



## Acta Hydrobiologica

### Contents of Volume 11 (1969)

**Maria BOMBÓWNA**

**Hydrochemical characteristics of the Raba river and its tributaries.**

Acta Hydrobiol., 11, 479-504.

[in Polish with English summary]

**Abstract** - The water in the drainage area of the Raba, a right-side Vistula tributary, is of calcium carbonate type and does not differ from other Carpathian rivers (Soła and Skawa) in spite of somewhat larger contents of calcium and magnesium. Primary production of periphyton excludes rapid eutrophication of the planned dam reservoir on the Raba, as it eliminates a considerable quantity of nitrates and wears out the phosphates up to total exhaustion. Slight pollution in the area of Rabka and Bochnia is removed on very short sections because of the great ability of self-purification of the river.

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**Maria BOMBÓWNA**

**Hydrochemical characteristics of the Toporowy Staw Niżni, one of the dystrophic Tatra lakes.**

Acta Hydrobiol., 11, 223-231.

**Abstract** - The Toporowy Staw Niżni is the lowermost situated lake in the Tatra Mountains (at an altitude 1089 m) with an area of 0.62 ha and a maximum depth of 5.7 m. The analysis of water, taken from three levels (0.3, 2.5, and 5 m), were carried out four times in 1963. It was found, that a lot of organic matter flew into the lake from the forest and peaty drainage basin. In this organic matter there was a majority of humus substances, which augmented the water colour and oxidability. The decomposition of the deposit, accumulated on the bottom of the reservoir, is very slow and causes the complete lack of oxygen in the deepest place during three quarters of the year, with simultaneous appearance of hydrogen sulphide, a quantitative increase in  $\text{NH}_3$ ,  $\text{PO}_4$ , Fe,  $\text{CO}_2$ , and decrease in pH. A very low concentration of electrolytes connected with the above factors shows an advanced dystrophy of the lake.

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**Bazyli CZECZUGA and Zygmunt GOŁĘBIEWSKI**

**Chemical studies of the bed sediment of the Lake Kruklin.**

Acta Hydrobiol., 11, 261-272.

**Abstract** - The authors studied the bed sediment of Lake Kruklin (Giżycko District, Olsztyn Province) with reference to the water, inactive chlorophyll, iron, nitrogen, calcium carbonate, and silica content of the bed sediment. By comparing the findings with those of the palynological investigation by Stasiak (1963) the authors made an attempt to reconstruct the history of the lake, which was probably formed as a result of the melting dead ice.

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**Łucja KRZECZKOWSKA-WOŁOSZYN and Halina BUCKA**

**Algae from river Soła in the sector Rajcza-Porąbka.**

Acta Hydrobiol., 11, 245-260.

[in Polish with English summary]

**Abstract** - Plant communities of the periphyton and plankton of the river Soła, Żywiec District, were investigated from the qualitative and quantitative points of view. Simultaneously, the approximate surfaces of algae were approximately calculated. In general the greatest numbers of specimens and surfaces of cells were counted for diatoms, large numbers and large surfaces for filamentous green algae, and small surfaces for small protococcous algae, even though their numbers were great. It seems that the tedious calculation of algal biomass can be replaced by an easier and quicker calculation of their surface which in a certain measure can give some idea as to the size of production in the water bodies.

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**Anna LUCHTEROWA and Janina GRELA**

**Bacterial associations of the Mała Wisła River in the region of Czechowice.**

Acta Hydrobiol., 11, 273-284.

[in Polish with English summary]

**Abstract** - The appearance of various physiological groups of bacteria in the Mała Wisła (Little Vistula) River was investigated. Bacteria were grown on different selective culture media which were inoculated with water originating from stations above and below the mouth of the Biała River carrying wastes from the industrial region of Bielsko-Biała and Czechowice. These experiments were then repeated twice, when all observations were restricted only to samples originating from the same wave, as it was passing through the two stations. The results are discussed and compared with corresponding data obtained from the Biała Wisielka (White Vistula) Stream, considered as a "clear water standard".

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**Olga MATLAK**

**Künstliche Erbrütung von Karpfeneiern und Betrachtungen über Wachstum und Entwicklung der Larven und des Striches.**

Acta Hydrobiol., 11, 201-222.

**Abstract** - The paper presents the results of an investigation on spawning of carp roe milted artificially by Woynarovich's method modified in Romania. The investigation was carried out at Gołysz, in the Experimental Fishery Farm of the Laboratory of Water Biology of the Polish Academy of Sciences. Water used for incubation was not heated. During the 119 days the growth and development of larvae and fry was continually watched and compared with the larvae and fry from natural spawning. The development of the roe and fry was normal and the method used was found advantageous in many other ways.

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**Kazimierz MIGAŁA**

**Observations on the influence of stock density and feeding of carp fingerling upon the course of sanguincolosis.**

Acta Hydrobiol., 11, 119-134.

[in Polish with English summary]

**Abstract** - Observations were carried out for three years in carp ponds. The intensity and extent of fish infection, the course of deaths, losses for the whole rearing season, and the number of indirect hosts (snails of the *Radix* sp.) were taken into account. The intensity and extent of carp fingerling infection by *Sanguinicola inermis* Plehn depends, above all, upon the number of indirect hosts in the environment.

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**Kazimierz PASTERNAK**

**A geological and pedological sketch of the river Raba catchment basin.**

Acta Hydrobiol., 11, 407-422.

[in Polish with English summary]

**Abstract** - The paper contains general hydrological data and a characteristic of the morphology, geological structure, and soil cover of the catchment basin of the Carpathian river Raba. It also gives a description of the sediments occurring in its bed and information about the results of investigations of the chemical composition of the water. The physico-chemical properties of rocks and soils of this catchment basin and processes of erosion are extensively dealt with. A dependence of the chemical composition of the river water on the properties of the substratum and the morphology of the catchment basin is demonstrated.

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**Kazimierz PASTERNAK**

**Preliminary investigations on the properties of fine surface bottom sediments of the River Raba.**

Acta Hydrobiol., 11, 505-515.

**Abstract** - The paper reports the results of investigations of fine surface sediments of the Carpathian river Raba. The sediments were collected in various sections of the river during a period of sunny weather and after rainfall, as soon as the turbid water had flowed down. At the points of collecting the sediments the chemical composition of the river water was analysed in the course of each sampling. The grain composition, the reaction, the content of carbon, total nitrogen, and freely soluble phosphorus were determined in the sediments. A complete chemical analysis of the part of sediments soluble in 20% HCl was carried out. On the basis of the physico-chemical differentiation of the sediments in the longitudinal profile of the river and of the chemical composition of its water conclusions were drawn concerning the variability of the productivity of the river in its particular sections.

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**Kazimierz PASTERNAK**

**The properties of sediments of the dam reservoir at Porąbka.**

Acta Hydrobiol., 11, 361-376.

**Abstract** - The paper reports on the degree of silting up of the reservoir and of the vertical and horizontal differentiation of the physico-chemical properties of its sediments. On the basis of the vertical variability of the sediments, conclusions were drawn as to changes in time of the degree of trophy of the particular zones of the reservoir. The dependence of the chemical properties of sediments on the intensity of erosion, the

geological and soil structure of the drainage area, and the quality of water of the river are discussed.

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**Tadeusz PENCZAK**

**The ichthyofauna of the rivers of the Łódź Upland and adjacent areas. 1c. The hydrography and fishes of the Warta basin.**

Acta Hydrobiol., 11, 69-118.

[in Polish with English summary]

**Abstract** - In 1963-1967 in the Warta basin, within the Province of Łódź, 36 species of fish and one of the Cyclostomata were observed. The main part of the work consists of the author's own investigations with the aid of a generator. Moreover, the work was based on information obtained by other methods of fishing, on the reports of a team from the Polish Fishing Association and of millers and fishermen and on information obtained from literature. Among the valuable lithophilous species of the ichthyofauna of the area investigated are the following: *Salmo trutta morpha fario* L., *Salmo gairdneri* Richardson, *Vimba vimba* (L.) and others. The further existence of the above-mentioned species in the Rivers Warta and Wiercica depends on an improvement of the cleanliness of the waters, and in the remaining rivers which may be protected from periodical fluctuations of the water level by the construction and maintenance of weirs and sluices which would raise the water.

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**Tadeusz PENCZAK**

**The ichthyofauna of the rivers of the Łódź Upland and adjacent areas. 2. Ecology.**

Acta Hydrobiol., 11, 313-338.

[in Polish with English summary]

**Abstract** - The study is based on 50,828 fish caught by means of direct current in accordance with the fixed fishing criteria in the rivers of the Łódź Upland and adjacent areas. The results achieved, arranged by the coenological picture method showed that on the basis of the domination of the species it is not possible to distinguish the fish zones, and the upper, middle, and lower reaches of the rivers investigated. The 37 species of fish found combine into groups, few of which show any coenological affinity.

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**Tadeusz PENCZAK**

**The ichthyofauna of the rivers of the Łódź Upland and adjacent areas. 3. A review and character of species.**

Acta Hydrobiol., 11, 339-360.

[in Polish with English summary]

**Abstract** - In 40 rivers and 9 old river beds of the Łódź Upland and adjacent areas limited by the administrative borders of the Łódź Province, 2 species of lampreys and 39 species of fish were observed. The main quantitative and qualitative part of ichthyofauna is constituted by species of the Cyprinidae family, belonging to the ecological phytophilous group. Of the carnivorous fish, the highest constancy of appearance and domination is shown by *Esox lucius* L. Species observed for the first time for the

investigated region are *Phoxinus phoxinus* (L.), *Pelecus cultratus* (L.), and *Cottus gobio* L.

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**Andrzej PIECHOCKI**

**Biologische Beobachtungen von Muscheln aus der Familie Unionidae im Flusse Grabia.**

Acta Hydrobiol., 11, 57-67.

[in Polish with German summary]

**Abstract** - Biological observations on the bivalve molluscs *Unio crassus*, *U. tumidus*, *U. pictorum* and *Anodonta piscinalis* are presented. The main attention was paid to the problems connected with reproduction. The age and size of the specimens attaining sexual maturity, and the quantitative relations between sexes and reproductive cycles of the investigated species were established. The structure of the chosen bank of the bivalves was also examined.

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**Jerzy PUNZET**

**Hydrological characteristics of the River Raba.**

Acta Hydrobiol., 11, 423-477.

[in Polish with English summary]

**Abstract** - The paper presents the general characteristics of the drainage area of the river Raba, a right-side Carpathian tributary of the Vistula, the course of air temperature and precipitation as well as their changes, and a short hydrographic description of the river and its principal affluents. It also gives an analysis of the changes and amplitudes of fluctuation in the water level, as well as of the variability of the bottom and the bed of the river. Data concerning the discharges have been collected, and the characteristic lowest, medium, and highest discharges as well as the frequency of their occurrence determined. Phenomena accompanying the processes of discharge, such as thermal conditions in the water, freezing phenomena and river silt motion, are discussed. A full characteristic of the river has been drawn in comparison with two other Polish rivers.

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**Stanisław SAKOWICZ<sup>1</sup> and Jan A. SZCZERBOWSKI<sup>2</sup>**

**The course of spawning of trout (*Salmo trutta m. lacustris* L.) from the Wdzydze Lake in 1966-1967.**

Acta Hydrobiol., 11, 233-243.

[in Polish with English summary]

**Abstract** - Observations of the course of spawning of trout from Wdzydze Lake began in 1954 and were continued till 1967. Their purpose was to gain a better knowledge of the biology of this form, especially its breeding; and of the effects of management upon the number and state of spawning population. The present work summarizes all experiments. It shows, that the intensity of natural spawning and the changes in the composition and quality of spawners stripped artificially depends from the intensity and selectiveness of catching. The decrease in the number of stripped individuals, the increase of their average length and weight, and differences in the course of natural spawning showed that quantitatively spawning population remains upon the same level. Commercial fishing carried with the same intensity as it was used up to now do not have negative effect upon the number of trout in the lake.

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**Stanisław SKÓRA**

**Der Brassen (*Abramis brama* L.) aus dem Staubecken von Goczałkowice.**

Acta Hydrobiol., 11, 377-406.

**Abstract** - Bream inhabiting the reservoir at Goczałkowice were measured, investigated, and characterized. The growth of the bream investigated, compared with that in other waters, is very good, and the variability of its morphologic features decreases with age; this means that the body shape of older specimens is more stabilised. Investigations of sexual dimorphism did not show any essential differences in the general body structure between male and female bream, and their meristic features did not deviate from the normal ranges. The coefficient of maturity showed that its mean value, similarly as the mean absolute fecundity grew proportionally to the increase in body weight.

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**Wiesław STAWIŃSKI**

**Arten der Gattung *Phacus*, welche in verschiedenen Biotopen der Umgebung von Bielsko Biala vorkommen.**

Acta Hydrobiol., 11, 1-55.

**Abstract** - Investigations were carried out from 1961-1964 in 64 various water bodies (carp ponds, pools, swamps, ditches with standing and flowing water, springs, rivers). 63 taxa were found among which 24 were recorded for the first time from Poland. 7 new species were described (*Phacus Bętkowskii*, *P. papillaris*, *P. Janiczakii*, *P. landekiensis*, *P. trapezoides*, *P. Starmachii*, and *P. Dżęzepskii*), and 8 taxa difficult to identify. Almost all species appeared in few or single specimens in the samples; in springs and rivers no species were found.

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**Maria SZUMIEC**

**Heat balance of carp rearing ponds at the Gołysz Experimental Farm.**

Acta Hydrobiol., 11, 137-178.

[in Polish with English summary]

**Abstract** - Quantitative time and vertical distribution of all the components of heat balance of the carp ponds from spring till autumn is presented. The radiation of sun and sky and heat losses by evaporation are the two conclusive factors in the heat balance of the carp ponds. The another components play a small role in the heat exchange during the whole investigated period. In smaller time sections (for several hours) their role increase. The heat balance on the surface of ponds indicates a positive values from May to July. In August and September the emission of the heat from the ponds is observed. A characteristic of heat content in all carp ponds types (from spawning to the rearing ponds) and a comparison between heat balance in ponds and lakes is made.

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**Jan M. WŁODEK**

**Equalization of weights with time and the stabilizing effect of variability in a carp population selected for growth.**

Acta Hydrobiol., 11, 179-200.

**Abstract** - In 1962 the author set up an experiment at the experimental farm Ochaby, Silesia, southern Poland to investigate the equalization of carp growth and the changes of variability with time under the influence of selection for growth. The existence of compensation growth and of the stabilizing effect of variability in carp populations was demonstrated.

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**Krystyna ZAĆWILICHOWSKA**

**Larvae of Diptera in the basin of the River Soła.**

Acta Hydrobiol., 11, 301-312.

**Abstract** - Among 85,379 larvae and pupae of Diptera belonging to 55 taxa larvae of *Eucricotopus* spp., *Rheorthocladus* spp., *Eukiefferella* cfr. *similis*, and *Simulium* spp. occurred in masses. Many species and genera were found in the whole basin or at the majority of sampling places but, depending on the population density and specific differentiation, groups of Diptera larvae which occur in individual parts of the basin were distinguished.

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**Krystyna ZAĆWILICHOWSKA**

**Trichoptera of the basin of the River Soła.**

Acta Hydrobiol., 11, 285-300.

**Abstract** - Among 2479 larvae and chrysalids of Trichoptera collected 40 species were identified, of which *Rhyacophila nubila*, *R. vulgaris*, *Glossosoma boltoni*, *Polycentropus flavomaculatus*, *Psychomyia pusilla*, *Hydropsyche pellucidula* and *Sericostoma personatum* occurred the most numerous and frequently. Conformably to their localisation one could distinguish: 1) groups of Trichoptera in the upper sectors of streams (rheophilous and krenophilous species), 2) groups in the middle reaches of the Soła and in the lower sectors of its tributaries (rheophilous and krenophilous species as well as those typical for slow-flowing waters), 3) groups in strongly polluted sectors (a very poor fauna), and 4) groups in the lower reaches of the Soła (ubiquitous species).

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