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## Acta Hydrobiologica

### Contents of Volume 32 (1990)

**Mahmoud S. ADAM and Refat ABDEL-BASSET**

**Effect of lead nitrate and lead acetate on the growth and some metabolic processes of *Scenedesmus obliquus*.**

Acta Hydrobiol., 32, 93-99.

**Abstract** - *Scenedesmus obliquus* cultures were subjected to various levels of  $Pb^{2+}$  using lead nitrate and lead acetate. *Scenedesmus* showed tolerance or resistance to relatively high levels of  $Pb^{2+}$  (300 ppm). Although this was accompanied by numerous metabolic alterations, the main physiological processes did not drastically change. Photosynthesis and respiration were not severely inhibited. Alterations in protein, carbohydrate, and lipid contents were recorded. While NRase activity was inhibited by lead nitrate, it was enhanced by lead acetate.

**Key words:** *Scenedesmus obliquus*, lead, growth, photosynthesis, respiration, metabolites, NRase activity.

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**Eugeniusz BIESIADKA, Maria CICHOCKA and Bożena WARZECHA**

**Water mites (Hydracarina) of the springs in the Kraków-Częstochowa and Miechów Uplands.**

Acta Hydrobiol., 32, 171-186.

**Abstract** - 28 species of water mite were recorded, the most numerous being *Lebertia slovenica*, *Piona disparilis*, *Sperchon thienemanni*, and *Atractides pennatus*. A description is given of the settlements of water mites in the various types of springs: rheocrens, helorheocrens, helocrens, small and large limnocrens. Hydracarina faunae of springs in the major catchment basins are compared.

**Key words:** springs, water mites, crenobionts, crenophiles, crenoxens, concomitance, similarity.

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**Maria BOMBÓWNA**

**Chemical composition of the water in the dam reservoirs at Rożnów and Czchów (southern Poland) in 1982/1983 compared with the condition of twenty years previously.**

Acta Hydrobiol., 32, 293-311.

**Abstract** - The results of recent studies compared with data recorded 20 years ago suggest a distinct intensification of eutropication. This is shown both by the increasing content of nitrates drained by rivers from the agriculturally utilized catchment basin and by the constant occurrence of phosphates in the water of the reservoirs, even when very intense water blooms are observed. The trophic state of the reservoirs, which previously had a favourable effect on the river, deteriorated and may be currently classified as between advanced mesotrophy and eutrophy.

**Key words:** dam reservoirs, rivers, water chemistry, trophic state, eutrophication.

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**Elżbieta BRZUSKA<sub>1</sub> and Florian RYSZKA<sub>2</sub>**

**An attempt at stimulating maturation and ovulation of carp (*Cyprinus carpio* L.) oocytes with pregnant mare serum gonadotropin (PMSG).**

Acta Hydrobiol., 32, 437-446.

**Abstract** - The injection of PMSG in a dose of 2000 IU kg<sup>-1</sup> was found to have no direct effect on the maturation of oocytes and occurrence of ovulation in carp females. The effect of this compound was revealed only when the fishes were given pituitary. The females which had been injected with PMSG prior to hypophysation matured faster after being given pituitary in a dose of 0.3 mg kg<sup>-1</sup>, while after second injection of pituitary in a dose of 1.2 mg kg<sup>-1</sup> the percentage of fishes which started reproduction was higher. Moreover, the mass of eggs obtained from them was greater than that obtained from fishes which did not receive PMSG.

**Key words:** carp, oocytes maturation, ovulation, pregnant mare serum gonadotropin (PMSG).

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**Elżbieta BRZUSKA**

**Effect of the length of the preparatory period for reproduction by carp (*Cyprinus carpio* L.) females in winter on the propagation results.**

Acta Hydrobiol., 32, 209-217.

**Abstract** - Three lengths of the preparatory period equal to 1250, 1700, and 1925 day-degrees were studied. It was found that the length of this period had a significant effect on the mass of obtained eggs (the best results were found at 1250 °D), but it did not significantly affect egg quality. The females of Hungarian origin produced a statistically greater mass of eggs in comparison than those of the Polish-Hungarian cross-breed. The origin of the females did not affect the egg quality.

**Key words:** carp, propagation, preparatory period.

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**Naithirithi T. CHELLAPPA**

**Phytoplankton species composition, chlorophyll biomass, and primary production of the Jundiai Reservoir (northeastern Brazil) before and after eutrophication.**

Acta Hydrobiol., 32, 75-91.

**Abstract** - The results show a great reduction in species diversity, an increased dominance index of phytoplankton, and an enhanced chlorophyll *a* biomass and primary production. Product-moment correlation coefficient analysis with all measured environmental parameters clearly suggests a significant correlation between orthophosphate content and chlorophyll biomass. Primary production was significantly related to standing crops as chlorophyll.

**Key words:** reservoirs, species diversity index, chlorophyll, eutrophication, primary production,

phytoplankton, species composition.

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**Henryk CHUDYBA**

**Sociological studies on the phytoplankton in Lake Garbaś (Elk Lake District, northeastern Poland).**

Acta Hydrobiol., 32, 115-129.

**Abstract** - The paper deals with investigations of net phytoplankton and nanoplankton and attempts to distinguish and describe the communities of phytoplankton in the mesotrophic Lake Garbaś. The quantitative analysis of 205 algological samples showed the presence of 375 taxa of algae. From the phytosociological aspect, the species *Dinobryon divergens* was considered to have the greatest diagnostic value, hence the community described was called *Dinobryon divergens planctonicum mesotrophicum*.

**Key words:** lakes, phytoplankton, communities, ecology, taxonomy.

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**Stanisław CZACHOROWSKI**

**Caddisflies (Trichoptera) of the springs of the Kraków-Częstochowa and the Miechów Uplands (Poland).**

Acta Hydrobiol., 32, 391-405.

**Abstract** - The caddis larvae in the examined springs represent impoverished fauna of the surrounding waters. The crenobionts *sensu stricto* are missing. Among the crenophiles the presence of three types of community was recorded: rheophilous crenophiles, originating from the epirhithral and metarhithral, limnophile crenophiles occurring in vernal water bodies, and limnophile crenophiles originating from fens and eutrophic still waters.

**Key words:** sources, caddis larvae, communities.

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**Krzysztof CZERNAŚ, Danuta KRUPA, Iwo WOJCIECHOWSKI and Janusz GALEK**

**The effect of disturbance of the substratum on production of psammolittoral algae.**

Acta Hydrobiol., 32, 355-362.

**Abstract** - The total production of psammolittoral algae of Lake Piaseczno was measured by the oxygen method using for exposure two kinds of glass vessel: original ones, open on two sides, permitting preservation of the structure of the substratum, and the conventional "oxygen bottles", open on one side, in which the substratum had undergone disturbance. In experiments with disturbed structure of the substratum, the productivity of photosynthesis of eupsammic and hydropsammic algae was on the average 40% higher.

**Key words:** lake, psammolittoral, psammic algae, primary production.

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Elżbieta DUMNICKA<sup>1</sup> and Krzysztof KUKUŁA<sup>2</sup>

**The communities of oligochaetes of the Wołosatka and Terebowiec streams (the Bieszczady National Park, southern Poland).**

Acta Hydrobiol., 32, 423-435.

**Abstract** - 29 species of oligochaetes were found to occurring in the streams. *Stylodrilus parvus* dominated at nearly all stations. The adults of this species appeared throughout the year with a maximum in May, while juvenile specimens occurred most numerous in October. The inflow of sewage changed the structure of the community: domination was taken over by Tubificidae and also the number of species occurring increased.

**Key words:** mountain streams, the Bieszczady, communities of oligochaetes, *Stylodrilus parvus*, seasonal changes, pollution.

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Janusz GUZIUR<sup>1</sup> and Franciszek MARKIEWICZ<sup>2</sup>

**Effect of intensive mineral fertilization of ponds on the state of health of carp fingerlings (*Cyprinus carpio* L.).**

Acta Hydrobiol., 32, 195-208.

**Abstract** - Investigation showed no detrimental effect of intensive mineral fertilization on the state of health of carp. Pathological changes in the organs of fish from fertilized ponds were 4 times less than those in fish from control ponds. A small extent and intensity of infestation of fish with parasites were noted, only the tapeworm *Caryophylleus laticeps* occurring in greater quantities. The applied fertilization, containing a considerable proportion of potassium, may contribute to a reduction in degree of parasitic invasion and pathological changes in carp organs.

**Key words:** carp ponds, carp fingerlings, intensive fertilization, fish diseases, parasitofauna.

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Robert GWIAZDA

**An attempt at estimating the trophic role of birds during formation of the ecosystem of the Dobrezyce Reservoir (basin of the River Vistula, southern Poland).**

Acta Hydrobiol., 32, 457-467.

**Abstract** - In 1987, 33 species of bird connected with an aquatic environment were observed at the Dobrezyce Dam reservoir, of which 3 were dominant (*Podiceps cristatus*, *Anas platyrhynchos*, and *Larus ridibundus*). Small numbers of birds were noted. The density of birds in various sectors of the reservoir varied. The amounts of energy and food consumed by the birds during the year were estimated.

**Key words:** dam reservoirs, water birds, density, food consumption.

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**Mohamed A. HANIFFA and Mary S. VIJAYARANI**

**Haematological effects of a paper mill effluent on the air-breathing fish *Heteropneustes fossilis* (Bloch).**

Acta Hydrobiol., 32, 251-259.

**Abstract** - An increase in concentration of paper mill effluent produced a significant dose-dependent elevation in RBC ( $0.50-2.90 \times 10^6 \text{ mm}^{-3}$ ), WBC ( $0.09-0.42 \times 10^6 \text{ mm}^{-3}$ ), and haemoglobin (4.8-6.4 g/100 ml) and a significant dose-dependent decrease in MCV (185 to 52  $\mu\text{m}^3$ ) and MCH (98 to 26 pg). The enhancement in haematocrit and decrease in MCHC and SSI were not dose-dependent.

**Key words:** paper mill effluent, *Heteropneustes fossilis*, feeding, starvation, aeration, blood parameters.

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**Robert B. IKOMI**

**On the ecology of the grey mullet (*Mugil cephalus* L.) in Kulama Creek (Niger Delta, Nigeria).**

Acta Hydrobiol., 32, 237-249.

**Abstract** - *Mugil cephalus*, which constituted 25% of the mullet population, occurred in the creek throughout the year. It attained a maximum standard length of 18 cm and weight of 145 g and exhibited allometric growth with no seasonality in the growth pattern. The condition factor varied with fish size and season. The species fed primary on algae and detritus. The dietary spectrum showed no substantial seasonality.

**Key words:** brackish water, diatoms, distribution, growth, food selectivity, *Mugil cephalus*.

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**Barbara KAWECKA**

**The effect of flood-control regulation of a montane stream on the communities of sessile algae.**

Acta Hydrobiol., 32, 345-354.

**Abstract** - The differentiation of algal communities in a natural and a regulated streambed was studied in two montane streams. In stream with regulated bed *Hydrurus foetidus* did not occur while *Prasiola fluviatilis*, *Chamaesiphon polonicus*, and *Phormidium favosum* developed abundantly. In both streams *Diatoma hiemale*, *Achnanthes minutissima*, *A. pyrenaica*, *Ceratoneis arcus*, and *Cymbella ventricosa* prevailed, though the index of diatom biomass attained higher values in stream with regulated bed.

**Key words:** running waters, regulated streams, sessile algae, ecology of algae.

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**Richard P. KING<sup>1</sup> and Ihuoma B. EKEH<sup>2</sup>**

**Status and seasonality in the physico-chemical hydrology of a Nigerian headwater stream.**

Acta Hydrobiol., 32, 313-328.

**Abstract** - The physico-chemical hydrodynamics of the Nworie stream were studied. Owing to the integrated impact of multivariate factors (e.g. fluctuations in rainfall, stream level, input of surface runoff), total/calcium hardness peaked in the dry season and suspended solids, turbidity, conductivity, dissolved O<sub>2</sub>, P-PO<sub>4</sub>, and dissolved Fe in the wet season. There was no obvious seasonality in surface temperature, pH, free CO<sub>2</sub>, total alkalinity or N-NO<sub>3</sub>.

**Key words:** Nworie stream, water chemistry, seasonality, intraseasonal variability, rainfall, Nigeria.

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**Halina KOŚCIUSZKO and Małgorzata PRAJER**

**Effect of municipal and industrial pollution on the biological and chemical quality of the water in the upper and middle courses of the River Biała Przemsza (southern Poland).**

Acta Hydrobiol., 32, 13-26.

**Abstract** - A strong pollution by municipal sewage has been observed in the upper course of the Biała Przemsza (Station 2). Self-purification leads to an improvement in water quality at station 3, an increase in pollution reappearing at Station 4. A high concentration of heavy metals at station 5 was the result of large amounts of mining and metallurgical pollution. The water in the Biała Przemsza, with the exception of Station 3 (beta-mesosaprobic zone) are among alpha-mesosaprobic waters.

**Key words:** rivers, water pollution, hydrochemistry, biotest, bacteriological analyses, ciliate communities, saprobity.

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**Tadeusz KOWALSKI**

**Degree of biochemical decomposition of pollutants in water and sewage.**

Acta Hydrobiol., 32, 279-292.

**Abstract** - The investigation showed that the value of the COD<sub>d</sub>/COD<sub>p</sub> ratio characterized the degree of biochemical decomposition of pollutants in water and wastes. The COD<sub>d</sub>/TOC ratio may to a smaller extent be applied in evaluating the progress of biochemical processes. It describes the chemical properties of the pollutants and their changes in the processes of biochemical oxidation, since it depends on the atomic O/C ratio. The value of the COD<sub>d</sub>/COD<sub>p</sub> and the COD<sub>d</sub>/TOC ratios depends on the composition of the wastes.

**Key words:** surface waters, sewages, organic pollutants, degree of biochemical decomposition, COD<sub>d</sub>/COD<sub>p</sub>, COD<sub>d</sub>/TOC.

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**Marek KRYWULT**

**Effect of acidification of small ponds in the Polish High Tatra Mountains by fallout of pollutants.**

**Abstract** - During the spring and summer a hydrochemical investigation was carried out in fourteen small ponds lying on a granite substratum. The ponds were divided into two groups on the basis of the different character of their catchment basins. In ponds with a direct inflow of water higher acidification was observed. The results obtained in an investigation carried out 23 years previously were compared with the present condition and showed an increase in acidification. A certain seasonal variation of some chemical parameters analysed was also observed.

**Key words:** acidification, Tatra Mts, leaching, buffering capacity.

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**Jerzy KWAPULIŃSKI<sup>1</sup>, Danuta WIECHUŁA<sup>1</sup> and Jan SAROSIEK<sup>2</sup>**

**The accumulation of <sup>137</sup>Cs and <sup>226</sup>Ra by aquatic plants in the Goczałkowice Reservoir (southern Poland) and growing in the shore.**

Acta Hydrobiol., 32, 131-137.

**Abstract** - The radioactivity of 31 plant species occurring on the shore of the Goczałkowice Reservoir on the River Vistula was examined. They showed considerable pollution of the environment with the anthropogenic radioisotopes <sup>137</sup>Cs and <sup>226</sup>Ra. The cumulation coefficient of <sup>137</sup>Cs for aquatic plants is 24-46. The examined plants exhibit a specific capability of accumulating <sup>137</sup>Cs and <sup>226</sup>Ra.

**Key words:** reservoirs, accumulation, radioisotopes, aquatic plants.

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**Mirosław LUCZYŃSKI**

**Electrophoretic identification of grass carp (*Ctenopharyngodon idella* Val.), silver carp (*Hypophthalmichthys molitrix* Val.), and their hybrids.**

Acta Hydrobiol., 32, 219-225.

**Abstract** - Interspecific hybridization of grass carp and silver carp produces a mixture of F<sub>1</sub> triploid and diploid viable offspring. The paper describes a method of electrophoretic examination of the lactate dehydrogenase (LDH, E.C. 1.1.1.27) isoenzymes coded by the diagnostic loci: *Ldh-1\** and *Ldh-2\**, which permits the identification of grass carp, silver carp, and grass carp x silver carp interspecific reciprocal hybrids.

**Key words:** biochemical genetics, Cyprinidae, electrophoresis, herbivorous fish, LDH isozymes, species identification.

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**Stefan MIELEWCZYK**

**Evaluation quantitative des larves d'Odonates dans de petits réservoirs champêtres des environs de Turew (Région de Poznań).**

Acta Hydrobiol., 32, 187-193.

**Abstract** - Ce travail contient les résultats des recherches sur les larves d'Odonates, réalisées en 1983-1984 dans de petits réservoirs champêtres. Dans trois réservoirs d'époques différentes on a constaté la présence de 18 espèces. Les valeurs moyennes de leur densité du peuplement en saison végétative sont de 46.9 à 103.4 ind. m<sup>-2</sup>, et leur état de biomasse fraîche de 1190.3 à 3320 mg m<sup>-2</sup>. Les réservoirs examinés peuvent servir de refuge, surtout pour quelques espèces rares.

**Key words:** réservoirs champêtres, Odonata, larves, diversité, abondance, densité de peuplement, biomasse fraîche.

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**Grażyna PAJAK<sup>1</sup> and Keve T. KISS<sup>2</sup>**

**Seasonal changes of phytoplankton in the River Vistula above and below the Goczałkowice Reservoir (southern Poland).**

Acta Hydrobiol., 32, 101-114.

**Abstract** - In qualitative and quantitative investigation 217 phytoplankton taxa were found, among which were 57 new for the Vistula. The water discharge and rapid floods exert a considerable effect on the quantitative composition of phytoplankton above the reservoir. During floods the numbers of tichoplanktonic algae (mainly periphytic diatoms) increased. In periods of low water euplanktonic species dominated. The Goczałkowice Reservoir has a fundamental effect on the composition and number of phytoplankton in the river below the dam.

**Key words:** rivers, reservoirs, phytoplankton, qualitative and quantitative composition, eu- and tichoplanktonic algae.

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**Helena PETRYCKA<sup>1</sup>, Joanna MROZOWSKA<sup>1</sup> and Henryk KASZA<sup>2</sup>**

**Changes in bacterial microflora against the background of increasing eutrophication of the Goczałkowice Reservoir (southern Poland).**

Acta Hydrobiol., 32, 55-66.

**Abstract** - Microbiological studies covered the numbers of bacterioplankton and bacteriobenthos determined by the method of direct counts, heterotrophic bacteria by the CFU method, and certain physiological groups of bacteria important in the circulation of nitrogen, sulphur, and phosphorus in water and bottom sediments. The results of microbiological studies, resumed after 17 years, and of hydrochemical analyses suggest progressive eutrophication of the reservoir.

**Key words:** dam reservoir, bacteria, microbiological indicators, eutrophication.

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**Janina PUDO<sup>1</sup>, Andrzej ŁYSAK<sup>2</sup> and John F. ALFRED-OCKIYA<sup>3</sup>**

**The interdependence of phytoplankton and fish in tropical, brackish waters of fishponds of southern Nigeria.**

Acta Hydrobiol., 32, 227-235.

**Abstract** - The study concerned the phytoplankton, physico-chemical characteristics of the water, and fishery aspects of two fishponds, of which one was stocked with *Tilapia guineensis* and the other remained in its natural condition. Green algae prevailed in the latter, while the former was dominated by blue-green algae, forming water blooms from time to time e.g. *Anabaena cylindrica* and *Spirulina maior*. Water transparency was also much lower in the stocked pond. The natural increase in the fish biomass was considerable: 2665 to 3818 kg ha<sup>-1</sup>.

**Key words:** tropical fishponds, brackish waters, fish productivity, phytoplankton, *Tilapia guineensis*.

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**Barbara RAKOWSKA**

**Diatom communities in the microbenthos of the River Rawka (central Poland).**

Acta Hydrobiol., 32, 363-375.

**Abstract** - In the microbenthos of a small lowland river 444 diatom taxa were determined. Among them 145 occurred at all stations. 229 taxa were identified as belonging to the constancy class I. 52 taxa with a mean participation of over 1% were distinguished. Lists of taxa dominating in particular sections of the river have been compiled. It was found that the discharge of wastes is responsible for the reduction in the number of occurring taxa and the number of diatom cells in 1 cm<sup>3</sup> of mud.

**Key words:** rivers, diatom communities, pollution.

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**Jacek SICIŃSKI**

**Chironomid taxocens of the muddy bottom of the River Pilica (central Poland).**

Acta Hydrobiol., 32, 377-390.

**Abstract** - On the basis of the distribution of 82 chironomid taxa the biocoenotic division of the course of the River Pilica (342 km) is presented. The spring section, upper, middle, and the lower courses of the river have been distinguished, approximately corresponding to crenal, rhithral, epi-, and metapotamic zones. These zones differ in the composition and structure of chironomid taxocens. Peculiarities of the longitudinal distribution of other invertebrate groups are discussed.

**Key words:** lowland river, Chironomidae, distribution.

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**Hari R. SINGH and Prakash NAUTIYAL**

**Altitudinal changes and the impact of municipal sewage on the community structure of macrobenthic insects in the torrential reaches of the River Ganges in the Garhwal Himalaya (India).**

Acta Hydrobiol., 32, 407-421.

**Abstract** - Spatially, ephemeropterans (40.8%), dipterans (35.4%), and coleopterans (4.8%) were found at all stations located at altitudes from 3048 to 325 m, while Trichoptera (13.1%) and Hemiptera (1.4%) were found down-stream from Station 4. Plecoptera (1.4%) was found at all stations except 3 and 7 whereas Odonata (0.3%) occurred at Stations 4 and 8 only. The above orders were represented by 30 taxa. The influx of sewage caused dipteran dominance and a summer maximum and restricted the number of genera at Station 3.

**Key words:** macrobenthic insects, community structure, altitude, municipal sewage, River Ganges.

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**Krystyna STACHOWICZ**

**.The effect of flooding on the chemical composition of waters in the catchment basin of the River Skawinka (southern Poland)**

Acta Hydrobiol., 32, 263-277.

**Abstract** - In periods of flooding the chemical composition of the waters of the River Skawinka is determined by the supply of eroded material from the catchment basin. Liquid wastes bring in a relatively small load of pollution. In the partial catchments of the drainage basin the land use influences the course of the spring meltwaters and the relief of the region determines the participation of these waters in the annual outflow balance.

**Key words:** streams, chemistry, high water level, melt, land use, concentrations, loads.

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**Krystyna STACHOWICZ**

**Water quality of two Carpathian rivers, the Soła and Skawa (southern Poland).**

Acta Hydrobiol., 32, 35-53.

**Abstract** - On the basis of physico-chemical and bacteriological analyses carried out under variable hydrological conditions, the surface water quality in the catchment basins of the River Soła and Skawa is described. Particular attention was paid to the stations at Broszkowice (the Soła) and at Graboszyce (the Skawa), where the water intakes for the drinking water reservoir at Dzieńkowice are located. A detrimental effect of various types of pollution was indicated and ways of action to protect the water supplying the reservoir are presented.

**Key words:** mountain rivers, point, diffuse, and nonpoint pollution, drinking water reservoir.

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**Bronisław SZCZĘSNY**

**Benthic macroinvertebrates in acidified streams of the Świętokrzyski National Park (central Poland).**

Acta Hydrobiol., 32, 155-169.

**Abstract** - In running waters of the Świętokrzyski National Park the benthic macroinvertebrate fauna is low in abundance and species diversity. In acidified streams its degradation can be seen. In the period 1986-1988 strongly acidified streams (pH 4-5, 2-4.1 mg Al dm<sup>-3</sup>), which are the most numerous, only Plecoptera, Diptera, and Trichoptera were found: in sectors with pH<4 only the caddis fly *Limnephilus coenosus* was found. Ecological analysis of Trichoptera was carried out. Some information about seasonal changes density are given.

**Key words:** acidified streams, Świętokrzyskie Mts, National Parks, benthic macroinvertebrates, caddis flies.

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**Barbara SZLAUER, Mieczysław SZWANENFELD, Hanna WERBLAN-JAKUBIEC and Krzysztof KOLASA**

**Hydrobiological characteristics of ponds collecting effluents from a phosphogypsum tip of the Police Chemical Works near Szczecin.**

Acta Hydrobiol., 32, 27-34.

**Abstract** - The ponds contained a maximum (in dm<sup>-3</sup>) of: 18 620 mg PO<sub>4</sub><sup>3-</sup>, 140.4 mg NH<sub>4</sub><sup>+</sup>, 5555 mg SO<sub>4</sub><sup>2-</sup>, and 550 mg F<sup>-</sup> with a mean pH value of 2.6. Species were found that had not so far been reported from Polish territory, i.e. *Chlamydomonas asymetrica* var. *gallica* Bourr., *Ch. parietaria* Dill, and *Ch. rhizophilos* Pasch. They formed water blooms (up to 546 10<sup>6</sup> cells dm<sup>-3</sup>). Dead algae did not undergo decomposition.

**Key words:** acidified ponds, pollution with phosphogypsum, algae, *Chlamydomonas*, selfpurification.

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**Henryk TOMASZEWICZ and Stanisław KŁOSOWSKI**

**Phytocoenoses of *Ceratophylletum demersi* Hild 1956 and *Charetum tomentosae* (Sauer 1937) Corillion 1957 as indicators of habitats of various degrees of eutrophication.**

Acta Hydrobiol., 32, 139-154.

**Abstract** - Chemico-physical properties of water and sediments in patches of *Ceratophylletum demersi* and *Charetum tomentosae* are compared. In the water, among the 19 examined features statistically significant differences were found in 10 cases, whereas among 15 features in the sediments these differences were found only in 5. The patches of *Ceratophylletum demersi* reach their optimum development in polytrophic field pools, in which abundant floescence and fructification of *Ceratophyllum demersum* were observed. The patches of *Charetum tomentosae* attain their optimum development in meso- and slightly eutrophic waters.

**Key words:** *Ceratophylletum demersi*, *Charetum tomentosae*, habitat conditions, phytocoenoses, water and substrate properties.

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**Edochiem B.C. UFODIKE and Edosa OMOREGIE**

***Acute toxicity of gammalin 20 and actellic 25 EC to *Oreochromis niloticus niloticus*.***

Acta Hydrobiol., 32, 447-455.

**Abstract** - The acute toxicity of the insecticides gammalin 20 and actellic 25EC to *Oreochromis niloticus niloticus* in a continuous flow automatic toxicant delivery system was investigated. Gammalin 20 was found to be more toxic than actellic 25EC. Opercular ventilation and tail fin beat rates increased sharply with exposure to toxicants, and then declined as the fish fatigued. Death is believed to be due to both fatigue and direct toxicant effect on tissues and organs.

**Key words:** gammalin 20, actellic 25EC, *Oreochromis niloticus niloticus*, toxicity.

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**Kazimierz WASYLIK and Jan M. WŁODEK**

***Professor Ryszard Sowa, 7 July 1934-26 December 1989.***

Acta Hydrobiol., 32, 3-12.

**Abstract** - [Biography with list of publications].

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**Konrad WOŁOWSKI<sup>1</sup>, Jerzy KRUK<sup>2</sup> and Danuta CHUDYBA<sup>3</sup>**

***Planktothrix suspensa causing water-blooms in Lake Długie in Olsztyn.***

Acta Hydrobiol., 32, 67-74.

**Abstract** - Investigations on the content of chlorophyll and phycobilin pigments as well as taxonomic examinations showed that the organism causing water-bloom in Lake Długie is the blue-green alga *Planktothrix suspensa* (Pringsh.) Anagn. et Kom. The physical and chemical features of the water of the lake were also studied. Lake Długie is believed to be the second locality of this species in the world and the first for the Polish flora.

**Key words:** Cyanophyceae, *Planktothrix*, Schizomycetes, *Pelonema*, photosynthetic pigments, water-blooms.

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