PRELIMINARY ASPECTS CONCERNING STRUCTURE PLANKTON AND BENTHIC FAUNA IN THE DAM LAKE HORIA – TULCEA COUNTY

ASPECTE PRELIMINARE PRIVIND STRUCTURA PLANCTONULUI SI BENTOFAUNEI IN LACUL DE BARAJ HORIA - JUD.TULCEA

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The present study provides information about the structure and dynamics of plankton and benthic fauna in four stations, established in the symmetry axe of the lake, and numbered from the dam zone through the tail of the lake, where is in progress the first series of experiments concerning the intensive breeding of sturgeons spawn in the floatable fish well, which belongs to S.C. Kaviar S.R.L. Bucharest. The analyses data have roots from the works that are based on the samples taken in the period of year 2007 in the dam lake Horia, made through the baring of Taita river – Dobrogea.

Key words: plankton, phytoplankton, zooplankton, benthic fauna

Introduction

In the dam lake Horia, made through the baring of Taita river – Dobrogea, is in progress the first series of experiments concerning the intensive breeding of sturgeons spawn in the floatable fish well, witch belongs to S.C. Kaviar S.R.L. Bucharest.

The lake is located in the area of locality Horia, being limited to north, west and south by agricultural field, and the eastern limit is represented by the intercounty road 222 A. The surface of the lake is 230 ha, and the depth varies between 0.5 – 1 m in summer time in the foot rope zone; the maximum depth is of 3.962 m in the dam zone, were the floatable fish well are installed.

The incline of the ground permits the accumulation of the waters from the versants adjacent to the lake, with suspension contributions, fertilizers and herbicides used for the adjacent corn crop.
Materials and Methods

In the period of year 2007 were prelevated two sets of biological sample from 4 stations, established in the symmetry axle of the lake, and numbered from the dam zone through the tail of the lake, (picture1).

![Points of prelevation of biological samples](image)

Picture 1. Points of prelevation of biological samples

The biological samples were fixed in the ground with Lugol solution (phytoplankton) and formalin 40% (zooplankton), and the processing was made at the species level after the concentration through centrifugal action (1400 rot/min).

For the qualitative characterization of the plankton associations, it was made the analysis of the frequency and constant of the conditioned species. The analysis of the macro benthic fauna it was made at a species level after the washing and sorting of the benthos sample.

Results and Discussions

The microscopic analysis of the plankton samples relieved the following aspects:

**The phytoplankton** is weakly represented as number of taxa (9 - 23) and specimens in March. In the content of the phytoplankton predominates the diatoms (station 3) with the species *Cymbella cistula* and chlorophyceae (station 2 and 4) with the species *Monoraphidium contortum* and *Pediastrum boryanum*. In the fish well
area predominates *Cryptomonas marssonii* and the diatoms with the species *Synedra acus, Navicula rynchocephala, N. placentula*.

In July it can be seen the domination of the cyanophyceae (93-94) with the species *Aphanizomenon flos aquae* in all the analyzed samples.
The Zooplankton is constituted from a reduced number of species (4-11 species). The number of specimens varies between 769 – 1320 ex/m in March and July (tab. 2).

Figure 3. Density and structure of the zooplankton in the March 2007

Figure 4. Density and structure of the zooplankton in the July 2007
In both seasons it can be find the domination and constance of the copepods and rotifers in the structure of the animal association.

From the number point of view prevails the copepods with the species: *Cyclops strenuus* and *Eucyclops albidus* in different stages of development (juveniles) and rotifers with the species: *Brachionus diversicornis* and *Brachionus urceolaris*.

Figure 5. Density and structure of the benthic fauna in the March 2007

Figure 6. Density and structure of the benthic fauna in the March 2007
The benthic fauna is weakly represented in the first 3 stations.

In the structure of the benthic fauna were highlighted 2 species, the numerical weight being adjudged to the *Tubifex tubifex* in the winter period and to the chironomidae larvae in the summer period. The density of the species/mp indicates maximum values in station 4 in all the samples analyses.

Conclusions

The analysis of the phytoplankton points out the evolution of the density and of the structure of the association algae especially in the fish well area due to the growing of the temperature in the temperature in the summer period.

The explosive development of the cyanophyceae in the summer period (July) it is determined by the growth of the nutrients concentration in the fish well area, were the number of ex/ml exceeds the natural limit of the density of the see weed.

The number of the zooplankton taxa is reduced in the fish well area in July due to the inflorescence of the water with cyanophyceae and the intensification of the consumption.

The macrophyte vegetation represented by the species: *Phragmites communis* and *Typha latifolia* in station 4 encouraged the development of the benthonic fauna; witch registers a bigger density in the samples taken from this area.

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