



Antoni AMIROWICZ

Environmental characteristics of affluents of the Dobczyce Reservoir (Southern Poland) in the preimpoundment period (1983-1985). 2. Periphyton.

Acta Hydrobiol., 30, 287-296.

Abstract - The periphyton of the mouth section of the major affluents of the Dobczyce Reservoir was investigated. The mean weight of the coating formed by the periphyton was 2.5-5.7 g dm⁻², of which 2.2-5.1 g dm⁻² consisted of mineral particles. The average quantity of chlorophyll *a* varied from 949 to 3058 μg dm⁻². In the warm half of the year the periphyton showed smaller amounts of mineral particles, organic matter, and chlorophyll *a*, and greater coefficients of variation of these parameters than in the cold half.

Key words: preimpoundment studies, streams, periphyton, chlorophyll "a", organic matter.

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Teresa BEDNARZ

A regulated river ecosystem in a polluted section of the Upper Vistula. 3. Bio-assay of water trophy.

Acta Hydrobiol., 30, 23-28.

Abstract - An algal growth test was used to show the high trophy of the water of the Upper Vistula. The trophy declined gradually downriver, this being connected with processes of self-purification. The reservoir in Łszczany brought about further inhibition of these processes, and shifted the decline in water trophy to lower sections of the river.

Key words: regulated river, pollution, algal assay, trophy.

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Teresa BEDNARZ and Roman Żurek

A regulated river ecosystem in a polluted section of the Upper Vistula. 5. Seston.

Acta Hydrobiol., 30, 43-59.

Abstract - Abioseston comprised 90 percent of the seston, the bioseston consisting of algae, planktonic, and non-planktonic animals. Owing to high salinity, species of brackish waters appeared in the bioseston. 210 taxa of algae and 83 of animals were distinguished. The destruction of organic matter by the zooseston was assessed. The water stage modified these processes of destruction, its physical action and the hydrographic character of the river affecting the processes of self-purification.

Key words: regulated river, pollution, zooseston, phytoseston.

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Leszek A. BŁĘDZKI¹ and Lech SZAROWSKI²

The nutrition of 2-year-old bighead carp (*Aristichthys nobilis* (Rich.)) in the intensive culture with carp (*Cyprinus carpio* L.) in ponds.

Acta Hydrobiol., 30, 411-419.

Abstract - The nutrition of 2-year-old bighead carp growth with one-year-old carp in ponds with intensive fish culture was investigated. It was found that the bighead carp chiefly consumed food reserves not utilized by the carp. The qualitative composition of food of the bighead carp and proportions between its components were examined. The food preference, diel differentiation of food consumption, and diel food intake were determined. The investigation was carried out in ponds with a differentiated stock of carp.

Key words: ponds, zooplankton, food of fish, *Aristichthys nobilis* (Rich.).

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Zbigniew R. BORYSŁAWSKI¹ and Andrzej SZYJKOWSKI²

Numerical analysis of sessile algae communities in mountain streams.

Acta Hydrobiol., 30, 329-340.

Abstract - Data on abundance of 53 taxa sampled at 10 stations were processed with the help of numerical classification and ordination. By means of matrix multiplication the original data table was redefined on the basis of morphological features and saprobity values of the studied taxa. It is suggested that the techniques used permit detection of ecologically important aspects of data and can provide information on the responses of algae communities to environmental factors.

Key words: mountain streams, sessile algae, strategy, multivariate methods.

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Elżbieta BRZUSKA

Further investigations of *in vivo* estimation of the maturation stages of carp (*Cyprinus carpio* L.) females.

Acta Hydrobiol., 30, 421-428.

Abstract - Oocytes collected from carp females by the *in vivo* method were examined 12 hours after injection of pituitary doses of 0.3 mg kg⁻¹. The oocytes were cleared using the described method. In females in which ovulation took place after two pituitary injections (the first dose being 0.3, and the second 0.6 mg kg⁻¹), the percentage of oocytes with concentrated nucleoli (among oocytes in which the nucleus has passed beyond mid-radius) 12 hours after the first injection was statistically significantly higher than in females in which ovulation had not occurred.

Key words: carp oocytes, hypophysation, maturation stimulation of ovulation.

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Elżbieta BRZUSKA

Investigations on the chromosomes of the carp (*Cyprinus carpio* L.).

Acta Hydrobiol., 30, 253-258.

Abstract - On the basis of results of investigations on the chromosomes of carp of Polish origin it was found that the diploid number of chromosomes of this species is 102, and a complete set of chromosomes includes 12 pair of metacentric chromosomes, 12 pair of submetacentric, 9 pairs of subtelocentric, and 18 pairs of acrocentric chromosomes. The total length of carp chromosomes is 114.14 μ m. An idiogram was drawn for this species.

Key words: carp, chromosomes, karyotype.

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Prasantakumar CHAUDHURI, Swapankumar NANDI and Mayabi GHOSH

Taxonomy and biology of *Tanytarsus aculeus* n. sp. (Diptera: Chironomidae) from India.

Acta Hydrobiol., 30, 239-251.

Abstract - The morphology of all the life stages of a new species, *Tanytarsus aculeus* is described and illustrated. The biological aspects such as food and feeding habit, emergence, swarming, and mating behaviour and oviposition in the laboratory are also described.

Key words: Diptera, Chironomidae, *Tanytarsus aculeus* n. sp., taxonomy, morphology, biology.

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Stanisław CZACHOROWSKI

Caddis flies (Trichoptera) of the River Pasłęka (Northern Poland).

Acta Hydrobiol., 30, 393-409.

Abstract - 73 taxa of caddis flies were identified, of which 12 are species new to the Mazurian Lake District. In the spring sector larvae of the family Rhyacophilidae dominated. Potamophilous species of the families Polycentropodidae, Leptoceridae, and Hydropsychidae were characteristic for the upper river sector and of Brachycentridae and Leptodostomatidae for the lower ones. Below flow-through lakes increased numbers of larvae from the family Hydropsychidae were observed.

Key words: rivers, caddis flies, longitudinal distribution.

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Elżbieta DUMNICKA and Andrzej KOWNACKI

A regulated river ecosystem in a polluted section of the Upper Vistula. 1. Introduction and description of the study area.

Acta Hydrobiol., 30, 3-13.

Abstract - The Upper Vistula is to be made navigable, hence a number of water stages damming the water are

being built here. This section of the river is strongly polluted by industrial and municipal wastes from the Upper Silesian Industrial Region, Bielsko-Biała Industrial Region, and Owiężcim. The investigation was carried out at 6 stations located between kilometres 33 and 58 of the river course, differing in the type of bottom, flow rate, and depth.

Key words: regulated river, pollution, geographic description.

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Elżbieta DUMNICKA and Andrzej KOWNACKI

A regulated river ecosystem in a polluted section of the Upper Vistula. 8. Macroinvertebrates.

Acta Hydrobiol., 30, 81-97.

Abstract - Detritivore Oligochaeta (Tubificidae) prevail in the Upper Vistula above and below the water stage Łszczany. In the lower section of the river with a stony bottom there also appear algivores (Naididae, Chironomidae, and Gastropoda) and predatory forms (Hirudinea). The greatest production and respiration of macrofauna are noted just below the water stage and the smallest at the stations where the fauna is varied. The course of seasonal changes in the numbers of macrofauna is irregular at all stations.

Key words: regulated river, pollution, macroinvertebrates, seasonal changes, functional feeding groups, production.

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Elżbieta GRABACKA

A regulated river ecosystem in a polluted section of the Upper Vistula. 7. Bottom Ciliata.

Acta Hydrobiol., 30, 73-80.

Abstract - The species composition of Ciliata in mud indicates a considerable pollution of the water. The water stage deteriorates the conditions for development of microfauna. A considerable decrease in numbers and diversity of the Ciliata species in the area of the reservoir at Łszczany, especially in the deepest places close to the dam, was found. A few kilometres below the reservoir, owing to an improvement of the hydrological conditions of the river, a qualitatively richer microfauna of Ciliata developed and algivorous species appeared.

Key words: regulated river, pollution, bottom Ciliata, shallows near the bank.

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Maria HUL

Ciliata communities in the middle sector of the River Łyna (North-Eastern Poland) in conditions of non-point pollution inflow.

Acta Hydrobiol., 30, 353-366.

Abstract - The reactions of Ciliata communities to non-point pollution running off with rainfall from areas of intensive pig farming were analysed. Structural changes in communities proceeded from changes in species composition, the structure of food groups, and saprobity to pronounced changes in the structure of dominance and number of communities. The succession of structural changes corresponded to a rise in the value of oxidability. Seston communities responded to pollution more readily and more dynamically than

did those of the microbenthos.

Key words: rivers, surface pollution, seston, microbenthos, Ciliata communities.

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Marek JELONEK and Janusz STARMACH

Environmental characteristics of affluents of the Dobczyce Reservoir (Southern Poland) in the preimpoundment period (1983-1985). 3. Ichthyofauna.

Acta Hydrobiol., 30, 305-316.

Abstract - The investigation concerned the species composition, density, and biomass of fish in the River Raba and its tributaries in the area of the Dobczyce Reservoir under construction. The effect of these factors on the development of a natural ichthyofauna in the future reservoir was analysed. In the zone affected by the reservoir 23 fish species were found with numbers varying from 851-4135 ind. ha⁻¹ and biomass from 6.98-98.72 kg ha⁻¹. Of these species 8 are adapted to life both in flowing and stagnant waters.

Key words: preimpoundment studies, streams, fish community, density, biomass.

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Henryk KASZA

A regulated river ecosystem in a polluted section of the Upper Vistula. 2. Hydrochemistry.

Acta Hydrobiol., 30, 15-22.

Abstract - Chemical investigations of the waters of the Vistula in the year 1982-1983 on a 25 km section in the region of the water stage at Łęczany revealed strong pollution of the river. The water stage was not found to have any direct effect of improvement in the quality of the water. On a section about 20 km long below the stage the water purity slightly improved. When comparing the chemical composition of the waters of the Vistula in the years 1934, 1964-1965, and 1982-1983 a very distinct deterioration in quality can be seen to have occurred.

Key words: regulated river, pollution, hydrochemistry, loads of nutrients.

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Stanisław KIOSOWSKI and Henryk TOMASZEWICZ

Differentiation between habitats of *Myriophylletum spicati* Soó 1927 and *Myriophylletum verticillati* Soó 1927 phytocenoses in north-eastern Poland.

Acta Hydrobiol., 30, 225-238.

Abstract - The paper presents a comparative analysis of the habitats of the *Myriophylletum spicati* and *Myriophylletum verticillati* phytocenoses. It is shown that the *Myriophylletum spicati* phytocenoses are associated with mineral substrata, poor in nutrients and with eutrophic waters. The *Myriophylletum verticillati* phytocenoses occupy mainly rich, organic substrata and waters with a smaller content of important biophilous substances. The examined communities represent different stages in the process of overgrowing the water bodies of north-eastern Poland.

Key words: phytocenosis, *Myriophylletum spicati*, *Myriophylletum verticillati*, habitat requirements, biophilous substances.

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Andrzej KOWNACKI

A regulated river ecosystem in a polluted section of the Upper Vistula. 10. General considerations.
Acta Hydrobiol., 30, 113-123.

Abstract - In the Upper Vistula in unregulated sections where the water is well oxygenated, a complex biocoenosis develops, conducting intensive processes of self-purification. In the Łęczany Reservoir the biocoenosis is much poorer (bacteria, protozoans, Oligochaeta, and plankton), hence the self-purification processes progressed far more slowly here. The planned cascade construction on the whole Upper Vistula will slow down these processes and extend the zone of heavy pollution.

Key words: regulated river, pollution, biocoenosis, ecosystem, model, self-purification.

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Irena KUZIEMSKA, Bernard QUANT and Zbigniew SULEK

Effect of industrial waters of fly-ash storage from a storage yard of grate wastes on organisms in waters of the Gdańsk coastal region (Northern Poland).

Acta Hydrobiol., 30, 317-328.

Abstract - Industrial waters of fly-ash storage contain soluble components of ash (hydroxides and calcium, sodium, potassium, magnesium, aluminium, and iron sulphates) and trace elements. At doses of 0.1-100 cm³ per 1 dm³ of river or sea water or of Guillard-Rychter medium these waters stimulated the primary production of algae. In sea water they above all stimulated the development of diatoms.

Key words: industrial waters of fly-ash storage, grate wastes, ash components, trace elements, algae, invertebrates.

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Janina KWANDRANS

A regulated river ecosystem in a polluted section of the Upper Vistula. 6. Communities of sessile algae.

Acta Hydrobiol., 30, 61-71.

Abstract - Ninety-seven species of sessile algae were identified. Variation in the character of the algal communities was observed at particular stations along the river course. Changes concerned the number and abundance of the species, species composition, dominance relationships, magnitude of the biomass index of the diatoms and the size of the area occupied by the algae. Sections where the riverbed had a natural character showed the greatest variety and a mass development of algae.

Key words: regulated river, pollution, sessile algae, seasonal changes.

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Ryszard LIGOWSKI

Distribution of sessile algae species in the River Bobrówka and some ponds situated along its course (Central Poland).

Acta Hydrobiol., 30, 191-208.

Abstract - A study was carried out in the River Bobrówka, two millponds, and two fishponds. A total of 617 taxa of alga was identified, in this number 117 constant ones. A diversity was observed between communities of sessile algae in particular sectors of the river and in the two types of ponds. The stations were compared, the qualitative composition of all algae and of constant species being analysed. It was shown that the pond algae has an effect on the river biocoenosis. The period of maintenance of algae from the fishponds in the river was investigated.

Key words: rivers, fishponds, millponds, sessile algae, algal distribution.

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Ryszard LIGOWSKI

The spatial and seasonal density of sessile algae in the River Bobrówka and some ponds situated along its course (Central Poland).

Acta Hydrobiol., 30, 209-224.

Abstract - The quantitative composition of sessile algae was investigated in the River Bobrówka and some mill- and fishponds fed with water from this river in 1971-1975. In the millponds the largest number of algal cells was observed in spring, with *Oscillatoria limosa* as a dominant. In summer there appeared *O. princeps* and in the remaining months *O. limosa*. In the fishponds *Scenedesmus quadricauda* and *Pediastrum boryanum* dominated with the largest number of cells in summer. In the river the number of cells per 1 cm³ increased along its course.

Key words: rivers, fishponds, millponds, sessile algae, *Oscillatoria*.

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Grażyna MAZURKIEWICZ

Environmental characteristics of affluents of the Dobczyce Reservoir (Southern Poland) in the preimpoundment period (1983-1985). 1. Some physico-chemical indices.

Acta Hydrobiol., 30, 287-296.

Abstract - On the basis of two-year physico-chemical studies carried out on the affluents of the Dobczyce Reservoir in the preimpoundment period, these feeders were characterized and the magnitude of annual loads of mineral nitrogen and phosphorus was determined. The magnitude of voluminal loading of mineral nitrogen (2.4 g N_{min} m⁻³ year⁻¹) and phosphorus (0.203 g P_{min} m⁻³ year⁻¹) qualifies the reservoir under construction as being of eutrophic type.

Key words: preimpoundment studies, streams, eutrophication, loading.

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Modest MISZTAL and Halina SMAL

Ground inflow of nutrients into two lakes and a tentative evaluation of its importance in the eutrophication process in relation to other factors.

Acta Hydrobiol., 30, 179-189.

Abstract - The catchment areas of two lakes of different trophic character were investigated. The volumes of ground inflow of principal nutrients from differently utilized sectors of the catchment areas were calculated. It was found that the greatest activity in loading the lakes was shown by those sectors of the catchment area used as arable land and the least by the forest sectors. It was also found that the principal factor of eutrophication were the morphological conditions of the lake and of the catchment area.

Key words: lakes, ground run-off, eutrophication, land use, load of nutrients.

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Kedar NATH and Nishith KUMAR

Impact of cobalt on the carbohydrate metabolism of a freshwater tropical perch, *Colisa fasciatus* (Bloch et Schn.).

Acta Hydrobiol., 30, 429-436.

Abstract - Median lethal concentrations of cobalt for teleost *Colisa fasciatus* were computed at 24, 48, 72, and 96 h. The effect of a sublethal concentration of 232.8 ppm (0.8 of LC₅₀ 96 h) of cobalt on the fish carbohydrate metabolism was investigated from 3-96 h. Liver glycogen in the treated fish decreased significantly at 6 h onwards, with a maximum depletion at 72 h. Hyperglycaemia was recorded at every exposure interval studied but its peak value could be noted also at 72 h.

Key words: teleost, cobalt, carbohydrate metabolism.

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Marta RECZYŃSKA-DUTKA

Heavy metals in the water of the River Mała Panew basin (Southern Poland).

Acta Hydrobiol., 30, 157-166.

Abstract - In the waters the average concentrations of Pb, Cu, Ni, Cd, Co, Zn, Mn, and Fe varied from 10.2, 6.9, 8.3, 1.4, 4.8, 114.8, 109.2, and 593.6 $\mu\text{g dm}^{-3}$, respectively, in the zone of atmospheric pollution to 46.8, 18.9, 13.6, 87.7, 5.3, 2269.6, 302.0, and 2400.0 $\mu\text{g dm}^{-3}$ in the sector of the Mała Panew polluted with wastes. The probable effect of pollution on impoverishment of the flora and fauna of the waters was discussed, the kind of wastes, level of concentration of metals, and environmental conditions being taken into consideration.

Key words: rivers, heavy metals, pollution of waters, industrial pollution, atmospheric pollution.

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Anmar W. SABRI

Ecological studies on Rotifera (Aschelminthes) in the River Tigris (Iraq).

Acta Hydrobiol., 30, 367-379.

Abstract - Seasonal variation of the Rotifera population in the River Tigris was observed during 1984-1985. Summer till mid-autumn was found to be the best growth period. *Synchaeta stylata*, an oligosaprobic organism, was quantitatively the dominant species in the Tigris. The contingency table test showed oligosaprobic centre species. Variations between the studied stations and the effects of environmental factors are discussed.

Key words: rivers, Rotifera, ecology, seasonal changes.

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Małgorzata SCHMAGER

Changes in selected environmental and biocenotic parameters of a polluted section of the Upper Vistula in the vicinity of the Łęczany water stage (Southern Poland).

Acta Hydrobiol., 30, 125-139.

Abstract - The investigation was carried out from 1977-1979 and 1981-1982 in the periods May-November at medium water level. The effect of the water stage on the self-purification processes of the water was studied on the basis of selected physico-chemical and biological properties. The results obtained showed that, apart from the improved oxygen conditions, increased amounts of suspension and a more abundant development of periphyton. The stage did not bring about any distinct or directed changes in the water quality.

Key words: rivers, water stage, pollution, self-purification, periphyton.

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Jadwiga SIEMIŃSKA

Professor Karol Starmach (22 September 1900 - 2 March 1988). In memoriam.

Acta Hydrobiol., 30, 265-286.

Abstract - [Biography with list of publications].

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Ryszard SOWA and Wojciech FIAŁKOWSKI

Diversity, abundance, and zonation of stoneflies (Plecoptera) from the water system: Olszowy Potok stream - River Raba (Southern Poland).

Acta Hydrobiol., 30, 287-296.

Abstract - The stonefly fauna of the stream system comprising the Olszowy Potok, the Koninka, and the Porębianka streams, together with the River Raba was investigated. A list of species with their altitudinal distribution are given. Three stonefly assemblages connected with the altitude and different environmental characteristics of the streams were distinguished. Variations in the density of nymphs in different habitats are also discussed.

Key words: running waters, macroinvertebrates, stoneflies, diversity, abundance, altitudinal distribution.

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Krystyna STACHOWICZ

Quality of waters in the River Skawinka catchment basin (Southern Poland) in periods of low water level.

Acta Hydrobiol., 30, 141-155.

Abstract - On the basis of physico-chemical and bacteriological analyses the quality of waters in the Skawinka catchment basin was estimated. In spite of favourable conditions for the self-purification processes, a distinct effect of point pollution on the waters of the basin, particularly in the Cedron stream below the locality Kalwaria Zebrzydowska, was observed. In periods of low water level an effect of diffuse pollution was also manifested.

Key words: rivers, streams, water quality, point and diffuse pollution, self-purification.

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Aleksandra STARZECKA

A regulated river ecosystem in a polluted section of the Upper Vistula. 4. Biomass and bacterial decomposition.

Acta Hydrobiol., 30, 29-42.

Abstract - The author determined the biomass and respiration of heterotrophic bacteria, indicating the temporary accumulation of energy at the level of a bacterial population or the amount of energy released from the environment as a result of destruction processes. Production was highest in summer for most groups of bacteria, and in autumn for proteolytic ones. On the basis of biological and chemical indices and a 4 grade classification it was confirmed that the water of the studied section of the Vistula is heavily polluted.

Key words: regulated river, pollution, bacteria, biomass, respiration.

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Henryk TOMASZEWICZ

Similarity of habitat requirements of *Glycerietum maximae* Hueck 1931 and *Acoretum calami* Kobendza 1948 phytocenoses.

Acta Hydrobiol., 30, 341-352.

Abstract - Physico-chemical properties of water and substratum in 42 *Acoretum calami* and 27 *Glycerietum maximae* phytocenoses in 44 lakes were studied. It was shown that phytocenoses of the studied communities develop in very similar habitats. Statistically significant differences between the investigated phytocenoses were found in the water only in the colour and soluble silica content while in the substratum they appeared only in the content of chlorides. Waters within the area of *Acoretum calami* phytocenoses are richer in nutrients than within that of *Glycerietum maximae*, whereas a reverse situation is found in the case of the substratum.

Key words: phytocenosis, *Glycerietum maximae*, *Acoretum calami*, habitat requirements.

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Jan Marian WŁODEK and Stanisław SKÓRA

A regulated river ecosystem in a polluted section of the Upper Vistula. 9. Ichthyofauna.

Acta Hydrobiol., 30, 99-111.

Abstract - Catches of fish were made in the 1982 to 1984 period. The changes that have taken place in the ichthyofauna of the Upper Vistula during the last 100 years were compared. The constantly increasing pollution has contributed to the recession from the Vistula above Kraków not only of most predatory fish but also of species of the cyprinid family. The present conditions of the environment are distinctly leading to complete destruction of the fish.

Key words: regulated river, pollution, ichthyofauna, predators, forage fish, parasites, diseases.

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Jadwiga ZYGMUNTOWA

The effect of nitrogen fertilization of bankside soils on the chemical characteristics of the River Nida (Southern Poland) with special regard to dissolved organic matter.

Acta Hydrobiol., 30, 167-178.

Abstract - Fertilization with ammonium nitrate at doses of 80 kg per 1 ha experimental meadow minimally affected the content of dissolved protein and dissolved organic matter. This was manifested only in spring and autumn, when the concentrations of dissolved protein were in increasing order from the control station located 300 m above the experimental meadow to one situated 200 m below the central station.

Key words: rivers, nitrogen fertilization, dissolved organic matter, dissolved protein, seasonal changes.

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