



Main Page



## Acta Hydrobiologica

### Contents of Volume 31 (1989)

**Elżbieta BRZUSKA**

**Investigations on controlled reproduction of carp (*Cyprinus carpio* L.) in early spring.**

Acta Hydrobiol., 31, 121-129.

**Abstract** - Controlled reproduction of carp in early spring was carried out by stimulating the maturation and ovulation of oocytes with repeated injections of pituitary (in successive doses of 0.2, 0.5, and 0.8 or 1.0 mg kg<sup>-1</sup>). Females which matured faster after the second injection were given a smaller third dose than that which matured more slowly. It was found that in spite of this the quantity of eggs obtained from the latter was larger, the eggs being of better quality and the ovulation taking place a few hours earlier.

**Key words:** carp, oocytes, hypophysation, maturation, ovulation.

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**Elżbieta BRZUSKA<sup>1</sup> and Jerzy ADAMEK<sup>2</sup>**

**Stimulation of maturation and ovulation of carp (*Cyprinus carpio* L.) oocytes in summer.**

Acta Hydrobiol., 31, 287-295.

**Abstract** - In summer successful stimulation of maturation and ovulation of the oocytes of carp which had not been used for spawning in spring was carried out. It was found that the late date of reproduction (1775 day-degrees) did not have any detriment effect on the results. When comparing the results of controlled reproduction of females of Polish and Hungarian origin it was found that eggs were obtained from a higher percentage of the latter fish and there were more eggs but of poorer quality.

**Key words:** carp, oocytes, maturation, ovulation.

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**Elżbieta BRZUSKA<sub>1</sub> and Bogdan MALCZEWSKI<sub>2</sub>**

**The effect of injections of carp (*Cyprinus carpio* L.) pituitary on maturation and ovulation of pike (*Esox lucius* L.) oocytes.**

Acta Hydrobiol., 31, 131-137.

**Abstract** - The effect of injections of carp pituitary in a dose of 3 mg kg<sup>-1</sup> on maturation and ovulation of pike oocytes in the season of natural spawning was investigated. Two groups of fish were hypophysed: Group I was kept in a small pond in water with a temperature of 5-5.5 °C and Group II in a hatchery tank in water with a temperature of 11-11.5 °C. 75% of fishes from Group II were induced to complete ovulation, the quantity and quality of obtained eggs being satisfactory. In Group I only partial ovulation took place in 37% of hypophysed fishes and the quality of eggs was poor.

**Key words:** pike, hypophysation, oocyte maturation, ovulation.

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**Halina BUCKA**

**Ecology of selected planktonic algae causing water blooms.**

Acta Hydrobiol., 31, 207-258.

**Abstract** - This work has the character of a review. The ecology of 6 species of planktonic algae were discussed: *Aphanizomenon flos-aquae*, *Microcystis aeruginosa*, *Ceratium hirundinella*, *Cryptomonas erosa*, *Asterionella formosa*, and *Scenedesmus quadricauda*. Attention was paid to the physico-chemical properties of the water and their effect upon the development of the algal biomass, the mechanisms regulating the buoyancy of gas-vacuolate blue-green algae and its role in surface water blooms, and the phytoplankton - zooplankton trophic dependencies in the biocoenosis of freshwater ecosystems.

**Key words:** dam reservoirs, planktonic algae, ecology, water blooms, trophic dependencies.

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**Bazyli CZECZUGA, Lucyna WORONOWICZ, Krystyna BRZOZOWSKA and Halina CHOMUTOWSKA**

**Studies on aquatic fungi. 9. Mycoflora of different types of springs.**

Acta Hydrobiol., 31, 273-283.

**Abstract** - Twenty-five species of aquatic fungi were found. The following fungi not hitherto reported from Poland were observed in the springs: *Chytridium xylophilum* Cornu, *Blastocladiopsis parva* (Whiffen) Sparrow, *Rhipidium interruptum* Cornu, *Camposporium aquaticum* Dudka, and *Tricladium gracile* Ingold.

**Key words:** springs, aquatic fungi, mycoflora, seasonal changes.

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**Maria GRZYBKOWSKA**

**Diversity and number of bottom macroinvertebrates and size of larvae of three species of Chironomidae collected from the bottom and from artificial substrata in the River Widawka (central Poland).**

Acta Hydrobiol., 31, 75-88.

**Abstract** - The most numerous colonists found on artificial substrata placed in a river were those of Simuliidae (51.6% of the total number of fauna), less numerous were *Brachycentrus subnubilis* Curt. (22.3%), *Gammarus fossarum* Koch. (9.4%), and Chironomidae (8.1%). In samples collected from the river bottom Chironomidae (44.9% of the density of benthic fauna) and Oligochaeta (31.7%) were the dominant taxa. For the three species of Chironomidae occurring in the annual cycle in great numbers on the bottom and on the artificial substrata diagrams of body length - frequency were prepared. The migrating larvae were found to be longer than those colonizing the bottom.

**Key words:** rivers, artificial substrata, drift, bottom macroinvertebrates, Chironomidae, body length.

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**Danuta GRZYBOWSKA**

**Concentration of  $^{137}\text{Cs}$  and  $^{90}\text{Sr}$  in marine fish from the southern Baltic Sea.**

Acta Hydrobiol., 31, 139-147.

**Abstract** - The concentration of  $^{137}\text{Cs}$  and  $^{90}\text{Sr}$  in the flesh and  $^{90}\text{Sr}$  in bones of marine fish from the Baltic Sea has been determined since 1982. Values of concentrations factors fish/water were given. After the accident at Chernobyl a 3 to 4 times increase in the radioisotope concentration of caesium was found in fish flesh. Radiation doses from marine fish consumption, with a statistical consumption of 6.6 kg per head, are of the order  $10^{-7}$  Sv year $^{-1}$  per individual.

**Key words:** sea, the Baltic Sea, fish, radioactivity, concentration factor, radiation doses.

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**Robert GWIAZDA**

**Initial stage of bird settlement on the Dobczyce dam reservoir (Vistula basin, southern Poland).**

Acta Hydrobiol., 31, 373-383.

**Abstract** - In the period 1986-1988, 48 bird species associated with a water environment were recorded on the Dobczyce dam reservoir in the first three years of its existence. Only 14 of them were identified as breeding or probably breeding. The dominating species included *Anas platyrhynchos*, *Larus ridibundus*, and *Podiceps cristatus*. Together with the change in the physical parameters of the environment a change in the structure of bird communities was observed.

**Key words:** dam reservoir, water birds, settlement, community structure.

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**Barbara KAWECKA**

**Sessile algal communities in a mountain stream in conditions of light gradation during its flow through a cave (West Tatra, Poland).**

Acta Hydrobiol., 31, 35-42.

**Abstract** - The light requirements of sessile algae were studied. *Hydrurus foetidus* and *Ceratoides arcus* developed under normal conditions. *Homoeothrix janthina*, *Achnanthes minutissima*, *A. pyrenaica*, *A. lanceolata*, *Diatoma hiemale* with *mesodon* variation, *Gomphonema intricatum* var. *pumilum*, *Meridion circulare* also grew where light was deficient. *Amphora ovalis* var. *pediculus* preferred the latter conditions, as did *Cocconeis placenula* var. *euglypta* and *Navicula cryptocephala*.

**Key words:** stream, sessile algae, ecology of algae, effect of light.

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**Jiří KOMÁREK<sup>1</sup> and František HINDÁK<sup>2</sup>**

**The genus *Eucapsis* (Cyanophyta/Cyanobacteria) in Czechoslovakia.**

Acta Hydrobiol., 31, 25-34.

**Abstract** - Five taxa of the genus *Eucapsis* Clem. et Shantz (Cyanophyta/Cyanobacteria) have been found in Czechoslovakia, of which two are determined as *E. alpina* and *E. minor*, two others are described as new species (*E. carpatica*, *E. starmachii*), and one species is probably identical with the thermophilic *E. parallelepipedon* (a new taxonomic combination). The limited species ecology in all studied populations (a new taxonomic combination). The limited species ecology in all studied populations is recognized. Original drawings and microphotos of the observed species are presented.

**Key words:** Cyanophyta/Cyanobacteria, *Eucapsis*, taxonomy, new species, new combination, Czechoslovakia.

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**Janina KWANDRANS**

**Ecological characteristics of communities of sessile algae in the Biała and Czarna Wiselka streams, headwaters of the River Vistula (Silesian Beskid, southern Poland).**

Acta Hydrobiol., 31, 43-74.

**Abstract** - The structure of algal communities was differentiated according to the changing living conditions along the stream course. In sections of streams with a low calcium content in the water and acidic water reaction scarce acidophilous species of diatom and the yellow-green alga *Ellipsoidion anulatum* developed. Those where the waters had a higher calcium content and pH and with greater resources of biogenic compounds were characterized by richness of forms and an abundant quantitative development of algae. The structure of algal communities at particular stations showed seasonal changes.

**Key words:** montane streams, sessile algae, community, numbers, diversity, water chemistry, seasonal changes.

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**Jiří LIBOSVÁRSKÝ**

**An analysis of interrelations of characters in bream (*Abramis brama* L.).**

Acta Hydrobiol., 31, 311-318.

**Abstract** - Using the method of correlation analysis, an evaluation of interrelations among nine morphometric characters was carried out in bream, taken from two distant water bodies - the River Nevežis and the Mostišť Reservoir. High variability was shown in the interrelations of the selected characters. This appeared not only between the two water bodies but also among the samples taken in the same water body during three consecutive years of study.

**Key words:** water bodies, bream, morphometrics, correlation analysis, interrelations of characters.

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**Andrzej MAMCARZ and Dariusz GOLONKA**

**An attempt to determine the levels of variability of morphological features of peled (*Coregonus peled* Gmel.) during larval development.**

Acta Hydrobiol., 31, 97-107.

**Abstract** - The levels of variability of 19 morphological traits of peled larvae in the period of rearing in illuminated cages were investigated using the method of variability analysis. It was found that, irrespective of their individual pattern, all curves of the variability of features reflect the most important periods of the ontogenetic development of fish, in which the differentiation of their size occurred.

**Key words:** fishes, morphology, peled, larval development, level of variability, cages.

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**Modest MISZTAL, Halina SMAL and Andrzej GÓRNIAK**

**Changes in the chemical composition of waters in the littoral zone of Lake Piaseczno (Łęczyńsko-Włodawskie Lake District, southeastern Poland) during multiannual studies.**

Acta Hydrobiol., 31, 13-23.

**Abstract** - Changes in the concentration of nutrients and their forms in waters of the littoral zone of Lake Piaseczno were observed during a 7-year period. The investigations were conducted against the background of atmospheric precipitation and water level in the lake. The average dynamics of concentrations of the elements and their forms throughout the year, certain relation between the concentrations, and the effect of land use in the area of lake shores on the chemical composition of the water were determined. In the period of the study, no distinct increase in the concentration of the determined elements was found.

**Key words:** catchment use, seasonal changes, precipitation, lake water level, macroelements.

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**Andrzej S. OLEKSOWICZ**

**Phytoplankton communities of *Lobelia*-type lakes in the Kashubian Lake District (Pomerania, northern Poland).**

Acta Hydrobiol., 31, 259-271.

**Abstract** - The species composition and abundance of autumnal phytoplankton of several *Lobelia*-type lakes were compared using cluster analysis (CA) and principal component analysis (PCA). A pronounced individuality of the investigated communities of algae was found but no characteristic combination of algal taxa common to the investigated lakes and analogical to their common and characteristic vascular vegetation, could be identified.

**Key words:** lakes, *Lobelia*-type, phytoplankton, numerical methods.

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**Wanda PIOTROWSKA-OPUSZYŃSKA<sup>1</sup>, Jerzy SZYMACHA<sup>2</sup> and Józef JANIK<sup>2</sup>**

**Effect of extremely high doses of nitrogen and phosphorus on physico-chemical conditions in ponds and on carp rearing.**

Acta Hydrobiol., 31, 297-310.

**Abstract** - The effect of very high doses of nitrogen and phosphorus on the physico-chemical conditions in ponds and on the stocks of one-, two-, and three-year-old carp was investigated. The fertilization brought about an increase in the content of mineral forms of nitrogen and phosphorus, chlorophyll, oxygen consumption, and BOD<sub>5</sub>. The concentrations of nitrites and non-ionized ammonia were found to be noxious to fish, this being manifested by an increased incidence of gill necrosis and a 30% decrease in the survival of fish in fertilized ponds.

**Key words:** fish ponds, fertilization, nitrogen, phosphorus, fish, nutrients, ecosystem.

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**Anna PROTASOWICKA<sup>1</sup> and Józef DOMAGAŁA<sup>2</sup>**

**Dependence between the length, weight, and age of spawning trout females (*Salmo trutta* L.) and the content of carotenoids in their spawn.**

Acta Hydrobiol., 31, 89-96.

**Abstract** - An investigation was carried out on 25 females caught in the River Rega in the spawning period. Significant correlations were found between the content of "yellow" carotenoids (the sum of beta-carotene, isozeaxanthin, zeaxanthin, lutein, and 5.8-epoxy-lutein) in the spawn and the investigated biological factors (length, weight, age of fish and weight of the oocyte). On the other hand, no significant dependencies were observed between the content of astaxanthin and the biological factors.

**Key words:** trout, salmonids, spawn, carotenoids, astaxanthin.

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**Mirosław PRZYBYLSKI and Jerzy BAŃBURA**

**Feeding relations between the gudgeon (*Gobio gobio* (L.)) and the stone loach (*Noemacheilus barbatulus* (L.)).**

Acta Hydrobiol., 31, 109-119.

**Abstract** - The qualitative and quantitative composition of the food of the gudgeon (*Gobio gobio*) and stone loach (*Noemacheilus barbatulus*) in the River Dobrzyńka (Oder drainage basin) was studied. The predominating components of the food of both species were the larvae of Chironomidae, Trichoptera, and Ephemeroptera but some differences were noted. Food niche breadths and interspecies overlaps are given. The relations of these to the phenomenon of competition are discussed.

**Key words:** gudgeon, stone loach, fish food, niche breadths, overlaps, competition.

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**Rimantas REPEČKA**

**Seasonal and age dynamics of the chemical composition of vimba (*Vimba vimba* L.) and bream (*Abramis brama* L.).**

Acta Hydrobiol., 31, 329-342.

**Abstract** - On the basis of investigations the characteristics of chemical changes in the body of the anadromous *Vimba* species in the process of spawning migration and spawning are given. It was found that the metabolism of the vimba and bream is noted for specific features in different periods of ontogenesis and different seasons of the year. A comparison of the regularity and different aspects of the metabolic rate of several vimba and bream populations was made.

**Key words:** *Vimba*, bream, chemical composition, metabolism, migration, population.

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**Tamara M. SHEVTSOVA and Taisiya I. NEKHAYEVA**

**The variability of head and rostrum length in the bream (*Abramis brama* L.) and vimba (*Vimba vimba* L.) from various water bodies within the distribution range.**

Acta Hydrobiol., 31, 351-362.

**Abstract** - The extent of variability of external morphological features in *Abramis brama* L. and *Vimba vimba* L. was investigated. The relationship between head and rostrum length and the length, mass, and age of the species is described. Verified differences in head and rostrum length indices for the two populations from geographically remote water bodies and from those located in one geographic zone were estimated.

**Key words:** water bodies, bream, *Vimba*, head, rostrum, variability, regression, correlation.

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**Monika SKWARCZYŃSKA and Ryszard SOWA**

***Perla pallida dacica* Klapálek, 1907 (Plecoptera, Perlidae) retrouvée aussi en Pologne.**

Acta Hydrobiol., 31, 285-286.

**Abstract** - *Perla pallida dacica* Klap. a été récoltée pour la première fois en Pologne, dans le ruisseau Chliwny, affluent de la rivière Oslawa, dans les montagnes de Bieszczady Zachodnie.

**Key words:** entomologie, Plécoptères, Perlidae, *Perla*, distribution.

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**Ryszard SOWA**

**Professor Karol Starmach, 22 September 1900 - 2 March 1988.**

Acta Hydrobiol., 31, 3-11.

**Abstract** - [Biography].

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**Ryszard SOWA and Janusz STARMACH**

**Professor Władysław Grodziński, 9 September 1934 - 8 November 1988.**

Acta Hydrobiol., 31, 151-166.

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

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**Aleksandra STARZECKA**

**Effect of industrial dusts on the development and activity of micro-organisms in soils of the Niepołomice Forest (southern Poland).**

Acta Hydrobiol., 31, 167-206.

**Abstract** - In soils contaminated with industrial dusts (at doses of 0, 100, 500, 1000, and 2000 t km<sup>-2</sup> year<sup>-1</sup>) containing 177.2-3544.0 kg Zn ha<sup>-1</sup> or 26.4-528.0 kg Cd ha<sup>-1</sup> a considerable reduction in the numbers of micro-organisms was found. It was also observed that the respiratory activity of micro-organisms, C<sub>x</sub> cellulase, and soil phosphatases varied, depending on the kind and dose of dusts, their time of action, and mineral fertilization of the soils (NPK and liming).

**Key words:** soil, bacteria, total activity of micro-organisms, bacterial activity, enzymatic activity of soils.

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**Jan Marian WŁODEK, Maria KLIMCZYK-JANIKOWSKA and Stanisław SKÓRA**

**Correlation study on the liver of the vimba (*Vimba vimba* L.) in the area of its occurrence (Europe, Asia).**

Acta Hydrobiol., 31, 363-372.

**Abstract** - Twenty-nine vimba populations from Europe and Asia, using 2962 vimba, were investigated. Data were gathered with uniform methods in the period 1975-1980. It was shown that the geographical direction North-South may influence the amount of liver in the body in vimba from riverine environments. The East-West direction was non-significant. The study was made in co-operation with the Lithuanian Academy of Sciences, Institute of Zoology and Parasitology in Vilnius.

**Key words:** fishes, *Vimba*, liver, weight, length, geographical area, correlation, coefficient, feature.

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**Valdemaras Žiliukas**

**Comparative estimation of vimba (*Vimba vimba* L.) and bream (*Abramis brama* L.) fry ratio in the whole fry population in littoral communities from different water bodies.**

Acta Hydrobiol., 31, 343-349.

**Abstract** - On the basis of experimental catches during the years 1975-1980 from 4 different and remote water bodies, the mean values of the ratio of number and weight of vimba and bream fry to other species of



the fish community were determined. In estimating changes in the structure of communities the index of species diversity, according to Shannon-Weaver, and the index of equitability, according to Sheldon, were applied.

**Key words:** water bodies, *Vimba*, bream, fry, ratio, structure of community.

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**Vida Romualdo Žiliukiene**

**Distribution of chlororganic pesticides in the organs and tissues of vimba (*Vimba vimba* L.) from selected water bodies of Lithuania.**

Acta Hydrobiol., 31, 319-328.

**Abstract** - The paper is based on the results of investigations carried out during 1980 and 1981. Data on the accumulation of Lindane and total DDT (DDT, DDD, DDE) in the body of vimba from the Kuršiu Marios Haff and the Kaunas Reservoir are presented. A distinct correlation between the distribution of pesticides in the organs and tissues of the species and their fat content, sex, fish age, and season was shown.

**Key words:** water bodies, *Vimba*, organs, tissues, chlororganic pesticides, seasonal changes.

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**Back to Acta Hydrobiologica**