

A study on the Bioecological Characteristics of the Exotic Pumpkinseed (*Lepomis gibbosus*) Population in Gökpınar Dam Lake (Western Anatolia, Türkiye)

Gökpınar Baraj Gölü (Batı Anadolu, Türkiye)'ndeki Egzotik Güneş Levreği Popülasyonunun (*Lepomis gibbosus*) Biyo-Ekolojik Özellikleri Üzerine Bir Araştırma

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Abstract: This study was conducted to determine some bioecological characteristics of *Lepomis gibbosus* (L. 1758), commonly known as pumpkinseed sunfish, which spreads in Gökpınar Dam Lake (GDL) in Denizli Province. The fish samples were captured with an experimental seine net and multimesh gillnet from May 2019 to April 2020. During the samplings, certain physicochemical parameters of GDL were measured, habitat utilization, relations to environmental variables, feeding habits and interspecific interactions with other fishes of *L. gibbosus* individuals were observed. It is observed that GDL provides a suitable habitat for *L. gibbosus* in terms of water quality and other ecological requirements. A total of 1005 *L. gibbosus* individuals, consisting of 302 females, 605 males, and 98 juveniles, were sampled throughout the study, and biometric studies were conducted. In the population males were found to be dominant. The averages were determined as follows; total length as 5.82 ± 2.09 cm (2.46-11.34), weight as 4.94 ± 4.67 g (0.20-34.65), and condition factor as 1.71 ± 0.24 . The ages were determined between 0+ to II+ and Age-length relationship (VBGE) was estimated as $L_t = 19.85(1 - e^{-0.2744(t+0.272)})$. Spawning occurs between April and June in individuals at the age of I+. It has been observed that the species exhibits good growth rates in this habitat, displays opportunistic omnivorous feeding behavior, preys on another invasive alien species, *Gambusia holbrooki*, present in the lake, and competes with the same species for habitat sharing. It has been determined that *L. gibbosus* has formed a self-sustaining population in GDL, but it utilizes a limited lake area as its habitat. In conclusion, GDL is considered as a hydrologically unstable and highly variable habitat. *L. gibbosus* population of GDL exhibits significant similarities in terms of bioecological characteristics with populations that spread outside its natural spreading area. As *L. gibbosus* is an exotic fish and might be have invasive traits, it is necessary to monitor of the population regularly, and control measures should be taken to prevent its spread to other inland water bodies.

Keywords

- Age
- Growth
- Reproduction
- Feeding behavior
- Habitat adaptation

Özet: Bu çalışma, Denizli İli Gökpınar Baraj Gölünde (GBG) yayılım gösteren güneş levreği *Lepomis gibbosus* (L. 1758)'ün biyoekolojik özelliklerini belirlemek amacıyla yapılmıştır. Balık örnekleri Mayıs 2019-Nisan 2020 arasında deneysel ıgırıp ve uzatma ağlarıyla yakalanmış, örnekleme esnasında GBG'nün bazı fizikokimyasal parametreleri ölçülmüş, kaynağın kullanımı, çevresel değişkenler, bireylerin çevreyle etkileşimleri gözlemlenmiştir. GBG'nün *L. gibbosus*'un su kalitesi ve diğer ekolojik istekleri bakımından uygun bir habitat olduğu görülmektedir. Çalışmada 302 dişi, 605 erkek ve 98 juvenil toplam 1005 adet *L. gibbosus* bireyi üzerinde biyometrik çalışmalar yapılmıştır. Erkeklerin baskın olduğu görülen popülasyonda, ortalama toplam boy

Anahtar kelimeler

- Yaş
- Büyüme
- Üreme
- Beslenme davranışı
- Habitat uyumu

