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## Acta Hydrobiologica

### Contents of Volume 35 (1995)

**Anthony W. AKPAN**

**The effect of hydrological regime on the temperature and salinity profiles of a tropical coastal river (Nigeria).**

Acta Hydrobiol., 35, 275-398.

**Abstract** - Temperature and salinity variations exhibited clearly defined regimes with bimodal and unimodal peaks respectively. The vertical profile showed thermal stratifications at depths >6 m, but no thermocline. The salinity profile showed a higher concentration at bottom than surface at depth >8 m. Diel variation in temperature was due to rainfall and sunshine and that of salinity to tidal effects. Temperature and salinity variations followed the rainfall regime and were markedly affected by hydrological variables.

**Key words:** rivers, temperature, salinity, seasonal variation, diel variation, hydrological variables.

**Author's address:** University of Uyo, Department of Zoology and Fisheries P.M.B. 1017, Uyo, Akwa Ibom State, Nigeria.

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**Laith A.J. AL-HASSAN<sup>1</sup>, Sabah D. SALEEM<sup>2</sup> and Melkon K. KELKONIAN<sup>2</sup>**

**Effect of freezing, formalin, and alcohol on certain body proportions of the clupeid fish *Nematalosa nasus*, collected from the Khor al-Zubair area (northwest region of the Arabian Gulf).**

Acta Hydrobiol., 35, 179-183.

**Abstract** - Three morphological characters i.e. total length, head length, and body depth of the shad *Nematalosa nasus*, were measured to determine the short term effect of fixation and preservation. Shrinkage (up to 51.9%) was the rule. Body parts changed differentially. Head length and body depth indicated susceptibility to change (shrinkage), though total length was least effected. Changes were considered of great practical consequence for taxonomical and growth studies.

**Key words:** gulf, *Nematalosa nasus*, body proportions, freezing, formalin, alcohol.

**Authors' addresses:**

<sup>1</sup> University of Basrah, Marine Science centre, Basrah, Iraq,

<sup>2</sup> University of Basrah, College of Science, Department of Mathematics, Basrah, Iraq.

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**Teresa BEDNARZ and Aleksandra STARZECKA**

**The comparison of microbial production and destruction of organic matter in the bottom sediments of streams on agricultural and forest types of catchment and sublittoral of the Dobczyce dam reservoir (southern Poland).**

Acta Hydrobiol., 35, 285-294.

**Abstract** - In general, the phosphate and nitrite concentration in the waters, and C-org., biomass, production, and respiration of algae (Ba, Pr, Ra) in the bottom sediments were greater in the agricultural area. The ammonia and nitrate concentration, and biomass, respiration of bacteria (Bb, Rb), oxygen (RO), and total respiration of epibenthic communities (RT) as well as the respiration of the remaining organisms (Rr) were greater in the forest area than in the agricultural one.

**Key words:** streams, estuaries, reservoirs, sediments, bacteria, algae, biomass, respiration, primary production.

**Authors' address:** Karol Starmach Institute of freshwater Biology, Polish Academy of Sciences, Sławkowska 17, 31 016 Kraków, Poland.

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**Teresa BEDNARZ and Aleksandra STARZECKA**

**The production and destruction of organic matter in the water and surface layer of bottom sediments on the stream - estuary - Dobczyce Dam Reservoir line (southern Poland).**

Acta Hydrobiol., 35, 109-119.

**Abstract** - The values of biological parameters calculated per 1 g C-org. were generally 0.5 to 2 orders of magnitude higher in the water than in the sediments. The exceptions were biomass (Ba), production (P), and respiration (Ra) of algae, approximately 0.5 to 1 order of magnitude higher in the sediments of the stream and respiration of bacteria (Rb) to their biomass (Bb) 0.7 order of magnitude higher in sediments of the dam reservoir.

**Key words:** water, sediments, bacteria, algae, biomass, respiration, primary production, stream, estuary, reservoir.

**Authors' address:** Karol Starmach Institute of Freshwater Biology, Polish Academy of Sciences, ul. Sławkowska 17, 31-016 Kraków, Poland.

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**Halina BUCKA, Roman ŻUREK and Henryk KASZA**

**The effect of physical and chemical parameters on the dynamics of phyto- and zooplankton development in the Goczałkowice Reservoir (southern Poland).**

Acta Hydrobiol., 35, 133-151.

**Abstract** - A highly significant dependence was found between the number of rotifers and the abundance of euglenoids and green algae. The numbers of copepods chiefly depended on the numbers of green algae and Chrysophyceae and to a very small degree of diatoms and blue-green algae. The total number of zooplankton depended on that of green algae, euglenoids, and desmids. No significant relation was found between Cladocera and 8 groups of the phytoplankton. The prevalence of small algal species was correlated with a greater content of phosphorus. In the case of euglenoids, green algae, desmids, and Chrysophyceae significant negative dependencies upon N-NO<sub>3</sub> were observed. An increase in the number of desmids was associated with low concentrations of silicon in the environment.

**Key words:** dam reservoirs, water chemistry, phytoplankton, zooplankton.

**Authors' address:** Karol Starmach Institute of Freshwater Biology, Polish Academy of Sciences, ul. Sławkowska 17, 31-016 Kraków, Poland.

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**Alex C. CHINDAH<sup>1</sup>, Aduabobo I. HART<sup>2</sup>, Solomon A. BRAIDE<sup>1</sup> and Amadi AMADI<sup>1</sup>**

**The epibenthic algal community of the Bonny estuary, Niger Delta, Nigeria.**

Acta Hydrobiol., 35, 307-320.

**Abstract** - A total of 193 species were encountered, diatoms representing 61.2% of the taxa present. Others were Cyanophyta (30.1%), Chlorophyceae (4.1%), Euglenophyta (2.6%), and Dinophyceae (1.5%). The density and chlorophyll *a* values for the high intertidal zone showed higher and wider variation than those for the mid and low intertidal zone. Nutrients were found to correlate significantly with epibenthic algal

density but did not correlate with chlorophyll *a*.

**Key words:** epibenthic algae, low, mid, and high intertidal, Bonny estuary.

**Authors' addresses:**

<sup>1</sup> Rivers State University of Science and Technology, Institute of Pollution Studies, PMB 5080, Port Harcourt, Rivers State, Nigeria,

<sup>2</sup> University of Port Harcourt, Hydrobiology Unit, Department of Biological Sciences, PMB 5323, Port Harcourt, Rivers State, Nigeria.

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**Mukesh K. CHONA**

**Growth and succession of organisms during biological purification of dairy effluents.**

Acta Hydrobiol., 35, 25-29.

**Abstract** - The appearance of organisms during biological purification of dairy effluent in laboratory conditions was studied. This modification of effluent by the appearance and disappearance of organisms with the passage of time demonstrated process of biological succession. Some organisms also showed an association with saprobity.

**Key words:** succession of microorganisms, dairy effluents, biological purification, saprobity.

**Authors' address:** Panjab University, Department of Zoology, Chandigarh - 160 014, India.

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**Stanisław CZACHOROWSKI, Krzysztof LEWANDOWSKI and Alicja WASILEWSKA**

**The importance of aquatic insects for landscape integration in the catchment area of the River Gizela (Masurian Lake District, northeastern Poland).**

Acta Hydrobiol., 35, 49-64.

**Abstract** - It appears that for integration of the entire landscape the most important are the species of unstable habitats. The potentially greatest integrating role in the landscape of the catchment area of the River Gizela is played by species occurring in small, still water bodies (mostly Coleoptera and Heteroptera).

**Key words:** aquatic insects, ecological landscape.

**Authors' address:** Teacher Training College, Institute of Biology, Department of Ecology and Environmental Protection, ul. Żołnierska 14, 10-561 Olsztyn, Poland.

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**Elżbieta DUMNICKA**

**Profundal macrofauna of the Dobczyce reservoir (southern Poland) in the fifth year after its filling.**

Acta Hydrobiol., 35, 329-340.

**Abstract** - Oligochaetes constituted 91-98% of the numbers and 78-97% of the biomass of the macrofauna, the remaining part were Chironomidae, while Chaoboridae, Sphaeriidae, Ephemeroptera, and Coleoptera occurred sporadically. The highest density (14.5 thous. ind. m<sup>-2</sup>) and biomass (13 g m<sup>-2</sup>) were observed near the dam. 14 species of the Oligochaetes (the most numerous being *Potamothrix hammoniesis*, *Limnodrilus claparedeanus*, and *L. hoffmeisteri*) and 5 taxa of Chironomidae were determined in the samples.

**Key words:** dam reservoirs, Oligochaeta, Chironomidae, density, seasonal changes.

**Author's address:** Karol Sarmach Institute of Freshwater Biology, Polish Academy of Sciences, ul.

**Joanna GALAS**

**Particulate organic matter in the high mountain stream Sucha Woda (the High Tatra Mts, Poland).**

Acta Hydrobiol., 35, 203-212.

**Abstract** - Spatial and temporal changes in coarse and fine particulate organic matter (POM) were monitored at nine stations on a mountain stream in the Polish Tatra Mts. Standing stock of benthic POM measured as ash-free dry mass (AFDM) increased with increasing stream size. The coarse and fine POM mass tends to settle in a pool habitat rather than in a riffle. The concentration of transported POM remained at the same level at all sampling stations.

**Key words:** particulate organic matter, pool, riffle, mountain stream.

**Author's address:** Institute of Freshwater Biology, Polish Academy of Sciences, ul. Sławkowska 17, 31-016 Kraków, Poland.

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**Andrzej GÓRNIAK<sup>1</sup>, Modest MISZTAL<sup>2</sup> and Jan MAGIERSKI<sup>2</sup>**

**Differentiation of the chemical composition of near-bottom waters and bottom sediments of the mesotrophic Lake Piaseczno (Łęczyńsko-Włodawskie Lake District, Poland).**

Acta Hydrobiol., 35, 193-202.

**Abstract** - The dependence of the chemical composition of near-bottom waters and bottom sediments on the character of the immediate catchment basin and the morphology of the bottom of the lake basin is shown. Differentiation of the content of such microelements as Ba, Sr, Pb, Mn, and Cr was observed in the sediments. The content levels of lead and chromium were higher than the accepted toxic levels for macrophytes. The different chemical composition of the supersediment waters at a depth of 7.5 m on the side of arable land and forest indicates increased ground feeding of the lake from this section of the catchment basin.

**Key words:** lakes, sediments, heavy metals, eutrophication, littoral, profundal.

**Authors' addresses:**

<sup>1</sup> University of Warsaw, Białystok Branch, Institute of Biology, ul.wierkowa 20 B, 15-950 Białystok, Poland,

<sup>2</sup> Academy of Agriculture, Institute of Soil Science, ul.Leszczyńskiego 7, 20-069 Lublin, Poland.

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**Maria GRZYBKOWSKA<sup>1</sup>, Katarzyna SZCZEPKO<sup>2</sup> and Alina TEMECH<sup>1</sup>**

**Macroinvertebrate drift in a large lowland river (central Poland).**

Acta Hydrobiol., 35, 357-366.

**Abstract** - Although the highest density of macroinvertebrate drift in River Warta was recorded near the sedimental bank, the drift/benthos ratios were similar in the whole cross-section of this river (from 0.0279% in the erosional area to 0.0367% in mid-river). The main contributors in the drift were the predominant benthic groups: Chironomidae and Oligochaeta. Dominant insects showed a distinct nocturnal drift pattern.

**Key words:** river, macroinvertebrate drift, diel rhythm.

**Authors' addresses:**

<sup>1</sup> University of Łódź, Department of Ecology and Vertebrate Zoology, ul. Banacha 12/16, 90-237 Łódź, Poland,

**Janusz GUZIUR<sup>1</sup> and Jan SZOZDA<sup>2</sup>**

**Characteristics of the growth of carp (*K<sub>2-3</sub>*) in the intensively fertilized ponds with controlled stocks.**

**1. Interpretation of results of variance analysis.**

Acta Hydrobiol., 35, 165-178.

**Abstract** - It was shown that both the dates of thinning catches of fish during the season and the type of ponds had a highly significant ( $p=0.01$ ) effect on the values of 4 investigated traits of the carp body. The highest values of the discussed associations of traits were obtained in carp from 5 experimental ponds and the lowest from a control pond. Towards the end of the season the highest values of increases (W) in body weight were observed in 3 experimental ponds (with fish stocks of 1800 and 2400 ind. ha<sup>-1</sup>) and the lowest in the control pond (1200 ind. ha<sup>-1</sup>).

**Key words:** ponds, carp, production, intensification, statistical methods.

**Authors' addresses:**

<sup>1</sup> Academy of Agriculture and Technology, Department of Fisheries, ul. Oczapowskiego 5, 10-957 Olsztyn-Kortowo, Poland,

<sup>2</sup> Academy of Agriculture and Technology, Department of Applied Mathematics and Statistics, ul. Licznarskiego 4, 10-957 Olsztyn-Kortowo, Poland .

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**Maria HUL<sup>1</sup> and Wojciech JANCZUKOWICZ<sup>2</sup>**

**The effect of step loading with pollutants of rotating biological discs on ciliate communities.**

Acta Hydrobiol., 35, 153-164.

**Abstract** - Species and quantitative composition of ciliate communities were compared on four-section rotating biological discs, fed frontally and gradually with sewage at 0.018, 0.054, and 0.108 m<sup>3</sup> m<sup>-2</sup> d<sup>-1</sup> hydraulic loadings. The system of step feeding essentially decreased the range of variability of taxon number and ciliate numbers within the bed together with changes in the gradient of environment conditions. The numbers and species composition of communities depended on the mean loading of the bed.

**Key words:** rotating biological discs, mode of disc loading, pollutant load, biofilm microfauna.

**Authors' addresses:**

<sup>1</sup> Academy of Agriculture and Technology, Faculty of Water Protection and Inland Fishery, Department of Sanitary Hydrobiology, ul. Oczapowskiego 5, 10-957 Olsztyn, Poland,

<sup>2</sup> Academy of Agriculture and Technology, Faculty of Water Protection and Inland Fishery, Department of Water and Wastewater Technology, ul. Oczapowskiego 5, 10-957 Olsztyn, Poland .

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**Robert B. IKOMI**

**Studies on the ecology of the clupeid (*Pellonula leonensis* Reagan, 1917) in the River Warri (Niger Delta, Nigeria).**

Acta Hydrobiol., 35, 381-398.

**Abstract** - *Pellonula leonensis* occurs in the River Warri throughout the year and is seasonally abundant. They favour areas with a salinity range of 0.08-3.0. The length-frequency polygon showed several modes and the growth pattern was allometric. The condition factor increased with the individual size of the fish and was slightly higher in the females. The fecundity estimate ranged between 9567-16 235 eggs. As much as 11.5% of its body weight was utilized in eggs production. Spawning activities occurred in January and February, and June and July. *P. leonensis* feeds basically on algae and insects.

**Key words:** *Pellonula leonensis*, distribution, growth pattern, fecundity, feeding habits.

**Author's address:** Delta State University, Faculty of Science, Zoology Department Abraka, Nigeria.

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**Włodzimierz KASPERSKI<sup>1</sup> and Jan KOZŁOWSKI<sup>2</sup>**

**The effect of exploitation on size at maturity in laboratory populations of guppies *Poecilia reticulata* (Peters).**

Acta Hydrobiol., 35, 65-72.

**Abstract** - During the 15 months of the experiment life expectancy was reduced by removing the largest individuals in laboratory populations of guppies. The average size of maturing females was 18.7 mm in exploited groups, and 21.0 mm in the control. Males matured in exploited populations at 14.7 mm and at 16.1 in the control. The differences in both sexes represented phenotypic plasticity. Their direction agreed with predictions from the models of optimal age and size at maturity.

**Key words:** guppies, size at maturity, exploitation, phenotypic plasticity, social inhibition.

**Authors' addresses:**

<sup>1</sup> ul.Popławskiego 4, 30-818 Krakow, Poland,

<sup>2</sup> Jagiellonian University, Institute of Environmental Biology, ul.Oleandry 2a, 30-063 Kraków, Poland .

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**Henryk KASZA**

**Loads of biogens flowing into and out of the Goczałkowice Reservoir (southern Poland).**

Acta Hydrobiol., 35, 97-107.

**Abstract** - The loads of nitrogen and phosphorus compounds flowing into the Goczałkowice reservoir and out of it in the annual cycle were determined. The main source of biogenic substances was the River Vistula (78% N<sub>tot.</sub> and 69% P<sub>tot.</sub>). The intermediate pumping stations supplied altogether 12% N<sub>tot.</sub> and 18% P<sub>tot.</sub>

The high loading of the reservoir with phosphorus, amounting to 0.65 g P m<sup>-2</sup> year<sup>-1</sup> (including in the calculations the frequency of water exchange), exceeded about 4 times the admissible values.

**Key words:** dam reservoirs, nitrogen, phosphorus, loads of biogens.

**Author's address:**

Karol Starmach Institute of Freshwater Biology, Polish Academy of Sciences, Hydrobiological Station, 43-230 Goczałkowice, Poland.

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**Henryk KASZA and Edward KRZYŻANEK**

**Directional changes in communities of the bottom macrofauna against the background of changing hydrochemical parameters of the River Vistula, above the Goczałkowice Reservoir (southern Poland).**

Acta Hydrobiol., 35, 213-220.

**Abstract** - On the basis of data from many years an increase was found in the degree of mineralization and fertility of the water of the River Vistula. Quantitative and qualitative changes in the bottom macrofauna against the background of changing physico-chemical conditions of the River Vistula were shown by a constant increase in the share a larvae of Chironomidae and Oligochaeta and a decrease in that of Ephemeroptera and Plecoptera.

**Key words:** rivers, ionic composition, nutrients, Chironomidae, Oligochaeta, Trichoptera, Ephemeroptera, Plecoptera.

**Author's address:** Karol Starmach Institute of Freshwater Biology, Polish Academy of Sciences, Hydrobiological Station, 43-230 Goczałkowice, Poland.

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**Barbara KAWECKA**

**Ecological characteristics of sessile algal communities in streams flowing from the Tatra Mountains in the area of Zakopane (southern Poland) with special consideration of their requirements with regard to nutrients.**

Acta Hydrobiol., 35, 295-306.

**Abstract** - In montane streams with enriched nutrient content changes were observed in the structure of algal communities as compared with unpolluted waters, especially during autumn and winter, characterized by intensified tourism and low water level. The numbers of *Achnanthes minutissima* var. *minutissima* and *A. biasolettiana* var. *biasolettiana* fell while those of *Cymbella affinis*, *C. silesiaca*, *C. sinuata*, *Navicula cryptocephala*, *Nitzschia palea*, *Cladophora glomerata*, *Ulothrix zonata*, and species of the order Chlorococcales rose. The increase mass of algae was expressed by a higher index of diatom biomass and a higher content of chlorophyll *a*.

**Key words:** The Tatra Mts, Zakopane Valley, montane streams, sessile algae, ecology, nutrients.

**Authors' address:** Karol Starmach Institute of Freshwater Biology, Polish Academy of Sciences, ul. Sławkowska 17, 31-016 Kraków, Poland.

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**Andrzej KOŁODZIEJCZYK**

**Gastropods in isolated lakes of the Suwalski Landscape Park (northeastern Poland).**

Acta Hydrobiol., 35, 31-40.

**Abstract** - Sixteen taxa of Gastropoda were found in nine isolated lakes in the Suwalski Landscape Park. The species composition of snails and the number of species were different in individual lakes, but in this group of lakes were similar to those found in the interconnected lakes in this area. Bivalvia were represented by the family Sphaeriidae only.

**Key words:** isolated lakes, Gastropoda, species composition.

**Author's address:** University of Warsaw, Zoological Institute, Department of Hydrobiology, ul. Nowy wiat 67, 00-046 Warszawa, Poland.

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**Andrzej KOWNACKI**

**Professor Karol Starmach, founder of the Cracow School of Hydrobiology.**

Acta Hydrobiol., 35, Suppl. 1, 429-438.

**Abstract** - [Biography].

**Key words:** [Biography].

**Author's address:** Karol Starmach Institute of Freshwater Biology, Polish Academy of Sciences, ul. Sławkowska 17, 31-016 Kraków, Poland.

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**Edward KRZYŻANEK**

**Professor Karol Starmach, initiator of hydrobiological studies in the Goczałkowice Reservoir.**

Acta Hydrobiol., 35, Suppl. 1, 443-448.

**Abstract** - [Biography].

**Key words:** [Biography].

**Author's address:** Karol Starmach Institute of Freshwater Biology, Polish Academy of Sciences, Hydrobiological Station, 43-230 Goczałkowice, Poland.

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**Edward KRZYŻANEK, Henryk KASZA and Grażyna PAJLĀK**

**The effect of water blooms caused by blue-green algae on the bottom macrofauna in the Goczałkowice Reservoir (southern Poland) in 1992.**

Acta Hydrobiol., 35, 221-230.

**Abstract** - In 1992, there took place in the Goczałkowice Reservoir intensive water blooms caused by blue-green algae with the domination of *Aphanizomenon flos-aquae*. They led to the dying out of the bottom macrofauna (Chironomidae, Oligochaeta, Ceratopogonidae larvae) and other animals connected with the bottom (Decapoda, Bivalvia). It is assumed that this event was due to the toxic effect of the metabolism of the blue-green algae.

**Key words:** dam reservoirs, water bloom, dying out of the bottom macrofauna.

**Author's address:** Karol Starmach Institute of Freshwater Biology, Polish Academy of Sciences, Hydrobiological Station, 43-230 Goczałkowice, Poland.

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**Alicja KURZETKOWSKA**

**Investigations on the development biology of *Notonecta reuteri* Hung. and *Notonecta glauca* L. (Heteroptera).**

Acta Hydrobiol., 35, 41-48.

**Abstract** - One generation in the year was observed in the development of *Notonecta reuteri* and *Notonecta glauca*. The species represent two phenological types. *N. reuteri* winters at the stage of eggs and *N. glauca* as imagines. *N. reuteri* larvae appear two weeks earlier.

**Key words:** aquatic Heteroptera, larval stages, imagines, biology of development.

**Author's address:** Teacher Training Collage, Department of Ecology and Environmental Protection, ul. Żołnierska 14, 10-561 Olsztyn, Poland.

---

**Jerzy KWAPULIŃSKI<sup>1</sup>, Małgorzata BAZGIER-ANTONIAK<sup>1</sup>, Danuta WIECHUŁA<sup>1</sup>, Piotr**



GÓRKA<sup>2</sup>, Marek WYDRA<sup>1</sup> and Krzysztof LOSKA<sup>3</sup>

**Assessment of degradation with nickel of the Goczałkowice dam reservoir (southern Poland).**

Acta Hydrobiol., 35, 87-96.

**Abstract** - Pollution of the Goczałkowice dam reservoir with nickel was estimated on the basis of a geocumulative index and an enrichment coefficient. The water near the bottom and the interstitial water was classified as highly polluted with nickel in comparison with waters of clean areas and the preindustrial level. The bottom sediment of the reservoir is practically unpolluted in comparison with the geochemical level. Small quantities of nickel in the bottom sediment may pollute the water near the bottom, but the main source of nickel in the water near the bottom is fallout.

**Key words:** dam reservoirs, nickel, enrichment coefficient, geocumulative index.

**Authors' addresses:**

<sup>1</sup> Silesian Medical Academy, Department of Toxicology, ul. Jagiellońska 4, 41-200 Sosnowiec, Poland,

<sup>2</sup> Silesian Technical University, Department of Analytical Chemistry, ul. Kuczewskiego 2, 44-100 Gliwice, Poland,

<sup>3</sup> Silesian Technical University, Department of Environmental Engineering, ul. Kuczewskiego 2, 44-100 Gliwice, Poland.

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**Jerzy MASŁOWSKI**

**Long-term changes in the bottom macrofauna of the Szczecin Lagoon (north-western Poland).**

Acta Hydrobiol., 35, 341-355.

**Abstract** - Macrofauna composition, density, and biomass in the Szczecin Lagoon from 1984-1988 are compared with data reported earlier by various authors. No drastic changes had occurred in the composition of macrofauna, but a few alterations in certain parts of the study area were observed. Changes in the abundance of macrofauna were recorded in almost the whole area. Density and biomass in all studies since the seventies have been showing a considerable increase as an effect of the eutrophication.

**Key words:** macrozoobenthos, Szczecin Lagoon, eutrophication, Oligochaeta, Chironomidae, long-term changes.

**Author's address:** Academy of Agriculture, Faculty of Marine Fisheries and Food Technology, Department of Oceanography, ul. Kazimierza Królewicza 4, 71-550 Szczecin, Poland.

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**Jayashree D. MUNSHI<sup>1</sup>, Hiran M. DUTTA<sup>2</sup>, Gopal R. DUTTA<sup>1</sup>, Narendra K. SINGH<sup>1</sup>, Chandra B. SINGH<sup>1</sup> and Jyoti S.D. MUNSHI<sup>1</sup>**

**Diel variations of certain physico-chemical factors and plankton population of a chaur (wetland) of Kusheswarasthan (India).**

Acta Hydrobiol., 35, 3-14.

**Abstract** - Certain physico-chemical characteristics, such as temperature, pH, dissolved oxygen, free carbon dioxide, carbonate/bicarbonate alkalinity, chloride, silicate, phosphate phosphorus, and nitrate-nitrogen of surface and 1.5 m deep water showed diel variation with a varied trend. Plankton dominated the surface water during the day. Green and blue-green algae dominated at midday. Maximum density of zooplankton (584 ind. dm<sup>-3</sup>) was recorded at 6 h followed by 10 h and 14 h.

**Key words:** wetlands (chaur), diel variation, physico-chemical parameters, plankton population.

**Authors' addresses:**

<sup>1</sup> Bhagalpur University, Post-Graduate Department of Zoology, Bhagalpur - 812007, India,

<sup>2</sup> Kent State university, Department of Biological Sciences, Kent OH 44242-0001 USA .

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**Christos NEOPHITOU**

**Some biological data on tench (*Tinca tinca* (L.) in Lake Pamvotida Greece).**

Acta Hydrobiol., 35, 367-379.

**Abstract** - The most rapid growth in length of tench in Lake Pamvotida occurred during the first year of life (7.9 cm), moderating to approximately 2.8 cm at the end of the fourth year of life, and then becoming constant at about 2.0 cm per year. Both sexes tench became sexually mature in the third year of life and its life span was 11 years. The mean absolute fecundity was  $184\,415 + 21\,212$  eggs  $\text{kg}^{-1}$  of body weight with a mean diameter of 0.9 mm. Spawning for this species, in the study area, occurs during May and June at a water temperature of 18-20 °C.

**Key words:** tench, age, growth, reproduction.

**Author's address:** Aristotelian University of Thessaloniki, Department of Forestry and Natural Environment, Laboratory of Wildlife and Freshwater Fisheries, Box 248, Thessaloniki 54006, Greece.

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**Teresa NESTERUK**

**A comparison of values of freshwater Gastrotricha densities determined by various methods.**

Acta Hydrobiol., 35, 321-328.

**Abstract** - It was observed that the density values of Gastrotricha fauna expressed by the number of specimens in  $1\text{ cm}^3$  of sediment or by the number of specimens falling on  $1\text{ m}^2$  of the bottom area, obtained by various sampling methods, are comparable. For samples drawn with a vessel from the surface layer of the sediment it was shown that a multiplier of 60 000 was essential.

**Key words:** freshwater, Gastrotricha, microbenthos, density.

**Author's address:** Agricultural and Teacher Training College, Department of Zoology, ul. Prusa 12, 08-110 Siedlce, Poland.

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**Shamsh PERVEZ and Govind S. PANDEY\***

**Solubilized iron and other contaminants in ground water through ponded spent wash.**

Acta Hydrobiol., 35, 187-191.

**Abstract** - On the basis of the results obtained, it was found that certain characteristics (pH, TDS, COD, DO) of the ground water, up to a distance of 1500 m from the ponded effluent, were affected. Iron was found to be introduced into the ground water at levels beyond the permitted values by reductive dissolution of soil-iron by the spent wash. The ground water, was found to be contaminable by the ponded spent wash.

**Key words:** dissolved iron, ground water, spent wash.

**Authors' addresses:** Pt. Ravishankar Shukla University, School of Studies in Chemistry, Raipur, M.P. 492 010, India.

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**Marzena RZECZYCKA and Magdalena PRZYTOCKA-JUSIAK**

**Growth interactions between *Pseudanabaena catenata* and *Stichococcus bacillaris* in batch cultures.**

Acta Hydrobiol., 35, 121-131.

**Abstract** - Growth interactions between *P. catenata* and *S. bacillaris* were studied in laboratory cultures. It was found that in mixed cultures *S. bacillaris* inhibits the growth of *P. catenata*. The degree of the effect of *P. catenata* and *S. bacillaris* on each other's growth was greatest in bialgal batch cultures and smaller in the cultures with diffusively balanced medium, while a lack of any effect was observed in culture filtrates. The effect of *P. catenata* on *S. bacillaris* appeared as weakly marked stimulation in all the cultures applied.

**Key words:** algal interaction, blue-green algae, green algae, laboratory cultures.

**Author's address:** Warsaw University, Institute of Microbiology, Department of Environmental Microbiology, Karowa 18, 00-324 Warszawa, Poland.

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**Kunchitham SAMPATH, Swaminathan VELAMMAL, Irudaya J.J.J. KENNEDY and Raja JAMES Haematological changes and their recovery in *Oreochromis mossambicus* as a function of exposure period and sublethal levels of Ekalux.**

Acta Hydrobiol., 35, 73-83.

**Abstract** - Exposure of *Oreochromis mossambicus* to sublethal levels of an organophosphorus pesticide, Ekalux, produced a time and dose dependent decrease in the red blood corpuscle (RBC) count, haemoglobin content, and mean corpuscular volume, leading to microcytic anaemia and an increase in the total leucocyte count (TLC) owing to the rise in population of granulocytes. *O. mossambicus* exposed to 50, 100, 200, or 300 ppb Ekalux showed complete recovery in RBC count on 55, 42, 36, or 34 days and TLC on 33, 31, 37, or 42 days respectively

**Key words:** *Oreochromis mossambicus*, Ekalux, RBC, TLC, Hb, erythrocyte sedimentation rate, exposure, recovery.

**Author's address:** V.O. Chidambaram College, Department of Zoology, Tuticorin - 628 008, Tamil Nadu, India.

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**Lokman SHAMSUDIN**

**Biochemical composition of various food organisms used in Malaysia for mass propagation of fish larvae.**

Acta Hydrobiol., 35, 231-241.

**Abstract** - The mass production of live food organisms *Brachionus plicatilis* and *Artemia salina* are important and necessary for the rearing of sea bass larvae in Malaysian aquaculture. The marine *Chlorella* and brewer's yeast were fed to rotifers which in turn were fed to fish larvae. Marine *Chlorella* contained large amounts of 16:0, 16:1 and 20:5w3 but was poor in 18:3w3. The major fatty acids in the yeast were 16:0, 16:1, 18:1, and 18:2w6. The rotifers and *Artemia* contained large amounts of 18:2w6, 18:3w3 and 20:5w3 but were poor in 22:6w3. The food value for *Artemia* nauplii was better than that of the adult. The food organisms under investigation contained the necessary w-3 highly unsaturated fatty acid (HUFA) series necessary for growth and survival rates of fish larvae.

**Key words:** nutrition, rotifer, *Artemia*, aquaculture, lipid, fatty acid, larvae, chromatography.

**Author's address:** Pertanian University Malaysia, Faculty of Fisheries and Marine Science, Mengabang Telipot, 21030 Kuala Terengganu, Terengganu, Malaysia.

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**Jadwiga SIEMIŃSKA**

**Professor Karol Starmach, organizer and director of the Institute of Freshwater Biology of the Polish Academy of Sciences.**

Acta Hydrobiol., 35, 1993), Suppl. 1, 417-427.

**Abstract** - [Biography].

**Key words:** [Biography].

**Authors' addresses:** Institute of Botany, Polish Academy of Sciences, ul. Lubicz 46, 31-512 Kraków, Poland.

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**Aleksandra STARZECKA and Teresa BEDNARZ**

**The participation of bacteria, algae and the remaining organisms in the total oxygen respiration of bottom sediments on the stream - Dobczyce dam reservoir line (southern Poland).**

Acta Hydrobiol., 35, 15-24.

**Abstract** - The primary production of algae (Pr) 717.56 J and their respiration (Ra) 154.60 J were highest in the estuary. The greatest respiration of bacteria (Rb) 45.96 J was in the reservoir. The total oxygen respiration (RO) 1036.78 J and the respiration of the remaining organisms (Rr) 1000.82 J g<sup>-1</sup> C 24 h<sup>-1</sup> were greatest in the stream. The values of algae (Ba) and bacteria (Bb) biomass, and Rb, Ra and Rb/Bb increased, and those of Rr and RO decreased on the stream - reservoir line.

**Key words:** streams, estuaries, reservoirs, sediments, biomass, bacteria, algae, respiration, primary production.

**Authors' address:** Karol Starmach Institute of Freshwater Biology, Polish Academy of Sciences, ul. Sławkowska 17, 31-016 Kraków, Poland.

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**Jan SZUMIEC**

**Improvement of carp fingerling culture. Effect of different numbers and stock quality on production results.**

Acta Hydrobiol., 35, 243-260.

**Abstract** - The optimum stock density and biotechniques of intensive carp fingerling production were determined, which in a rearing season of average thermal conditions would ensure the rearing of fingerlings of 1500-200 kg ha<sup>-1</sup> with the application of wheat feeding and of 2500-3000 kg ha<sup>-1</sup> with that of balanced feed. Further growth and stabilization of the rearing effects are possible with the use of carp fry reared under controlled conditions, polyculture with fingerlings of silver and grass carp, and periodical aeration of ponds.

**Key words:** ponds, carp, intensive fingerling production, numbers and quality of stock, biotechnique of rearing.

**Author's address:** Polish Academy of Sciences, Institute of Ichthyobiology and Aquaculture, Gołysz, 43-520 Chybie, Poland.

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**Jan SZUMIEC**

**Professor Karol Starmach, initiator of the Gołysz Institute of Ichthyobiology and Aquaculture of the**

**Polish Academy of Sciences.**

Acta Hydrobiol., 35, Suppl. 1, 439-442.

**Abstract** - [Biography].

**Key words:** [Biography].

**Author's address:** Polish Academy of Sciences, Institute of Ichthyobiology and Aquaculture, Gołysz, 43-520 Chybie, Poland.

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**Maria A. SZUMIEC**

**Improvement of carp fingerling culture. Testing of growth model.**

Acta Hydrobiol., 35, 261-269.

**Abstract** - The empirical-deterministic model of the individual fingerling body mass growth was validated on the basis of results obtained in the same ponds as those in a model setting when differentiated biotechniques were applied. The statistically evaluated accuracy of the model proved to be good and indicated that the model reflects both the carp fingerling individual growth and their yield when certain assumptions are taken into consideration.

**Key words:** ponds, carp fingerling growth, modeling.

**Author's address:** Polish Academy of Sciences, Institute of Ichthyobiology and Aquaculture, Gołysz, 43-520 Chybie, Poland.

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**Jan M. WŁODEK**

**Professor Karol Starmach in the years of Nazi Occupation, "Sonderaktion Krakau" and clandestine Jagiellonian University.**

Acta Hydrobiol., 35, Suppl. 1, 405-416.

**Abstract** - [Biography].

**Key words:** [Biography].

**Author's address:** Karol Starmach Institute of Freshwater Biology, Polish Academy of Sciences, ul. Sławkowska 17, 31-016 Kraków, Poland.

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