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An Investigation on the Fish Fauna of Balıksuyu Stream (Kilis, TURKEY)

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ABSTRACT

This study was carried out to determine the fish fauna of Balıksuyu Stream between July 2004 and June 2005. 325 fish specimens caught from the research area and a totaly of 15 species were determined. Nine of them belong to Cyprinidae, five to Balitoridae and one to Mastecembalidae. Some morphometric and meristic characteristics of the fish samples were examined. From these results, the determination keys were presented in family and species levels.

Key Words: Fauna, Balıksuyu Stream, Kilis, Turkey.

INTRODUCTION

Turkey is located at the crossroads of Europe, Asia and Africa, and surrounded by sea from three sides with different ecological characters. Turkey has altitude diversity exceeding 5,000 meters from sea level and eventually has climate varieties. As a result of these features, Turkey becomes one of the important countries being in geography on account of biodiversity. The species of which distribution route passes over our land throughout geological periods, locate on suitable areas and form local populations in these places. Species jamming in certain small fields due to geographical restrictions isolate itself from other species by constituting its gene pond in time [1].

The first study on freshwater fish fauna of Turkey was carried out by Abbolt in 1835 according to the Geldiay and Balık [2]. Then, a lot of researches have been carried out on freshwater fish fauna of Turkey by both local and foreign researchers [1-49]. Totally, 236 fish species and subspecies belonging to 26 families was reported from inland waters of Turkey [24]. There is two study related to the fish fauna of the Kilis province [48-49]. In a study done by the Kuru [14] has been found only one specimen record of *Carasobarbus luteus* (Heckel,1843) in Balıksuyu (Kazıklısuyu) Stream. Another study hasn't been found related to the fish fauna of Balıksuyu Stream.

The purpose of this study is to determine the fish species living in this stream and contribute to the biodiversity in the Kilis.

MATERIALS AND METHODS

This study was carried out between July 2004 and June 2005. Balıksuyu Stream which has approximately 50 km long and a catchment area of 241,2 km^2 springs north of Basalt plato in the Kilis and flows into boundary of Syria. The collections of fishes were made at four selected stations (Figure1) located on Ömeroğlu, Yeniyapan, Gümüşsuyu and Güvenlik. At each station, fish were collected using electro fishing device, powered by a 650 watt portable generator. Specimens analysed were fixed in 4% formalin and later preserved in 70% ethanol. A milimetric ruler was used to measure the metric characteristics of the fish samples. As the metric characteristics; total length (T.L.), standard length (S.L.), body depth (B.D.), body width (B.W.), head length (H.L.) and eye diameter (E.D.) were measured. As the meristic characteristics; the number of fin rays, the number of scales on the lateral line and pharyngeal teeth were counted.

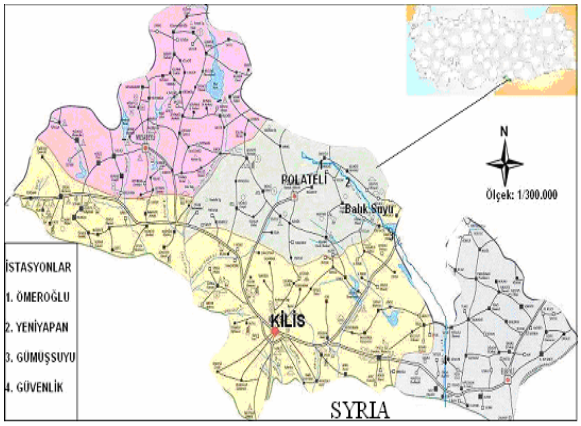

Figure 1. The research area and sampling stations.

RESULTS

Fifteen species belonging to three families were identified in 325 specimens from the Balıksuyu Stream.

Key to the Identification of Fish Living in the Balıksuyu Stream

1-a) Dorsal, caudal and anal fins are combined…… ……..(MASTECEMBALIDAE) .....*Mastacembelus mastacembelus*

b) Dorsal, caudal and anal fins are separated..... .....…….2

2-a) One pairs of barbels are present or no.....(CYPRINIDAE) …….....3

b) Three pairs of barbels are present.....(BALITORIDAE)….. 12

3-a) There is no barbel.....4

b) There are one pairs of barbels.....……..…8

4-a) A narrow double streak extends along the lateral line ……..…*Alburnoides bipunctatus*

b) No double streak along the lateral line.....5

5-a) Pharyngeal teeth are uniserial.....6

b) Pharyngeal teeth are biserial.....7

6-a) There is a considerable dark band originating from behind the eye and continuing to the base of the caudal fin and anal fin has 6-7 branched rays …...……..*Pseudophoxinus kervillei*

b) There isn't a dark band originating from behind the eye and continuing to the base of the caudal fin and anal fin has 14-16 branched rays……...……*Acanthobrama marmid*

7-a) There are more than 60 scales in the lateral line and posterior margin of the anal fin is straight ……*Alburnus sellal*

b) There are less than 50 scales in the lateral line and posterior margin of the anal fin is convex.....*Squalius cephalus*

8-a) The adhesive disc under head is present …….....……*Garra variabilis*

b) The adhesive disc under head isn't present.....9

9-a) Posterior edges of the last unbranched ray of the dorsal fin are smooth ……*Carasobarbus luteus*

b) Posterior edges of the last unbranched ray of the dorsal fin are serrated..... 10

10-a) Dorsal fin has more than 11 branched rays ….....*Cyprinion macrostomus*

b) Dorsal fin with less than 11 branched rays.....….11

11-a) The head and body are covered with small and distinctive black spots …… *Capoeta trutta*

b) The head and body aren't co…vered with black spots…….……*Capoeta damascina*

12-a) Caudal pedunkul is moderately slim and caudal fin deeply forked.……..…13

b) Caudal pedunkul is flat and caudal fin is straight or very shallow forked ..……..…..14

13-a) There are usually 9-11 spots on the line lateral ……..……*Barbatula frenata*

b) There are many spots on the whole body ……..…… Nemacheilus insignis

14-a) Caudal fin is straight, dorsal adipose crest almost extend posterior to the level of the dorsal fin……*Paracobitis malapterura*

b) Caudal fin is very shallow forked and dorsal adipose crest don't extend posterior to the level of the dorsal fin ……..…...*Paracobitis tigris*

Family: Cyprinidae

Acanthobrama marmid Heckel, 1843

According to the characteristics of the 18 specimens analysed; body is deep and lateraly compressed. Dorsal fin has 3 unbranched rays and 8 branched rays. The last unbranched ray of dorsal fin is thickened and smooth. Anal fin has 3 unbranched rays and 14-16 branched rays. There are 65 to 70 scales in the lateral line. The position of mouth is terminal. Pharyngeal teeth in one rows are represented by 5-5. Head lengh is bigger than head deep which is bigger than head width. There are tubercles on the head in males. Peritoneum is black. The standart length is ranged between 8.0-14.0 cm. Body morphometric rations are showed in Table 1.

Squalius cephalus (Linnaeus, 1758)

According to the characteristics of the 15 specimens analysed; the back clour is metallic blue-green. Ventral sides are silvery-white. Dorsal fin has 3 unbranched rays and 8 branched rays. Anal fin is convex and it has 3 unbranched rays and 8 branched rays. There are 38 to 42 scales in the lateral line. Pharyngeal teeth in two rows are represented by 2,5-5,2. The standart length is ranged between 13.2-15.0 cm. Body morphometric rations are showed in Table 1.

Alburnus sellal Heckel, 1843

According to the characteristics of the 35 samples analysed; the back colour is metallic blue-green. Lateral and ventral sides are silvery-white. Dorsal fin has 3 unbranched rays and 8 branched rays. Anal fin has 3 unbranched rays and 11-13 branched rays. There are 62-72 scales in the lateral line. The position of mouth is terminal. Pharyngeal teeth in two rows are represented by 2,5-5,2. A dark or lead-coloured band originating from behind the eye and continuing to the base of the caudal fin. The standart length is ranged between 6.4-10.6 cm. Body morphometric rations are showed in Table 1.

Capoeta trutta (Heckel, 1843)

According to the characteristics of the 15 specimens analysed; the back anterior to the dorsal fin is compressed and deep. Dorsal fin has 3-4 unbranched rays and 8-9 branched rays. The last unbranched ray of the dorsal fin is strongly ossified and its posterior edges are serrated. Anal fin has 3 unbranched rays and 5 branched rays. There are 68-80 scales in the lateral line. Pharyngeal teeth in three rows are represented by 2,3,4-4,3,2. The head and body are covered with small and distinctive black spots. Head lengh is bigger than head deep which is bigger than head width. Mouth is inferior position, with one pairs of short barbels. There are breeding tubercles around the snout. The peritoneum is dark. The standart length is ranged between 7.8-12.8 cm. Body morphometric rations are showed in Table 1.

Capoeta damascina (Valenciennes, 1842)

According to the characteristics of the 15 samples specimens; while the back and flank colour are brownish while belly is yellowish. Dorsal fin has 3-4 unbranched rays and 8-9 branched rays. The last unbranched ray of the dorsal fin is ossified and its posterior edges are serrated. Anal fin has 3 unbranched rays and 5 branched rays. There are 64-78 scales in the lateral line. Pharyngeal teeth in three rows are represented by 2,3,4-4,3,2. Mouth is inferior position, with one pairs of short barbels. The standart length is ranged between 10.5-18.0 cm. Body morphometric rations are showed in Table 1.

Cyprinion macrostomus Heckel, 1843.

According to the characteristics of the 31 samples specimens; body is deep and lateraly compressed. The back clour is bluish-grey, flanks silvery and belly is whitish with silvery tints. Dorsal fin with 4 unbranched and 14-16 branched rays. Posterior edges of the last unbranched ray of the dorsal fin is serrated. The anal fin has 3 unbranched and 7 branched rays. There are 36-42 scales in the lateral line. Mouth is inferior position, with one pairs of short barbels. Pharyngeal teeth in three rows are represented by 2,3,4-4,3,2. There are large breeding tubercles on the snout. The standart length is ranged between 8.0-13.0 cm. Body morphometric rations are showed in Table 1.

Carasobarbus luteus (Heckel,1843)

According to the characteristics of the 12 specimens analysed; body is deep and lateraly compressed. Dorsal fin has 4 unbranched and 10 branched rays. Posterior edges of the last unbranched ray of dorsal fin is smooth and sharp edged. Anal fin has 3 unbranched and 6 branched rays. There are 25-29 scales in the lateral line. Head lengh is bigger than head deep which is bigger than head width. The mouth is subterminal position, with one pair of short and thin barbels. Pharyngeal teeth in three rows are represented by 2,3,5-5,3,2. The standart length is ranged between 5.5-10.2 cm. Body morphometric rations are showed in Table 1.

Garra variabilis (Heckel, 1843)

According to the characteristics of the 75 specimens analysed; dorsal fin has 3 unbranched and 8 branched rays. Anal fin has 2 unbranched and 5 branched rays. There are 32-38 scales in the lateral line. The mouth is ventral position, with single pair of barbels. Adhesive disc is weakly developed on the under head surface. Pharyngeal teeth in three rows are represented by 2,3,5-5,3,2. The flanks may be have large dark spots. There is a black spot at the caudal fin base. The lateral line may occasionally have a double row of black spots. Peritoneum is black. The standart length is ranged between 6.8-11.5 cm. Body morphometric rations are showed in Table 1.

Alburnoides bipunctatus (Bloch, 1872)

According to the characteristics of the 8 specimens analysed; the back and head clour are dark green. Dorsal has with 3 unbranched and 8 branched rays. Anal fin has 3 unbranched rays and 12-14 branched rays. There are 42-52 scales in the lateral line. A narrow double streak extends along the lateral line. Pharyngeal teeth in two rows are represented by 2,5-5,2. The standart length is ranged between 4.0-6.0 cm. Body morphometric rations are showed in Table 1.

Pseudophoxinus kervillei (Pellegrin, 1911)

According to the characteristics of the 7 specimens analysed; the body is compressed and the mouth is terminal or subterminal position. There is a considerable dark band originating from behind the eye and continuing to the base of the caudal fin. Dorsal fin has 3 unbranched and 8 branched rays. Anal fin has 3 unbranched rays and 6-7 branched rays. There are 40-48 scales in the lateral line. Pharyngeal teeth in one rows are represented by 5-4. The origin of the pelvic fins is always in front of dorsal fin origin. Posterior margin of the dorsal fin and anal fin is straight. The standart length is ranged between 4.0-5.5 cm. Body morphometric rations are showed in Table 1.

Family: Balitoridae

Paracobitis tigris (Heckel, 1843)

According to the characteristics of the 25 specimens analysed; dorsal fin has 3 unbranched and 8 branched rays. Anal fin has 3 unbranched rays and 5-6 branched rays. The body and caudal peduncle are deep. The caudal fin has a very shallow fork and its lobes are rounded. Body is marked with 12 to 15 vertical bands. The standart length is ranged between 4.5-7.5 cm. Body morphometric rations are showed in Table 1.

Nemacheilus insignis (Heckel, 1843)

According to the characteristics of the 36 specimens analysed; dorsal fin has 3 unbranched and 8 or in general 9 branched rays. Anal fin has 3 unbranched rays and 5 branched rays. Pectoral fin has 9 branched rays and pelvic fin has 5-6 branched rays. Caudal fin is deeply forked. There are many spots on the whole body. The standart length is ranged between 4.1-6.7 cm. Body morphometric rations are showed in Table 1.

Barbatula frenata (Heckel, 1843)

According to the characteristics of the 12 specimens analysed; overall colour is yellowish and there are usually 9-11 irregular brown dots on the lateral line, some dots being quite large. Scales are present over the whole body. Dorsal fin has 3 unbranched and 8 branched rays. Anal fin has 3 unbranched rays and 5 branched rays. Pectoral fin has 9-11 branched rays and pelvic fin has 6-7 branched rays. A black band is continuous from the front of one eye, across the snout and round to the other eye. The standart length is ranged between 5.1-6.1 cm. Body morphometric rations are showed in Table 1.

Paracobitis malapterura (Valenciennes, 1846)

According to the characteristics of the 6 specimens analysed; dorsal fin has 3 unbranched and 7-8 branched rays. Anal fin has 3 unbranched rays and 5 branched rays. Pectoral fin has 10-12 branched rays and pelvic fin has 6-7 branched rays. The dorsal and anal fins are concave while caudal fin are almost straight. A well developed dermal crest is present both dorsally and ventrally on the caudal peduncle. Dorsal crest extend posterior to the level of the dorsal fin and there are 4-5 row of dark dots on the dorsal crest. Body is marked with 10 to 13 vertical bands. The standart length is ranged between 4.8-6.6 cm. Body morphometric rations are showed in Table 1.

Mastecembalidae

Mastacembelus mastacembelus (Bank & Solender, 1794)

According to the characteristics of the 15 specimens analysed; body very elongate and compressed. Scales is very minute, but covering the whole body. Dorsal, caudal and anal fins are combined.

They have no ventral fin. The origin of the anal fin is always in front of dorsal fin origin. There are 70-82 soft dorsal rays after 32-34 spine which located between dorsal fin and the head, and 72-80 soft anal rays after 3 spine which seen in front of the anal fin. Predorsal distance is 60-70 % in standart lenght. There are well-developed sharp teeth on the jaws and three leveled salient flesh on the brink of the nose. Body is marked with 18-22 bars running from the dorsal to ventral across the flank. The standart length is ranged between 14.8-37.5 cm. Body morphometric rations are showed in Table 1.

Table 1. The morfometric rations of fish examined.

Species	S.L./B.D.	S.L./H.L.	B.D./B.	H.L./E.D.
A. marmid n=18	3.2-3.5 3.41±0.09	3.6-4.0 3.78±0.10	2.0-2.5 2.21±0.14	3.2-4.0 3.56±0.25
S. cephalus n=15	3.7-4.5 4.06±0.23	3.5-3.8 3.60±0.12	1.3-1.6 1.44±0.07	4.3-5.3 4.88±0.29
A. sellal n=35	3.7-4.5 4.16±0.26	3.7-4.4 4.06±0.17	2.0-2.5 2.19±0.18	3.2-4.0 3.56±0.21
C. trutta n=15	3.4-4.3 3.77±0.22	3.8-4.6 4.17±0.2	1.5-2.1 1.77±0.15	4.0-5.3 4.59±0.38
C. damascina n=15	3.7-4.6 4.24±0.30	4.0-4.6 4.30±0.25	1.3-1.8 1.50±0.20	3.5-4.7 4.0±0.28
C.macrostomus n= 31	3.9-4.5 4.19±0.16	3.1-3.6 3.42±0.15	1.3-1.7 1.46±0.11	4.4-5.7 5.06±0.37
C. luteus n=12	3.1-3.7 3.43±0.21	3.4-3.9 3.70±0.16	2.1-2.5 2.31±0.12	3.1-4.0 3.60±0.06
P. kervillei n=8	3.4-4.0 3.66±0.20	3.6-4.3 3.87±0.2	1.8-2.2 1.96±0.12	2.8-3.7 3.21±0.10
G. variabilis n=75	3.5-4.5 3.97±0.26	3.9-5.4 4.71±0.3	1.4-1.7 1.53±0.1	4.0-5.0 4.45±0.1
A. bipunctatus n=7	3.5-4.7 4.24±0.35	3.2-4.4 3.85±0.3	2.3-2.7 2.50±0.27	3.2-3.6 3.38±0.65
N. insignis n=36	4.5-5.5 4.99±0.27	4.1-4.6 4.36±0.11	1.2-1.7 1.46±0.15	4.3-5.0 4.64±0.24
P. tigris n=25	5.6-6.6 6.20±0.30	4.2-4.6 4.40±0.25	1.3-1.6 1.40±0.15	4.8-5.7 5.30±0.28
B. frenata n=12	4.7-5.8 5.41±0.3	3.8-4.5 4.35±0.18	1.2-1.6 1.37±0.15	6.9-7.7 7.45±0.32
P. malapterura n=6	5.1-5.6 5.28±0.18	4.2-4.6 4.40±0.19	1.2-1.7 1.40±0.20	5.1-5.8 5.45±0.20
M.mastacembelus n=15	8.7-12.4 10.49±1.32	5.7-8.6 7.06±1.02	1.3-1.5 1.38±0.06	10.0-14.3 11.82±0.22

DISCUSSION AND CONCLUSION

As result of this study; *Acanthobrama marmid*, *Alburnus sellal*, *Squalius cephalus*, *Capoeta trutta*, *Capoeta damascina*, *Carasobarbus luteus*, *Cyprinion macrostomus*, *Garra variabilis*, *Pseudophoxinus kervillei*, *Alburnoides bipunctatus* beloning to Cyprinidae, *Nemacheilus insignis, Barbatula tigris, Barbatula frenata, Paracobitis malapterura* beloning to Balitoridae and *Mastacembelus mastacembelus* beloning to Mastecembalidae were identified. The morphological characters of *Carasobarbus luteus* from these species are similar to the findings of Geldiay and Balık [2],

Karaman [12], Kuru [14] and Örün [21] while it is different from the Bostancı [29]. Acording to Bostancı, posterior edges of the last unbranched ray of the dorsal fin are serrated. Number of scales in lateral line are 33-37 .

There are two pairs of barbels at the mouth corner and lobes on the lower lip. In the present study, it is seen that posterior edges of the last unbranched ray of dorsal fin is smooth and there are 25-29 scales in lateral line. Also, there are one pairs of short barbels at the mouth corner and no lobes on the lower lip. P*seudophoxinus kervillei* is endangered, *Alburnoides bipunctatus* and *Squalius cephalus* is LR/Ic on the 2007 IUCN Red List of Threatened Species [50]. Acording to Fricke *et al*. [37],

Cyprinion macrostomus is endangered, *Mastacembelus mastacembelus* is critically endangered, *Barbatula frenata* is near threatened, *Carasobarbus luteus* and *Alburnoides bipunctatus* is vulnerable in Turkey. Because of using the water from Balıksuyu Stream for irrigation and connecting this water via a canal to Seve Dame which suplies the drinking water to Kilis province, this stream completely dry in the summer months. This situation will adversely affect the current species of fish, especially putting some species in the IUCN Red List category under danger of extinction.

REFERENCES

[1] Uğurlu, S., Polat, N. 2008. Fish Fauna of the Karaabdal Stream (Samsun-Turkey), Turkish Journal of Fisheries and Aquatic Sciences 8: 121-124.

[2] Geldiay R., Balık S. 1996. Freshwater Fishes of Turkey, Ege University, Faculty of Science Serie, 532 pp.

[3] Richardson, J. 1856. On some fishes from Asia Minor and Baletsine, Proc. Zool. Sec. London, Tome 24: 371-376

[4] Steindachner, F. 1897. Bericht über die von Dr. Escherich in der Umgebung von Angora gesammelten Fische und Reptilien, Denkschr. Math. Nat. Kl. Akad. Wiss.Wien, 64: 685- 699

[5] Hanko, B. 1924. Fische aus Klein-Asien, Mus. Nat. Hung., 21: 137-158

[6] Pellegrin, J. 1928. Les Poissons des eaux douces d'Asie-Mineure.Voyage Zool. d'Henri Gadeau de Kerville en Asie-Mineure 2: 134.

[7] Kosswig, C. 1939. Faunengeschichte der Bosphorus region, Cr. Ann. et. Arch. Soc. Turque Sci. Phys. et. Nat.VII.

[8] Battalgil, F. 1942. Contribution à la connessance des poissons des aeux douces de la Turquie, Rev. Fas. Sci. Istanbul, Serie B, Tome VII, 4: 287-306.

[9] Sözer, F. 1942. Les Cypridontides de la Turquie, Rev. Fac. Sci. Univ. Istanbul, Ser. B, Tome 7, 4: 307-316.

[10] Ladiges, W. 1960. Süsswasserfische der Türkei, 1. Teil, Cyprinidae. Mitt. Hamburg Zool. Mus. Inst., Band. 58: 105-150.

[11] Banarescu, P., Nalbant, T. 1964. Süsswasserfische der Türkei, 2. Teil., Cobitidae, Mitt. Hamburg Zool. Mus. Inst.Band, 61: 159-201.

[12] Karaman, L.S. 1971. Süsswasserfische der Türkei, Teil. 8 Revision der Barben Europas, Vorderasiens und Nordafrikas, Mitt. Hamburg Zool. Mus. Inst., Band 67: 175-254.

[13] Balık, S. 1974. The Studies on Taxonomical and Ecological of Freshwater Fish the West Anatolia. Ege Üniv. Fen Fak. İlmi Raporlar. No:23. İzmir.

[14] Kuru, M. 1975. Dicle-Fırat, Kura-Aras, Van Gölü ve Karadeniz Havzası Tatlısularında Yaşayan Balıkların (*Pisces*) Sistematik ve Zoocoğrafik Yönden İncelenmesi, Associated Prof. Thesis, Erzurum: Atatürk University, 186 pp.

[15] Ekingen, G., Sarıeyyüboğlu M. 1981. Fishes of Keban Dam Lake, J.of Veterinary Faculty., VI (Suppl.1-2), 7-22 (in Turkish).

[16] Erk'akan, F., Kuru, M. 1982. Systematical Researches on the Sakarya Basin Fishes, Hacettepe Bull. of Nat. Sci.and Eng., 9:15-24.

[17] Erdemli, A.Ü. 1982. Fishes of Beysehir Lake, Bulletin of Selcuk University, Faculty of Sciences, No: 2-B: 131-142 (in Turkish).

[18] Ünlü, E., Bilgin, I. H. 1987. A taxonomic Study on the Fish Species in Balıklıgöl (Sanlıurfa), Journal of Aquatic Products, University of İstanbul, 1(1): 139-156.

[19] Küçük, F., İkiz, R. 1993. An İnvestigation on the Fishes in Branches of Aksu Stream (Antalya), Tr J of Zool., 4: 427-443 (in Turkish).

[20] Erdemli, A.Ü., Kalkan, E. 1996. A faunistic Study on the Fishes of Tohma Stream, Tr. J. of Zoology, 20 (153): 153–160 (in Turkish).

[21] Örün, İ. 1996. Çat Baraj Gölüne Dökülen Abdülharab ve Bulam Çayı Balıklarının Taksonomik Yönden Araştırılması, Msc thesis (in Turkish).

[22] Uğurlu Helli, S., Polat, N. 2002. An Investigation on Fish Fauna of the River Mert (Samsun), Turk. J of Zool., 26, 63-75.

[23] Dağlı, M., Erdemli, A.Ü. 2003. A Taxonomic Study on the Fish of Şiro Stream, XII. National Fisheries Symposium , 216-221, Elazığ (in Turkish).

[24] Kuru, M. 2004. Recent Systematic Status of Inland Water Fishes of Turkey, Gazi Üniversitesi, Eğitim Fakültesi Dergisi, 24(3): 1-21 (in Turkish).

[25] Barlas, M., Dirican, S. 2004. The Fish Fauna of the Dipsiz-Çine (Muğla-Aydın) Stream, Gazi University, Journal of Science, 17 (3): 35-48.

[26] Turan, D., Verep, B., Şahin, C., İmamoğlu, H.O. 2004. Hopa Çayı'nda Yaşayan Balıklar Üzerine Bir Araştırma. Türk Sucul Yaşam Dergisi, 4: 96-99 (in Turkish).

[27] Özuluğ, M., Altun, Ö., N., Meriç. 2005. On the Fish Fauna of Lake İznik Turkey Tr J. of Zool., 29: 371-375.

[28] Balık, S., Ustaoğlu, M.R., Sarı, M.H., İlhan, A., Topkara, E.T. 2005. Yuvarlakçay (Köyceğiz, Muğla)'ın Balık Faunası, Ege Üniversitesi, Su Ürünleri Dergisi, 22 (1-2): 221-223 (in Turkish).

[29] Bostancı, Z. 2006. Seyhan, Ceyhan ve Asi Nehirlerinde Yaşayan Balıkların Sistematik Yönden İncelenmesi, Msc thesis (in Turkish).

[30] Onaran, M.A., Özdemir, N., Yılmaz, F. 2006. The Fish Fauna of Esen Stream (Fethiye- Mugla), International Journal of Science and Technology, 1 (1): 35-41.

[31] Yılmaz, F., Barlas, M., Yorulmaz, B., Özdemir, N. A. 2006. Taxonomical Study on the Inland Water Fishes of Muğla, E.U. Journal of Fisheries & Aquatic Sciences, 23 (1-2): 27-30 (in Turkish).

[32] Turan, D., Kottelat, M., Ekmekçi, G., İmamoğlu, H.O. 2006. A review of *Capoeta tinca*, with descriptions of two new species from Turkey (Teleostei: Cyprinidae). *Revue Suisse de Zoologie*, 113 (2): 421-436.

[33] Uğurlu, S. and Polat, N. 2006. Fish Fauna of the River Miliç, Ege University Faculty of Science, J. Of Fisheries and Aquatic Sci., 23 (3–4): 441-444 (in Turkish).

[34] Küçük, F. (2007). *Pseudophoxinus alii* (Teleostei: Cyprinidae), a New Fish Species from the Antalya Region, Turkey, Turk J Zool 31: 99-106

[35] Küçük, F., Gümüş, E., Gülle, İ., Güçlü. S.S. 2007. The Fish Fauna of the Göksu River (Türkiye): Taxonomic and Zoogeographic Features, Turkish Journal of Fisheries and Aquatic Sciences 7: 53-63.

[36] Erk'akan, F., Nalbant, T.T. and Özeren, S.C. 2007. Seven New Species of *Barbatula,* three new species of *Schistura* and a new species of *Seminemacheilus* (Ortariophysi: Balitoridae: Nemacheilinae) from Turkey, J. of Fisheries International, 2 (1): 69-85.

[37] Fricke, R., Bilecenoglu, M., Sari, H. M. 2007. Annotated checklist of fish and lamprey species (Gnathostomata and Petromyzontomorphi) of Turkey, including a Red List of hreatened and declining species. Stuttgarter Beiträge zur Naturkunde. Serie A (Biologie). No. 706: 1-174.

[38] Özdemir, N., Yılmaz, F., Yorulmaz, B. 2007. Dalaman Çayı Üzerindeki Bereket Hidro- Elektrik Santrali Baraj Gölü Suyunun Bazı Fiziko-Kimyasal Parametrelerinin ve Balık Faunasının Araştırılması, Ekoloji, 16 (62): 30-36.

[39] Uğurlu, S. and Polat, N. 2007. Fish Fauna in the Taşkelik River (Alaçam-Samsun), Istanbul University Faculty of Fisheries, Journal of Fisheries and Aquatic Sci., 20: 17-35 (in Turkish).

[40] Uğurlu, S. and Polat, N. 2007. Exotic Fish Species İnhabiting in Freshwater Sources within the Province of Samsun, Journal of FisheriesSciences.com, 1(3): 139-151 (in Turkish).

[41] Uğurlu, S. and Polat, N. 2007. Determination of the Ichtyofauna in the Terme Stream (Terme-Samsun), Turkish J. of Aquatic Life, 5–8: 342-355 (in Turkish).

[42] Uğurlu , S., Polat, N. 2007. Ichthyofauna of Çakmak Dam Lake (SAMSUN), Science and Eng. J of Fırat Univ., 19 (4): 443-448 (in Turkish).

[43] Uğurlu, S. and Polat, N. 2008. The Fish Species İnhabiting in the Engiz Stream (Samsun-Turkey), International J. of Natural and Engineering Sci., 2(1): 97-99.

[44] Polat, N., Uğurlu, S., Kandemir, Ş. 2008. Fish Fauna of Lower Kızılırmak Basın (Samsun- Turkey), Journal of FisheriesSciences.com, 2 (3): 489-498 (in Turkish).

[45] Turan, D., Taş, B., Çelik, M., Yılmaz, Z. 2008. Fish Fauna of the Lower Part of River Melet (Ordu,Turkey), Journal of FisheriesSciences.com, 2(5): 698-703.

[46] Yeğen, V., Balık, S., Bilçen, E., H.M., Sarı, Uysal, R., Yağcı, A. 2008. Fish Species of Streams in Denizli Provinces and Their Distribution (Turkey), Journal of FisheriesSciences.com, 2 (3): 301-311 (in Turkish).

[47] Torcu Koç, H. Türker-Çakır, D., Ulunehir, G. 2008. An Investigation in Fish Fauna Ikizcetepeler Dam Lake (Balıkesir), Turkey, Journal of Applied Biological Sciences 2 (2): 63-67.

[48] Dağlı, M. 2008. The Fish Fauna of Kınacık Brook and Afrin Stream (Kilis, Turkey), Journal of FisheriesSciences.com, 2 (4): 632-638 (in Turkish).

[49] Dağlı, M., Erdemli, A.Ü. 2008. A Taxonomical Study on the Fish of Sabun Suyu and Deliçay Stream (Kilis, Turkey), International Journal of Science & Technology, 3 (1): 19-25.

[50] URL. International Union for Conservation of Nature and Natural Resources, 2007 Red List of Threatened Species, http://www.iucnredlist.org