BIOECOLOGY AND NUTRITIONAL IMPORTANCE OF CRUSTACEANS (CRUSTACEA) FOUND IN TUDAKUL RESERVOIR

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This study focuses on the bioecological characteristics and nutritional importance of representatives of the class Crustacea inhabiting Tudakul Reservoir, located in the Bukhara region of Uzbekistan. Crustaceans are an important component of aquatic ecosystems and play a significant role in food chains, nutrient cycling, and the biological productivity of water bodies. The study considers the species composition, habitat conditions, seasonal dynamics, abundance, and ecological characteristics of crustacean communities in the reservoir. Particular attention is paid to their role as a food resource for fish and other aquatic organisms. The obtained information may contribute to a better understanding of the biological productivity and ecological condition of Tudakul Reservoir.

Keywords: Tudakul Reservoir, Crustacea, crustaceans, bioecology, zooplankton, aquatic ecosystem, food resources, fish nutrition, biodiversity.

Tudakul Reservoir is one of the important artificial water bodies of Uzbekistan and plays a significant role in the regional aquatic ecosystem. Like other reservoirs, it contains a diverse community of aquatic organisms, including representatives of zooplankton and benthic fauna. Crustaceans occupy an important position in aquatic food webs because they participate in the transfer of organic matter and energy from primary producers to higher trophic levels. Representatives of Crustacea, particularly small planktonic forms, can serve as an important food source for juvenile and adult fish. Their abundance and seasonal dynamics are closely associated with environmental factors such as water temperature, nutrient availability, oxygen concentration, hydrological conditions, and the development of phytoplankton. The study of crustacean communities in Tudakul Reservoir is therefore relevant for assessing the biological resources and ecological characteristics of the reservoir.

The study is based on the investigation of crustacean representatives occurring in different ecological zones of Tudakul Reservoir. Samples of aquatic organisms can be collected from the littoral and pelagic zones during different seasons of the year. Crustacean specimens are identified using morphological characteristics and appropriate taxonomic identification keys. The analysis includes determination of taxonomic composition, occurrence, relative abundance, seasonal changes, and habitat preferences. Environmental characteristics such as water temperature, transparency, and other available hydrochemical parameters are considered when evaluating the relationship between crustacean communities and environmental conditions. The nutritional importance of the identified crustaceans is assessed based on their position in aquatic food chains and their role as natural food for fish. Crustaceans represent an important biological component of the aquatic community of Tudakul Reservoir. Small crustaceans belonging to groups such as Cladocera and Copepoda may constitute a considerable part of zooplankton communities. These organisms are generally characterized by relatively high reproductive potential and rapid population development under favorable environmental conditions.

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From an ecological perspective, crustaceans occupy an intermediate position in the aquatic food web. Many species consume phytoplankton, bacteria, detritus, and other microorganisms and, in turn, are consumed by fish and other aquatic organisms. Thus, they contribute to the transfer of energy between lower and higher trophic levels. The nutritional importance of crustaceans is particularly significant for fish larvae and juveniles. Small zooplanktonic crustaceans are characterized by relatively high nutritional value and can provide proteins, lipids, minerals, and other biologically important substances required for fish growth and development.

Consequently, the abundance of crustaceans can influence the natural food availability and productivity of fish communities in the reservoir. The presence and abundance of crustaceans can also be considered an ecological indicator. Changes in their community structure may reflect alterations in water quality, eutrophication processes, organic enrichment, and other anthropogenic or natural environmental factors.

Crustaceans are an important component of the aquatic ecosystem of Tudakul Reservoir. Their ecological role is associated with participation in nutrient cycling, energy transfer, and formation of the natural food base for fish. The study of their species composition, abundance, seasonal dynamics, and ecological relationships provides valuable information for assessing the biological productivity and ecological condition of the reservoir.

Further comprehensive studies of crustacean biodiversity in Tudakul Reservoir, including quantitative sampling and molecular-taxonomic approaches, may provide more detailed information about the structure and functioning of its aquatic ecosystem. The obtained data can also be useful for developing recommendations for the rational use and conservation of biological resources of the reservoir.

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