

First records for the ichthyofauna of Samsun (Turkey)

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Abstract

The research was conducted to find out the fish species inhabiting in freshwater within Samsun province between June 2003 and September 2005. Totally 19 families (Anguillidae, Atherinidae, Balitoridae, Blennidae, Cobitidae, Cyprinidae, Cyprinodontidae, Esocidae, Gasterosteidae, Gobiidae, Mugilidae, Poeciliidae, Percidae, Pleuronectidae, Pomatomidae, Salmonidae, Siluridae, Soleidae, Syngnathidae) consist of 48 species and 5 subspecies were identified. Among these 53 taxa mentioned above, 14 species and 4 subspecies belongs to 13 families are new records for the ichthyofauna of Samsun.

Key words: Samsun, freshwater, fish, fauna, new record

INTRODUCTION

Turkey has been divided into 26 drainage basins and Samsun has been located between Kızılırmak and Yeşilirmak basins. Additionally Samsun, on the coast of the Black Sea with 213 km coastline [1], has 4.411 ha natural lake, 17.289 ha dam lake, 28.144 ha pond and 4.615 ha surface area of stream [2]. This important potential with regard to fisheries and the aquaculture sector has provided supplementary possibilities nourishment, employment, also economical and social developments. There are a few studies related to the freshwater ichthyofauna in the province of Samsun [3–7]. The aforementioned researchers investigate fish species captured from known water sources of this area. This study is realized to identify the fish species living in freshwater in the province of Samsun unsought for fishery before present study, to determine their systematical position and to addition on new findings with regard to geographical distribution in Anatolia.

MATERIALS AND METHODS

The study area from which fish samples were caught is showed Figure 1. Its geographical co-ordinates are 35°40'–36°05' east longitudes, 40°50'–41°00' north latitudes. Electroshocker, fishing cast net, fishing line, fisherman's dip net and fishing nets with different scales were used to catch fish samples. Many references were used to identify captured fishes [8–19].

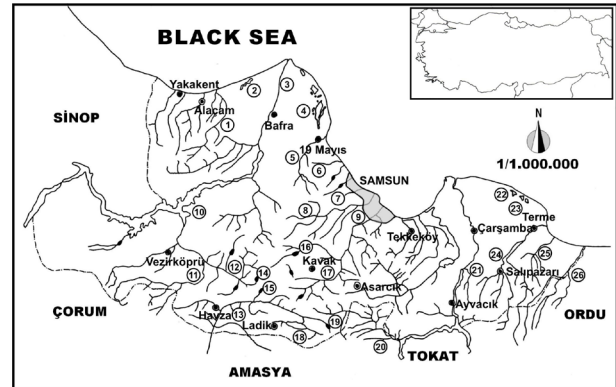


Figure 1. Map showing research area

1. Taşkelik Stream 2. Karaboğaz Lagoon 3. Kızılırmak River 4. Bafra Fish Lakes 5. Engiz Stream 6. Taflan Stream 7. University Pond I 8. Kürtün Stream 9. Mert River 10. Altinkaya Dam Lake 11. İstavloz Stream 12. Gamlık Stream 13. Tersakan Stream 14. Cevizlik Pond 15. Bekdiğin Pond 16. Divanbaşı Pond 17. Kavak Stream 18. Lake Ladik 19. Karaabdal Stream 20. Gökpinar Stream 21. Yeşilpınar Stream 22. Kargalı Lagoon 23. Simenit-Akgöl Lagoon 24. Terme Stream 25. Miliç River 26. Akçay Stream

The abbreviations used for the metric and meristic characteristics of fishes: **TL:** Total length **SL:** Standart length **BD:** Body depth **HL:** Head lenght **HW:** Haead width **HD:** Head depth **ED:** Eye diameter **ID:** Interorbital distance **PD:** Preorbiter distance **MD:** Muso depth **D:** Dorsal fin **V:** Ventral fin **A:** Anal fin **P:** Pectoral fin **C:** Caudal fin **L.lat.:** Lateral line scales **L.tran.:** Line transversal 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 **N:** Specimen number.

RESULTS

18 species belongs to 13 families (Anguillidae, Atherinidae, Balitoridae, Blennidae, Cobitidae, Cyprinidae, Gasterosteidae, Gobiidae, Mugilidae, Pomatomidae, Salmonidae, Soleidae, Syngnathidae) are recorded for the first time from Samsun. Body ratios and meristic counts of fish species, sampling areas and the number of specimens are given below.

Family: Anguillidae***Anguilla anguilla* (Linnaeus, 1758)**

TL: 394–750 mm. SL/BD: 15.48–16.25 SL/HL: 7.74–8.43 HL/ED: 8.13–10.86 HL/ID: 6.92–7.25 ID/ED: 1.12–1.57 D: 247–254 A: 183–194 P: 16–18 C: 10–11 N: Kızılırmak River (2).

Family: Cyprinidae***Petroleuciscus borysthenicus* (Kessler, 1859)**

TL: 123–161 mm. SL/BD: 3.39–4.32 SL/HL: 3.19–4.68 HL/ED: 3.06–3.67 HL/ID: 2.27–2.59 ID/ED: 1.22–1.53 D: III 7–8 A: III 9–10 P: I 12–15 V: II 7–8 L.lat.: 36–40 L.tran.: 7–8/3–4 PT: 2.5–5.2 N: Karaboğaz Lagoon (23).

***Pseudorasbora parva* (Temminck&Schlegel, 1842)**

TL: 52–64 mm. SL/BD: 4.04–4.47 SL/HL: 3.66–4.02 HL/ED: 2.44–3.00 HL/ID: 2.76–3.27 ID/ED: 0.75–1.00 D: III 7 A: III 6 P: I 12–13 V: II 7 L.lat.: 36–38 L.tran.: 6/4 PT: 5–5 N: Bekdiğın Pond (24).

***Carassius auratus auratus* (Linnaeus, 1758)**

TL: 117–252 mm. SL/BD: 2.33–2.79 SL/HL: 3.09–3.58 HL/ED: 3.17–3.82 HL/ID: 2.14–2.48 ID/ED: 1.26–1.58 D: (III) IV (17) 18–19 (20) (21) A: (II) III 5–6 P: I (14) 15–17 (18) V: II (7) 8 (9) L.lat.: (28) 29–31 (32) L.tran.: 6–7/6–7 PT: 4–4 N: Cevizlik (Hurdaz) Pond (61), Divanbaşı Pond (4), Üniversite Pond I (5).

Family: Balitoridae***Orthrias brandti banarescui* Delmastro, 1982**

TL: 47.30–87.00 mm. SL/BD: 5.68–6.57 SL/HL: 4.26–5.00 HL/ED: 3.69–4.50 HL/ID: 3.79–5.53 ID/ED: 0.83–1.12 D: III-IV 8–9 A: III 5 P: I 9–10 (11) V: (I) II (6) 7 N: Engiz Stream (2), Gamlık Stream (15), Gökpınar Stream (1), İstavloz Stream (5), Kavak Stream (14), Kürtün River (12), Mert River (4), Taşkelik Stream (5), Tersakan Stream (24).

***Orthrias angorae kosswigi* Erk'akan and Kuru, 1986**

TL: 65.5–105.8 mm. SL/BD: 4.58–6.42 SL/HL: 4.09–4.86 HL/ED: 4.01–4.97 HL/ID: 3.75–4.68 ID/ED: 0.88–1.12 D: III-IV 8 (9) A: III 5 P: I 9–10 V: II 6–7 N: Gamlık Stream (29), Lake Ladik (1), Mert River (11), Tersakan Stream (17).

***Barbatula eregliensis* (Banarescu & Nalbant 1978)**

TL: 62.3–92.0 mm. SL/BD: 5.90–7.34 SL/HL: 4.11–4.94 HL/ED: 4.37–5.52 HL/ID: 3.70–4.68 ID/ED: 1.00–1.44

D: IV 8 A: III 5 P: I (9) 10 (11) V: II (6) 7 (8) N: Gökpınar Stream (1), İstavloz Stream (2), Karaabdal Stream (94).

Family: Cobitidae***Cobitis splendens* Erkakan et al. 1998**

TL: 80–91.65 mm. SL/BD: 7.83–8.42 SL/HL: 5.40–5.68 HL/ED: 4.46–5.30 HL/ID: 9.53–10.42 ID/ED: 0.43–0.56 D: III 7 A: III 5 P: I 7–8 V: II 5–6 N: Taşkelik Stream (3).

Family: Salmonidae***Salmo trutta macrostigma* Dumeril, 1855**

TL: 73–212 mm. SL/BD: 4.94–5.96 SL/HL: 3.95–4.44 HL/ED: 2.29–3.31 HL/ID: 3.64–4.90 ID/ED: 0.49–0.89 D: IV-V 9–11 A: III-IV 7–8 (10) P: I 12–13 V: II 7–8 L.lat.: 113–120 PC: 52–62 N: Yeşilpınar Stream (15).

Family: Mugilidae***Mugil soiyu* Basilewsky, 1855**

TL: 390–415 mm. SL/BD: 5.14–5.71 SL/HL: 4.21–4.67 HL/ED: 4.97–5.65 HL/ID: 2.19–2.40 ID/ED: 2.11–2.40 HW/HD: 1.13–1.22 D₁: IV D₂: I 7–8 A: II-III 8–9 P: I-II 14–16 V: I 5 Sq: 42–46 N: Bafra Fish Lakes (3), Karaboğaz Lagoon (1).

Family: Atherinidae***Atherina boyeri* Risso, 1810**

TL: 55–110 mm. SL/BD: 5.74–6.76 SL/HL: 4.15–4.90 HL/ED: 2.19–2.63 HL/ID: 3.48–4.82 ID/ED: 0.58–0.71 D₁: VII-IX D₂: II 9–11 A: II 12–14 P: II 12–14 V: I 5 Sq: 45–50 N: Altinkaya Dam Lake (5), Kargalı Lagoon (1), Simenit-Akgöl Lagoon (3).

Family: Gasterosteidae***Gasterosteus aculeatus* Linnaeus, 1758**

TL: 12–29 mm. SL/BD: 4.29–4.92 SL/HL: 3.11–3.67 HL/ED: 2.36–2.96 HL/ID: 4.13–5.68 ID/ED: 0.52–0.75 D: III (IV) 10–12 A: I 8–10 P: 10 V: I 1 (3) N: Kargalı Lagoon (23), Simenit-Akgöl Lagoon (20), Taflan Stream (8).

Family: Syngnathidae***Syngnathus acus* Linnaeus, 1758**

TL: 105–136 mm. SL/BD: 22.16–32.41 SL/HL: 6.17–7.64 HL/ED: 5.70–7.15 HL/ID: 11.22–15.05 ID/ED: 0.36–0.64 PD/MD: 5.55–7.53 HL/PD: 1.74–1.85 D: 32–36 A: 3 P: 11–13 C: 9–10 Preanal rings: 15–16 Tail rings: 36–39 Predorsal rings: 15–16 Subdorsal rings: 7–9 Postdorsal rings: 29–31 Rings of brood pouch located under tail: 17–18 N: Karaboğaz Lagoon (3), Kızılırmak River (2), Miliç (Kocaman) River (4).

Family: Pomatomidae***Pomatomus saltatrix* (Linnaeus, 1766)**

TL: 105–126 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: Engiz Stream (3).

Family: Gobiidae

***Neogobius constructor* (Nordmann, 1840)**

TL: 34–109 mm. SL/BD: 4.41–5.52 SL/HL: 3.33–4.32 HL/ED: 3.77–4.95 HL/ID: 9.12–12.66 ID/ED: 0.30–0.45 HW/HD: 1.07–1.33 D₁: (V) VI D₂: I 16–18 A: I 11–13 P: 17–19 V: I 5 Sq: 58–70 N: Akçay Stream (34), Terme Stream (6), Miliç (Kocaman) River (54).

***Pomatoschistus marmoratus* (Risso, 1810)**

TL: 36.5 mm. SL/BD: 5.07 SL/HL: 3.48 HL/ED: 3.67 HL/ID: 7.33 ID/ED: 0.50 HW/HD: 1.05 D₁: V D₂: I 9 A: I 8 P: 14 V: I 5 Sq: 34–35 N: Kargalı Lagoon (1).

Family: Blennidae

***Salaria fluviatilis* (Asso, 1801)**

TL: 36 mm. SL/HL: 4.31 HL/ED: 2.32 HL/ID: 6.55 ID/ED: 0.35 D: XIII 18 A: II 18 P: 14 V: I 3 N: Miliç (Kocaman) River (1).

Family: Soleidae

***Pegusa lascaris* (Risso, 1810)**

TL: 215 mm. SL/HL: 4.64 HL/ED: 6.18 HL/ID: 12 ID/ED: 0.51 (Upper (left) eye diameter is measured almost equally lower (right) eye diameter) D: 76 A: 58 P: 9 V: 5 L.lat.: 154 N: Kargalı Lagoon (1)

DISCUSSION

Samsun has favorable ecological conditions for growing a lot of fish species because of geographical location, suitable climate and freshwater potential. Fricke et al. [20] have reported 248 freshwater fish species from Turkey. Polat and Uğurlu [21] have recognized 53 fish species belonging to 19 families which are found in Samsun. Among these species already mentioned above, 18 new species belonging to 13 families have been added to the ichthyofauna of Samsun. Although the studies about redetermination of fish fauna and conservation of threatened species and subspecies have recently speeded up, in the present paper, first records from Samsun ichthyofauna is introduced.

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

A. anguilla, *S. t. macrostigma*, *M. so iuy*, *P. saltatrix*, *P. lascaris* having economic importance are fished by the people of the area illegally, unconsciously and excessively. As a result of these, the continuity their life has been threatened. Although fish species like *P. borysthenicus*, *P. parva*, *C. a. auratus*, *O. banarescui*, *O. kosswigi*, *O. eregliensis*, *C. splendens*, *A. boyeri*, *G. aculeatus*, *S. acus*, *N. constructor*, *P. marmoratus*, *S.*

fluviatilis have not economic importance, but they have tremendous importance in terms of biological richness and the food chain.

Consequently, Samsun is very lucky in terms of fish diversity. This richness should be protected from excessive fishing and pollution.

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