Acta Hydrobiologica

Contents of Volume 17 (1975)

James B. BELL[1] and A.A. JURKOVIC[2]

Morphology, nutritional requirements and physiological activity of heterotrophic bacteria isolated from a deep water sediment core in Lake Ontario .

Acta Hydrobiol., 17, 95-102.

Abstract - Heterotrophic bacteria isolated from a sediment core in the Rochester basin of Lake Ontario were examined for morphology, biochemical reactions, nutritional requirements and antibiotic sensitivity. The bacterial flora was found to be 89% Gram negative at the sediment water interface and inversely Gram positive in the deeper sediments. The sediment bacteria are similar to those found in the water column and have the ability to utilize proteinacious substrates and the majority show nutritional preferences for yeast extract. Authors' addresses: [1] Environment Canada. Environmental Protection Service Northwest Region, Edmonton, Alberta 5320 122 Canada [2] Canada Centre for Inland Waters, Burlington, Ontario, Canada .

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Anna CZAPIK

Les associations des ciliés (Ciliata) dans le ruisseau Prądnik pollué par les eaux residuelles d'une laiterie .

Acta Hydrobiol., 17, 21-34.

Abstract - The fauna of infusoria living on the bottom of the Prądnik stream was examined. This stream crosses the Ojców National Park and falls into the River Vistula on the territory Cracow. Samples were taken from shallow places close to the banks of the stream where mud settled and algae develop. It was found that in these places the infusoria formed mixed communities with a predominance of algae phagocytic species over micro-phagocytic ones. The determined infusoria were classified into groups in dependence on their kind of nutrition. It was found that the waste waters flowing in from the dairy, bringing a great amount of undecomposed organic matter, are a permanent danger for the biological balance in this stream. Author's address: Zakład Hydrobiologii, Uniwersytet Jagielloński, ul. Oleandry 2, 30-063 Kraków .

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Bazyli CZECZUGA

Carotenoids in fish. 5. *Anguilla anguilla* (L.).

Acta Hydrobiol., 17, 311-317.

Abstract - Using column and thin-layer chromatography the occurrence of separate carotenoids in fins, skin, gills, liver, and intestines of the eel *Anguilla anguilla* (L.) was investigated. The presence of such carotenoids as carotene, canthanxanthin, tunaxanthin, lutein, isozeaxanthin, zeaxanthin, astaxanthin, and astacene was recorded. In all the investigated parts of the eel astaxanthin was the dominant carotenoid. Author's address: Zakład Biologii Ogólnej, Instytut Biostruktury, Akademia Medyczna, ul. Kilińskiego 1, 15-089 Białystok .

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Janusz GUZIUR[1] and Sławomir WIELGOSZ[2]
The influence of various numbers of carp stock (*Cyprinus carpio* L.) on the distribution of macrobenthos in Lake Klawój .
Acta Hydrobiol., 17, 53-69.

Abstract - In the investigation an attempt was made to determine the influence of different numbers of second year carp fry stock on the qualitative and quantitative structure of macrobenthos and its horizontal distribution. On the basis of a two-year investigation of the benthic fauna, oxygen conditions, taxonomic structure of Chironomidae, and food composition it was found that the introduction of the carp brought about a considerable decrease in the numbers and biomass of invertebrate fauna. A limiting effect of the carp stock on the horizontal differentiation of the zoobenthos was observed. An interrelation was found between the reduction of dominating groups and taxa in the environment and the feeding and food preference of the carp. [1] Instytut Ichtiobiologii i Rybactwa, Akademia Rolniczo-Techniczna, 10-957 Olsztyn-Kortowo [2] Instytut Hydrobiologii i Ochrony Wód, Akademia Rolniczo-Techniczna, 10-957 Olsztyn-Kortowo .

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Krzysztof Z. KAMIŃSKI
The second locality in Poland of *Simocephalus lusaticus* Herr (Cladocera, Dapniidae) .
Acta Hydrobiol., 17, 89-92.

Abstract - The author reports the occurrence of the rare species *Simocephalus lusaticus* Herr in the ponds "Stawy Jana" located in the Chojny quarter of Łódź. It is the second locality in Poland of the species. Besides *S. lusaticus* 16 species of Cladocera occur in the ponds. Author's address: Pracownia Metodyki Nauczania Biologii, Uniwersytet Lódzki, ul. Nowopołudniowa 12, 90-237 Lódź .

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Maria KLIMCZYK-JANIKOWSKA
Biometric characteristic and food of the rudd (*Scardinius erythrophthalmus* L.) from the reservoir at Goczałkowice .
Acta Hydrobiol., 17, 71-80.

Abstract - 170 specimens of the rudd (*Scardinius erythrophthalmus* L.) from the dam reservoir at Goczałkowice were taken for investigation. The biometrics and food of the examined rudd were elaborated. The rudd population from Goczałkowice was compared with that from the reservoir at Przeczyce. The rudd from the two compared populations were typical forms. It was found that the rate of growth and coefficient of condition for the rudd from Goczałkowice were higher than for the population from Przeczyce, this being caused by better living conditions in the Goczałkowice reservoir. The basic food of the rudd of these two populations consisted of higher submerged plants. Apart from plants the rudd fed also on macrofauna which was ingested either accidentally with plants or in the event of plant scarcity in the reservoir. Author's address: Polish Academy of Sciences, Laboratory of Water Biology, ul. Sławkowska 17, 31-016 Kraków .

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Henryk KLIMOWICZ
Annual development of plankton in a river water intake weir and in a treatment pond and its removal in treatment plants .
Acta Hydrobiol., 17, 299-308.

Abstract - In an annual cycle at about 15-day intervals 2 samples monthly were collected at 7 sampling stations which characterized successive stages of the treatment of water for waterworks. The resistance of certain species to the processes of water treatment was investigated, the stages of the reduction of their specimens being analysed. Within the total number of 95 taxonomic units recorded, 42 were encountered in the completely treated water, though the number of specimens was greatly reduced. The dependence in the development of various groups of organisms was less distinct in the whole cycle than in the warmest season of the year. Rapid exchange of the river water in the pond prevented the phenomenon of plankton bloom. Author's address: Zakład Użytkowania i Ochrony Wód, Instytut Kształtowania Środowiska, ul. Kolektorska 4, 01-692 Warszawa .

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Anna KRZYWICKA and Danuta KRUPA
Preliminary investigations on mutual growth relations of the populations of the blue-green alga *Microcystis aeruginosa* and green algae *Monoraphidium minutum* and *Scenedesmus abundans* in bicultures .
Acta Hydrobiol., 17, 81-88.

Abstract - Changes in the cell number of blue-green alga *Microcystis aeruginosa* and the green algae *Monoraphidium minutum* and *Scenedesmus abundans* in monocultures and in bicultures mixed in various relations were investigated. It was found that in bicultures the blue-green alga *Microcystis aeruginosa* reproduces more slowly than the green algae. Authors' address: Instytut Przyrodniczych Podstaw Produkcji Roślinnej, Akademia Rolnicza, ul. Akademicka 15, 20-934 Lublin .

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Kazimierz MATUSIAK[1] and Iwo WOJCIECHOWSKI[2]
Some physical factors as the ecological background in the pelagial of the Sosnowickie Lakes .
Acta Hydrobiol., 17, 103-139.

Abstract - The paper presents the results of investigations on physical factors, temperature and oxygen relations, and light regime in three lakes of the Łęczyńsko-Włodawskie Lake District. The results cover 5 years of investigation and constitute the ecological background for simultaneously carried out biological investigations. The characteristics of 3 lakes, varying with respect to trophic conditions, are presented and the measurement systems of the light regime, measured by means of a Secchi disc and photocell, were compared. The investigations showed great specificity of these lakes in comparison with other Polish lakes. Authors' addresses: [1] Instytut Mikrobiologii Uniwersytetu Warszawskiego, Zakład Mikrobiologii Srodowisk, ul. Karowa 18, 00-315 Warszawa [2] Instytut Przyrodniczych Podstaw Produkcji Roślinnej Akademii Rolniczej, ul. Akademicka 15, 20-950 Lublin .

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Stanisław NIEWOLAK
The occurrence of microorganisms in the water of some lakes in the district of Węgorzewo .
Acta Hydrobiol., 17, 371-390.

Abstract - The work contains the results of the annual cycle of investigations on the total number of bacterioplankton and the qualitative composition of saprophytic bacteria from the group of ammonifiers, Actinomycetes, and fungi in some lakes of the Węgorzewo region in the Mazurian Lake District. All the mentioned groups of microorganisms occur in greater numbers in the eutrophic Lake Czarna Kuta, whose waters are slightly polluted. The other lakes contain smaller numbers of these microorganisms and have waters pure in quality. In the qualitative composition of saprophytic (ammonifying) bacteria of the Węgorzewo Lakes Gram-negative rods prevail. Among Actinomycetes strains of the genera *Actinomyces*, *Nocardia*, *Streptomyces*, *Micromonospora*, and *Actinoplanes* occur. The fungi are of the genera *Sporobolomyces*, *Rhodotorula*, *Candida*, *Cryptococcus*, *Torulopsis*, *Debaryomyces*, *Saccharomyces*, *Hansenula*, *Pichia*, *Mucor*, *Aspergillus*, *Penicillium*, *Fusarium*, *Aureobasidium*, *Stachybotrys*, *Trichoderma*, and *Alternaria*. Author's address: Instytut Hydrobiologii i Ochrony Wód, Akademia Rolniczo-Techniczna w Olsztynie, 10-957 Olsztyn-Kortowo .

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Tadeusz PENCZAK
Ichthyofauna of the catchment area of the River Ner and perspectives of its restitution in connection with the erection of a collective sewage treatment plant for the Agglomeration of the City of Łódź .
Acta Hydrobiol., 17, 1-20.

Abstract - In connection with the real chance of restoring the water purity to the River Ner owing to the erection of a Collective Sewage Treatment Plant for the Agglomeration of the City of Łódź, an empirical evaluation of the remainder of fish stock in the main flow and its numerous tributaries was made. The obtained results suggest that besides the introduction and inflow of fish from the River Warta a considerable role may be played in the ichthyofauna regeneration in the River Ner by the fishes still alive both in the tributaries and in the spring sector of the main flow. In the present paper attention was also drawn to the influence of the gradually increasing sewage concentration on the quantitative and qualitative composition of the ichthyofauna. Author's address: Zakład Anatomii Porównawczej i Ekologii Zwierząt, Uniwersytetu Łódzkiego, ul. Banacha 12/16, 90-237 Łódź .

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Krzysztof SMAGOWICZ
Meiofauna of riverine waters of the Białka Tatrzańska. 1. Testaceous Rhizopoda (Testacea) .
Acta Hydrobiol., 17, 405-414.

Abstract - The present paper is an elaboration of a part of the meiofauna from four stations on a submontane river. A list is given of 27 species, among them 12 not reported for the Polish fauna. Less frequent are: *Arcella polypora* Pen., *Lesquereusia combinata* Štěp., *Difflugia avellana* Pen., *D. fallax* Pen., *Centropyxis cassis spinifera* Cash, and *C. platystoma armata* Pen. Author's address: Muzeum Zoologiczne Uniwersytetu Jagiellońskiego, ul. Krupnicza 50, 30-060 Kraków .

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Ryszard SOWA

Ecology and biogeography of mayflies (Ephemeroptera) of running waters in the Polish part of the Carpathians. 1. Distribution and quantitative analysis .

Acta Hydrobiol., 17, 223-297.

Abstract - Mayflies, mainly nymphs, of running waters in the Polish part of the Carpathians and the immediately neighbouring territory of the fork made by the Rivers Vistula and San, lying to the north, are elaborated. Investigations were carried out in the years 1958 to 1972 in 68 water units at 180 stations. The history of the hitherto carried out investigations, a list of species and their synonymy, discussion on dubious species or poorly known ones and their distribution are also given for the investigated territory. The maximum distribution of species and the degree of their attachment to the given type of running waters are discussed. For the main water systems 5 different communities of mayflies were discovered in their longitudinal distribution, the investigated water systems being divided into 6 longitudinal zones. In the water system Olszowy-Koninka-Porębianka-Raba the quantitative distribution of mayflies in five habitats on a stony-gravel bottom are elaborated, in zones 2., 3., and 4., seasonal variations in the abundance of communities in these habitats are given for the year 1969/70. Author's address: Zakład Hydrobiologii, Instytut Zoologii Uniwersytetu Jagiellońskiego, ul. Oleandry 2a, 30-063. .

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Ryszard SOWA

Ecology and biogeography of mayflies (Ephemeroptera) of running waters in the Polish part of the Carpathians. 2. Life cycles .

Acta Hydrobiol., 17, 319-353.

Abstract - The growth and life cycles of 21 species of mayflies in selected streams of the Beskid Mountains and in the River Raba are presented. Life cycles of 54 other species were distinguished according to the material from the whole investigation territory. 54 univoltine, 21 bivoltine, and 4 semivoltine species were found. In extreme developmental conditions some of the bivoltine species produce only a single generation in a year. Classification of Carpathian mayflies is given as to their cycles, 9 groups of species being distinguished. The dependence between the nature of growth of species and the size and altitudinal situation of the running waters inhabited by them is discussed. Author's address: Zakład Hydrobiologii, Instytut Zoologii, Uniwersytet Jagielloński, ul. Oleandry 2a, 30-063 Kraków .

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Krystyna STANGENBERG-OPOROWSKA[1] and Adam SOLSKI[2]

Chemical composition of pond soils of the Stawno Fishery Farm in the State Fishery Complex at Milicz .

Acta Hydrobiol., 17, 183-199.

Abstract - Investigations were carried out on the chemical composition of soils under 12 ponds of the Fishery Farm at Stawno near Milicz. The following content of several chemical components in the top (10 cm) layer of sediments was found (percentage of dry matter): organic nitrogen 0.00-1.12 (N), silica 28.5-99.1 (SiO_2), calcium 0.00-11.6 ($CaCO_3$), iron 0.30-18.0 ($Fe(OH)_3$), potassium 0.007-0.148 (K), phosphorus traces-1.60 (PO_4). The C/N values ranged from 8.1-67.6. A close dependence between the content of iron

and phosphorus (r = 0.597-0.938) and the absence of such a dependence between the content of calcium and phosphorus (r = 0.014-0.025) were observed in the soils under the investigated ponds. Authors' addresses: [1] Instytut Biologii Podstaw Produkcji Zwierzęcej, Akademia Rolnicza, Bartla 6, 51-618 Wrocław [2] Instytut Meteorologii i Gospodarki Wodnej, Norwida 34, 50-375 Wrocław .

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Janusz STARMACH
Differences between two populations of loach (*Nemachilus barbatulus* L.) against the background of investigations on the electrophoretic separation of proteins .
Acta Hydrobiol., 17, 141-148.

Abstract - Electrophoretic separation of proteins on starch gel of two loach populations (*Nemachilus barbatulus* L.) from a river of submontane character and from a typical lowland stream was carried out. The differences in the patterns of the electrophoretic separation of esterases and peroxydase enzymes, presented in figures and photographic tables, indicate a certain specificity of the structure of proteins of the investigated fish populations. This fact suggests that in spite of the lack of any biometric or meristic differences fish living in the two different environments show separate genetical characters. Author's address: Polish Academy of Sciences, Laboratory of Water Biology, ul. Sławkowska 17, 31-016 Kraków .

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Karol STARMACH
Algae from montane streams on the Island of Mahé, in the Seychelles .
Acta Hydrobiol., 17, 201-209.

Abstract - In the samples of the algae collected on the Island of Mahé 6 species of blue-green algae, 21 species of diatoms, 1 species of green algae, and 1 species of red algae were determined. A probably new species of blue-green alga *Calothrix muscicola* n. sp. ad interim and a new species of red alga *Batrachospermum capensis* sp. n. are described. Author's address: Instytut Botaniki, Polska Akademia Nauk, ul. Lubicz 46, 31-512 Kraków .

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Karol STARMACH
Algae in the Gebel Marra Mts in West Sudan.
Acta Hydrobiol., 17, 211-221.

Abstract - In the samples collected in the mountains of the volcanic massive in 1964, 31 species of blue-green algae, 3 species of green algae, and 34 species of diatoms were determined. Author's address: Instytut Botaniki, Polska Akademia Nauk, ul. Lubicz 46, 31-512 Kraków .

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Karol STARMACH

New name for the species *Chrysocapsa epiphytica* Starmach .
Acta Hydrobiol., 17, 309.

Abstract - %%%.

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Aleksandra STARZECKA
The influence of acrolein and hydrocryle on the development dynamics of aquatic bacteria .
Acta Hydrobiol., 17, 391-403.

Abstract - The toxic action of acrolein and hydrocryle on the *Pseudomonas* Group III and *Achromobacter-Alcaligenes* strains and on the mixed populations from a pure environment (the Trzebuńka stream) and a polluted one (the cooling system of a power plant) was evaluated. The toxicity of hydrocryle was higher than that of acrolein, while a weaker resistance of pure strains and of mixed populations of bacteria from an unpolluted environment was observed. Author's address: Polish Academy of Sciences, Laboratory of Water Biology, ul. Sławkowska 17, 31-016 Kraków .

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Bronisław SZCZĘSNY
Caddis-flies (Trichoptera) of the River Raba.
Acta Hydrobiol., 17, 35-51.

Abstract - Caddis-flies (Trichoptera) of the Raba, a medium-sized river in the Western Carpathians (185-1220 m above sea level), were elaborated as part of a collective hydrobiological investigation carried out in 1969-1970. The materials collected at 11 stations included larvae, pupae, and imagines. The list of species and their zonation were presented. Three species new to the fauna of Poland and the hitherto unknown larvae of 14 species were found. On the basis of caddis-flies of the lotic habitat a zonation of the River Raba was worked out. Larval instars for the species *Rhyacophila nubila*, *R. tristis*, *Hydrophsyche instabilis*, *H. pellucidula*, *Psychomyia pusilla*, and *Drusus discolor* were distinguished and it was found that these species had one generation in the year. Author's address: Zakład Ochrony Przyrody, Polska Akademia Nauk, Lubicz 46, 31-512 Kraków .

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Maria SZUMIEC
The effect of controlled eutrophication on solar radiation penetrating into the ponds .
Acta Hydrobiol., 17, 149-182.

Abstract - Time and vertical solar energy distribution in ponds was investigated as depending on the inflow of solar radiation to their surface and on the changes of water transparency resulting from variable intensification of fish production. The possibility of theoretical calculations of the solar energy which reaches the pond surface under local conditions was checked, its variation in daily and seasonal cycles being analysed. The field of solar radiation inside the ponds was presented as a continuous function of time and depth against the background of general principles of its distribution in the water and the distribution in lakes described by others authors. An attempt was also made to extend the results obtained in ponds for the characterization of time and vertical distribution in the solar radiation in Polish lakes. Author's address: Polska Akademia Nauk, Zakład Doświadczalny Gołysz, 43-422 Chybie .

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Andrzej WITKOWSKI
The grayling (*Thymallus thymallus* (L.)) from the rivers of Lower Silesia .
Acta Hydrobiol., 17, 355-370.

Abstract - This paper describes the biometry, growth rate, and distribution of the European grayling in Lower Silesia. It is based on 339 specimens collected in 1971-1973. The European grayling from Silesia showed a comparatively low growth rate. As regards plastic and meristic features, the grayling from Silesia does not differ from the typical form. Author's address: Muzeum Zoologiczne Instytutu Zoologicznego Uniwersytetu Wrocławskiego, ul. Sienkiewicza 21, 50-335 Wrocław .

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