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Tadeusz BASZYŃSKI¹ and Kazimierz KARZMARZ²

Investigations on the production of inorganic matter by Charophyta associations. 2. Benthic associations in the Bay of Puck.

Acta Hydrobiol., 24, 143-150.

Abstract - The contribution presents data on the production of inorganic matter in two Charophyta associations - *Charetum asperae* and *Charetum balticae* - in the Bay of Puck in the Baltic Sea. Silica, calcium, and iodine have been recognized as important components of the mineral deposits. These components with six others previously reported, are present in fine pelite clays in both Puck and Gdańsk Bays.

Key words: marine algae, Charophyta association, production of inorganic matter.

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Maria BOMBÓWNA

Stream ecosystem in mountain grassland (West Carpathians). 3. Chemical composition of water.

Acta Hydrobiol., 24, 321-335.

Abstract - In three mountain streams flowing out of different geological massifs the chemism of the water was investigated in a two-year cycle. A distinct dependence between the geological substratum and the degree of chemical erosion of the chief macroelements was observed. The pastoral use of the catchment basins led to an output of nutritive compounds, while the forest drainage area yielded large amount of mineral nitrogen compounds. The cumulated fertilization of mountain pastures was reflected by the constant occurrence of phosphates in the stream water and by a pronounced increase in the flow of mineral nitrogen compounds.

Key words: stream ecosystems, influence of pastoral economy, the West Carpathians, chemical erosion, cumulated fertilization of the catchment basin, output of nutrient compounds.

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Nicolae BOTNARIUC, Angheluță VĂDINEANU and Carmen POPA

Physiological investigations on *Propsilocerus danubialis* Botnariuc and Albu, 1956 (Diptera - Chironomidae) - Ponto-Caspian relict.

Acta Hydrobiol., 24, 267-274.

Abstract - The shift of *Propsilocerus danubialis* populations to a freshwater medium, implicated the ability to maintain the hyperosmosis in this new medium; nevertheless the poikilosmotic behaviour under high

salinities was also maintained as a typical behaviour of marine invertebrates, which proves the marine origin of this species. The swarming behaviour and the hypopygium size of the individuals of *P. danubialis* are interpreted as adaptations to the living sea conditions.

Key words: chironomids, swarming behaviour, salinity, osmotic pressure, poikilosmotic, homeosmotic, oxygen consumption.

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Maria BUBICZ, Lucyna KOZAK, Maria MIKOS and Zofia WARDA

Heavy metals in the aquatic environment of some water bodies of the Lublin Coal Basin.

Acta Hydrobiol., 24, 125-138.

Abstract - The content of Hg, Pb, Cd, Ni, Co, Cu, Zn, Mn, and Fe in water bottom sediments and aquatic plants was determined. The content of Hg, Pb, Co, and Fe in water corresponded to concentrations admissible for 1st class of water purity, and that of Cd, Cu and Zn for 2nd class. In bottom sediments a high positive correlation occurred between the content of organic matter and the total content of elements. The concentration of metals in plants was varied and depended upon species and environment. Some plants showed the ability of a very high and sometimes selective accumulation of Fe, Mn, Zn, Co and Cu. The content of Hg and Cd in plants was positively correlated with their concentration in water and ediments.

Key words: inland waters, bottom sediments, aquatic and terrestrial-aquatic plants, content of heavy metals.

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Anna CZAPIK

The effect of waste water on ciliate communities in the Biała Przemsza River.

Acta Hydrobiol., 24, 29-37.

Abstract - Biała Przemsza River is polluted by both municipal and industrial waste waters which also include the salts of heavy metals and sulphates. In the ciliate communities the microphagous ciliates were predominant; algivorous species were found only where the pollution was decreasing owing to the river's self-purification process. The quality of water was classified as polysaprobic or beta-mezosaprobic according to the place. The ability of some species as pollution levels indicators was discussed.

Key words: polluted rivers, ciliate communities.

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Bazyli CZECZUGA

Carotenoids in fish. 35. Cyprinidae: *Abramis brama*, *Abramis ballerus*, and *Blicca björkna*.

Acta Hydrobiol., 24, 275-281.

Abstract - The author investigated the presence of various carotenoids in certain organs of *Abramis brama*, *A. ballerus* and *Blicca björkna*. The presence of the following carotenoids has been stated: beta-carotene, gamma-carotene, alpha-cryptoxanthin, beta-cryptoxanthin, canthaxanthin, lutein, lutein epoxide, zeaxanthin, tunaxanthin, mutatochrome, idoxanthin, alpha-doradexanthin, astaxanthin and astaxanthin ester. The total content of carotenoids ranged from 0.093 (muscles of *Abramis brama*) to 6.688 $\mu\text{g g}^{-1}$ fresh

weight (skin of *Abramis ballerus*).

Key words: carotenoids in *Abramis brama*, *Abramis ballerus* and *Blicca björkna*.

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Emil DRATNAL¹ and Elżbieta DUMNICKA²

Composition and zonation of benthic invertebrate communities in some chemically stressed aquatic habitats of Niepołomice Forest (South Poland).

Acta Hydrobiol., 24, 151-165.

Abstract - Four types of the invertebrate communities are distinguished in which Oligochaeta and Chironomidae are dominant groups. The changes of some chemical factors along the water courses are presented and their influence on the benthic macroinvertebrate communities is discussed. High acidity of the water reduces the number of taxa occurring in chemically stressed sites.

Key words: running waters, invertebrate communities, zonation.

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Elżbieta DUMNICKA

Stream ecosystem in mountain grassland (West Carpathians). 9. Oligochaeta.

Acta Hydrobiol., 24, 391-398.

Abstract - The oligochaetes fauna of two mountain streams (Biała Woda and Kamionka) is discussed. 22 species belonging to 5 families were found in the streams. In the Biała Woda stream the characteristic communities of mountain streams were noted. The species of the genus *Nais* predominated while Enchytraeidae were also fairly numerous. Apart from species typical for mountain streams, those typical for lowland or slightly polluted waters were also encountered in the Kamionka stream, this suggesting the eutrophicating effect of pasturing.

Key words: stream ecosystem, influence of pastoral economy, the West Carpathians, oligochaetes communities.

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Elżbieta GRABACKA

Stream ecosystem in mountain grassland (West Carpathians). 7. Ciliata.

Acta Hydrobiol., 24, 367-373.

Abstract - The effect of agricultural wastes from areas of intense and traditional pastoral economy on the composition and numbers of Ciliata communities (Ciliata, Protozoa) on a stony bottom (in the lotic zone) and on a slimy bottom (in the lentic zone) of the mountain streams Biała Woda and Kamionka in the Western Carpathians was analysed. It was found that the current run-off of pollution to the streams did not bring about any significant changes in Ciliata communities. The differentiation of these communities

depended rather upon the variability of the stream bottom.

Key words: stream ecosystem, influence of pastoral economy, the West Carpathians, Ciliata, Protozoa.

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Krzysztof JOP¹ and Krzysztof WOJTAN²

Concentrations of cadmium and lead in the body of some macrobenthos species from five streams of Southern Poland.

Acta Hydrobiol., 24, 197-210.

Abstract - Concentrations of cadmium and lead were examined in body tissue of larvae of *Ephemera danica* and *Baetis vernus* (Ephemeroptera), and the specimens of *Gammarus pulex* (Amphipoda) and *Asellus aquaticus* (Isopoda) from five streams in the vicinity of Cracow, receiving metal fallout and wastes from a metallurgy plant and zinc-lead mines. Concentrations of metals decreased with increasing age in all species. The relationships of metal concentration in aquatic invertebrates were not consistent with the degree of contamination in stream. Calcium concentration of stream waters appeared to affect body metal concentration.

Key words: stream pollution, heavy metals, macrobenthos, bioaccumulation.

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Kanval KAPUR and Naresh K. YADAV

The effect of some herbicides on the hatching of eggs in common carp, *Cyprinus carpio* var. *communis*.

Acta Hydrobiol., 24, 87-92.

Abstract - Studies presented here clearly demonstrate the inhibitory effect of the herbicides, viz.: Simazine, Tafapon, Gramoxone, Cotoran, Taficide, and MCPA on the hatching of eggs of carp, *C. carpio*. The LC₅₀ values of the herbicides have been calculated. The toxicity of the various compounds was in the decreasing order from Taficide > Cotoran > Simazine > Gramoxone > MCPA > Tafapon. The probable mode of action of these compounds is discussed.

Key words: herbicides, toxicity, carp, hatching.

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Krzysztof KASPRZAK and Józef BANASZAK

The evaluation of numbers, biomass, and respiration of phytophilous macrofauna in a field drain canal.

Acta Hydrobiol., 24, 167-173.

Abstract - In a canal flowing across an area of intense agriculture the number, biomass and respiration of phytophilous macrofauna were investigated. Mean total biomass of macrofauna on plant communities was 0.7 g DW m⁻² (777.9 ind. m⁻²). Herbivores and predators reached the highest percentage in biomass (59.6 and 32.6 respectively). Herbivorous organisms were also characterized by intense metabolism, reaching up to 63% of the mean macrofauna respiration during the vegetation season (91.6 kJ m⁻²).

Key words: melioration canals, phytophilous macrofauna, numbers, biomass, respiration, compensation of biomass.

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Barbara KAWECKA

Stream ecosystem in mountain grassland (West Carpathians). 6. Sessile algae communities.

Acta Hydrobiol., 24, 357-365.

Abstract - In the control stream (forested drainage area) and in the streams situated in the regions of pastures (with a traditional and intensive fertilization) the algal communities were similar from a floristic point of view but fairly distinctly differentiated in the size of the populations of some species. The index of diatom biomass reached the highest values in the stream flowing across the regions of pastures used for traditional sheep grazing, and the lowest ones in the area of the experimental pastures undergoing intensive fertilization.

Key words: stream ecosystem, influence of pastoral economy, the West Carpathians, algal communities, sessile algae, algal ecology, algal periodicity.

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Czesław KOWALCZYK and Stanisław RADWAN

Groups of pelagic zooplankton in three lakes of different trophy.

Acta Hydrobiol., 24, 39-51.

Abstract - In the material collected from three lakes of the Łęczna-Włodawa Lakeland: Bikcze, Brzeziczno, and Piaseczno 42 species and forms of Rotatoria, 12 species of Cladocera, and 8 species of Copepoda were found. The predominating species indicate clearly the differentiation of those lakes, especially in the Rotatoria and Cladocera groups. Indicators of ecological importance were calculated on the basis of which the characteristic species composition was found for the investigated lakes. For lakes Bikcze and Brzeziczno the species composition consisted of 4 species, and for lakes Piaseczno of 5 species.

Key words: ecology, lakes zooplankton, Rotatoria, Cladocera, Copepoda.

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Andrzej KOWNACKI

Stream ecosystem in mountain grassland (West Carpathians). 1. Introduction and description of the investigated area.

Acta Hydrobiol., 24, 291-305.

Abstract - The streams investigated: Biała Woda, Czarna Woda, and Kamionka drain two morphological units of the West Carpathians: in the north the Beskid Słdecki Mts, composed of the Carpathian flysch, and in the south the Małe Pieniny Mts, built up to Jurassic and Lower Cretaceous limestones. The areas is in the most part covered with brown acid soils and podzolic soils, with a smaller percentage of neutral or alkaline soils (*rendzinas*). The dominating form of land use in the catchment basin are forest and pastures utilized for sheep grazing. The investigations were carried out at stations in which the character of the catchment basin was the modifying agent.

Key words: stream ecosystems, influence of pastoral economy, the West Carpathians, geology, pedology, hydrography.

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Andrzej KOWNACKI

Stream ecosystem in mountain grassland (West Carpathians). 8. Benthic invertebrates.

Acta Hydrobiol., 24, 375-390.

Abstract - The effect of pastoral management in the mountains on the invertebrate fauna in some streams of the upper Grajcarek basin (the Western Carpathians) was investigated. The influence of sheep grazing was chiefly manifested by the growing percentage of Chironomidae in the whole fauna, changes in the domination structure, and disturbance in regular seasonal cycles of benthic invertebrates. In the qualitative composition of the fauna, however, there was little change. The changes in the communities were brought about not only by the increasing content of mineral nutrients in the water but also by the variability of water flow, insolation, and temperature caused by the cutting-down of forests and associated with pastoral land use.

Key words: stream ecosystems, influence of pastoral economy, the Western Carpathians, invertebrates, seasonal cycles, floods.

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Andrzej KOWNACKI

Stream ecosystems in mountain grassland (West Carpathians). 12. General conclusion.

Acta Hydrobiol., 24, 413-422.

Abstract - In its present form the pastoral economy does not drastically affect the quality of the water in the investigated streams. However, the first signs of impairment of self-regulation mechanisms in these ecosystems have been observed. Differences in the number of individual groups of organisms and in the structure of biocoenoses, and disturbances in the seasonal fluctuations of numbers and structures of the communities were found. The changes in natural stream biocoenoses were caused not only by increasing amount of nutrients washed out from the meadows but also by such physical factors as differences in water discharge, insolation, and temperature.

Key words: stream ecosystems, influence of pastoral economy, the West Carpathians.

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Stanisław KUREK and Jacek PAWLIK-DOBROWOLSKI

Stream ecosystem in mountain grassland (West Carpathians). 2. Hydrological characteristics.

Abstract - The paper is based on the results of a 20 year investigations (1960-1979) of precipitation and run-off. The variability of precipitation is affected by height above sea level and mezorelief, while that of run-off is influenced by varied precipitation, evapotranspiration, and varying conditions of infiltration due to differentiation of the lithology, tectonics, the kinds of soil, and the degree of forestation of the catchment basin. The greatest differences in run-off between particular catchment basins are to be observed in the case of extreme run-off and in the size of underground run-off.

Key words: stream ecosystems, influence of pastoral economy, the West Carpathians, small catchment basins, atmospheric precipitation, water balance, run-off.

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Paolo MADONI

Growth and succession of ciliate populations during the establishment of a mature activated sludge.

Acta Hydrobiol., 24, 223-232.

Abstract - This study concerns the colonization dynamics of ciliate Protozoa populations in two activated sludge plants. It has been possible to observe that initial sludge inoculum does not influence the species composition and that ciliates from the influent do not play an important role during plant colonization. On the other hand, the various species of ciliated Protozoa which succeed each other appear to mark the various operational conditions of the plant.

Key words: ciliated Protozoa, activated-sludge process, population dynamics and succession.

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Stefan MIELEWCZYK

Density and biomass of Ephemeroptera larvae in Lake Zbęchy (the Poznań region).

Acta Hydrobiol., 24, 253-265.

Abstract - In the eutrophic Lake Zbęchy the occurrence of seven mayfly species with *Caenis horaria* (L.) and *Cloeon dipterum* (L.) predominating, was observed. The highest values of density and biomass were found in the eulittoral, especially in *Phragmitetum communis* community, and the lowest values at a depth of 2 m. The mean density and biomass for the entire lake were determined and the vertical migration of Caenidae larvae was shown.

Key words: eutrophic lake, mayflies, dominance structure, density, biomass.

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Antoni MIERNIK

A protein obtainable in the process of purifying the wastewater from nitrogen fertilizer industry by rotating disc method.

Acta Hydrobiol., 24, 139-142.

Abstract - This paper presents the amino acid composition of proteins from rotating disc biological film

used in purification of wastewater from Nitrogen Fertilizer factory at Chorzów. The film appeared to be rich in glutamic acid, leucine, alanine, aspartic acid, and glycine. It contained more glutamic acid, aspartic acid, threonine, arginine, serine, tyrosine, histidine than *Stichococcus bacillaris* Naeg - strain known as the better source of proteins than *Chlorella*, *Scenedesmus* or *Spirulina*. These facts may be interesting for the practical purposes.

Key words: wastewater, purification, nitrogen fertilizer industry, biological films, protein, amino acids.

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Stefan NIESIOŁOWSKI

Stream ecosystem in mountain grassland (West Carpathians). 10. Simuliidae and Empididae (Diptera).

Acta Hydrobiol., 24, 399-403.

Abstract - The aquatic development stages of 9 species of Simuliidae and 4 genera of Hemerodromiinae were found to occur in the investigated streams of the upper Grajcarek catchment basin (the West Carpathians). The number of larvae and pupae decreased at a station situated in an area where large amounts of mineral fertilizers were applied (sheep farming).

Key words: stream ecosystems, influence of pastoral economy, the West Carpathians, Diptera: Simuliidae, Empididae.

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Maria OLECHOWSKA

Zonation of mayflies (Ephemeroptera) in several streams of the Tatra Mts and the Podhale region.

Acta Hydrobiol., 24, 63-71.

Abstract - The zonation of mayfly larvae in several streams of the Tatra Mts and the Podhale (submontane) region was investigated. In Podhale streams, larvae communities are unaffected by pollution and correspond to 1-3 zones of settlement. In the high-mountain Waksmundzki stream characterized by difficult environmental conditions, only 4 species were found. In this stream mayflies reach up to the altitude of 1400 m only.

Key words: zoogeography, streams mayflies, longitudinal zonation.

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Marta RECZYŃSKA-DUTKA

Stream ecosystem in mountain grassland (West Carpathians). 4. Heavy metals.

Acta Hydrobiol., 24, 337-341.

Abstract - The content of certain heavy metals in the water of mountain streams having in their basins different pastoral management was determined. The level of heavy metals concentration approximated that characteristic for natural waters. Nevertheless, intensified utilization of the basins (sheep grazing and mineral fertilization) was manifested by an increased zinc content in the water. The variation in the concentrations of some metals may also be connected with pollution introduced by means of atmospheric

precipitation.

Key words: stream ecosystems, influence of pastoral economy, the West Carpathians, heavy metals.

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Mariusz RYBAK and Izabela RYBAK

Plant pigments in contemporary bottom sediments of Lake Długie in Olsztyn.

Acta Hydrobiol., 24, 21-28.

Abstract - Qualitative relations of pigments deposited in contemporary bottom sediments of Lake Długie were analysed. Particular attention was paid to the occurrence of pigments of the chlorophyll group. It was found that bacteriochlorophyll and chlorobiumchlorophyll prevailed in the sediments of Lake Długie.

Key words: lakes, bottom sediments, plant pigments, bacteriochlorophyll, chlorobiumchlorophyll.

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Waldemar SIUDA¹, Ryszard J. CHRÓST¹, Ryszarda WCISŁO¹ and Marzenna KRUPKA²

Factors affecting alkaline phosphatase activity in a lake (short-terms experiments).

Acta Hydrobiol., 24, 3-20.

Abstract - The object of present paper has been determine the dynamics of variations of alkaline phosphatase activity of the plankton and of some environmental factors influencing enzymatic hydrolysis of organic phosphorus compounds in the epilimnion of eutrophic lakes in a day-and-night cycle during summer stagnation. A great range of variations of physico-chemical and biological parameters was found during 24 hours in 4 h intervals. The investigation results suggest the existence in the lakes of two independent mechanisms of regulation of alkaline phosphatase activity in the plankton.

Key words: lakes, alkaline phosphatase activity, phytoplankton, bacterioplankton, phosphorus.

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Izabela SKOCZEŃ

The effect of rain waters on lead level in the Vistula in the region of Cracow agglomeration.

Acta Hydrobiol., 24, 95-107.

Abstract - The investigations concerned variability of lead level in the Vistula during the urban run-off pollution period. It was found that the period of run-off pollution maintenance in the region of Cracow agglomeration exceeded each time the night and day period. Lead loads on precipitation days and during thaw periods exceeded many times the level found in the river in dry periods. Greatest loads occurred during the periods of continuous precipitations. In some cases, maximum lead concentrations exceeded the level for the 3rd class of surface water purity in Poland.

Key words: surface water protection, urban run-off, pollution.

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Izabela SKOCZEŃ

The effect of rain waters on salinity variation of the Vistula in the region of Cracow agglomeration (on the example of chlorides).

Acta Hydrobiol., 24, 109-124.

Abstract - The effect of run-off pollutions on the variability of salinity of the Vistula in the region of Cracow agglomeration was investigated. The investigations were carried out on chlorides. The quantity of run-off pollutions was determined against the background of total salinity of the Vistula in an annual scale in the period from 1971 to 1976 and, additionally, in 1979. It was found that run-off pollutions constitute 10-20% of the total load of chlorides in the particular years. Supplementary investigations carried out in 1978 showed that variability in river pollutants in day-and-night section depends, to a great extent, on meteorological factors.

Key words: surface water protection, urban run-off, pollution.

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Stanisław SKÓRA

Investigation on crucian carp F_2 hybrids obtained from F_1 males and females (*Cyprinus carpio* L. X *Carassius carassius* L.).

Acta Hydrobiol., 24, 73-85.

Abstract - An analysis of different plastic and meristic features and of the variation of these features in carp and crucian carp F_2 hybrids bred in pond Księżok Mały III was conducted. The analysis included head length, dorsal and body width index, and the condition coefficient. Some anatomical features, such as the scheme of pharyngeal teeth, length and volume of chambers of the floating bladder, and length of the food canal, were also investigated.

Key words: fish culture, crucian carp hybrids, crosses, life cycle, morphology.

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Halina SMAL and Modest MISZTAL

A preliminary estimate of nutrient run-off into two lakes in the Łęczyńsko-Włodawskie Lake District throughout a year.

Acta Hydrobiol., 24, 187-196.

Abstract - Results obtained during one year of investigation have served as basis for a preliminary estimate of the run-off of basic elements from the catchments of two lakes. Subcatchments sectors differing by their use were appointed in the catchments in order to determine their share in lake feeding. The calculation was based on the budget of the ground run-off and the concentration of elements in the ground water of the subcatchments.

Key words: catchment use, ground run-off, elements concentration, nutrient loads.

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Anil K. SRIVASTAVA and Jagadish MISHRA

Effects of lindane on carbohydrate metabolism and on blood chloride in the Indian catfish *Heteropneustes fossilis* (Bloch.).

Acta Hydrobiol., 24, 175-181.

Abstract - Median lethal concentrations of lindane for the Indian catfish (*Heteropneustes fossilis*) were estimated at 24, 48, 72, and 96 h; the corresponding LC₅₀ values were 0.30, 0.28, 0.27, and 0.26 mg L⁻¹.

Fish when subjected to a high sublethal concentration of 0.2 mg L⁻¹ lindane in water elicited both muscle and hepatic glycogenolysis at 2, 6, 12, 48, and 96 h post exposure to the insecticide. Blood sugar levels were significantly decreased at 2, 48, and 96 h but hyperglycemia resulted at 6 and 12 h in insecticide-treated fish. Hypochloremia developed in the fish from 2 through 48 h followed by hyperchloremia at 96 h.

Key words: lindane, catfish, toxicity, bioassay, sublethal effects, carbohydrate, metabolism.

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Krystyna STACHOWICZ and Maria CZERNOCH

Effects of exploration of the "Zarabie" Bath on the water quality of the River Raba (South Poland).

Acta Hydrobiol., 24, 211-222.

Abstract - The side-effects of bathing below the weir on the quality of the water were investigated. When the number of bathers was about 20 no significant changes in water quality were found in the 14 environmental parameters analysed. At more than 30 bathers negative changes in the bacteriological indices were recorded, and at a still greater number in the physico-chemical ones as well. Seston analyses showed a three times increased number of organisms during intensive bathing. The range of the negative effect of bathing on the water quality was noticeable along a sector 2.5 km long.

Key words: bath, water pollution, chemical and bacteriological index, seston analyses, self-purification.

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Janusz STARMACH

Electrophoretic separation of blood plasma of perch (*Perca fluviatilis* L.) living in the Rybnik and Goczałkowice reservoirs.

Acta Hydrobiol., 24, 283-288.

Abstract - Polyacrylamide gel electrophoresis of the protein of blood plasma was carried out in perch populations from the Rybnik and Goczałkowice reservoirs, greatly differing in environmental conditions. Perch populations from the two reservoirs differed in protein separation. In both reservoirs two perch varieties of different patterns of electrophoretic separation of blood plasma protein more observed.

Key words: water reservoirs, fish, genetic.

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Janusz STARMACH

Stream ecosystems in mountain grassland (West Carpathians). 11. Fish.

Acta Hydrobiol., 24, 405-412.

Abstract - The populations of *Salmo trutta* m. *fario* and *Cottus poecilopus* were investigated in four streams of the river Dunajec: Biała Woda, Czarna Woda, Kamionka, and Grajcarek. The settlement density of fish in the investigated streams was higher than in other streams of this river system. However, the growth rate was lower than the average in the basin, except for a few cases, while the length-weight relationship reached about 255 g in the trout and 90 g in *Cottus poecilopus* Heckel.

Key words: stream ecology, influence of pastoral economy, the West Carpathians, *Salmo trutta* m. *fario*, *Cottus poecilopus*, growth, weight.

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Aleksandra STARZECKA and Krystyna TRELA

Stream ecosystem in mountain grassland (West Carpathians). 5. Bacteria.

Acta Hydrobiol., 24, 343-355.

Abstract - The work concerns the bacteriological characteristics of the water of the streams Czarna Woda, Biała Woda, Kamionka, and Grajcarek. The most uniform total number of heterotrophic bacteria was found in the water of the midforest stream Czarna Woda. In other streams the number of heterotrophs increased distinctly in the summer and early autumn periods. The effect of pastoral economy on seasonal changes in the number of bacteria and on the purity of the Biała Woda and Kamionka streams were determined. A tendency to increasing pollution of the stream water in more intensively utilized areas was shown.

Key words: stream ecosystem, influence of pastoral economy, the West Carpathians, bacteria, water purity.

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Tadeusz SYWULA

Notes on the Crustacea inhabiting the subterranean waters of the Baltic Sea shore..

Acta Hydrobiol., 24, 53-61.

Abstract - Data of twenty species, copepods and ostracods, from Polish shores. In the Baltic Sea proper in communities from exposed shores and in those from more or less protected ones, an inverse relationship occurs between marine and brackish-water stygobionts and stygophilous species on the one hand, and stygoxenes and accidental species on the other. Besides the salinity, essential environmental factors determining the occurrence of these animals include the granulometric composition of the water-bearing layer and biotic agents in exposed shore communities, the organic matter content in the water-bearing layer in protected shore communities.

Key words: Baltic Sea, beach waters, Crustacea communities, Copepoda, Ostracoda, environmental factors.

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Roman ŻUREK

Effect of suspended materials on zooplankton. 2. Laboratory investigations of *Daphnia hyalina* Leydig.

Acta Hydrobiol., 24, 233-251.

Abstract - Development of *Daphnia hyalina* populations cultivated in three kinds of turbid medium (suspension of bottom sediments, bentonite and red loam with a high content of clay minerals) combined with two concentrations of green alga *Selenastrum capricornutum* was investigated. The LC₅₀ values were calculated. Ingested mineral suspension caused the increase in specific gravity and, as a result, in the velocity of sinking. The frequency of antenna beats increased by 13%. In concentrations greater than and equal to 100 mg dm⁻³ of suspension the respiration of *D. hyalina* was 10.6 to 32.4% higher, in dependence on *Daphnia* length. The influence of suspension depended both on the kind of suspension and the time of exposure.

Key words: zooplankton, *Daphnia hyalina*, population dynamics, swimming behaviour, metabolism.

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