

The Fish Species Inhabiting in the Engiz Stream (Samsun-TURKEY)*

Selma UĞURLU^{1*} Nazmi POLAT²

¹ Sakarya University, Faculty of Arts and Science, Department of Biology 54187 Adapazarı/SAKARYA

² Ondokuz Mayıs University, Faculty of Arts and Science, Department of Biology 55139 Kurupelit/SAMSUN

*Corresponding Author
e-mail: ugurlu@sakarya.edu.tr

Received: October 06, 2007
Accepted: December 12, 2007

Abstract

The research was conducted to find out the fish species inhabiting in the Engiz Stream between May 2004 and August 2005. As a result of evaluated individuals caught from study area, 12 species and 2 subspecies belongs to 5 families (Cyprinidae, Balitoridae, Mugilidae, Pomatomidae and Gobiidae) were identified. The systematic characters of each species were explained.

Key words: The Engiz Stream, ichthyofauna, biodiversity, freshwater.

INTRODUCTION

Turkey comprises three different biogeographic areas: Europe-Siberia, Iran-Turan and Mediterranean [1]. Ecosystem diversity in geographical regions and ecotones in our land is conspicuous, and this richness reflects the biological structure. 11.000 plant, 120.000 invertebrate, 20 amphibian, 93 reptile, 454 bird species belongs to Kingdoms Plantae and Animalia have been described until now [1]. A total of 236 freshwater fish species and nearly 500 marine fish species have been reported from our land [2, 3]. Consequently, Turkey has a continent specialty more than a country from the point of view of biodiversity.

Samsun has important potential with regard to fisheries and the aquaculture sector owing to 213 km coastline, 4.411 ha natural lake, 17.289 ha dam lake, 28.144 ha pond and 4.615 ha surface area of stream [4, 5]. The purpose of present study is determination ichthyofauna of the Engiz Stream has not been investigated on account of fisheries so far today.

MATERIALS AND METHODS

The investigation area is located in Ondokuzmayıs about 35 km. northwest of Samsun province [6], and it's geographical coordinates are 35°50'-36°05' east longitudes, 41°20'-41°30' north latitudes. It rises in the hillsides of Kocadağ and Nebyan Mountain altitudes of 1395 m, flows respectively to southeast-northwest, southwest-northeast and empties into the Black Sea [7]. The Engiz Stream with a drainage basin of 155 km², is approximately 30 km long [6].

The specimens examined in present study were collected from different stations which could be represented features of the stream (Figure 1). Various equipments whose activities changed according to environment and fish species were used during study time.

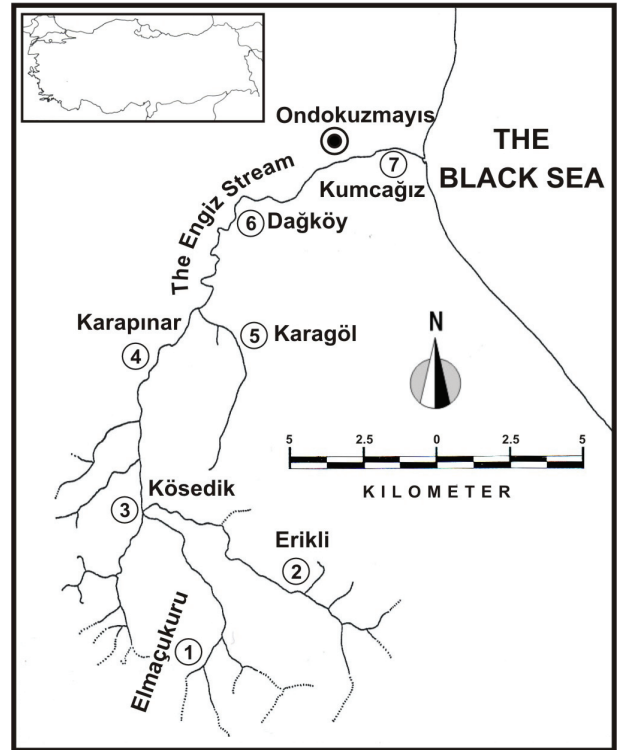


Figure 1. The research area

Many references [8–15] were used in order to identify in level of family, genus, species and to determine the systematic positions of fishes inhabiting in the stream.

The abbreviations using for the body ratios and meristic characteristics of fishes: **TL:** Total length **SL:** Standart length **BD:** Body depth **HL:** Head length **ED:** Eye diameter **ID:** Interorbital distance **D:** Dorsal fin **V:** Ventral fin **A:** Anal fin **P:** Pectoral fin **L.lat.:** Lateral line scales **L.tran.:** Line transversal

* It is prepared from Selma UĞURLU's doctorate theses supervised by Prof. Dr. Nazmi POLAT.

scales **Sq**: Number of scales on a line between the back of the head and the beginning of the caudal fin in the fish without lateral line **PT**: Pharyngeal teeth **PC**: Number of pyloric caeca (finger-like pouches connected with the alimentary canal) **N**: Specimen number.

RESULTS

As a result of evaluation of totally 293 specimens obtained from the stations showed in Figure 1, twelve species and two subspecies belonging to five families are identified. Morphometric measurements and meristic counts of fish species are given below according to findings.

Family: Cyprinidae

Barbus tauricus Kessler, 1877

Terra typica: The Salgır River, Crimea, Ukraine

Turkish name: Bıyıklı balık

Diagnostic findings: SL: 58-132 mm. SL/BD: 4.59-5.26 SL/HL: 3.68-4.23 HL/ED: 3.75-5.71 HL/ID: 2.86-4.29 ID/ED: 1.23-1.55 D: IV (7) 8 A: III 5 P: I (14) 15-16 (17) V: II (7) 8 (9) L.lat.: 53-60 (65) L.tran.: 11-14/7-9 (10) PT: 2.3.4-4.3.2 N: 70.

Chalcalburnus chalcoides (Güldenstädt, 1772)

Terra typica: The Terek River, Russia

Turkish name: Tuna inci balığı

Diagnostic findings: SL: 31-82 mm. SL/BD: 4.73-5.47 SL/HL: 4.17-4.58 HL/ED: 2.47-3.15 HL/ID: 3.58-4.67 ID/ED: 0.67-0.85 D: III (7) 8 (9) A: III 13-14 P: I (14) 15-16 (17) V: II 8-9 L.lat.: 60-70 L.tran.: 11-12 (13)/3 (4) PT: 2.5-5.2 N: 39.

Capoeta tinca (Heckel, 1843)

Terra typica: The Nilüfer Stream, Turkey

Turkish name: Siraz balığı

Diagnostic findings: SL: 86-153 mm. SL/BD: 4.40-5.00 SL/HL: 4.17-4.52 HL/ED: 3.87-4.51 HL/ID: 2.36-2.91 ID/ED: 1.35-1.72 D: IV (7) 8 A: III 5 P: I (16) 17-20 V: II (7) 8 (9) L.lat.: 67-89 L.tran.: 13-17/9-14 PT: 2.3.4-4.3.2 N: 85.

Leuciscus cephalus (Linnaeus, 1758)

Terra typica: South Europe

Turkish name: Tatlı su kefalı

Diagnostic findings: SL: 84-156 mm. SL/BD: 4.31-4.77 SL/HL: 3.68-4.05 HL/ED: 3.75-4.05 HL/ID: 2.56-3.00 ID/ED: 1.26-1.78 D: III (7) 8 A: III 7-8 P: I (14) 15-16 (17) V: II (7) 8 (9) L.lat.: 42-45 L.tran.: 7-8.5/3-4 PT: 2.5-5.2 N: 20.

Rhodeus sericeus (Pallas, 1776)

Terra typica: The Onon River, Russia

Turkish name: Acı balık

Diagnostic findings: SL: 42-46 mm. SL/BD: 3.00-3.09 SL/HL: 4.42-4.49 HL/ED: 2.50-2.73 HL/ID: 2.38-2.63 ID/ED: 1.04-1.05 D: III 9 A: III 10-11 P: I 10-11 V: II 7 L.lat.: 7-10 L.tran.: 6/5 PT: 5-5 N: 2.

Vimba vimba (Linnaeus, 1758)

Terra typica: Lakes of Sweden

Turkish name: Söğüt balığı, Eğrez balığı

Diagnostic findings: SL: 96-105 mm. SL/BD: 3.95-4.08 SL/HL: 3.93-4.02 HL/ED: 3.12-3.42 HL/ID: 3.14-3.17 ID/ED: 1.04-1.08 D: III 8 A: III 16-18 P: I 15-16 V: II 9-10 L.lat.: 54-56 L.tran.: 9-10/5 PT: 5-5 N: 3.

Family: Balitoridae

Orthrias angorae angroae (Steindachner, 1897)

Terra typica: Ankara, Turkey

Turkish name: Çöpçü balığı

Diagnostic findings: SL: 48-51 mm. SL/BD: 6.28-7.49 SL/HL: 4.36-4.49 HL/ED: 4.19-4.96 HL/ID: 4.19-4.22 ID/ED: 1.00-1.17 D: III 7-8 A: III 5 P: I 9-10 V: II 6-7 N: 2.

Orthrias brandti banarescui Delmastro, 1982

Terra typica: Kocaçay (Devrekâni), Turkey

Turkish name: Çöpçü balığı

Diagnostic findings: SL: 53-59 mm. SL/BD: 7.29-8.67 SL/HL: 4.68-4.69 HL/ED: 4.61-5.00 HL/ID: 4.39-4.61 ID/ED: 1.00-1.14 D: III 8 A: III 5 P: I 9 V: II 6-7 N: 2.

Family: Mugilidae

Liza aurata (Risso, 1810)

Terra typica: Nice, France

Turkish name: Sarıkulak, Altınbaş kefal

Diagnostic findings: SL: 116-121 mm. SL/BD: 5.02-5.27 SL/HL: 4.33-4.43 HL/ED: 3.52-4.12 HL/ID: 2.52-2.76 ID/ED: 1.28-1.63 D₁: IV D₂: I 8 A: III 9 P: II 15 V: I 5 Sq: 47-52 PC: 8 N: 2.

Liza saliens (Risso, 1810)

Terra typica: Nice, France

Turkish name: İlyarya, Mavraki

Diagnostic findings: SL: 121-175 mm. SL/BD: 4.83-4.97 SL/HL: 4.07-4.58 HL/ED: 3.89-4.16 HL/ID: 2.53-2.83 ID/ED: 1.47-1.58 D₁: IV D₂: I 8 A: III 9 P: II 15-16 V: I 5 Sq: 53-56 PC: 7-8 N: 4.

Mugil cephalus Linnaeus, 1758

Terra typica: European Sea, Europe

Turkish name: Has kefal

Diagnostic findings: SL: 124 mm. SL/BD: 4.47 SL/HL: 3.73 HL/ED: 3.64 HL/ID: 2.52 ID/ED: 1.40 D₁: IV D₂: I 8 A: III 9 P: II 15 V: I 5 Sq: 42 PC: 2 N: 1.

Family: Pomatomidae

Pomatomus saltatrix (Linnaeus, 1766)

Terra typica: Carolina, U.S.A

Turkish name: Defne Yaprığı, Çinekop, Sarıkanat, Lüfer, Kofana

Diagnostic findings: SL: 86-106 mm. SL/BD: 3.66-4.15 SL/HL: 3.30-3.31 HL/ED: 3.71-4.44 HL/ID: 4.40-4.73 ID/ED:

0.79-0.94 D₁: VIII D₂: II 22-24 A: III-IV 22-25 P: II 14 V: I 5
L.lat.: 92-104 N: 3.

Family: Gobiidae

Neogobius fluviatilis (Pallas, 1814)

Terra typica: Mouths of rivers entering Black Sea, Caspian Sea

Turkish name: Tatlı su kaya balığı

Diagnostic findings: SL: 36–116 mm. SL/BD: 5.51–6.23
SL/HL: 3.40–3.62 HL/ED: 4.08–5.49 HL/ID: 8.02–10.57 ID/
ED: 0.46–0.62 D₁: VI D₂: I 15–16 A: I 13–14 P: 17–18 V: I 5
Sq: 56–64 N: 17.

Neogobius melanostomus (Pallas, 1814)

Terra typica: Sivastopol, Balaklava, Crimea

Turkish name: Kum kaya balığı, Benekli kaya balığı

Diagnostic findings: SL: 29–113 mm. SL/BD: 4.17–4.79
SL/HL: 3.44–3.88 HL/ED: 3.20–4.79 HL/ID: 5.50–7.39 ID/
ED: 0.46–0.76 D₁: VI D₂: I 14–15 A: I 11–13 P: 17–19 V: I 5
Sq: 45–51 N: 43.

DISCUSSION

It was not determined considerable dissimilarity between data recorded in similar researches and our diagnostic findings. Samples of *Pomatomus saltatrix* not widespread in freshwater, were captured from mouth of the Engiz Stream.

There is no study related to the fish fauna of the Engiz Stream. It is one of the major rivers near Samsun, and provides a part of the protein requirements of the people in the area. Present study has been realized to determine the fish species of the Engiz Stream, to contribute to efforts seeking to benefit from fish with economic importance, and to assist similar future investigations. This research is significant due to inventories of freshwater fish in Turkey, that constitutes a ring of chain, as well.

The Engiz Stream area is rich with regard to fish species in spite of being small stream. It can be said that protection of this richness is important at least as much as determination.

REFERENCES

- [1] Yalınkılıç, M. K., 2007. Biyolojik Çeşitlilik Sözleşmesi 3. Ulusal Rapor, Çevre ve Orman Bakanlığı, Doğa Koruma ve Milli Parklar Genel Müdürlüğü, 136 s.
<http://www.cbd.int/doc/world/tr/tr-nr-03-tr.pdf> - (09.08.2007)
- [2] Kuru, M., 2004. Türkiye İçsu Balıklarının Son Sistematik Durumu, Gazi Üniversitesi Gazi Eğitim Fakültesi Dergisi, Cilt: 24, Sayı: 3, 1–21.
- [3] Mater, S. Kaya, M. ve Bilecenoğlu, M., 2002. Türkiye Deniz Balıkları Atlası, Ege Üniversitesi Su Ürünleri Fakültesi Yayınları No: 68, Yardımcı Ders Kitapları Dizini No: 11, Ege Üniversitesi Basımevi, Bornova-Izmir, 72 s.
- [4] Uzun, A., 2005. Samsun İli Kıyılarında Antropojenik Değişmeler, Türkiye Kuvaterner Sempozyumu, TURQUA-V, İTÜ Avrasya Yer Bilimleri Enstitüsü, 2–5 Haziran 2005, 183–190.
- [5] Anonymous., 2004. Samsun İl Çevre Durum Raporu, T.C. Çevre ve Orman Bakanlığı, Samsun Valiliği İl Çevre ve Orman Müdürlüğü, Samsun, 409 s.
- [6] Anonymous., 1992. Samsun-19 Mayıs (Balıca) İlçe Merkezinin Engiz Çayı Kıyı Oyuntusundan Korunması Ön İnceleme Raporu, T.C. Bayındırlık ve İskan Bakanlığı, Devlet Su İşleri Genel Müdürlüğü, DSİ VII. Bölge Müdürlüğü, Samsun, 23 s.
- [7] Anonymous., 1966. Samsun-Bafra-Balıca (Engiz) Köyü Arazisinin Engiz Deresi'nden Sulanmasına Ait İskişaf Raporu, T.C. Enerji ve Tabii Kaynaklar Bakanlığı, Devlet Su İşleri Müdürlüğü Etüt ve Plan Daire Başkanlığı, DSİ VII. Bölge Müdürlüğü, Samsun, 82 s.
- [8] Berg, L. S., 1964. Freshwater Fishes of the U.S.S.R. and Adjacent Countries, Academy of Sciences of the U.S.S.R. Zoological Institute, Guide to the Fauna of the U.S.S.R. Volume: II, Number: 29, Fourth edition, Translated from Russian, Israel Program for Scientific Translations, 504.
- [9] Berg, L. S., 1965. Freshwater Fishes of the U.S.S.R. and Adjacent Countries, Academy of Sciences of the U.S.S.R. Zoological Institute, Guide to the Fauna of the U.S.S.R. Volume: III, Number: 30, Fourth edition, Translated from Russian, Israel Program for Scientific Translations, 518.
- [10] Banarescu, P., Nalbant, T.: Süswasserfische der Türkei. 2. Teil: Cobitidae, Mitt.Hamburg. Zool. Mus. Inst. Band., 1964; 61: 159–201.
- [11] Kuru, M., 1980a. Türkiye Tatlısu Balıkları Katoloğu, Hacettepe Üniversitesi Fen Fakültesi Yayınları Yardımcı Ders Kitapları Dizisi, Seri: 12, Bölüm: 1, Sayı: 1, Hacettepe Üniversitesi Fen Fakültesi Basımevi, Beytepe, 73 s.
- [12] Kuru, M., 1980b. Key to the Inland Water Fishes of Turkey, Part I, II, III, Hacettepe Bulletin of Natural Sciences and Engineering, Volume: 9, 103–133.
- [13] Delmastro, G. B., 1982. Un Nuovo Cobite Dai Tributari Del Mar Nero In Asia Minore (Osteichthyes, Cobitidae), Riv. Piem. St. Nat. 3, 53–59.
- [14] Whitehead, P. J. P. Bauchot, M.-L. Hureau, J.-C. Nielsen, J. and Tortonese, E., 1986. Fishes of the North-eastern Atlantic and the Mediterranean, Volume II, III, United Nations Educational, Scientific and Cultural Organization (UNESCO), Paris, 956 p.
- [15] Fischer, W. Schneider, M. et Bauchot, M.-L., 1987. Mediterranee Et Mer Noire, Zone De Peche 37, Revision 1, Volume II, Vertebres, Fiches FAO D'identification Des Espèces Pour Les Besoins De La Peche, Rome, Page: 1105–1114, 1190- 1194.