Acta Hydrobiologica

Contents of Volume 13 (1971)

Stanisław BERNATOWICZ[1] and Leon SAWICKI[2]
Observation of the acclimatization of *Coregonus peled* (Gmel.) in the waters of North-East Poland.
Acta Hydrobiol., 13, 43-58.

[in Polish with English summary]

Abstract - Investigations on the growth of *Coregonus peled* in ponds and lakes were carried out from their hatching up to the third year (2+). In ponds the weight of autumn fry was 21.6-23.2 g and their survival rate was 7.3-11.8%. In the second year (1+) *C. peled* reached a weight of 252 g and in the third year (2+) 500 g. Their survival was 48.7% in the second year and 63.0% in the third. In lakes the *C. peled* rate of growth was similar to that in the northern waters, whereas in the Lake Dobskie it surpassed all known cases in this respect. In 1968 the spawning-time of *C. peled* was from 6th to 19th December at a water temperature decreasing from 1.0 to 0.5 ^{o}C..

Authors' addresses:
[1] Giżycko, ul. Smętka 15, Poland
[2] Ełk, ul. Wasilewskiej 29, Poland.

Maria BOMBÓWNA
The chemical composition of the water of streams of the Polish High Tatra Mts, particularly with regard to the stream Sucha Woda.
Acta Hydrobiol., 13, 379-391.

Abstract - On the basis of the results of investigations it was found that the chemical composition of water depends on the geological structure of the drainage area, the hypsometric differences, and the climate related with them. Owing to this, trophically varying types of waters develop within very short basins. Attention was also drawn to the local pollution of hitherto very clean high-mountain streams in the region of shelter-houses and settlements.

Author's address: Polish Academy of Sciences, Laboratory of Water Biology, ul. Sławkowska 17, Kraków, Poland.

Halina BUCKA and Łucja KRZECZKOWSKA-WOŁOSZYN
Peculiarities of the phytoplankton species composition of some forest ponds.
Acta Hydrobiol., 13, 195-208.

[in Polish with English summary]

Abstract - The investigation was concerned with the characteristic of plankton from 6 forest ponds in the Opole Province. It was generally observed that they are of green algae and diatom character, with a considerable participation of desmids. Among the algae, other species associated with an acidified environment were noted in great quantities. Some of the recorded species are known in Poland in a few localities only, and *Pleurotaenium trabecula* var. *semi-undulatum* had never been noted before. Analysis of samples demonstrated an insignificant number of plankton animals. The composition of the occurring algae demonstrated the dystrophic character of the investigated ponds.

Author's address: Polish Academy of Sciences, Laboratory of Water Biology, ul. Sławkowska 17, Kraków, Poland.

Bazyli CZECZUGA
The history of Lake Gorbacz.
Acta Hydrobiol., 13, 179-188.

Abstract - The author studied the bed sediment of Lake Gorbacz (Białystok Province) with reference to its water, inactive chlorophyll, and organic matter contents. By comparing the findings with those of the palynological and plant remains on the peat bog of Gierasimow et al. (1957), the author made an attempt to reconstruct the history of the lake, which was probably formed as a result of the last glacial period.

Author's address: Katedra Biologii, Akademia Medyczna, Białystok, Poland.

Elżbieta GRABACKA
Ciliata of the bottom of rearing fishponds in the Gołysz Complex.
Acta Hydrobiol., 13, 5-28.

Abstract - In the years 1963-1964 investigations were carried out on the microfauna of the bottom mud of 10 artificial fishponds of the Gołysz Complex of Experimental Farms, particular attention being paid to Ciliata. Qualitative investigations were carried out (184 Ciliata species being reported) as well as quantitative, in which the variations in the numbers of the Ciliata population during the whole rearing season against the background of some physico-chemical factors of the bottom environment were noted. The most abundant and greatly varied microfauna was found in the ponds of the Farm Gołysz, which had been intensively manured with mineral (composite) fertilizers.

Author's address: Polish Academy of Sciences, Laboratory of Water Biology, ul. Sławkowska 17, Kraków, Poland.

Barbara KAWECKA, Marta KOWNACKA and Andrzej KOWNACKI
General characteristics of the biocoenosis in the streams of the Polish High Tatra.
Acta Hydrobiol., 13, 465-476.

Abstract - On the basis of algae and bottom-fauna communities in the streams of the High Tatra Mts the following zones were distinguished: 1) the zone of high-mountain streams (at an altitude of 1550-2100 m), with community composed of the Cyanophyceae (*Chamaesiphon polonicus*) and of larvae of Chironomidae (*Diamesa steinboecki*, *D.* gr. *latitarsis*); 2) the zone of the montane streams (at an altitude of 1000-1550 m) of which the algae *Hydrurus foetidus*, *Homoeothrix janthina*, and *Diatoma hiemale*, the mayflies *Baetis alpinus*, *Rhitrogena loyolaea*, and Chironomidae *Parorthocladius nudipennis* on limestone substratum or *Orthocladius rivicola* on granite substratum are typical; 3) the zone of the submontane streams and rivers (at an altitude of 500-1000 m) in which the diatoms *Diatoma vulgare* var. *Ehrenbergii*, *D. vulgare* var. *capitulatum*, *Cymbella affinis*, *Synedra ulna*, green alga *Ulothrix zonata* dominate, and in zoocoenosis *Orthocladius rivicola*, *O. thienemanni*, and Simuliidae.

Author's address: Polish Academy of Sciences, Laboratory of Water Biology, ul. Sławkowska 17, Kraków, Poland.

Barbara KAWECKA

Zonal distribution of algal communities in streams of the Polish High Tatra Mts.
Acta Hydrobiol., 13, 393-414.

Abstract - On the basis of species occurring most numerously on limited sections of waters in streams of the high Tatra Mts, 3 zones can be distinguished. In zone I (altitude about 1550-1780 m) the predominant forms are blue-green algae with prevailing *Chamaesiphon polonicus*. Zone II (890-1550 m) is characterized by a strong development of *Hydrurus foetidus* and *Homoeothrix janthina*, and of diatoms with the predominant species *Diatoma hiemale* with the variety *mesodon*. Zone III (540-890 m) is distinguished by a mass development of diatoms with the characteristic species *Diatoma vulgare* var. *Ehrenbergii*, *Cymbella affinis*, and *Synedra ulna*.

Author's address: Polish Academy of Sciences, Laboratory of Water Biology, ul. Sławkowska 17, Kraków, Poland.

Maria KLIMCZYK-JANIKOWSKA
Dace (*Leuciscus leuciscus* L.) from the Upper Vistula and Czarna Przemsza.
Acta Hydrobiol., 13, 343-361.

Abstract - A basic biometric analysis of dace (*Leuciscus leuciscus* L.) from the Upper Vistula and Czarna Przemsza was carried out, as well as an analysis of their food. Dace of these populations were typical forms. Their varieties, morpha *majalis* Agass. and morpha *rodens* Agass., discriminated by Berg (1949), were not noted in the examined material. The investigated populations of dace were compared with those from the river Czarna Staszowska and from the rivers of the Łódź Upland. With regard to plastic and meristic features the investigated dace did not differ on the whole from those of the populations compared; it was found, however, that dace from the river Czarna Przemsza had fewer vertebrae and scales on the lateral line than those from the other populations. Sex dimorphism appeared in the length of the pectoral and ventral fins, which were longer in males than in females. Dace of the investigated populations fed in some periods both on plant and animal food and in others exclusively on either plants or animals.

Author's address: Polish Academy of Sciences, Laboratory of Water Biology, ul. Sławkowska 17, Kraków, Poland.

Wacław KOCHAN
A contribution to the knowledge of zooplankton in Lake Hańcza.
Acta Hydrobiol., 13, 117-131.

[in Polish with English summary]

Abstract - Materials for the present study were collected in Lake Hańcza from 9 to 16 August 1966. The lake is situated in the Suwałki Lake District (Poland). Three systematic groups of animals were examined: rotifers, cladocerans, and copepods. The study showed that the zooplankton of Lake Hańcza belongs to the *Daphnio-Diaptometum graciloides* association from the alliance *Daphnio-Calanidion lacustre*, characteristic of oligotrophic lakes.

Author's address: Zakład Zoologii Systematycznej i Doświadczalnej, Polska Akademia Nauk, Kraków, Poland.

Władysław KOŁDER
Die Plötze (*Rutilus rutilus* L.) des Piburger Sees.
Acta Hydrobiol., 13, 491-506.

Abstract - The roach (*Rutilus rutilus* L.) of Lake Piburg (915 m above sea level, Tyrol, Austria) was described morphologically and investigated as to its nutritional selectivity. In comparison with other waters, the growth of this population can be considered as very good. The arithmetic mean and standard deviation of linear measurements and body weight of particular roach age groups were calculated, as well as the coefficient of variability of linear measurements and body weight. The significance of the sexual dimorphism in the 5th and 6th age groups was tested by means of Student's test. The meristic features of the roach were calculated and listed in tables.

Author's address: Polish Academy of Sciences, Laboratory of Water Biology, ul. Sławkowska 17, Kraków, Poland.

Marta KOWNACKA
The bottom fauna of the stream Sucha Woda (High Tatra Mts) in the annual cycle.
Acta Hydrobiol., 13, 415-438.

Abstract - The bottom fauna in the stream Sucha Woda was chiefly represented by larvae of insects, especially of flies (dominant Chironomidae), mayflies, stone-flies, and caddis flies. The distribution of these groups showed a distinct "etagement", as well as quantitative and qualitative differences according to the height and the velocity of the current. Above 1550 m the fauna is poor both qualitatively and quantitatively (15-40 ind. dm^{-3}). The dominant forms are *Diamesa* gr. *latitarsis* (Chironomidae). One quantitative peak is observed here in September, brought about chiefly by *Diamesa* gr. *latitarsis* and by some stone-flies, and Simuliidae. At the altitude 1550-1000 m the number of species and individuals greatly increases in the stream. *Eukiefferiella minor* and *Parorthocladius nudipennis* (Chironomidae), as well as *Baetis alpinus* and *Rhitrogena loyolaea* (Ephemeroptera) predominate here. A thrice repeated increase in fauna was noted in winter (the greatest), in spring, and summer. Below 1000 m a number of species characteristic of rivers with a small gradient and a higher content of calcium appear in the stream. A large number of individuals are noted (255 ind. dm^{-3}). The dominant forms are *Orthocladius rivicola* and *O. thienemanni* (Chironomidae). The fauna increases three or four times in number. The smallest number of individuals is noted in winter and the greatest in summer.

Author's address: Polish Academy of Sciences, Laboratory of Water Biology, ul. Sławkowska 17, Kraków, Poland.

Andrzej KOWNACKI
Taxocens of Chironomidae in streams of the Polish High Tatra Mts.
Acta Hydrobiol., 13, 439-464.

Abstract - The main component of the bottom fauna in streams of the High Tatra Mts are insect larvae, especially Chironomidae (40-100% of the total number of animals). On the basis of the dominant species it is possible to distinguish five taxocens of Chironomidae, distributed in accordance with changes in altitude. It was possible to show differentiation of Chironomidae associations in individual habitats (stones, moss, algae) also within particular localities, as well as the dependence of the course of seasonal changes on altitude.

Author's address: Polish Academy of Sciences, Laboratory of Water Biology, ul. Sławkowska 17, Kraków, Poland.

Wojciech KRZANOWSKI
Zooplankton of the dam reservoir on the Soła at Tresna in the first year after its construction.

Acta Hydrobiol., 13, 323-333.

Abstract - Complex hydrobiological investigations were carried out in 1966 in the newly constructed dam reservoir on the river Soła at Tresna, and in its suppliers and effluent. The investigations showed a fairly large differentiation of the reservoir with regard to the quality and quantity of the zooplankton. Its richest qualitative composition and most numerous occurrence was observed in the middle part of the reservoir, whereas in the upper part, receiving polluted waters of the river Soła, the zooplankton was much less differentiated and occurred in much smaller numbers. The dominant forms during the whole period of investigations were Rotatoria with the species *Polyarthra vulgaris* and *Keratella cochlearis cochlearis* and the genus *Synchaeta* preceding Protozoa and Cladocera. The majority of the zooplankton concentrated in the middle part of the reservoir and near the dam in layers of water 2.5 to 10 m deep. The composition and occurrence of the zooplankton in the Soła flowing out of the reservoir was similar to that observed in the deeper layers of water near the dam. The zooplankton in the suppliers was represented by a few species occurring sporadically.

Author's address: Polish Academy of Sciences, Laboratory of Water Biology, Hydrobiological Station, Goczałkowice, Poland.

Łucja KRZECZKOWSKA-WOŁOSZYN, Halina BUCKA and Krystyna KYSELOWA
Selected algae of dam reservoirs, the River Soła, and carp ponds.
Acta Hydrobiol., 13, 107-116.

Abstract - 5 euglenin species of the genus *Trachelomonas*, 12 species and one variety of chrysophytes of the genera *Pseudokephyrion*, *Kephyrion*, *Kephyriopsis*, and *Chrysococcus*, and 3 species of green algae of the genera *Scenedesmus* and *Siderocystis* were determined as being rare or new for Poland. They were found in the plankton of fishponds, in dam reservoirs, and in the river Soła (Provinces of Katowice and Kraków).

Authors' address: Polish Academy of Sciences, Laboratory of Water Biology, ul. Sławkowska 17, Kraków, Poland.

Edward KRZYŻANEK
Bottom fauna in the Tresna dam reservoir in 1966.
Acta Hydrobiol., 13, 335-342.

Abstract - Investigations of bottom fauna were carried out at 3 sampling points of the reservoir at Tresna, on the river Soła above and below the reservoir, and on the rivers Łękawka and Żylica. The phenomena observed in the bottom fauna were similar to those encountered in other dam reservoirs. At sampling point 1 of the reservoir Oligochaeta occurred in masses, amounting to over 15 10^3 ind. m^{-2}. At the other sampling points Chironomidae prevailed, being chiefly represented by *Chironomus plumosus*. Investigations carried out from sampling points lying on the rivers showed that the richest bottom fauna occurs in the river Łękawka, with a maximum number of 3225 ind. m^{-2}. At sampling points at which the effect of pollution from industrial establishments was observed (Żylica and Soła above the reservoir) the fauna was poorer.

Author's address: Polish Academy of Sciences, Laboratory of Water Biology, Hydrobiological Station, Goczałkowice, Poland.

Tadeusz KUFLIKOWSKI
The overgrowing of the dam reservoir at Goczałkowice in the years 1967-1969.
Acta Hydrobiol., 13, 313-321.

Abstract - The present work is a continuation of many years' observations on the overgrowing of the dam reservoir at Goczałkowice with vascular vegetation, carried out since the beginning of the existence of this reservoir, i.e. since 1956. Within the last few years a certain stabilization of this vegetation has been observed, greater changes taking place chiefly as an effect of very low and high water levels.

Author's address: Polish Academy of Sciences, Laboratory of Water Biology, Hydrobiological Station, Goczałkowice, Poland.

Oldřich LHOTSKÝ
Algologische Bibliographie der Hohen Tatra.
Acta Hydrobiol., 13, 477-490.

Abstract - The High Tatra Mountains are the most important part of the mountain region of the Western Carpathians. The history of the algological research began in the 18th century with observations of coloured snow. A new period and a great development of the algological research after World War II is connected with the establishment of the High Tatra National Park in the Slovakian part of these mountains in 1948 and in the Polish part in 1954. A list of 209 papers dealing with algae of the High Tatra is presented.

Author's address: Mikrobiologický ústav ČSAV, Algologická laboratoř, Třeboň, Czechoslovakia.

John W.G. LUND[1], George H.M. JAWORSKI[1] and Halina BUCKA[2]
A technique for bioassay of freshwater, with special reference to algal ecology.
Acta Hydrobiol., 13, 235-249.

Abstract - A technique for bioassay of freshwater is described, the possibilities of its practical application being given at the same time. Among other uses it can be applied for determination of the potential fertility of waters, as well as utilized for their differentiation. Moreover, the use of bioassay enlarges our knowledge of the ecology of algae on the basis of their growth in cultures.

Authors' addresses:
[1] Freshwater Biological Association, Windermere Laboratory, Ambleside, England
[2] Polish Academy of Sciences, Laboratory of Water Biology, ul. Sławkowska 17, Kraków, Poland.

Stanisław NIEWOLAK
A microbiological study on the hyponeuston of the Iława lakes in the summer season.
Acta Hydrobiol., 13, 295-311.

Abstract - Investigations were carried out on the distribution of bacterioplankton, heterotrophic microflora, and *Azotobacter* in the hyponeuston of the Iława lakes in the summer season. Moreover, the heterotrophic microflora of the superficial layer of water identified, a description being given of its morphological, physiological, and biochemical character. The investigations showed that solar radiation has a detrimental effect on the development of micro-organisms in surface water and that *Azotobacter* is highly resistant to ultraviolet rays.

Author's address: Katedra Mikrobiologii Technicznej, Wyższa Szkoła Rolnicza, Olsztyn-Kortowo, Poland.

Stanisław NIEWOLAK

The microbiological decomposition of tribasic calcium phosphate in the Iława lakes.

Acta Hydrobiol., 13, 131-145.

Abstract - The present investigations established the quantitative and qualitative composition of microflora acting in the degradation of tribasic calcium phosphate in the water and bottom sediments in the Iława lakes in the annual cycle. Considerable differences were noted in the development of the respective microorganisms, according to the degree of water pollution, the time of the year, and the type of the bottom. Among bacteria decomposing tribasic calcium phosphate strains of the genus *Micrococcus*, *Aeromonas*, *Pseudomonas*, *Escherichia*, and *Bacillus* were identified. The greatest accumulation of P-PO4 in the experimental vessels occurred during the period of the maximum development of "phosphoric" bacteria.

Author's address: Katedra Mikrobiologii Technicznej, Wyższa Szkoła Rolnicza, Olsztyn-Kortowo, Poland.

Stanisław NIEWOLAK and Marta SOBIERAJSKA

The participation of some bacteria in the synthesis of vitamin B_{12} in the water of the Iława lakes.

Acta Hydrobiol., 13, 147-158.

Abstract - The paper reports the results of investigations on the synthesis of vitamin B_{12} by some bacteria of the Iława lakes (Jeziorak Mały and Jeziorak) lying in the Mazurian Lake District. Among bacteria synthesizing vitamin B_{12} in these lakes the most numerously represented in Jeziorak Mały were bacteria of the genus *Pseudomonas* and *Bacillus*, and in the lake Jeziorak species of the genus *Aeromonas* and *Vibrio*, as well as strains of the genus *Micrococcus* and *Bacillus*. Active strains of bacteria were also found in other systematic groups. Most of them synthesized under 0.05 ug mL^{-1} vitamin B_{12}. In the microflora of the Iława lakes *Azotobacter agile* strains No 925 and 932 were particularly active; they synthesized up to 0.16 and 0.17 ug mL^{-1} vitamin B_{12} (corrinoids).

Author's address: Katedra Mikrobiologii Technicznej, Wyższa Szkoła Rolnicza, Olsztyn-Kortowo, Poland.

Kazimierz PASTERNAK

The content of copper, zinc, and manganese in the water of the dam reservoir at Goczałkowice and of several other reservoirs.

Acta Hydrobiol., 13, 159-177.

Abstract - The content of Cu, Zn, and Mn was determined in the water of various zones of the reservoir at Goczałkowice, of the river Vistula supplying it, and in the water of the outlet. For comparison, the concentration of these microelements was also determined in waters of seven other dam reservoirs (clean and polluted). It was found that the content of all the investigated elements in the Goczałkowice reservoir is higher than in the clean Carpathian reservoirs, showing a distinct horizontal, vertical, and seasonal differentiation. The seasonal variability of these elements depends to some extent on the meteorological conditions of the surrounding terrain. None of these differences show any distinct relationship with the other, simultaneously determined chemical properties of the water. The inflow of microcomponents into the reservoir is greater than their outflow. Mineral pollution has the greatest effect on the content of microelements.

Author's address: Polish Academy of Sciences, Laboratory of Water Biology, ul. Sławkowska 17, Kraków, Poland.

Kazimierz PASTERNAK

The influence of waters polluted with colliery wastes on the properties of the bottom soil of carp ponds.

Acta Hydrobiol., 13, 59-76.

Abstract - Investigations were carried out on changes in the properties of heavy bottom soils of ponds under the influence of water polluted with wastes from a mine of pit coal. It was found that in the upper layer of polluted soils, apart from a change in the grain size composition and a very large increase in acidity and in the amount of organic matter, there also occurs a marked concentration of some chemical constituents. The increase in the content of sulphur (chiefly in the form of sulphates and free H_2SO_4), aluminium, total phosphorus, and exchangeable sodium and magnesium is particularly strongly marked. The degree of their salinity is relatively low. Soils of ponds supplied with water in the first sequence are subject to the greatest pollution. A high percentage of organic matter of polluted soils consists of free compounds of fulvic and humic acids, bitumens, and phenols. The paper ends with a discussion on the detrimental effects of this phenomenon and on the means of preventing them.

Author's address: Polish Academy of Sciences, Laboratory of Water Biology, ul. Sławkowska 17, Kraków, Poland.

Kazimierz PASTERNAK

The physiography and character of the substratum of the drainage areas of streams of the Polish High Tatra Mts.

Acta Hydrobiol., 13, 363-378.

Abstract - Within the framework of collective hydrobiological investigations the more important abiotic factors (relief, structure, and physico-chemical properties of the substratum) of the aqueous medium of the principal streams of the Polish High Tatra Mts were determined. It was found that the zonal differentiation of hydrological conditions, of the chemical composition of water, and of the substratum of the bottom of these streams chiefly depend on the quality of the substratum of the drainage area and on climatic conditions. The shift (glacial and contemporaneous) down valleys and beds of streams of fragments of higher-lying crystalline rocks increased the range of their influence on the quality of the water and the settlement of benthic animals. In conclusion, the peculiar character of the factors of this medium was discussed as well as the possibilities of their action on aquatic biocoenoses.

Author's address: Polish Academy of Sciences, Laboratory of Water Biology, ul. Sławkowska 17, Kraków, Poland.

Kazimierz PASTERNAK[1] and Anna ANTONIEWICZ[2]

The variability of copper, zinc, and manganese content in the water of some rivers, streams, and carp ponds.

Acta Hydrobiol., 13, 251-268.

Abstract - Microcomponents were determined according to the method of atomic absorption spectroscopy. The concentration of these elements in flowing waters and ponds shows a varied differentiation. Changes occur in the range of variations of each of the examined microelements and in their concentration in the particular streams and ponds, as well as in the course of the season. The least variable microelement is copper and manganese the most. The quantitative differentiation of all microelements between the streams chiefly depends on the quality of their catchment basin and degree of pollution. Between ponds it depends on the character of the bottom. The seasonal variability of trace elements shows a fairly marked dependence on the quality of meteorological phenomena having a bearing on the intensity of biological processes in the aqueous medium and chemical erosion of the substratum. The share of the biological factor in the process of quantitative changes is corroborated by the oxidability of water. The fertilization of ponds was marked by the increased concentration of microcomponents in the water usually only at the beginning of the season.

The deficiency of these microcomponents in ponds should therefore be complemented only in full summer.

Authors' addresses:
[1] Polish Academy of Sciences, Laboratory of Water Biology, ul. Sławkowska 17, Kraków, Poland
[2] Zakład Zywienia Zwierząt, Instytut Zootechniki, Kraków, Poland.

Andrzej PIECHOCKI
Versuch einer Ausnutzung von Köchern der Köcherfliege - *Limnephilus flavicornis* (Fabricius) - bei Untersuchungen der Molluskenfauna von Kleingewässern.
Acta Hydrobiol., 13, 77-85.

[in Polish with German summary]

Abstract - The cases of larvae of the common caddis fly *Limnephilus flavicornis* (Fabr.) are often made of the shells of molluscs. The aim of the present work was to establish how far the molluscs collected by the larvae of this caddis fly represent the molluscan fauna of some waters. On the basis of investigations of two old riverbeds it was established that the data obtained from the caddis fly cases are very rich and may even surpass the data obtained by means of collecting tools (dredge and hand-net).

Author's address: Katedra Zoologii Ogólnej Uniwersytetu Łódzkiego, Łódź, Poland.

Stanisław SKÓRA
The German Carp (*Carassius auratus gibelio* Bloch from the river Iłownica stocked in a carp pond.
Acta Hydrobiol., 13, 217-232.

Abstract - The present study was based on the results of measurements of specimens of 96 German carp collected at random from a population cultivated in the pond Młyński lying in the Landek farm controlled by the Laboratory of Water Biology of the Polish Academy of Sciences in Cracow. On the basis of body measurements and of other investigations it was found that the German carp is a form typical of this species. With regard to its outward appearance, colour, shape of body, meristic and anatomical features it corresponds to the German carp (*Carassius auratus gibelio* Bloch) described by other authors.

Author's address: Polish Academy of Sciences, Laboratory of Water Biology, ul. Sławkowska 17, Kraków, Poland.

Stanisław SKÓRA and Jan M. WŁODEK
The gudgeon (*Gobio gobio* L.) from the basins of the rivers Czarna Staszowska and Kamienna.
Acta Hydrobiol., 13, 87-105.

Abstract - The investigated populations of gudgeon come from two river basins draining the southern and northen slopes of the Świętokrzyskie Mts and constituting a typical fluvial environment for gudgeon. This refers particularly to the river Czarna Staszowska. The investigations showed that in the morphological features and body weight a decrease and equalization of the relative variability takes place. In the river Czarna Staszowska there occurs the interesting phenomenon of a decrease in the relative variability of the dimensions of the gudgeon's body down the river. This regularity occurs in almost all morphological features and body weights. All the investigated gudgeon should be related to the nominal form *Gobio gobio* L.

Authors' address: Polish Academy of Sciences, Laboratory of Water Biology, ul. Sławkowska 17, Kraków, Poland.

Ryszard SOWA
Note sur les especes de la famille Heptageniidae des Carpathes polonaises (Ephemeroptera).
Acta Hydrobiol., 13, 29-41.

Abstract - The male adult of *Rhithrogena gorganica* Klapálek, 1907 and the nymph of *Heptagenia longicauda* (Stephens, 1836) are once more described. The description of the unknown forms: female adult, sub-imago, and nymph of *R. gorganica* is given, as well as a key for the determination of the nymphs of the Central European species of the genus *Heptagenia* Walsh.

Author's address: Zakład Hydrobiologii, Uniwersytet Jagielloński, Kraków, Poland.

Krystyna STARZYKOWA
Associations of plankton crustaceans (Cladocera and Copepoda) of selected dam reservoirs in Southern Poland.
Acta Hydrobiol., 13, 189-194.

Abstract - Associations of Cladocera and Copepoda were discriminated from seven dam reservoirs and three stages. These associations were worked out on the basis of the computed mean frequency and mean dominance of the occurring species. From the product of these two values a coefficient was obtained, according to which the associations were ordered. Considerable differences were observed in the values of this coefficient between one or two dominants and the other species occurring in the association. As a result of these investigations 17 various associations were obtained, composed of 13 species. These associations are distinguished by a considerable similarity, especially in reservoirs of the same character.

Author's address: Katedra Hydrobiologii, Uniwersytet Jagielloński, Kraków, Poland.

Jerzy STRZELECKI[1] and Tadeusz PÓŁTORAK[2]
The plankton of Lake Gardno near the Baltic Sea during the summer season.
Acta Hydrobiol., 13, 269-294.

Abstract - The eutrophic Lake Gardno is seasonally supplied by the water of the Baltic Sea. The occurrence of 257 taxa of algae and 69 taxa of animals was noted. Of the class Bacillariophyceae about 40% of species were found, assigned to halophilous and brackish forms. Cyanophyta occurred in masses (69.7%) with the predominant species *Microcystis aeruginosa*, *Lyngbya limnetica*, and *Aphanizomenon flos-aquae* f. *gracile*. In the zooplankton the most numerously represented were Protozoa (78.4%), *Tintinnopsis ovalis* being the predominant form. Littoral and benthic species prevailed among algae and animals, this being related with the shallowness of the water and overgrowth of the lake with higher plants.

Authors' addresses:
[1] Polish Academy of Sciences, Laboratory of Water Biology, Hydrobiological Station, Goczałkowice, Poland
[2] Miejskie Przedsiębiorstwo Wodociągów i Kanalizacji, Rzeszów, Poland.

Jan M. WŁODEK
Dr Krystyna Zaćwilichowska, 1924-1969.
Acta Hydrobiol., 13, 1-4.

Abstract - [Biography with list of publications; in Polish].

Author's address: Polish Academy of Sciences, Laboratory of Water Biology, ul. Sławkowska 17, Kraków, Poland.

Jerzy ZIĘBA
A note on the benthos of some forest ponds.
Acta Hydrobiol., 13, 209-216.

[in Polish with English summary]

Abstract - The aim of the present work was to characterize approximately the bottom fauna living in forest ponds differing in ecological conditions from the majority of carp rearing ponds. In October, both the composition and numbers, as well as the biomass of the predominant benthic groups (Oligochaeta, Chironomidae) showed a greater dystrophy in the three upper ponds (Nos 1, 2, and 3) than in those lying lower (Nos 5, 6, and 7). In July of the following year no such marked differences were noted between these two groups of ponds.

Author's address: Polish Academy of Sciences, Laboratory of Water Biology, ul. Sławkowska 17, Kraków, Poland.
