

PHYTOPLANKTON OF RIVERS OF THE FOREST-STEPPE ZONE OF UKRAINE IN THE CONTEXT OF CLIMATE CHANGE ON THE EXAMPLE OF THE HUSKA RIVER (KHMELNYTSKY REGION)

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Introduction.

Phytoplankton play a key role in freshwater ecosystems, participating in biogeochemical cycling and performing critical functions in organic production as well as in the functioning of trophic chains. Species composition, biomass, and changes in them in planktonic communities are sensitive and rapid indicators of environmental changes, especially the degree of anthropogenic pressure, eutrophication, and global climate change, such as warming and other factors [2].

Aim.

In the context of climate change, triggered by human economic and military activities, freshwater ecosystems are under pressure due to rising temperatures, changes in water balance, transformation of the hydrological regime, increased frequency of droughts, and reduced ice cover. These factors directly affect seasonal changes in the trophic structure of phytoplankton, its species composition, and productivity. And in the Forest-Steppe zone of Ukraine, which is characterized by pronounced seasonal changes and increased climatic fluctuations, precisely provoked by climate change, the study of bioindicator communities of algae and individual species is of particular relevance and importance for the study of ecosystems in the region and the introduction of innovative solutions to support the environment. The aim of the study was to determine species richness and assess water quality by indicator species of phytoplankton in the Huska River.

Materials and methods.

The study was conducted during 2023-2023 in the Huska River, which is a tributary of the Khomora River and is located within the Shepetivka district of Khmelnytskyi region, Ukraine. Phytoplankton samples were collected at three control sites equidistant from each other and covering the upper, middle, and lower reaches of the study area. The river belongs to the typical watercourses of the Forest-Steppe zone. The river is 30 kilometers long and its catchment area is 98.8 square kilometers. It is a classic lowland river with a muddy bottom and a marshy floodplain in places. The valley in the upper reaches is generally narrow, but becomes wide and flat further downstream.

The riverbed has slight bends. There are also several ponds built on it [1]. It is poorly studied in terms of floristics, in particular, there is no information on phytoplankton in the available literature. Previous studies of small rivers in the Forest-Steppe of Ukraine indicate a potential change in the composition of the algal structure due to long-term changes in temperature, hydrological characteristics, and anthropogenic impact. The determination of the systematic (species) composition of algae was carried out according to well-known rules, taking into account the latest floristic summaries [4].

Results and discussion.

In total, 76 species and intraspecific taxa of algae were identified, including the nomenclatural type of species from the divisions: *Chlorophyta*, *Charophyta*, *Cryptista*, *Cyanobacteria*, *Dinoflagellata*, *Euglenozoa*, *Heterokontophyta*. According to the bioindicative characteristics in the water column of the Huska River, planktonic-benthic and planktonic forms prevailed, cosmopolitans in terms of geographical distribution, indifferent in terms of salinity and pH, euryamples in relation to organic pollution according to the Watanabe system, and β -mesosamples. The water quality of the studied watercourse corresponds to the third quality class.

Conclusions.

The data can be used for further monitoring of water ecosystems in the forest-steppe zone of Ukraine.

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