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Eugeniusz BIESIADKA and Urszula SZCZEPANIAK

Investigation on water bugs (Heteroptera) in strongly polluted Lake Suskie (Northern Poland).

Acta Hydrobiol., 29, 453-464.

Abstract - The occurrence of water bugs in the strongly polluted Lake Suskie was investigated. A distinct impoverishment of species composition together with large numbers of individuals of four species of bug are the result of pollution. Phenological analysis of the most numerous species - *Sigara concinna*, *S. falleni*, *S. striata*, and *S. praeusta* - was carried out. In *S. concinna* two generations in one year were observed.

Key words: lake, pollution, water bugs, domination, life cycle, generation.

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Elżbieta BRZUSKA¹ and Jerzy ADAMEK²

Investigation on the reproduction of the herbivorous fish *Ctenopharyngodon idella*, *Hypophthalmichthys molitrix*, and *Aristichthys nobilis* under controlled conditions.

Acta Hydrobiol., 29, 497-508.

Abstract - An attempt was made to stimulate the maturation of herbivorous fish spawners by keeping them in spring in earthen tanks covered with plastic tents, in artificially heated water. Such preparation for the reproduction of grass carp, silver carp, and bighead allowed controlled spawning to be carried out at earlier dates than by keeping the fish in ponds. A high percentage of ovulating females and satisfactory quantity and quality of eggs were obtained.

Key words: herbivorous fish, preparatory period, reproduction.

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Elżbieta BRZUSKA

Stimulation of maturation and ovulation of carp (*Cyprinus carpio* L.) oocytes. 2. In winter.

Acta Hydrobiol., 29, 227-241.

Abstract - Controlled reproduction of the same fishes in autumn and winter was carried out. It was found that the period of preparation of carp females for autumn reproduction affected the rate of maturation of oocytes during preparation for winter reproduction, the rate of maturation of oocytes after injections of pituitary, the amount of pituitary which stimulated ovulation, and the number of eggs obtained in the winter. The duration of the period of preparation for autumn reproduction did not affect the quantity of eggs obtained in the winter.

Key words: carp, oocytes, maturation, ovulation, preparatory period.

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Halina BUCKA

Ecological aspects of the mass appearance of plankton algae in dam reservoirs of southern Poland.

Acta Hydrobiol., 29, 149-191.

Abstract - A synthesis of studies on the mass appearances of plankton algae was made, based on the author's own results and the publications of other authors. Single-species water blooms were distinctive in the first years following the flooding of reservoirs but usually mixed ones later. Their appearance depended chiefly on nutrient concentrations and also on the time of water retention and the age of the reservoir.

Microcystis aeruginosa was the commonest species of blue-green algae forming water blooms. An increase in the numbers of chlorococcal algae was also found.

Key words: dam reservoirs, plankton algae, "water blooms".

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Juan-Carlos CANTERAS and Luisa PÉREZ

The biochemical diversity of heterotrophic bacterial communities in high mountain lakes from Sierra Nevada (Granada, Spain).

Acta Hydrobiol., 29, 137-147.

Abstract - The results of the study demonstrate that there is a close relationship between the "physiological state" of the lakes and the biochemical diversity of the bacterial community. Those lakes which presented high Margalef's pigment indices contained a denser bacterial community, but this community showed a less diverse biochemical capacity to use different kinds of substrata.

Key words: high mountain lakes, heterotrophic bacteria, microbial activity.

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Ikechukwu J. CHIDOBEM and Chiweyite EJIKE

Seasonal periodicity of plankton in the Shen reservoir (Jos Plateau, Nigeria).

Acta Hydrobiol., 29, 193-202.

Abstract - Seasonal periodicity and community structure of plankton abundance was monitored at three stations during three distinct climatic seasons. The phytoplankton community structure, in terms of abundance, was Cyanophyceae > Bacillariophyceae > Dinophyceae > Chlorophyceae. Among the zooplankton, rotifers exhibited dominance over crustaceans in both abundance and species diversity. Plankton abundance showed a peak in the rainy season, with phytoplankton and zooplankton in August and September, respectively.

Key words: reservoirs, plankton, periodicity, community structure, Cyanophyceae, Rotatoria, dominance.

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Anna DERLAGA

A bibliography of the natural history of the Niepołomice Forest (Southern Poland) for the period 1978-1985.

Acta Hydrobiol., 29, 119-134.

Abstract - The bibliography contains 154 papers on the various aspects of ecology of the Niepołomice Forest, a forest complex intensively studied by ecologists. These papers have been published during the period 1978-1985 and concern air pollution, bioindication, nature conservation, primary production, secondary production, decomposition, budgets of energy, nutrients and pollutants, environment, and forest and wildlife management. The bibliography is equipped with a subject index.

Key words: bibliography, Niepołomice Forest, forest ecosystem.

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Elżbieta DUMNICKA

The effect of dam reservoirs on oligochaete communities in the River Dunajec (Southern Poland).

Acta Hydrobiol., 29, 25-34.

Abstract - In the studied section of the Dunajec and in two dam reservoirs 47 oligochaete species were found. In the reservoirs and silted river sectors Tubificidae dominated and at the remaining stations Naididae. The structure of dominance depended on the type of bottom, and the trophy of the water. Hydrotechnical development indirectly affected the structure of the communities, modifying the living conditions of the oligochaetes by changing the velocity of the current and the character of the river bottom below the reservoir.

Key words: regulated streams, water pollution, oligochaete communities.

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Wojciech FIAŁKOWSKI¹ and Maria M. OLECHOWSKA²

A preliminary report on the stoneflies (Plecoptera) inhabiting main watercourses in the Gorce Mts (Southern Poland).

Acta Hydrobiol., 29, 443-451.

Abstract - The stoneflies inhabiting the streams Kamienica, Łopuszanka, Ochotnica (with Forędówka), and Olszowy Potok (with Porębianka) draining the Gorce National Park in the Gorce Mountains were investigated. Both larvae and imagines were collected. 57 species were identified. Lists of species reported from the streams as well as their altitudinal distribution are given.

Key words: streams, Gorce, National Parks, Plecoptera, checklist, altitudinal distribution.

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Maria GRZYBKOWSKA, Daria PAKULSKA and Henryk JAKUBOWSKI

Benthos and drift of invertebrates, particularly Chironomidae, in a selected cross-section profile of the River Widawka (Central Poland).

Acta Hydrobiol., 29, 89-109.

Abstract - An investigation of meso- and macrobenthos was carried out in the annual cycle. Chironomidae and Oligochaeta constituted about 80.6% of the bottom fauna. Drifting benthic fauna was chiefly represented by young specimens of Chironomidae and Oligochaeta <1 mm. A very large share of zoobenthos in the drift was observed. No statistically significant correlation was found between the density of invertebrates in bottom sediments and of those drifting in the water, either at the level of species or higher taxonomic units ($p>0.05$).

Key words: river, Chironomidae, benthos, drift.

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

Acta Hydrobiol., 29, 509-521.

Abstract - The investigations did not reveal any detrimental effect of intensive fertilization on the general state of health of carp. Anatomopathological signs did not cause fish death. Changes in the organs of fish from fertilized ponds were 1.5-4.0 times smaller than those in fish from non-fertilized ones. Only *Trichodina* sp. and *Apiosoma piscicola* occurred in larger quantities. The application of fertilization and a considerable proportion of potassium may help to reduce parasite invasion and limit the occurrence of branchionecrosis.

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

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Maria HUL

Formation of the structure of Ciliata seston communities in the River Łyna (Northern Poland).

Acta Hydrobiol., 29, 203-218.

Abstract - Communities of Ciliata were formed under the influence of municipal wastes, floods, and flow-through lakes. The wastes brought about an increase in the number of species and their abundance as compared with communities in natural waters. The share of bacteriophagous, predatory, and saprophilous species rose. A similar effect of floods was observed. With the self-purification of the river the values of the above indices were reduced, with the exception of the lake sector. This is confirmed by indices of frequency, dominance, and saprobity and by the food structure.

Key words: river, municipal wastes, seston, Ciliata communities.

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Marek JELONEK and Antoni AMIROWICZ

Composition, density and biomass of the ichthyofauna of the Goczałkowice Reservoir (Southern Poland).

Acta Hydrobiol., 29, 253-259.

Abstract - In the period 1981-1984 qualitative and quantitative investigations of the ichthyofauna of the Goczałkowice dam reservoir were carried out. 16 species of fish were found to occur in the reservoir, the main components of the ichthyofauna being cyprinids (*Abramis brama* (L.), *Rutilus rutilus* (L.), *Alburnus alburnus* (L.) and percids (*Perca fluviatilis* L., *Stizostedion lucioperca* (L.)). The density of the ichthyofauna was estimated at 4959.57 ind. ha⁻¹, the biomass amounting to 181.41 kg ha⁻¹.

Key words: man-made reservoirs, ichthyofauna, fish density.

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Density and biomass of fish in the Rożnów Reservoir (Southern Poland).

Acta Hydrobiol., 29, 243-251.

Abstract - The investigations of the ichthyofauna of the Rożnów Reservoir were carried out at 5 stations, using a beach seine, a fry trawl, a set of gill nets, and trammel nets. The biomass and density of the particular species of fish were estimated using the Zippin triple catch removal method. The total biomass and density of the ichthyofauna was 162.75 kg ha⁻¹ and 4475 ind. ha⁻¹. 18 species of fish were found to occur, the bream, roach, pikeperch, and perch being the dominant species.

Key words: man-made reservoirs, fish density, estimation, catchability, Zippin equation.

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Krystyna KAHL and Maria GOLĄŃSKA

Diversity and numbers of Oligochaeta against the background of other macroinvertebrates in a concrete bed of the River Widawka (Central Poland).

Acta Hydrobiol., 29, 35-51.

Abstract - Macrofauna inhabiting the concrete bed of the River Widawka was studied in an annual cycle. Besides Chironomidae, Oligochaeta occurred in the largest numbers and this group was analysed in detail. 13 species of Oligochaeta of the Naididae family, 1 species of the Lumbriculidae family and not identified specimens of the families Tubificidae and Enchytraeidae were recorded. Changes in the dominance of the different groups of macrofauna and different species of Oligochaeta and the dynamics of their numbers were investigated.

Key words: rivers, concrete river bed, macroinvertebrates, Oligochaeta, diversity, dominance, abundance.

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Communities of sessile algae in some small streams of Central Finland. Comparison of the algae of

the high mountains of Europe and those of its northern regions.

Acta Hydrobiol., 29, 403-415.

Abstract - In the streams investigated similar algal communities characteristic of oligotrophic waters developed. Diatoms, mainly *Achnanthes minutissima*, *A. microcephala*, *Tabellaria flocculosa*, and *Melosira distans* var. *alpigena*, dominated. The index of diatom biomass was low. Comparison of the algal communities of high mountain streams in Europe and those of its northern regions composed of crystalline rocks showed that they differ considerably despite the similar conditions (low temperature, oligotrophy).

Key words: running waters, sessile algae, communities, ecology, mountains, Nordic countries.

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Barbara KOLASA-JAMIŃSKA

Investigations on intensification of carp fingerling production. 5. Physical and chemical properties of water.

Acta Hydrobiol., 29, 325-337.

Abstract - The investigations carried out in 1981 showed that with increasing intensification of production the content of N-NH₄ and P-PO₄ rose in the water. In 1982 and 1983 the effect of different type of fertilization on the physico-chemical properties of pond water was studied. The content of N-NH₄ depended on the type of fertilization and the intensity of algal photosynthesis. The content of P-PO₄ was associated with the biomass of phytoplankton, water reaction, and degree of oxygen saturation of the water.

Key words: pond, carp fingerlings, intensification, fertilization, nutrients, water quality parameters.

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Wojciech KRZANOWSKI

Zooplankton of the Wisła-Czarne Dam Reservoir (Southern Poland) in the years 1975-1984.

Acta Hydrobiol., 29, 417-427.

Abstract - The paper presents the results of ten years' observations on the formation and development of the association of plankton animals in the newly built Wisła-Czarne Dam Reservoir. The zooplankton was found to vary in quality and to occur in small numbers. No great differences were found in its vertical distribution at the particular stations. It was observed that by day the plankton animals gathered at a depth of 2.5 to 5.0 m in regions near the bottom.

Key words: reservoir, zooplankton, spatial distribution.

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Edward KRZYŻANEK

Investigations on intensification of carp fingerling production. 8. Number and biomass of zoobenthos.

Acta Hydrobiol., 29, 371-382.

Abstract - The results of an investigation on the zoobenthos in experimental ponds with different trophic conditions are presented. The investigation performed in 1981 showed that carp farming carried out from 1976-1980 in ponds with a higher production level created better conditions for zoobenthos development. In the studies of 1982 and 1983 the highest values of zoobenthos numbers and biomass were found in a pond where organic fertilization was applied and the lowest in an unfertilized pond.

Key words: ponds, carp fingerlings, intensification, zoobenthos, numbers, biomass.

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Maria LEWKOWICZ

Investigations on intensification of carp fingerling production. 7. Species composition and zooplankton development.

Acta Hydrobiol., 29, 355-369.

Abstract - The zooplankton in ponds of different fertilization stocked with carp fry was investigated. In the first days after stocking a mass development of rotifers, predacious *Cyclops vicinus* and *Moina* was observed. In ponds characterized by a high survival rate of fish the rotifers and *Bosmina longirostris* dominated through the season, and in ponds with a low survival rate *Daphnia magna* and *D. pulex*. The biomass of zooplankton in fertilized ponds varied during the season over a wider range than in the unfertilized ones.

Key words: ponds, carp fingerlings, fertilization, zooplankton, number, biomass

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Stanisław LEWKOWICZ

Investigations on intensification of carp fingerling production. 6. Primary production and oxygen conditions.

Acta Hydrobiol., 29, 339-353.

Abstract - An investigation was carried out on the effect of fertilization with liquid cow manure and mineral fertilizers on primary production and oxygen conditions in ponds stocked with carp fry. Mixed organic fertilization brought about an increase in primary production of phytoplankton and a decrease in water reaction. Above all, organic fertilization favourable affected all trophic links during the first weeks after stocking the ponds when the development of large filter-feeding organisms limited the primary production of phytoplankton.

Key words: ponds, carp fingerlings, intensification, organic fertilization, mineral fertilization, primary production.

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Teresa NESTERUK

Assessing the efficiency of three methods of extracting freshwater *Gastrotricha* from bottom silt.

Acta Hydrobiol., 29, 219-226.

Abstract - The paper presents the results of studies on the efficiency of three methods of extracting freshwater Gastrotricha from bottom silt. The highest efficiency (65.6%) was found for a method consisting in the rapid forcing of silt through a sieve. This method is non-selective for the family Chaetonotidae, but for the family Dasydytidae it shows lower efficiency and higher selectivity.

Key words: freshwater Gastrotricha, microbenthos, extraction methods.

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Andrzej PILARCZYK

Investigations on intensification of carp fingerling production. 2. State of health of fingerlings.

Acta Hydrobiol., 29, 291-299.

Abstract - An ichthyopathological investigation on one year old carp fingerlings was carried out. The most important diseases of fingerlings were: swim bladder inflammation and invasion of *Bothriocephalus* sp. and *Caryophyllaeus* sp. tapeworms. Compared with the progeny of pure lines the hatch from the crosses of Hungarian carp and the Gołysz line was found to be more resistant to disease. The obtained results did not show any effect of fertilizing methods and kind of feed on the state of health of carp.

Key words: ponds, carp fingerlings, production intensification, diseases.

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Marzena RZECZYCKA, Ewa BOŃKOWSKA and Magdalena PRZYTOCKA-JUSIAK

The algae of a reservoir of nitrogen wastewaters.

Acta Hydrobiol., 29, 15-24.

Abstract - In the final reservoir of nitrogen wastewaters, at a concentration of N inorg. of about 1.2 g dm⁻³, *Chlorella* sp., *Stichococcus* sp., and occasionally *Chlamydomonas subcaudata* were found to be present. In the surround ditch, at a concentration of N inorg. about four times lower, a larger number of algal species was observed: *Ulothrix* sp., *Oscillatoria agardhii*, *Navicula atomus*, and *Euglena* sp. occurring in masses. Of the 13 algal species isolated, under laboratory conditions 8 grew both on synthetic medium and on nitrogen wastes.

Key words: algae, culture, nitrogen wastewaters, wastewater purification.

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Application of tests at population and ecosystem levels for the estimation of toxicity of selected non-ionic detergents.

Acta Hydrobiol., 29, 387-402.

Abstract - The values of allowable concentrations for Rokaphenol N-8 and Rokaphenol NX-8 were calculated on the basis of experimentally determined LC₅₀ values and adopted allowable concentration coefficients. The effect of allowable concentrations of the detergents as well as concentrations two and five times higher was observed in communities of organisms inhabiting flow-through aquaria. No harmful effect

of the allowable concentrations of these substances on the ecosystem was noted.

Key words: detergents, concentration, ecosystem, population, persistence, relative accumulation, persistence of toxic activity.

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***Rhithrogena* du groupe *hybrida* (Ephemeroptera, Heptageniidae) des Alpes françaises.**

Acta Hydrobiol., 29, 71-87.

Abstract - Three new species of the genus *Rhithrogena* of the *hybrida* group from the French Alps are described and illustrated: *R. diensis* sp. n. (male and female imago, subimago, egg, and larva), *R. fonticola* sp. n. (female imago and egg), and *R. mariaedominicae* sp. n. (male and female imago, subimago, egg, and larva). Complementary information concerning taxonomy is added to the descriptions of *R. degrangei* Sowa, *R. hybrida* Etn and *R. nivata* Etn.

Key words: Ephemeroptera, Heptageniidae, *Rhithrogena*, *hybrida* group, taxonomy, distribution, French Alps.

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Sur quelques especes européennes de *Rhithrogena* du groupe *semicolorata* (Ephemeroptera, Heptageniidae).

Acta Hydrobiol., 29, 523-534.

Abstract - New species of *Rhithrogena* is described and figured: *R. puytoraci* sp. n. (male and female imagines, subimagines, egg and nymph). Change of taxonomic status is done for *R. iridina picteti* Sowa as well as the description of nymph of *R. colmarsensis* Sowa.

Key words: Ephemeroptera, Heptageniidae, *Rhithrogena*, *semicolorata* group, taxonomy.

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Heptachlor induced haematological and biochemical changes in the Indian catfish (*Heteropneustes fossilis* (Bloch.)).

Acta Hydrobiol., 29, 489-495.

Abstract - The 24, 48, 72, and 96 h median lethal concentrations for *H. fossilis* were 0.40, 0.32, 0.28, and 0.22 mg dm⁻³ respectively. A concentration of 0.11 mg dm⁻³ heptachlor in water elicited both muscle and hepatic glycogenolysis at 2, 16, 12, 48, and 96 h, hyperglycaemia between 2 and 48 h, hypochloraemia at 2, 6, and 12 h and, later, hyperchloraemia at 48 and 96 h. The pesticide also evoked pancytopenia with a concomitant decrease in haemoglobin content and haematocrit, a raised ESR, and hypocoagulability of the whole blood.

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

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Janusz STARMACH

Individual genetic variability within synthetic breeding lines of carp against the background of the electrophoretic fractionation of blood plasma transferrin.

Acta Hydrobiol., 29, 111-118.

Abstract - Using electrophoretic fractionation of transferrin, the individual genetic variability of carp of 9 inbreeding lines was investigated. Two polymorphic homozygous patterns were found besides four heterozygous ones occurring in 86.3% of the investigated fish, which were regarded as homozygous on the basis of selection carried out according to the type of scaliness.

Key words: carp, genetics, transferrin, electrophoretic separation.

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Aleksandra STARZECKA and Grażyna MAZURKIEWICZ

The effect of intensive fertilization of a bankside meadow on the activity of plankton bacteria in the River Nida (Southern Poland).

Acta Hydrobiol., 29, 3-13.

Abstract - The activity of mixed communities of aquatic bacteria was investigated and the process of bacterial bioaccumulation and destruction was quantitatively determined in the water of the River Nida, in a sector affected by surface run-off from a bankside meadow intensively fertilized in the form of ammonium nitrate. The successive doses of fertilizer did not cause significant changes in the bacterial biomass. The average amount of energy used by bacteria for bioaccumulation and biodegradation was similar at all stations while the direction of the energy flow varied.

Key words: river, micro-biological activity, bioaccumulation, biodegradation.

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Magdalena SZAROWSKA

Annual life cycle of *Limnodrilus udekemianus* (Oligochaeta, Tubificidae) in the River Biała Przemsza (Southern Poland).

Acta Hydrobiol., 29, 53-69.

Abstract - The annual life cycle of *L. udekemianus* (Oligochaeta, Tubificidae) was studied at two stations of different water purity. At the polluted station the worms grew larger and were more numerous than in the pure one. Differences also concerned the regularity and character of the cycle pattern, the length of the breeding period, and the growth rate.

Key words: river, pollution, Oligochaeta, *Limnodrilus*, life cycle, growth rate, breeding period, competition.

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Lech SZAROWSKI

Investigations on intensification of carp fingerling production. 3. Characteristics of carp fingerling nutrition.

Acta Hydrobiol., 29, 301-312.

Abstract - In the period 1981-1983 the nutrition of carp fingerlings was investigated. In the first year effects of the level of intensification of rearing in the previous years on their food were observed. In the superintensive pond food consumption, expressed in $\text{kg ha}^{-1} 24 \text{ h}^{-1}$, was double that in the comparative pond. In the following years the influence of mineral and organic fertilization on food consumption by the fish was investigated. Unexpectedly, the highest fish production and food consumption were noted in an unfertilized pond.

Key words: ponds, carp fingerlings, intensification of production, carp food.

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Bronisław SZCZĘSNY

Ecological characteristics of caddis flies (Trichoptera) of streams in the Gorce Mts (Southern Poland).

Acta Hydrobiol., 29, 429-442.

Abstract - In the massif of the Gorce MTS (Northern Carpathians), the Trichoptera of the four main streams were studied. Samples were collected three times, in spring, summer, and autumn, at 35 stations at altitudes of 380-1240 m. Sixty-two species were found. Five communities of Trichoptera were distinguished and their altitudinal range and characteristic species given. The species were grouped into functional feeding groups whose distribution and density along the course of the streams is described.

Key words: streams, Gorce Mts, National Parks, caddis flies, diversity, distribution, communities, functional feeding groups.

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Jan SZUMIEC

Investigations on intensification of carp fingerling production. 1. Optimization of rearing biotechniques.

Acta Hydrobiol., 29, 275-289.

Abstract - The dependence of the rearing of carp fingerlings on differentiated genetic origin of the stock, pond fertilization, and fish feeding was investigated. A considerable increase in production was achieved with productive hybrids originated from Polish and Hungarian carp as compared with the effects attained with rearing pure lines. In fertile ponds mineral-organic fertilization proved slightly superior to fertilization with ammonium nitrate and superphosphate or with liquid manure. Increasing protein content in feeds brought a smaller than expected increase in feeding effects.

Key words: ponds, carp fingerlings, intensification, genetic origin, fertilization, feeding.

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Maria A. SZUMIEC

Investigations on intensification of carp fingerling production. 4. Climatic and meteorological conditions.

Acta Hydrobiol., 29, 313-323.

Abstract - The effect of particular and complex meteorological factors on the growth and survival of carp fingerling is discussed. It was found that the body mass of fingerling increase proportionally to the increasing seasonal sum of the effective water temperature (higher than 14 °C). Fry survival rate rises with the rise in number of days with the optimal water temperature (higher than 19 °C) in the first weeks after stocking.

Key words: pond, carp fingerlings, meteorological conditions, temperature, survival rate, growth.

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Dariusz WŁSIKIEWICZ

Food and seasonal changes in the feeding of the minnow (*Phoxinus phoxinus* L.) from the upper Vistula (Southern Poland).

Acta Hydrobiol., 29, 479-487.

Abstract - The minnow in the upper Vistula feeds mainly on the larvae and pupae of the Chironomidae, larvae of the Ephemeroptera and Trichoptera, and insects collected from the water surface. Its food also includes filamentous algae and diatoms. The food spectrum of the minnow undergoes seasonal changes. In spring and summer animal food prevails while in autumn the fish lives almost exclusively on vegetable material.

Key words: rivers, fish, minnow, food.

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Jan M. WŁODEK, Maria KLIMCZYK-JANIKOWSKA and Stanisław SKÓRA

Population studies on the weight of the liver bream (*Abramis brama* L.) in the area of its occurrence (Europe, Asia).

Acta Hydrobiol., 29, 261-272.

Abstract - 58 bream populations from Europe and Asia using 4979 bream and 4701 bream livers were

investigated. The general hepatosomic index proved to be 1.60%. The relatively greatest bream livers were found in the brackish waters of the Kurshiu-Mares Bay on the Baltic shores of Lithuania (2.04%). A positive and significant correlation was also found between the hepatosomic index and the north-south hemisphere axis - in the northern latitudes the relative liver weight in bream appears to be greater.

Key words: inland waters, brackish waters, bream, liver, hepatosomic index (HSI), correlations, variability.

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Macrobenthos of productive carp ponds with different levels of intensification of second year carp rearing.

Acta Hydrobiol., 29, 465-477.

Abstract - The macrobenthos of three investigated ponds was chiefly composed of Chironomidae and Oligochaeta. In conditions of increasing eutrophication brought about by the rearing measures, the periodically large number and biomass of these invertebrates distinctly decreased in the second half of the summer, partly owing to fish grazing. In 1980, with fairly great losses in the carp stock the macrobenthos of the investigated ponds was sometimes much more numerous than in the first year of the study (1976).

Key words: carp ponds, intensification, food reserves, macrobenthos, Chironomidae, Oligochaeta, seasonal changes.

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