CHANGES IN THE QUALITY OF WATER IN LASKÓ STREAM AND THE STORAGE LAKE BUILT ON IT AT EGERSZALÓK

B. ESTÓK and E. MILINKI

Service of Public Health and Epidemiology of County Heves,
"Ho Si Minh" Teachers' Training College, Eger

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Abstrakt

The investigations of Laskó stream were *carried out* in the period of 1984—1987 at Egerszalók and Újlőrincfalva; at the same time a detailed hydrobiological assessment was performed of Egerszalók storage lake set up by damming of Laskó stream.

The effect of the storage lake on the quality of water in Laskó stream has been studied. The water of Egerszalók storage lake is of eutrophic type. The compositional and seasonal changes of the phyto- and zooplankton were followed in consequence of its turning into dead-water. The dominant plankton species belonged to the group of organisms characteristic for dead-waters of high trofity. The richness of species in the storage lake till summer shows an increasing, later — a decreasing tendency. From the beginning of summer till early autumn the dominance of blue-green algae was observed. The shallow water provides favourable conditions for blooming of blue-green algae.

Two characteristic diversity minimal exist — one in winter and the other — in summer. Copepoda prevail in the zooplankton composition the whole year round. In abundance they are followed by Rotatoria and Cladocera. The effect of the storage lake can be detected at Egerszalók, at Újlőrincfalva the unfavourable factors are less perceptible, this is important since Laskó stream is a feed-water of Kisköre storage lake.

Introduction

Laskó stream takes its source in the mountain area between Bükk and Mátra, the spring being of a pronouncedly helokren type. Its watershed area measures 357 km², length — 30 km. It flows through a number of small settlements. Below Egerszalók it reaches the Great Hungarian Plain and at Újlőrincfalva flows into Kisköre storage lake. Its water regime fluctuates from water output of LKQ 200 l/sec till 1% of NQ, 103 m³/sec. The content of suspended matter is higher in the high lands and decreases downstream. The ionic type of the spring is $Ca—MgSO_4—HCO_3$, in the lower reaches — $Ca—HCO_3$ (ESTÓK, MILINKI and CUCSKAY 1984).

Egerszalók storage lake was built by damming up of Laskó stream in 1981. The distance of the storage lake from the town of Eger is 6 km. Its capacity is 4 180 000 m³, the useful capacity — 3 900 000 m³, surface 121 ha, average depth 3,5 m. It has been built for the purpouses of flood control and irrigation but at present it is of a considerable importance for fishing as well.

The unfavourable changes in water quality are caused by the pollution from the settlements in the watershed area, as well as by the fecal pollution from a goose farm which has been in operation till 1988 above the storage lake. In addition significant amounts of organic matter are washed out from the surrounding territories. Under the influence of the above factors the lake is strongly eutrophic, which was proven by chemical and biological studies.

The storage lake built by damming up of Laskó stream due to its dead-water nature ensured completely different biotop for the developing "raw or immature" biocenosis (FELFÖLDY 1972).

The increase of the time spent there, as well as the abundance of the organic matter washed out from the surroundings and retained by the storage lake provides a rich nutrition basis for the propagation of phytoplankton. With the spring warming up a significant algal population develop on a rich nutrient media. The species composition of plankton shows seasonal changes (SCHULCZ, MALUEG and SMITH 1976).

The mass appearance of the blue-green algae is not restricted only to autumn, but they are present in high number of individuals already from the beginning of summer (SPODNIEWSKA 1979). According to the strong eutrophic character of the lake two diversity minima are observed. Towards summer the uniformity gradually decreases due to the dominance of blue-green algae (HAJDÚ 1977).

The quantitative and qualitative changes of phytoplankton are followed by changes in the composition of zooplankton as well (KAJAK 1983). Cladocera are found in the lowest numbers, they follow to the least extent the development of trofities. Quantitatively they are significantly surpassed by Rotatoria and Copepoda populations. In case of blue-green algae dominance the number of filtering organisms shows a significant decrease, respectively an overreproduction of smaller species is observed due to their higher tolerance (LAMPERT 1982).

Significant differencies exist between the phyto- and zooplankton composition of Laskó stream and the storage lake (BANCSI, HAMAR et *al.* 1977). The effect of the storage lake on water quality is clearly visible at Egerszalók, after its flowing into Kisköre storage lake it becomes gradually less and less perceptible.

Materials and Methods

For algological and bacteriological investigations water samples of 1 l were collected in sterilized flasks. For zooplankton investigations 20 l water were filtered through a plankton net (mesh 25). The samples were collected 20 cm below the water surface. At the origin and upper reaches of Laskó stream the samples were taken from smaller depths corresponding to the water-level. The bacteriological tests were carried out according to the Methodological Instructions of the Water Hygiene Department of the National Institute of Public Health, the chemical analyses — according to Hungarian Standard 448 and CMEA directives for chemical studies. The identification of plankton organisms was carried out with the help of check-books available in the laboratory.

The studies of Laskó stream were carried out every quarter of a year between 1984 and 1987, and those of the storage lake — monthly in the period of 1986—87. On several occasions samples were taken above the storage lake at Egerbakta to study the effect of the goose farm operating there.

The collected samples were transported to the laboratory in refrigerated state. For qualitative algological studies samples were collected with the help of a plankton net, too, and fixed on the spot in J—JK sodium acetate solution and formalon. In the course of chemical studies the orthophosphate and the total phosphorus content, as well as the parameters of the oxygen and nitrogen metabolism were measured. On the territory of the storage lake five sampling sites were selected taking into consideration the differences in their environmental conditions (Fig. 1).

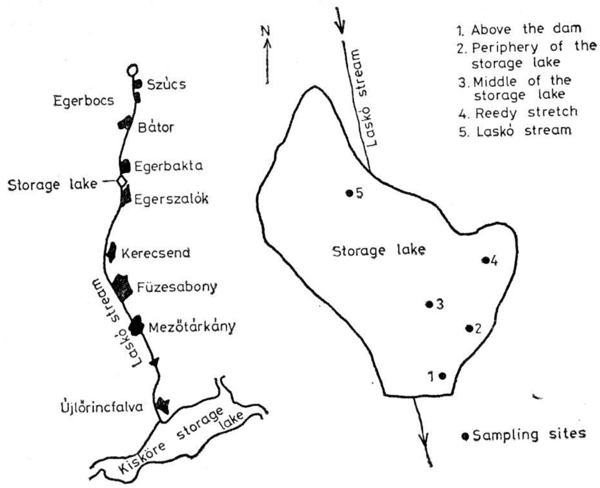

Fig. 1. Sampling sites at Laskó stream and Egerszalók storage lake

Results

In the measurements of the dissolved oxigen and oxigen saturation favourable results were obtained. In summer as a consequence of the process of photosynthesis oxigen oversaturation is observed.

To estimate nutrient content and nutrient supply the characteristics of the nitrogen and phosphorus metabolism were measured. Both values indicate the high nutrient content of the lake. The total phosphorus and nitrate content are significantly higher at the flowing of Laskó stream into the storage lake. Total phosphorus: 2,10 mg/l, nitrate: 16,5 mg/l. The measurements at all other sampling sites along Laskó stream resulted in lower values (total phosphorus: 0,11—0,42 mg/l, nitrate: 0,00—9,4 mg/l).

On the basis of bacteriological studies Laskó stream can be characterized as slightly polluted surface water. In the period of 1984—87 significantly higher values were measured at the goose farm operating in the vicinity of the storage lake.

1987

Above the goose farm		Below the goose farm
Coliform count/1 ml	70	240
Fecal coliform/1 ml	0,2	20
Bacterial count/ml		
20 °C	4000	20 000
37 °C	600	8 000
Fecal streptococcus count/1 ml	1,0	4,0
Clostridium count/1 ml	40	30
Enteral pathogenes	negative	*Salmonella typhi — murium*

At the inflow into Kisköre storage lake at Újlőrincfalva the bacteriological characteristics of water proved to be satisfactory. In the period between 1984 and 1987 enteral pathogene bacteria have not been observed. On one occasion (1984) a high bacterial count was measured (30 000/ml), which was due to the high organic matter content washed in by the flood and present as suspended matter in water. From bacteriological point of view the water below the goose farm was of an objectionable quality. Downstream the pollution gradually decreased and at Újlőrincfalva the effect of the storage lake could not be traced.

The composition of phyto- and zooplankton of samples taken from Laskó stream and the storage lake showed significant differences. For the water of Laskó stream the dominance of diatoms and occasional mass production of green algae, characteristic for fresh water, were observed.

It should be pointed out that the middle reach of the stream can be characterized by the richness of Euglenophyta species. It is due most probably to the effect of Egerszalók storage lake, and organic pollution of Füzesabony.

At Újlőrincfalva as a consequence of the damming effect of Kisköre storage lake the appearance of green algae species in higher numbers, characteristic for dead-waters, was observed (Table 1).

On the basis of Sörensen similarity index the closest correlation was found in case of 2—3 samples. This can be explained by the fact that at Újlőrincfalva due to redamming of Kisköre storage lake a storage lake water character developed (Fig. 2). Along with the decrease in number of fluvial organisms the appearance and dominance of lake algal associations is observed.

In samples taken at different sites of Egerszalók storage lake the organisms listed in the species list were present in different proportions. In the samples collected far from the coastal region dominated typical plankton species. Close similarity in species constitution was observed in samples taken at the dam (sampling site 1.) and at the periphery of the storage lake (sampling site 2) due to similar environmental effects. In the samples taken from the reedy strech (sampling site 4) along with plankton species periphyton algae living in the aquatic vegetation appeared. At the point where Laskó stream flows into the storage lake (sampling site 5) due to the

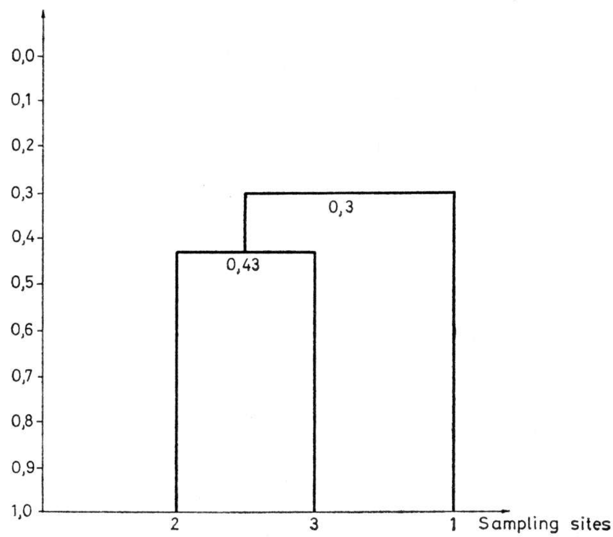

Fig. 2. Sörensen similarity index at different sampling sites

Table 1

	Laskó stream Egerszalók	Laskó stream Újlőrincfalva	Egerszalók storage lake
Cyanophyta			
Aphanizomenon flos-aquae (RALFS)	—	—	+
Anabaena spiroides KLEB.	—	—	+
Microcystis aeruginosa KG.	—	—	+
Oscillatoria animalis AGH.	+	—	—
Oscillatoria limosa AGH.	—	—	+
Oscillatoria tenuis AGH.	—	—	+
Euglenophyta			
Euglena acus EHR.	—	+	+
Euglena gracilis KLEBS.	+	+	+
Euglena granulata LEMN.	—	+	—
Euglena oxyuris SCH.	+	—	+
Euglena proxima DANG.	+	—	+
Euglena viridis EHR.	+	—	+
Phacus acuminatus STOKES			
Phacus caudatus HÜBNER	+	+	+
Phacus curvicauda SWIR.	+	—	—
Phacus orbicularis HÜBNER	+	—	+
Phacus pleuronectes DUJ.	+	—	+
Phacus parvulus KLEBS	+	—	—
Phacus longicauda EHR.	—	—	+
Strombomonas fluviatilis DEFL.	—	+	+
Trachelomonas granulosa PLAVF.	+	—	+
Trachelomonas hispida STEIN	—	—	+
Trachelomonas ovata STEIN	—	—	+
Trachelomonas raciborskii WOLOSZ	—	+	+
Trachelomonas scabra PLAYF	+	—	+
Trachelomonas volvocina EHR.	+	+	+
Chrysophyta			
Amphypleura pellucida KÜTZ	—	—	+
Amphora ovalis KÜTZ	+	+	+
Asterionella formosa HASS.	—	—	+
Achnanthes minutissima KÜTZ	—	+	+
Caloneis amphisbaena CL. BORY	+	+	—
Ceratoneis arcus KÜTZ	—	+	—
Cocconeis placentula EHR.	+	+	+
Cyclotella comta KÜTZ.	—	+	—
Cyclotella menenghiana KÜTZ.	—	—	+
Cyclotella bodanica EULENST.	—	+	+
Cymatopleura solea W. SM.	+	—	—
Cymatopleura elliptica W. SM.	+	—	—
Cymbella caespitosa GRUM.	+	—	—
Cymbella lanceolata W. H.	+	—	—
Cymbella turgida CL.	+	—	—
Cymbella ventricosa KÜTZ.	+	—	+
Diatoma vulgare BORY	+	—	+
Fragilaria capucina DESM.	+	—	—
Fragilaria crotonensis KITT.	+	—	—
Gomphonema angustatum RBH.	+	—	—
Gomphonema capitatum EHR.	+	—	—
Gomphonema olivaceum KÜTZ.	+	—	—
Gyrosigma acuminatum RABH.	+	—	—
Gryosigma attenuatum RABH.	+	—	—

	Laskó stream Egerszalók	Laskó stream Újlőrincfalva	Egerszalók storage lake
Hantzschia ampioxys GRUN	+	—	—
Meridion circulare AG.	+	—	—
Melosira varians AG.	+	—	+
Melosira granulata RALFS.	+	—	—
Navicula cryptocephala KÜTZ.	+	+	—
Navicula hungarica GRUN.	+	+	—
Navicula laterostrata HUST.	+	—	—
Navicula viridula KÜTZ.	+	—	+
Nitzschia apiculata GRUN	+	—	—
Nitzschia palea W. SM.	+	+	—
Nitzschia sigmoidea W. SM.	+	+	—
Nitzschia vermicularis GRUN.	+	—	—
Rhoicosphaenia curvata GRUN	+	—	+
Suriella ovata KÜTZ.	+	—	—
Synedra acus KÜTZ.	+	+	—
Synedra ulna EHR.	+	+	—
Chlorophyta			
Ankistrodesmus falcatus CORDA	—	+	—
Actinastrum hantzschii LAGERH.	—	—	+
Chlamydomonas simplex PASCH	—	—	+
Chlamydomonas planctonica FOTT	—	+	—
Chlorella vulgaris BEI	—	+	—
Coelastrum microporum NAEG.	—	+	+
Crucigenia rectangularis GAY.	—	+	+
Crucigenia tetrapedia G. S. WEST	—	+	+
Elokatothrix lacustris KORS	—	+	—
Eudorina elegans EHR.	—	+	+
Kirchneriella lunaris MŐB	—	—	+
Oocystis lacustris CHOD	—	—	+
Pandorina morum BORY	—	+	—
Pediastrum biradiatum MYEN	—	—	+
Pediastrum duplex MEYEN	—	+	+
Pediastrum simplex LEMM	—	—	+
Pediastrum tetras RALFS	—	+	+
Scenedesmus acuminatus CHOD	—	+	+
Scenedesmus arcautus LEMM	—	+	—
Scenedesmus ecornis CHOD	—	+	+
Scenedesmus spinosus CHOD	—	+	—
Scenedesmus quadricauda BRÉB	+	+	+
Tetraedron minimum HANSG	—	+	+
Tetraedron triangulare KORS	—	—	+
Tetraedron caudatum HANSG	—	+	+
Tetrastrum staurigeniforme SCHROED	—	+	—
Closterium strigosum BRÉB	—	+	—
Cosmarium formulosum HOFFM.	—	—	+
Cosmarium humile NORDST.	—	—	+
Cosmarium laeve RABENH	—	—	+
Radiococcus nimbatus SCHMIDLE	—	—	+
Dictyosphaerium pulchellum WOOD	—	—	+
Pyrrophyta			
Ceratium hirundinella SCHRANK	—	—	+
Peridinium cinctum EHR.	—	—	+

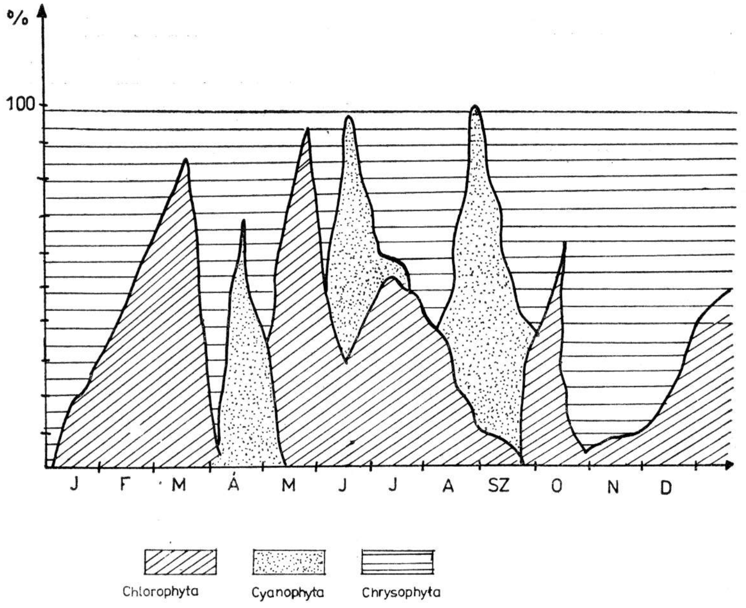

Fig. 3. Percentage distribution of the groups constituting phytoplankton during the year
TCW — Tisza Chemical Works; GÁ — Transloading station at the "Gábor Áron" square; S — Szolnok Sugar Works; P — Szolnok Paper-mill; Mr — Transloading station at the "Mártírok" road; AMP — Szolnok Animal Marketing and Meat Packing Establisment; Tl — Transloading station at Tiszaliget; Vh — Transloading station at the "Vöröshadsereg" road; FPF — Fodder Processing Factory; ΣH — Total household sewage-water; Σ — Total load

redamming effect of the storage lake the interchange of diatoms and green algae dominance was observed.

Seasonal periodicity was observed in the composition of phytoplankton. At the time of spring warming up a spreading of green algae was observed (*Chlorela vulgaris* dominance) which was followed by the appearance of diatoms in high numbers.

In summer Chlorophyta (*Docystis lacustris* dominance) are observed again, which were, however, frequently interrupted by mass production of blue-green algae due to the strongly eutrophic character of the storage lake.

The mass appearance of blue-green algae at different sampling sites led to te displacement of other species. At places in the coastal region they become the only species present. In autumn a new propagation of diatoms and green algae occurs, though in a lower number of species and individuals (Fig. 3). In summer the total algal count shows a tendency for increase. The highest values were measured in summer and autumn (5 000 000—9 000 000 i/l). At the time of blue-green algal bloom the total algal count is in the range of milliards.

The changes in the phytoplankton were followed by changes in zooplankton, too. As expected for deadwaters a rich zooplankton population emerged. In comparison to the storage lake the zooplankton composition at Laskó stream sampling sites was comparatively poor. Here in the first place Rotatoria species represent 50—70% of the plankton. The water in Laskó stream is poor in Cladocera, Copepoda were regularly found in water samples. At Újlőrincfalva due to redamming richer species composition was observed. Among Rotatoria dominated the following spe-

Table 2

	Reservoir				
	Above the dam	Periphery	Middle	Reedy stretch	Laskó stream
Rotatoria					
Brachionus calyciflorus PALLAS	+	+	+	+	+
Brachionus urceolaris D. F. MÜLLER	+	+	+	—	—
Brachionus urceus LIM.	+	+	+	+	—
Brachionus quadridentatus HERMANN	+	+	+	+	+
Colurella colurus EHRENBERG	—	—	—	—	—
Colurella adriatica EHRENBERG	—	—	—	+	—
Cephalodella rotunda DONNER	+	+	+	—	—
Filina logiseta EHRB.	+	+	+	+	—
Gastropus stylifer IMHOF	—	—	—	+	—
Keratella cochlearis GOSSE	+	+	+	+	+
Keratella quadrata MÜLLER	—	—	+	—	—
Lepadella ovalis D. F. MÜLLER	—	—	—	+	—
Notholca acuminata EHR.	—	—	—	+	—
Notholca caudata EHR.	+	+	—	—	—
Phylodina roseola EHR.	+	+	—	+	—
Polyarthra vulgaris CARLIN	+	+	+	+	+
Pompholyx complanata GOSSE	+	+	—	—	—
Pompholyx sulcata HUDS	+	+	+	—	—
Testudinella parva var. *bidentata* TERMETZ	—	—	—	+	—
Testudinella patina HERMANN	—	—	—	+	—
Copepoda					
Acanthocyclops vernalis FISHER	+	+	—	+	—
Cyclops vicinus ULIANINE	—	—	+	—	—
Cryptocyclops bicolor SARS	—	—	—	+	—
Eucyclops macrurus SARS	+	+	—	+	—
Eucyclops serrulatus FISHER	+	+	+	+	+
Eucyclops speratus LILLJEB.	—	+	+	+	—
Macrocyclops albidus JURINE	+	+	—	+	—
Paracyclops fimbriatus Fish.	—	+	—	+	—
Paracyclops poppei REHBERG	—	—	—	+	—
Cladocera					
Bosmina longirostris O. F. MÜLLER	+	+	+	+	+
Bosmina coreogni BAIRD	—	—	—	+	—
Chydorus sphaericus O. F. MÜLLER	+	+	—	+	+
Daphnia cucullata SARS	+	+	+	—	—
Daphnia hyalina SARS	+	+	+	+	—
Daphnia longispina O. F. MÜLLER	+	+	+	—	—
Daphnia magna STRAUS	+	+	—	—	—
Scapholeberis mucronata O. F. MÜLLER	—	—	—	+	—
Scapholeberis mucronata var. *cornuta* O. F. MÜLLER	—	—	—	+	—

cies: *Brachionus, Keratella, Filina, Polyarthra* and *Notholca.* More seldomly *Lepadella* and *Lecane* species were observed.

In Egerszalók storage lake due to abundancy of phytoplankton a significant zooplankton population emerged.

The compositional changes in zooplankton were studied in cases of Rotatoria, Copepoda and Cladocera at different sampling sites of the storage lake (Table 2).

Seasonal changes were observed in the zooplankton composition as well. The spring spreading of green algae is partially preceeded and followed by the increase in the number of Rotatoria (103 i/l). With the advance of Copepoda due to Rotatoria-Copepoda nutrition relationship a significant decrease in the number of wheel animalcules follows.

Cladocera are present in small numbers the whole year round, showing some increase only in autumn. In spring samples species of bigger size *(Daphnia magna)* and in the autumn — species of smaller size *(Bosmina longirostris* and *Chydorus sphaericus)* were found. The propagation of the latter is due to their higher tolerance. Among others, they endure better the infavourable influence of the increased trofity and the accompanying it blue-green algae production. Copepoda can be found in high numbers during the whole year (Fig. 4).

The zooplankton species found are mostly euplanktonic *(Brachionus urceus, Brachionus calyciflorus, Keratella cochlearis, Eucyclops serrulatus),* in the samples taken from the coastal regions species living in the aquatic vegetation were found in small numbers *(Paracyclops fimbriatus, Scaphcleberis mucronata, Simocephalus vetulus, Lepadella verifica).* The changes in diversity values were followed in the storage lake at the selected sampling sites in two periods — in april and august. The diversity calculations were carried out with the help of the SHANNON—WEAVER formula which characterizes the diversity of a sample on the basis of distribution of two components:

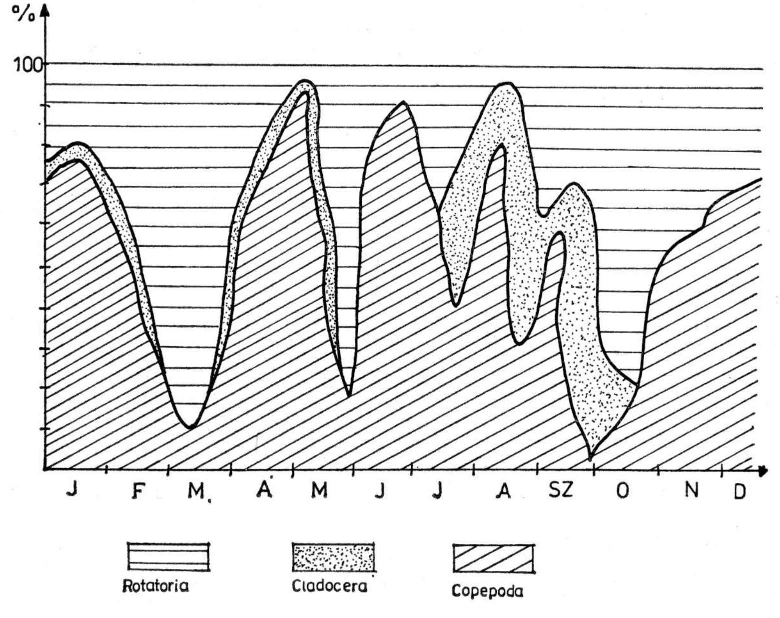

Fig. 4. Percentage distribution of the groups constituting zooplankton during the year

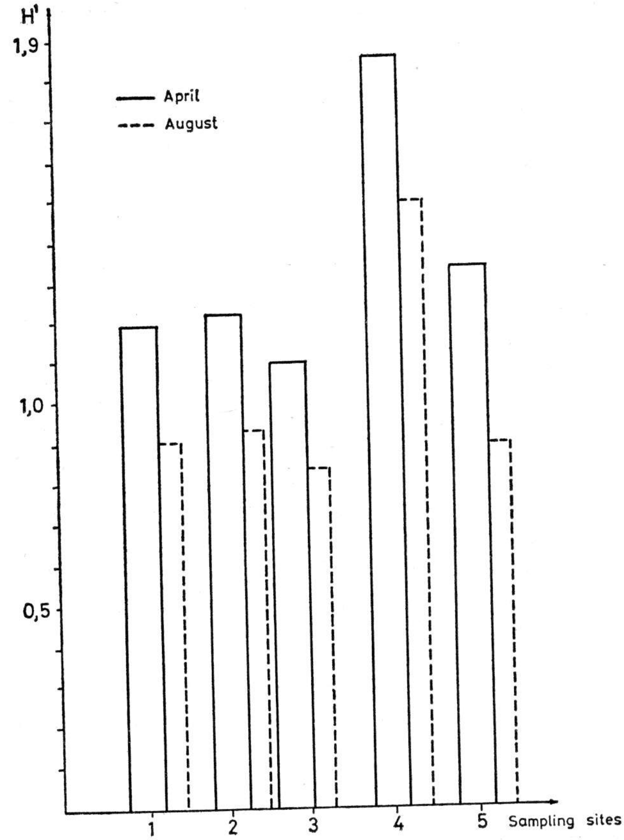

Fig. 5. Values of diversity (H') at different sampling sites

richness of species and frequency of species. The diversity values obtained are represented graphically in Fig. 5.

It can be concluded that the diversity in all habitats decreases in the summer samples, but even so the highest diversity is found in the ready stretches.

To summarize: significant differences were found in the living organisms of Laskó stream and the storage lake set up on it. With the set up of the storage lake a rich phyto- and zooplankton emerged. The high nutrient content leads to establishment of eutrophic, in summer even polyeutrophic conditions. In the phytoplankton in summer and autumn the dominance of blue-green algae is 50—80%. At places all other species were displaced by *Aphanizomenon flos-aquae* and *Microcystis aeruginosa*. Besides the dominance of the blue-green algae, the dominance of green algae of bigger size can be observed.

The composition of phyto- and zooplankton of Laskó stream differs from that of the storage lake. The phytoplankton of Laskó stream is dominated by diatoms, at Újlőrincfalva it shows similarities with the living organisms' associations characteristic for dead-water.

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A Laskó-patak és az ezen létesített Egerszalóki víztározó vízminőségének változása

ESTÓK B. és MILINKI ÉVA

Heves m. KÖJÁL; Ho Si Minh Tanárképző Főiskola, Eger

Kivonat

Vizsgálatainkat 1984—1987 között a Laskó-patakon Egerszalók és Újlőrincfalvánál végeztük, illetve ugyanezen időszakban részletesebb hidrobiológiai felmérésre került sor a Laskó-patak duzzasztásával létrehozott Egerszalóki tározón.

A tározó hatását vizsgáltuk a Laskó-patak vízminőségének alakulásában. Az Egerszalóki tározó eutróf jellegű víznek minősíthető. Nyomon követtük az állóvízzé válás következtében megváltozó fito- és zooplankton összetételét és szezonális alakulását. A domináns planktonfajok a magas trofitású állóvizekre jellemző szervezetekből kerültek ki. A fajgazdagság a víztározóban nyárig nő, majd csökkenő tendenciát mutat. Nyár elejétől kora őszig kékalga dominancia figyelhető meg. A kis vízmélység kedvező életteret biztosít a kékalga vízvirágzáshoz.

Két diverzitás minimum jellemző, az egyik télen, a másik nyári időszakban. A zooplankton összetételében a Copepodak uralkodnak egész éven át. Mennyiségben őket követik a Rotatoriak és Cladocerak. A víztározó hatása a vízminőségben Egerszalóknál mutatható ki, Újlőrincfalvánál a kedvezőtlen tényezők kevésbé észlelhetők, ami azért lényeges, mert a Laskó-patak a Kiskörei-tározó egyik tápvize.

Изменение качества воды рулья Лашко и построенного на нем водохранилища у Егерсалок

Б. Ешток, Е. Милинки

Станция Здравоохранения и эпидемиологии бол. Хевеш
Педагогический институт им. Хо Ши Мина, Егер

Резюме

В период 1984—1987 гг. велись исследования ручья Лашко у Егерсалок и Уйлёринцфалва, а также всестороннее гидробиологическое обследование водохранилища Егерсалок, образовавшегося вследствие запруживания ручья Лашко.

Исследовали влияние водохранилища на качество воды в ручье Лашко. Вода в водохранилище Егерсалок имеет эутрофный характер. Прослеживали сезонные различия и изменения, наступающие в составе фито- и зоопланктона вследствие образования стоячей воды. Доминантные виды планктона принадлежали к группам, характерным для стоячих вод высокой трофичности. Разнообразие видов в водохранилище увеличивается до лета, после чего проявляется тенденция уменьшения. С начала лета до ранней осени наблюдается доминантность сине-зеленых водорослей. Небольшая грубина обеспечивает благоприятные условия для цветения воды сине-зелеными водорослями.

Наблюдали два минимума диверситета — один в зимний, другой — в летний период. В составе зоопланктона в течение всего года преобладают Copepoda. В количественном отношении за ними следуют Rotatoria и Cladocera. Влияние водохранилища сказывается на качестве воды у Егерсалок, у Уйлёринцфалва неблагоприятные факторы менее заметны, что существено с точки зрения качества воды водохранилища Кишкёре, в которое впадает ручей Лашко.

Promene kvaliteta vode u potoku Laško i u rezervoaru Egerszalók

Eštok B., Milinki E.
Zdravstvena i Epidemiološka Organizacija u županiji Solnok,
„Ho Si Mihn" Viša Pedagoška Škola, Eger

Abstrakt

Ispitivanje vode potoka Laško vršene kod Egersaloka i Újlőrinc izmedju 1984—87. god. u isto vreme je vršeno detaljno hidrobiološko ispitivanje veštačkog rezervoara za vodu Egerszalók, napravljen na potoku Laško.

Vršeni su ispitivanja indikatornih promena kvaliteta vode rezervoara na potoku Laško.

Rezervoar za vodu Egerszalók ima eutrofičan tip vode. Kao posledica pretvaranja u mrtvu vodu, to pratio i pozicionalna i sezonalna fito- i zooplanktonsko vegetacije.

Dominantni rodovi planktona su karakteristični i za ostale visoko trofične mrtve vode.

Do leta broj rodova planktona se povećava a poslije se to smanjuje.

Od početka leta do kasne jeseni dominancija plavo-zelene alge je bilo utvrdeno.

Plitka voda obezbedjuje povoljne uslove za rast spomenutih algi.

Postoje dva diverzitetna minimum stanja- jedno u leto a drugo u zimi.

Tokom cele godine vrsta Copepoda je dominantni zooplankton.

Abundancija je bila praćena kroz rodova Rotatoria i Cladocera.