

BREEDING ECOLOGY OF THE INVASIVE SPECIES *LEPOMIS GIBBOSUS* (CENTRARCHIDAE) IN THE RESERVOIRS OF THE LUGANSK PEOPLE'S REPUBLIC

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Abstract. Fish reproduction is an important part of their life cycle, ensuring the reproduction of populations and the preservation of species diversity. The quality and volume of population replenishment directly depend on the characteristics of the spawning population and the reproductive potential of individuals. Therefore, the aim of the article was to study the features of the variability of the life cycle of an invasive species of sunfish (*Lepomis gibbosus* L., 1758) in the reservoirs of the Lugansk People's Republic. The research was conducted in the spring and summer periods from May to September 2016-2023 in the basins of the Seversky Donets and Mius rivers. 410 sexually mature individuals were studied: There are 213 males and 198 females. In fish, we studied body length according to Smith, body weight, gonadal mass, and age according to generally accepted methods. The gonadosomatic index, individual absolute fertility, individual relative fertility, and the diameter of the eggs were determined. Histological sections of the calf joints were used to determine the type of spawning. All data was statistically processed using the MS Excel and Statistica 10 software packages. The appearance of gonads in fish was noted at the age of 1+ and puberty occurred by 2+. The ratio of males to females varies from 2:1 at the age of 1+ to 1:1 at the age of 2+ – 4+ and 1.5:1 at the age of 5+. The life expectancy of sunfish in recipient reservoirs is decreasing: in the native environment – 10 years, in other reservoirs – 8, in reservoirs of the Lugansk People's Republic – is reduced to 5+. The fertility of females increases with age and body weight from 830 eggs in 2+ to 1550 eggs in 5+. Fish spawning lasts from May to August at water temperature +17 – +28 °C. The gonadosomatic index of fish is maximal before spawning (23.3 %). 75–80 % of the females spawn annually. Thus, the sunfish species (*Lepomis gibbosus* L., 1758), having undergone some transformation of biological and morphological features in comparison with native reservoirs, successfully adapted to the ecological conditions of the reservoirs of the Lugansk People's Republic. This resulted in earlier puberty (1+ – 2+) and shorter life spans up to the age of 5+, reducing the number of spawning from 3 in native reservoirs to 2 in recipient reservoirs. The studied species retained a number of biological features peculiar to individuals in native reservoirs: weakly expressed sexual dimorphism in length and body weight, portioned and asynchronous spawning with 3 periods of spawning.

Keywords: Lugansk People's Republic, sunfish, life cycle, reproduction, spawning, alien species

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