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SHORT COMMUNICATION KISA MAKALE

The translocation of a native fish for recreational purposes: First record of *Abramis brama* (Linnaeus, 1758) in Büyükçekmece Reservoir (İstanbul, Türkiye)

Yerli bir balığın rekreasyonel amaçlarla yer değiştirmesi: *Abramis brama* (Linnaeus, 1758) 'nın Büyükçekmece Rezervuarı (İstanbul, Türkiye)'ndan ilk kaydı

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Abstract: The present study documented the first record of the common bream, *Abramis brama* (Linnaeus, 1758), in the Büyükçekmece Reservoir (İstanbul, Türkiye). The fish were found to have been translocated into the reservoir by anglers from the native population of Lake Durusu (İstanbul). With this discovery, the number of fish species living in the reservoir has increased to 25.

Keywords: Bream, fish fauna, Leuciscidae, translocated species

Öz: Bu çalışma, Büyükçekmece Rezervuarı (İstanbul, Türkiye)'ndan çapak balığı *Abramis brama* (Linnaeus, 1758)'nın ilk kaydını sunmaktadır. Balıkların, Durusu Gölü (İstanbul)'nün yerli popülasyonundan balıkçılar tarafından rezervuara taşındığı tespit edilmiştir. Bu bulgu ile birlikte rezervuarda yaşayan balık türü sayısı 25'e yükselmiştir.

Anahtar kelimeler: Çapak balığı, balık faunası, Leuciscidae, taşınmış tür

INTRODUCTION

The intentionally translocation and introduction of a fish species into new habitats is usually done for the purpose of stocking, which helps to support fisheries, or for recreational and sport fishing. 'Translocation' refers to the transfer of a species from one part of a country where it is native to another part of the same country where it is not native, whereas 'introduction' is the reverse: it is the deliberate or accidental transfer and/or release, by direct or indirect human agency, of a species into geographical areas where the taxon is not native (Copp et al., 2005). Recreational anglers, in particular, are responsible for the direct or indirect transfer of many native species between neighbouring water systems or outside their native range (Pérez-Bote and Roso, 2014). However, even with good intentions, most translocated species can become naturalised in their new habitats and such activities can pose a major threat to native species or ecosystems (Pofuk et al., 2017).

Lake Büyükçekmece, which has undergone many changes in terms of its ecosystem characteristics from the past to the present, was turned into a reservoir in 1985 to meet the water needs of the growing population of the metropolis İstanbul. From being a lagoon used by 30 species, it has become a freshwater lake, especially where freshwater forms predominate with a relatively lower number of species (Meriç, 1986; Meriç, 1992; Özuluğ, 1999; Saç and Özuluğ, 2017). Fishing activities have led to the translocation and introduction of some native and non-native/invasive fish species into the lake. It was reported that *Silurus glanis* was first translocated here from Lake Durusu (İstanbul) in 1989, and in the following years, the non-native *Carassius gibelio* was introduced by fishermen from Kayalı Reservoir (Meriç, 1992; Özuluğ, 1999) and it has become one of the dominant fish species with its highly invasive characteristics (Saç and Okgerman, 2015). According to recent literature, the reservoir is currently home to 24 fish species, some of which are of marine origin (Özuluğ, 1999; Saç et al., 2015; Saç et al., 2016).

Here, we report for the first time *Abramis brama* as a new translocated species from the Büyükçekmece Reservoir.

MATERIALS AND METHODS

Fish samples were collected on two different dates, 23 February 2024 and 2 March 2024, from the gill nets (mesh size 60×60 mm) cast by a fisherman as part of another project (Scientific Research Projects Coordination Unit of İstanbul University with project number FYL-2023-40388; İstanbul University Local Ethics Committee for Animal Experiment

Decision with number: 2023/26) in the Büyükçekmece Reservoir (Figure 1). After immediate capture, fish specimens were transferred to the İstanbul University Biology Department Environmental Biology and Ecology Laboratory under cold conditions (+4°C). Fish samples were measured to the nearest 0.1 cm for total length (TL) and weighed to 0.01 g for body weight. Kottelat and Freyhof (2007) were used for species identification.

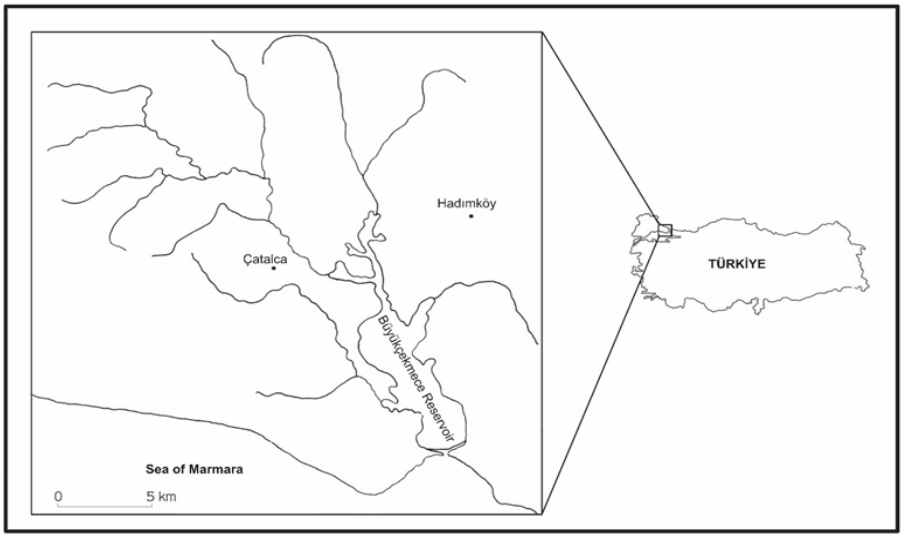

Figure 1. Map of Büyükçekmece Reservoir.

RESULTS AND DISCUSSION

In total, two individuals were caught in different dated samplings. The total length and weight of the fish caught in February were 44.5 cm and 1222.10 g, while the fish caught in March were 42.9 cm and 900.95 g (Figure 2). Interviews with anglers revealed that the fish had been introduced into the reservoir from Lake Durusu about ten years ago and had been caught frequently, especially in recent years. Considering both the date of translocation of the fish into the reservoir and the fishing gear used in the samplings, the size distribution of the individuals caught is within the expected range.

Figure 2. *Abramis brama*, 44.5 cm TL, Büyükçekmece Reservoir (İstanbul, Türkiye)

Abramis brama typically shows ontogenetic shifts in diet and habitat, from feeding on zooplankton in pelagic habitats to feeding on benthic invertebrates buried in the sediment (Persson and Brönmark, 2002). Therefore, this species can be very popular with fishermen as it can be ready to eat within a few years due to its rapid growth pattern which is observed especially in early ages (Tierney et al., 1999; Stankus, 2006; Adrović et al., 2009). It has been deliberately introduced into many countries outside its natural range because of its popularity in sport fishing and as a food source for commercial purposes (Tierney et al., 1999; Pino-del-Carpio et al., 2010). Apart from its native distribution range, this fish, which has been introduced to the Lake Baikal and upper Ob and Yenisei drainages (Kottelat and Freyhof, 2007), is thought to have been translocated to some reservoirs

(such as Hasan Uğurlu and Suat Uğurlu reservoirs and Güven Pond) in Türkiye, as well (Uğurlu, 2006).

There are no records of *A. brama* exhibiting invasive behaviour in the countries where it has been introduced but its impact mechanisms recognised as habitat and ecosystem alteration in Mexico (Pino-del-Carpio et al., 2010). Besides, it is inevitable that it can compete for food and habitat with native fishes (i.e. *Rutilus rutilus*, *Scardinius erythrophthalmus*) at similar trophic levels. Interviews with local anglers indicated that *A. brama* is represented in relatively low numbers in the reservoir in terms of catch values compared to other fishes. However, it is particularly necessary to monitor the population size of the species and its relationship with native fishes in the Büyükçekmece Reservoir, which is now a sensitive ecosystem due to periodic water withdrawals or regional droughts and the current invasive species (*C. gibelio* and *Gambusia holbrooki*).

In conclusion, the present study gives the first record of *A. brama* translocated to Büyükçekmece Reservoir. Commercial fishing is banned indefinitely in this reservoir, which is used as a source of drinking and utility water. However, angling continues throughout the year, which can make the reservoir an open area for fish introductions. It is therefore very important to increase inspections by the competent authority and to raise awareness among the local people in order to prevent the translocation or introduction of uninvited fish and to protect native biodiversity.

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AUTHORSHIP CONTRIBUTIONS

All authors contributed equally to the conception, laboratory work, and design of the study.

CONFLICT OF INTEREST STATEMENT

The authors declare they have no conflicts of interest.

ETHICS APPROVAL

According to the national guidelines for animal care, this study was conducted with the permission of İstanbul University Local Ethics Committee for Animal Experiments (Date: 04.09.2023, No: 2023/26).

DATA AVAILABILITY

All relevant data is in the article.

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