(1-4), 167-181.

Dağlı, M. and Erdemli, A. Ü. 2009. An Investigation on the Fish Fauna of Balıksuyu Stream (Kilis, Turkey). International Journal of Natural and Engineering Sciences 3(1): 19-24.

Daştan, S. D., Bardakcı, F. and Degerli, N. 2012. Genetic Diversity of *Cyprinion macrostomus* Heckel, 1843 (Teleostei:Cyprinidae) in Anatolia, Turkish Journal of Fisheries and Aquatic Sciences, 12: 651-659.

Duman, E. and Çelik, A. 2001. Atatürk Baraj Gölü Bozova Bölgesi'nde Avlanan Balıklar ve Verimlilikleri, Ege University Journal of Fisheries & Aquatic Sciences,18(1-2): 65-69.

Duman, S. and Şahan, A. 2014. Kangal (Sivas) Balıklı Çermik Termal Kaplıcası ile Topardıç Deresi'nde (Sivas) Yasayan Benekli Sazan *Cyprinion macrostomus* (Heckel, 1843) de Bazı Hematolojik Parametreler ve Non-Spesifik İmmün Yanıtın Belirlenmesi, Yunus Araştırma Bülteni, 4: 21-28.

Erk'akan, F., Atalay-Ekmekçi, F. G. and Nalbant, T. T. 1999. A review of the genus Cobitis in Turkey (Pisces:Ostariophysi: Cobitidae). Hidrobiologia, 403: 13-26.

Erk'akan, F., Nalbant, T. T. and Özeren, S. C. 2007. Seven new species of Barbatula, three new species of chistura and a new species of Seminemacheilus (Ostariophysi: Balitoridae: Nemacheilinae) from Turkey, J. of Fisheries International, 2(1): 69-85.

Erk'akan, F., Özeren, S. C. and Nalbant, T. T. 2008a. *Cobitis evreni* sp. nova -a new spined loach species (Cobitidae) from the southern Turkey. Journal of Fisheries International, 3(4): 112-114.

Erk'akan, F., Özeren, S. C. and Nalbant, T. T. 2008b. Two new species of Stone Loaches from Turkey (Teleostei: Nemacheilidae), Journal of Fisheries International 3(4):115-119.

Erdemli, A. Ü. and Kalkan, E. 1996. Tohma çayı balıkları üzerinde faunistik bir araştırma, Turkish Journal of Zoology, 20:153-166.

Fischer, W., Schneider, M. and Bauchot, M. L. 1987. Mediterranee et Mer Noire Zone, De Peche 37 Revision I, Volume II, Vertebres FAO-Rome: 763-1529.

Freyhof, J. 2014. Alburnus caeruleus. The IUCN Red List of Threatened Species 2014: e. T19018332A19222758. Http://dx.doi.org/10.2305/IUCN.UK.2014-1.RLTS. T190183-32A19222758. en. (erişim tarihi: 20 June 2016.)

Geldiay, R. and Balık, S. 2009. Türkiye tatlısu balıkları. Ege Ünv. Fen Fak. Kitaplar Serisi No: 97, Ege Ünv. Basımevi, İzmir, 519 pp.

Kara, C., Güneş, H., Gürlek, M. E. and Alp, A. 2014. Adıyaman Bölgesi Akarsularında Dikenli Yılan Balığı (Mastacembelus mastacembelus Banks & Solander 1794)'nın Dağılımı ve Bazı Morfometrik Özellikleri, Yunus Araştırma Bülteni, (3):3-11.

Kara, C., Alp, A. and Şimşekli, M. 2010. Distribution of Fish Fauna on the Upper and Middle Basin of Ceyhan River, Turkey. Turkish Journal of Fisheries and Aquatic Sciences 10: 111-122.

Kara, C. and Demirci, C. 2009. Göksu çayı (Nurhak-Kahramanmaraş) Balık Faunası ve Bazı Morfometrik Özellikleri, KSÜ Doğa Bil. Derg., 12(1),14-22.

Kalous, L., Memiş, D. and Bohlen, J. 2004. Finding of triploid *Carassius gibelio* (Bloch, 1780) Cypriniformes,Cyprinidae), in Turkey. Cybium 28: 77-79.

Kuru, M. 1986. Dicle ve Fırat Nehirleri Üzerinde Kurulacak Barajlarla Soyu Tehlikeye Sokulacak Balık Türleri, VIII. Ulusal Biyoloji kongresi, 3-5 Eylül, İzmir.

Kottelat, M. and Freyhof, J. 2007. Handbook of European freshwater fishes, xiii + 635 pp.

Kuru, M. 1975. Dicle-Fırat, Kura-Aras, Van Gölü ve Karadeniz havzası tatlısularında yaşayan balıkların (Pisces) sistematik ve zoocoğrafik yönden incelenmesi, Atatürk Üniversitesi Fen Fakültesi (Doçentlik Tezi), 186 sayfa.

Kuru, M. 1978-1979.The freshwater fish of South-Eastern Turkey-2 (Euphrates-Tigris Systeme). Hacettepe Bull. Nat. Sci. Eng. 7-8: 105-114.

Lusk, S. 1995. Influence of valley reservoirs s on the changes in fish communities inhabiting streams in the Dyje drainage area. Folia Zool. 44: 45–56.

Metin, K. and Akpınar, M. A. 2000. *Cyprinion macrostomus* (Heckel, 1843)'un gonatlarında total lipid ve yağ asidi miktarının mevsimsel değişimi, Turk. J. Biol., 627–634, TÜBİTAK.

Mousavi-Sabet, H., Abdollahpour, S., Salehi-Farsani, A., Vatandoust, S., Langroudi, H. F., Jamalzade, H. R. and Nasrollahzadeh, A. 2013. Length-weight and length-length relationships and condition factor of *Alburnus mossulensis* (Heckel, 1843) from the Persian Gulf basin. AACL Bioflux, Volume 6, Issue 4.

Nelson, J. S. 1994. Fishes of the world. John Wiley&Sons, Canada, USA., 162 pp.

Oymak S. A. 2000. Atatürk Baraj Gölü'nde yaşayan *Chondrostoma regium* (Heckel, 1843)'un büyüme özellikleri, Turkish Journal of Zoology, 24: 41-50.

Oymak, S. A. , Karadede-Akın, H. and Doğan, N. 2009. Heavy Metal in Tissues of *Tor grypus* from Atatürk Dam Lake, Turkey, Biologia, Section Zoology, 64, 151-15.

Oymak, A., Ünlü, E., Parmaksız, A. and Doğan, N. 2011. A Study on the Age, Growth and Reproduction of *Aspius vorax* (Heckel,1843) (Cyprinidae) in Atatürk Dam Lake (Euphrates River), Turkey. Turkish Journal of Fisheries and Aquatic Sciences 11: 217-225.

Örün, İ., Erdemli, A. Ü. 2000. Abdülharap ve Bulam Çayı Balıklarının Taksonomik Yönden Araştırılması, Fırat Üniv. Fen ve Müh. Bilimleri Dergisi, 12 (1): 17-26.

Turan, D., Kottelat, M. and Doğan, E. 2013. Two new species of *Squalius*, *S. adanaensis* and *S. seyhanensis* (Teleostei: Cyprinidae), from the Seyhan River in Turkey. Zootaxa,3637(3):308-324.

Turan, D., Kaya, C., Ekmekçi, F. G. and Doğan, E. 2014. Three new species of *Alburnoides* (Teleostei: Cyprinidae) from Euphrates River, Eastern Anatolia, Turkey. Zootaxa, 3754(2):101-116.

Uçkun, A. and Gökçe, D. 2015. Growth and reproduction of *Cyprinion macrostomus* (Heckel, 1843) and *Cyprinion kais* (Heckel, 1843) populations in Karakaya Dam Lake (Euphrates River), Turkey.

Wildekamp, R. H., Küçük, F., Ünlüsayın, M. and Neer, W. V. 1999. Species and subspecies of the genus *Aphanius* Nardo 1897 (Pisces: Cyprinodontidae) in Turkey. Turk. J. Zool., 23: 23-44.

Yalçın, Ş. 2004. Occurunce of the abu mullet, *Liza abu* (Heckel, 1843)(Pisces, Mugilidae), in Orontes River. Zool. Mid. East., 30:111-113.

Yerli, S. V., Mangıt, F., Emiroğlu, Ö., Yeğen, V., Uysal, R., Ünlü, E., Alp, A., Buhan, E., Yıldırım, T. and Zengin, M. 2014. Distribution of Invasive *Carassius gibelio* (Bloch, 1782) Teleostei: Cyprinidae in Turkey. Turkish Journal of Fisheries and Aquatic Sciences 14: 581-590.