A Taxonomic Study on the Fish in the Basin of Büyükçekmece Dam Lake

Mufti ÖZULÜĞ
The Biology Department of Science Faculty, University of Istanbul, Istanbul-TURKEY

Abstract: This study was carried out to determine the fish fauna of the basin of Büyükçekmece Dam Lake and to study the taxonomic characteristics of the fish present.

As a result of examined the 586 specimens collected between April 1995 and September 1997, it was revealed that 23 fish species, including 4 subspecies, belonging to 10 families, were found in the basin of Büyükçekmece Dam Lake. This paper gives the diagnostic characteristics of these fish.

Key Words: Büyükçekmece Dam Lake, Fresh Water, Fish, Morphology, Taxonomy.

Introduction

This research was carried out to study the morphological features, which are required for taxonomic purposes, for the present fish species and to determine the latest state of the fish fauna in Büyükçekmece Dam Lake and the basin.

Büyükçekmece Dam Lake was created after an 11.40m-high wall was built in 1985 by DSI (State Water System Services Department) to supply fresh water for the city of Istanbul by cutting of the connection between Büyükçekmece Lake and the Sea of Marmara.

The Surface of the Dam-Lake of Büyükçekmece is 43 km², the size of overall volume totals 161 610 000 m³. The height of the dam is 11.40m, the crate code is 8.60m, the minimum water code is 0.75m and the standard water code is 6.30m (2). According to the measurements taken in February 1992, the maximum depth measured was 7.15m (3). The largest stream feeding the lake is Karasu Stream, which is connected with other streams, namely, the Akalan, the Delice, the Karamurad, the Tavşan and the Ayva. Others are the Keşliçiftliği, the Tahtaköprü, the Örcünlü, the Kestanelik and the Hamza.

Important ecological changes have occurred in the Lake since the connection between the lake and the sea has been cut, and consequently the lake has become a freshwater medium.

Two studies have been carried out on the fish of Büyükçekmece Dam Lake, and a total of 19 fish species have been indicated in this lake (3, 4).

It is necessary to discover the latest situation of fish fauna of the basin of Büyükçekmece Dam Lake, and to determine whether or not Perca fluviatilis, Linnaeus, 1758; Gobio gobio (Linnaeus, 1758); Leuciscus cephalus (Linnaeus, 1758), Barbus plebejus escherichi, Steindachner, 1897 are present or not. They are not mentioned in the latest studies but are indicated in former records from Büyükçekmece Lake and from the upper parts of the rivers connected to this lake. Moreover, it will be useful to examine the morphological features of fish in Büyükçekmece Dam Lake because no such study has been undertaken in the past.
Material and Methods

The samples examined in this study were taken in various areas in Büyükçekmece Dam Lake and in the Karasu, Örcünülü, Akalan and Tahtaköprü streams, reaching the lake, between April 1995 and September 1997 (Figure 1).

Two drift gill nets with mesh diameter of 9x9 mm and 12x12 mm, trammel nets of different mesh sizes, a cast-net, a scoop-net and fishing line were used to catch fish samples.

Materials obtained were fixed and preserved in 4.5% Formalin. Colour features of fish were examined in fresh specimens. Fin rays, lateral line scales, gill rakers and pharyngeal teeth, which are meristic characteristics necessary for determination of genus, species and subspecies of samples brought to the laboratory, were counted, and total length (TL), standard length (SL), fork length (FL), head length (LL') and interorbital distance (IO) from metric characteristics were measured (Figure 2).

Figure 1. The Basin of Büyükçekmece Dam-Lake

A millimetric scale board was used in the measurement of metric characteristics. The counting of meristic characteristics was carried out under stereoscopic binocular microscope, and 5-26 numbered references were used in determination of species of obtained samples.

Results

A total of 23 species, four of which were subspecies, belonging to 22 genera and 10 families were determined from the basin of Büyükçekmece Dam-Lake as a result of examining the obtained fish material.

The number of specimens, lengths and diagnostic characteristics of the fish and the localities and dates on which they were taken, were given below according to the family order of classification of Nelson (27).

Familia: Anguillidae

Anguilla anguilla (Linnaeus, 1758)

Material examined: No catch was achieved from this species during this study. According to information obtained from fishermen and other locals, large specimens of this species are very seldom encountered in the area.

Familia: Clupeidae

Clupeonella cultriventris cultriventris (Nordmann, 1840)


<table>
<thead>
<tr>
<th>Interorbital distance (IO)</th>
<th>Head length (LL')</th>
<th>Fork length (FL)</th>
<th>IO/LL'</th>
<th>LL'/LF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range 0.30-0.45</td>
<td>1.80-2.15</td>
<td>8.10-9.60</td>
<td>16.22-24.32</td>
<td>19.47-24.69</td>
</tr>
<tr>
<td>Mean 0.41</td>
<td>1.96</td>
<td>8.89</td>
<td>20.76</td>
<td>22.06</td>
</tr>
<tr>
<td>S.D. 0.04</td>
<td>0.10</td>
<td>0.52</td>
<td>1.72</td>
<td>1.34</td>
</tr>
<tr>
<td>S.E. 0.01</td>
<td>0.02</td>
<td>0.12</td>
<td>0.39</td>
<td>0.30</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dorsal fin rays</th>
<th>Anal fin rays</th>
<th>Pectoral fin rays</th>
<th>Pelvic fin rays</th>
<th>Gill rakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>A</td>
<td>B</td>
<td>A</td>
</tr>
<tr>
<td>Range 3-4</td>
<td>10-12</td>
<td>3-4</td>
<td>14-18</td>
<td>1</td>
</tr>
<tr>
<td>Mean 3.95</td>
<td>11.50</td>
<td>3.11</td>
<td>16</td>
<td>1</td>
</tr>
<tr>
<td>S.D. 0.51</td>
<td>0.69</td>
<td>0.32</td>
<td>1.20</td>
<td>0</td>
</tr>
<tr>
<td>S.E. 0.11</td>
<td>0.15</td>
<td>0.07</td>
<td>0.28</td>
<td>0</td>
</tr>
<tr>
<td>n 20</td>
<td>20</td>
<td>19</td>
<td>19</td>
<td>20</td>
</tr>
</tbody>
</table>

Diagnostic characteristics: Body laterally compressed. Mouth terminal. Head length 19.47-24.69% of fork length, average 22.06%, interorbital distance 16.22-24.32% of head length, average 20.76% (Table 1).

Gill rakers on the first arch 47-53. Medioventral line with keeled scales from throat to beginning of anal fin. Pelvic fins origin behind the vertical from the beginning of dorsal fin origin. Dorsal fin rays III-IV, 10-12; pectoral fin rays I, 12-14; pelvic fin rays II, 7; anal fin rays III-IV, 14-18 (Table 2). Hindmost two rays of anal fin elongate. Caudal base without elongated scale (ala). Colour: Body silvery-white. Fins colourless.

Familia: Cyprinidae

Cyprinus carpio Linnaeus, 1758

Material examined: Büyükçekmece Dam Lake, 15 October 1995, 4 specimens; 21 October 1995, 3 specimens. Size: 29.2-39.5 cm TL, for 7 specimens.

Diagnostic characteristics: Body oval-shaped, and more or less elongated. Scales large. Mouth terminal. Lips well developed and fleshy. Two pairs of barbels on the upper jaw. Gill rakers on the first arch 23-25. Pharyngeal teeth in triserial 1.1.3-3.1.1. Base of dorsal fin long. Dorsal fin rays III-IV, 18-22; pectoral fin rays I, 15-17, pelvic fin rays II, 7; anal fin rays III, 5-6 (Table 3). The last unbranched rays of the dorsal and anal fins are ossified and the rear edges serrated. Lateral line scales 36-37. Transversal scales 6/6-7. The cultivated form of this species, mirror carp, actually bears decreased number of scales compared to the wild carp. These are along the dorso-lateral line (under the dorsal fin base) on the caudal
A Taxonomic Study on the Fish in the Basin of Büyücekmece Dam Lake

Peduncle, pelvic, pectoral and anal fin bases and behind the operculum, the body high, the head small. Colour: Back of the wild carp silvery, laterals light silvery, abdomen greyish. Back of the mirror carp black, laterals brownish and the abdomen yelllowish.

**Carassius auratus gibelio** (Bloch, 1783)

Material examined: Büyücekmece Dam Lake, 4 August 1995, 1 specimen. Size: 15.5 cm TL, for 1 specimen.


**Vimba vimba tenella** (Nordmann, 1840)

Material examined: Büyücekmece Dam Lake, 24 June 1995, 2 specimens; 7 October 1995, 2 specimens. Size: 14.2-20.3 cm TL, for 4 specimens.


**Rhodeus sericeus** (Pallas, 1776)

Material examined: Büyücekmece Dam Lake, 22 April 1995, 11 specimens; 21 May 1995, 15 specimens; 24 June 1995, 74 specimens. Size: 5.5-7 cm TL, for 100 specimens.

Diagnostic characteristics: Body deep, laterally compressed. Scales large. Mouth small, and partly with ventral position. Gill rakers on the first arch 11-15. Pharyngeal teeth uniserial 5-5. Dorsal fin rays III, 8-9; pectoral fin rays I, 11-13; pelvic fin rays II, 7; anal fin rays III, 8-9 (Table 5). Beginning of anal fin at the middle level of dorsal fin. Female develops an ovipositor near the genital opening in spawing period. Caudal peduncle length 20.41-28.00% of standard length, average 23.71%. Lateral line incomplete. Lateral line scales 4-10 average 6.54. On the lateral line region 34-37 scales mean 35.87. Transversal scales 5-6/4-5. Colour: Back greenish. Ventral side silvery-white. A blue-green band from the base of caudal fin to the middle of the boy. Outside the

<table>
<thead>
<tr>
<th>Dorsal fin rays</th>
<th>Anal fin rays</th>
<th>Pectoral fin rays</th>
<th>Pelvic fin rays</th>
<th>Lateral line scales</th>
<th>Gill rakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>A</td>
<td>B</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>Range</td>
<td>3</td>
<td>7</td>
<td>16-18</td>
<td>1</td>
<td>15-17</td>
</tr>
<tr>
<td>Mean</td>
<td>3</td>
<td>17.25</td>
<td>16.00</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>S.D.</td>
<td>0</td>
<td>0.96</td>
<td>0.82</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>S.E.</td>
<td>0</td>
<td>0.48</td>
<td>0.41</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>n</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 3. Dorsal, pectoral, pelvic, anal fin rays (A: unbranched rays, B: branched rays), lateral line scales and gill rakers of *Cyprinus carpio*

<table>
<thead>
<tr>
<th>Dorsal fin rays</th>
<th>Anal fin rays</th>
<th>Pectoral fin rays</th>
<th>Pelvic fin rays</th>
<th>Lateral line scales</th>
<th>Gill rakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>A</td>
<td>B</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>Range</td>
<td>3</td>
<td>3</td>
<td>16-18</td>
<td>1</td>
<td>15-17</td>
</tr>
<tr>
<td>Mean</td>
<td>3</td>
<td>17.25</td>
<td>16.00</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>S.D.</td>
<td>0</td>
<td>0.96</td>
<td>0.82</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>S.E.</td>
<td>0</td>
<td>0.48</td>
<td>0.41</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>n</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 4. Dorsal, pectoral, pelvic, anal fin rays (A: unbranched rays, B: branched rays), lateral line scales and gill rakers of *Vimba vimba tenella*
spawning period males and females of the same colour. During spawing period lateral and ventral sides of males multicoloured.

**Rutilus rutilus** (Linnaeus, 1758)


---

**Scardinus erythrophthalmus** (Linnaeus, 1758)


Diagnostic characteristics: Body oval, laterally slightly compressed. Scales large. Mouth terminal. Gill rakers on the first arch 9-16. Pharyngeal teeth biserial 3.5-5.3 and 2.5-5.2, their tips curved and edges distinctly serrated. Dorsal fin and anal fin more or less same length. Dorsal fin origin behind the vertical from the posterior end of the Pelvic fin base. A marked kell between the pelvic fin and the anal fin origin. Dorsal fin rays III, 6-10; pectoral fin rays I, 13-17; pelvic fin rays II, 8-9; anal fin rays III, 8-11. Lateral line scales 37-42 (Table 7). Transversal scales 7-8/5-4. Colour: Back dark greenish. Ventral side silvery-white. Edges of scales with

---

<table>
<thead>
<tr>
<th>Dorsal fin</th>
<th>Anal fin</th>
<th>Pectoral fin</th>
<th>Pelvic fin</th>
<th>Lateral line</th>
<th>Gill</th>
<th>Caudal peduncle</th>
</tr>
</thead>
<tbody>
<tr>
<td>rays</td>
<td>rays</td>
<td>rays</td>
<td>rays</td>
<td>scales</td>
<td>rakers</td>
<td>length %</td>
</tr>
<tr>
<td>A</td>
<td>B</td>
<td>A</td>
<td>B</td>
<td>A</td>
<td>B</td>
<td>A</td>
</tr>
<tr>
<td>Range</td>
<td>3</td>
<td>8.9</td>
<td>3</td>
<td>8.9</td>
<td>1</td>
<td>11.3</td>
</tr>
<tr>
<td>Mean</td>
<td>3</td>
<td>8.81</td>
<td>3</td>
<td>8.56</td>
<td>1</td>
<td>11.37</td>
</tr>
<tr>
<td>S.D.</td>
<td>0</td>
<td>0.40</td>
<td>0</td>
<td>0.50</td>
<td>0</td>
<td>0.56</td>
</tr>
<tr>
<td>S.E.</td>
<td>0</td>
<td>0.05</td>
<td>0</td>
<td>0.07</td>
<td>0</td>
<td>0.07</td>
</tr>
<tr>
<td>n</td>
<td>57</td>
<td>57</td>
<td>57</td>
<td>57</td>
<td>57</td>
<td>57</td>
</tr>
</tbody>
</table>
black pigment. A large part of pelvic, pectoral, anal and caudal fins red.

**Leuciscus (Squalius) cephalus** (Linnaeus, 1758)


**Leuciscus (Squalius) borysthenicus** (Kessler, 1859)


**Tinca tinca** (Linnaeus, 1758)


---

### Table 8. Dorsal, pectoral, pelvic, anal fin rays (A: unbranched rays, B: branched rays), lateral line scales and gill rakers of *Leuciscus (Squalius) cephalus*  

<table>
<thead>
<tr>
<th>Dorsal fin rays</th>
<th>Anal fin rays</th>
<th>Pectoral fin rays</th>
<th>Pelvic fin rays</th>
<th>Lateral line scales</th>
<th>Gill rakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>A</td>
<td>B</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>Range</td>
<td>3</td>
<td>8</td>
<td>3</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>Mean</td>
<td>3</td>
<td>8</td>
<td>3</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>S.D.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>S.E.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>n</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

### Table 9. Dorsal, pectoral, pelvic, anal fin rays (A: unbranched rays, B: branched rays), lateral line scales and gill rakers of *Leuciscus (Squalius) borysthenicus*  

<table>
<thead>
<tr>
<th>Dorsal fin rays</th>
<th>Anal fin rays</th>
<th>Pectoral fin rays</th>
<th>Pelvic fin rays</th>
<th>Lateral line scales</th>
<th>Gill rakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>A</td>
<td>B</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>Range</td>
<td>3</td>
<td>8</td>
<td>3</td>
<td>8-10</td>
<td>1</td>
</tr>
<tr>
<td>Mean</td>
<td>3</td>
<td>8</td>
<td>3</td>
<td>9.27</td>
<td>1</td>
</tr>
<tr>
<td>S.D.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.59</td>
<td>0</td>
</tr>
<tr>
<td>S.E.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.22</td>
<td>0</td>
</tr>
<tr>
<td>n</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
</tbody>
</table>
**Chalcalburnus chalcoides** (Güldenstaedti, 1772)


**Gobio gobio** (Linnaeus, 1758)


Diagnostic characteristics: Body thin, elongate. Scales large. Mouth inferior, a pair of well developed barbels of the corner at the corner of mouth. Gill rakers on the first arch 3-4. Pharyngeal biserial 3.5-5.3. Dorsal fin origin before the vertical from the posterior end of the pelvic fin base. Dorsal fin rays III, 7; pectoral fin rays I, 12-15; pelvic fin rays II, 7-8; anal fin rays III, 6. Lateral line mediolateral and 40-42 scales (Table 12). Transversal scales 5-7/3-5. Height of the thinnest part of caudal peduncle longer than length of barbel. Colour: Back brown-green. Lateral sides of body with 8-10 large dark spots.

---

**Table 10.** Dorsal, pectoral, pelvic, anal fin rays (A: unbranched rays, B: branched rays), lateral line scales and gill rakers of *Tinca tinca*

<table>
<thead>
<tr>
<th>Dorsal fin</th>
<th>Anal fin</th>
<th>Pectoral fin</th>
<th>Pelvic fin</th>
<th>Lateral line</th>
<th>Gill rakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>rays</td>
<td>rays</td>
<td>rays</td>
<td>rays</td>
<td>scales</td>
<td>rakers</td>
</tr>
<tr>
<td>A</td>
<td>B</td>
<td>A</td>
<td>B</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>Range</td>
<td>3-4</td>
<td>8</td>
<td>3</td>
<td>15-17</td>
<td>2</td>
</tr>
<tr>
<td>Mean</td>
<td>3.08</td>
<td>8</td>
<td>3</td>
<td>16.60</td>
<td>2</td>
</tr>
<tr>
<td>S.D.</td>
<td>0.28</td>
<td>0</td>
<td>0</td>
<td>0.76</td>
<td>0</td>
</tr>
<tr>
<td>S.E.</td>
<td>0.06</td>
<td>0</td>
<td>0</td>
<td>0.15</td>
<td>0</td>
</tr>
<tr>
<td>n</td>
<td>25</td>
<td>25</td>
<td>25</td>
<td>25</td>
<td>25</td>
</tr>
</tbody>
</table>

**Table 11.** Dorsal, pectoral, pelvic, anal fin rays (A: unbranched rays, B: branched rays), lateral line scales and gill rakers of *Chalcalburnus chalcoides*

<table>
<thead>
<tr>
<th>Dorsal fin</th>
<th>Anal fin</th>
<th>Pectoral fin</th>
<th>Pelvic fin</th>
<th>Lateral line</th>
<th>Gill rakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>rays</td>
<td>rays</td>
<td>rays</td>
<td>rays</td>
<td>scales</td>
<td>rakers</td>
</tr>
<tr>
<td>A</td>
<td>B</td>
<td>A</td>
<td>B</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>Range</td>
<td>3-4</td>
<td>8</td>
<td>3</td>
<td>13-15</td>
<td>1</td>
</tr>
<tr>
<td>Mean</td>
<td>3.04</td>
<td>8</td>
<td>3</td>
<td>13.50</td>
<td>1</td>
</tr>
<tr>
<td>S.D.</td>
<td>0.19</td>
<td>0.27</td>
<td>0</td>
<td>0.58</td>
<td>0</td>
</tr>
<tr>
<td>S.E.</td>
<td>0.04</td>
<td>0.05</td>
<td>0</td>
<td>0.11</td>
<td>0</td>
</tr>
<tr>
<td>n</td>
<td>27</td>
<td>27</td>
<td>28</td>
<td>28</td>
<td>28</td>
</tr>
</tbody>
</table>

**Table 12.** Dorsal, pectoral, pelvic, anal fin rays (A: unbranched rays, B: branched rays), lateral line scales and gill rakers of *Gobio gobio*
spots. Ventral side grey-white. Dorsal, pectoral, caudal fins with brown spots.

**Barbus plebejus escherichi** Steindachner, 1897


Diagnostic characteristics: Body cylindrical. Scales small. Depth of head longer than width of head. Mouth inferior, crescentric. Lips well developed. Two pairs barbels in the corners of the mouth, at the tip of the snout. In the middle of the lower lip one well developed lobe. Gill rakers on the first arch 8. Pharyngeal teeth triserial 2.3.5.5.3.2. Last unbranched ray of dorsal fin with denticles. Dorsal fin rays III-IV, 7-8; pectoral fin rays I, 16-17; pelvic fin rays II, 8; anal fin rays III-V, 5. Lateral line scales 67-69 (Table 13). Transversal scales 14-16/9-10. Colour: Back dark-olive green, lateral and ventral sides light brown. Dorsal, anal, caudal fins and body with untidy dark spots.

**Familia: Cobitidae**

**Cobitis taenia** Linnaeus, 1758

Material examined: Büyükçekmece Dam Lake, 24 June 1995, 3 specimens; 21 September 1995, 7 specimens; 3 October 1995, 15 specimens. Size: 4-10, 6 cm TL, for 26 specimens.


**Familia: Siluridae**

**Silurus glanis** Linnaeus, 1758

Material examined: Büyükçekmece Dam Lake, 11 September 1997, 1 specimen: Size: 40.9 cm TL, for 1 specimen.


**Familia: Esocidae**

**Esox lucius** Linnaeus, 1758

Material examined: Büyükçekmece Dam Lake, 24 June 1995, 1 specimen; 4 August 1995, 1 specimen; 17

<table>
<thead>
<tr>
<th>Dorsal fin rays</th>
<th>Anal fin rays</th>
<th>Pectoral fin rays</th>
<th>Pelvic fin rays</th>
<th>Lateral line scales</th>
<th>Gill rakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>A</td>
<td>B</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>Range</td>
<td>3-4</td>
<td>7-8</td>
<td>3-5</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Mean</td>
<td>3.67</td>
<td>7.67</td>
<td>3.67</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>S.D.</td>
<td>0.58</td>
<td>0.58</td>
<td>1.16</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>S.E.</td>
<td>0.33</td>
<td>0.33</td>
<td>0.67</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>n</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 13. Dorsal, pectoral, pelvic, anal fin rays (A: unbranched rays, B: branched rays), lateral line scales and gill rakers of **Barbus plebejus escherichi**

<table>
<thead>
<tr>
<th>Dorsal fin rays</th>
<th>Anal fin rays</th>
<th>Pectoral fin rays</th>
<th>Pelvic fin rays</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>Range</td>
<td>3</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Mean</td>
<td>3</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>S.D.</td>
<td>0</td>
<td>0</td>
<td>0.20</td>
</tr>
<tr>
<td>S.E.</td>
<td>0</td>
<td>0</td>
<td>0.04</td>
</tr>
<tr>
<td>n</td>
<td>25</td>
<td>25</td>
<td>25</td>
</tr>
</tbody>
</table>

Table 14. Dorsal, pectoral, pelvic, anal fin rays (A: unbranched rays, B: branched rays), of **Cobitis taenia**
August 1995, 1 specimen, 7 October 1995, 3 specimens.

Size: 26.7-48.5 cm TL, for 6 specimens.


**Familia: Poeciliidae**

*Gambusia affinis* (Baird & Girard, 1853)

Material examined: Büyükçekmece Dam Lake, 4 August 1995, 15 specimens. Size: 3.2-4.7 cm TL, for 15 specimens.


**Familia: Gasterosteidae**

*Gasterosteus aculeatus* Linnaeus, 1758

Material examined: Büyükçekmece Dam Lake, 3 October 1995, 1 specimen. Size: 3.7 cm TL, for 1 specimen.


**Familia: Percidae**

*Perca fluviatilis* Linnaeus, 1758

Material examined: Karasu Stream, 17 October 1995, 1 specimen; Büyükçekmece Dam Lake, 1 October 1996, 1 specimen; 31 January 1997, 1 specimen. Size: 7.2-21.4 cm TL, for 3 specimens.


**Familia: Gobiidae**

*Neogobius melanostomus* (Pallas, 1811)

A Taxonomic Study on the Fish in the Basin of Büyükçekmece Dam Lake


*Proterorhinus marmoratus* (Pallas, 1811)

Material examined: Büyükçekmece Dam Lake, 14 September 1995, 10 specimens; 21 September 1995, 2 specimens; 3 October 1995, 4 specimens. Size: 2.7-4.3 cm TL, 16 specimens.


---

### Table 17. First dorsal, second dorsal, pectoral, pelvic, anal fin rays (D: spin rays, Y: soft rays), lateral line scales and gill rakers of *Perca fluviatilis*

<table>
<thead>
<tr>
<th>First dorsal fin rays</th>
<th>Second dorsal fin rays</th>
<th>Anal fin rays</th>
<th>Pectoral fin rays</th>
<th>Pelvic fin rays</th>
<th>Lateral line scales</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>D</td>
<td>Y</td>
<td>D</td>
<td>Y</td>
<td>D</td>
</tr>
<tr>
<td>Range</td>
<td>14-15</td>
<td>1-3</td>
<td>12-14</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Mean</td>
<td>14.33</td>
<td>2.33</td>
<td>13.00</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>S.D.</td>
<td>0.58</td>
<td>0.58</td>
<td>1.00</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>S.E.</td>
<td>0.34</td>
<td>0.34</td>
<td>0.59</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

### Table 18. First dorsal, second dorsal, pectoral, pelvic, anal fin rays (D: spin rays, Y: soft rays), lateral line region scales of *Neogobius melanostomus*

<table>
<thead>
<tr>
<th>First dorsal fin rays</th>
<th>Second dorsal fin rays</th>
<th>Anal fin rays</th>
<th>Pectoral fin rays</th>
<th>Pelvic fin rays</th>
<th>Lateral line region scales</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>D</td>
<td>Y</td>
<td>D</td>
<td>Y</td>
<td>D</td>
</tr>
<tr>
<td>Range</td>
<td>6</td>
<td>1</td>
<td>14-16</td>
<td>1</td>
<td>10-13</td>
</tr>
<tr>
<td>Mean</td>
<td>6.00</td>
<td>1.00</td>
<td>14.88</td>
<td>1</td>
<td>17.74</td>
</tr>
<tr>
<td>S.D.</td>
<td>0.00</td>
<td>0.00</td>
<td>0.81</td>
<td>0</td>
<td>0.68</td>
</tr>
<tr>
<td>S.E.</td>
<td>0.00</td>
<td>0.00</td>
<td>0.20</td>
<td>0</td>
<td>0.17</td>
</tr>
</tbody>
</table>

### Table 19. First dorsal, second dorsal, pectoral, pelvic, anal fin rays (D: spin rays, Y: soft rays), lateral line region scales of *Proterorhinus marmoratus*

<table>
<thead>
<tr>
<th>First dorsal fin rays</th>
<th>Second dorsal fin rays</th>
<th>Anal fin rays</th>
<th>Pectoral fin rays</th>
<th>Pelvic fin rays</th>
<th>Lateral line region scales</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>D</td>
<td>Y</td>
<td>D</td>
<td>Y</td>
<td>D</td>
</tr>
<tr>
<td>Range</td>
<td>6</td>
<td>1</td>
<td>14-17</td>
<td>1</td>
<td>12-14</td>
</tr>
<tr>
<td>Mean</td>
<td>6.00</td>
<td>1.00</td>
<td>15.88</td>
<td>1</td>
<td>13.25</td>
</tr>
<tr>
<td>S.D.</td>
<td>0.00</td>
<td>0.00</td>
<td>0.81</td>
<td>0</td>
<td>0.68</td>
</tr>
<tr>
<td>S.E.</td>
<td>0.00</td>
<td>0.00</td>
<td>0.20</td>
<td>0</td>
<td>0.17</td>
</tr>
</tbody>
</table>
**Knipowitschia caucasica** (Kawrjak, 1916)


Diagnostic characteristics: Body small, laterally compressed. Pelvic fins united into a sucking disk. Back naked to beginning of second dorsal fin. Anterior oculoscapular canal reaches the interorbital region to the nostrils. Posterior oculoscapular canal present. In the middle of the preopercular canal δ pore is absent. First dorsal fin VI rays; second dorsal fin rays I, 7-8; pectoral fin rays 13-18; pelvic fin rays I-10-I; anal fin rays I, 7-9. (Table 20). Caudal fin symmetric. Colour: Light. Ventral side white. Lateral sides with small spots for females.

<table>
<thead>
<tr>
<th>First dorsal fin rays</th>
<th>Second dorsal fin rays</th>
<th>Anal fin rays</th>
<th>Pectoral fin rays</th>
<th>Pelvic fin rays</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>D</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Range</td>
<td>6</td>
<td>1</td>
<td>7-8</td>
<td>1</td>
</tr>
<tr>
<td>Mean</td>
<td>6</td>
<td>1</td>
<td>7.92</td>
<td>1.75</td>
</tr>
<tr>
<td>S.D.</td>
<td>0</td>
<td>0</td>
<td>0.29</td>
<td>0.67</td>
</tr>
<tr>
<td>S.E.</td>
<td>0</td>
<td>0</td>
<td>0.08</td>
<td>0.20</td>
</tr>
<tr>
<td>n</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
</tr>
</tbody>
</table>

**Discussion**

When the literature about the fish of Büyükçekmece Dam Lake was examined, it was seen that Perca fluviatilis and Gobio fluviatilis, which are mentioned in Büyükçekmece Lake in Devedjian (28), occurred in none of the studies carried out in the lake in later years.

Moreover, Gobio gobio, mentioned in Balık (6), Gobio gobio intermedyus, Leuciscus cephalus and Barbus plebejus escherichi, mentioned in Geldiay and Balık (15) in the streams reaching the lake were also not encountered in the lake in later studies.

The purpose of this study was to determine whether or not the above-mentioned fish were present in the lake, and to examine the morphological characteristics of fish of the Dam-Lake of Büyükçekmece was intended.

This study mainly concentrated on the 4 fish species Perca fluviatilis, Gobio gobio, Leuciscus cephalus and Barbus plebejus escherichi, mentioned in former studies. One specimen of Perca fluviatilis was caught in Karasu Stream on 17.10.1995, and was also caught in Büyükçekmece Dam Lake in the years 1996 and 1997, and it was observed that it is caught in low amounts by fishermen. However, the other three species were not encountered in studies carried out in the Dam Lake. The research area was enlarged to include streams reaching Büyükçekmece Dam Lake, and these three fish species were encountered in the Karasu and the Akalan streams. These must be living in Büyükçekmece Dam Lake even though they were not encountered.

Leuciscus borysthenicus, Carassius auratus gibelio and Cyprinus carpio, encountered in this research, were given as new records for Büyükçekmece Dam Lake by Özuluğ and Meriç (4).

Anguilla anguilla could not be obtained, but according to fishermen and other locals, large specimens of this fish are seldom encountered.

Three subspecies of Rhodeus sericeus are known. These are Rhodeus sericeus amarus (Bloch, 1782), on the European side, and Rhodeus sericeus sericeus and Rhodeus sericeus sinensis, on the Eastern Asian side (7). The subspecies present Europe is Rhodeus sericeus amarus according to Berg (12), Slastenenko (19), Ladiges (16), Blanc (29), Geldiay and Balık (15).

The metric and meristic characteristics used in the distinction of Rhodeus sericeus and Rhodeus sericeus amarus according to Berg (12) are the following: Rhodeus sericeus; lateral line scales 5-10, mean 6.6; caudal peduncle length 22-26% of standard length, mean...
23.8%; *Rhodeus sericeus amarus*; lateral line scales 4-6, mean 5.2; caudal peduncle length 23-27.2% of standard length, mean 25.2%.

The metric and meristic features of the samples examined in this study and shown in Table 5 conform to *Rhodeus sericeus sericeus*. However, it does not seem possible that this subspecies, reported to be present in the basin of Northern China Amur, was able to reach to Europe by natural means.

Dorsal fin rays of *Rutilus rutilus* is II-III, 8-11 according to the literature. Dorsal fin rays are III-V, 7-11, according to 175 specimens examined from the Dam Lake (Table 6).

Gill rakers on the first arch of *Chalcalburnus chalcoides* are 19-25, according to Slastenenko (19), while they are usually 22-23 according to the literature. The number of gill rakers on the first arch was found to be 22-29 with a mean of 26.36±0.29 in the 28 specimens examined (Table 11).

In this study, the present situation of the ichthyofauna of Büyükçekmece Dam Lake was studied and a total of 23 species, 4 of which were subspecies, belonging to 10 families, was determined. Moreover, in this study diagnostic characteristics of fish of the Büyükçekmece Dam Lake were examined for the first time.

**References**

2. Oğuz, S., İstanbul’un İçte Suuyu Meselesi. ISKİ Haber, Alyık Yayın, 1. 1, ISKİ, 1985, İstanbul.