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# Benthic fauna of two mountain dam reservoirs cascade system in relation to hydrological regime and nutrient flow

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Littoral and profundal benthic fauna was studied for several years (1998-2003) in two mountain dam reservoirs, forming a cascade system (Solina and Myczkowce reservoirs, Carpathian Mts., S-E Poland). Physical and chemical traits of water flowing in and out of dam reservoirs were also determined. Reservoirs studied differ in many aspects. The upper Solina Reservoir is large (21 $km^2$ surface area), deep (mean depth 22.5 m) and dimictic, while located below in the cascade Myczkowce Reservoir is much smaller (1.9 $km^2$), shallow (4.3 m) and polymictic. Water level changes in the upper reservoir reach up to 10 m, while in the lower one - 2 m. The lower reservoir receives water from hypolimnion of the upper one, which brings about lowering the water temperature even by 10 ºC in summer. The whole mass of water is changed within 3 days in Myczkowce Reservoir, which makes it extremely lothic. The Solina Reservoir, on the contrary, has stagnant, limnic character due to huge volume of water (water turnover time 183 days). The rivers supplying waters to studied reservoirs were characterized by high water oxidation, low conductivity and low concentration of total phosphorus and total nitrogen. It was found that total phosphorus concentrations in the upper reservoir were by one order of magnitude lower than in the lower one. The biomass of benthic invertebrates in littoral zone was extremely low in the upper reservoir (less than 1.0 g $m^{-2}$), whereas in the lower one it was much higher (up to 10.0 g $m^{-2}$). In both reservoirs studied chironomid larvae dominated in the littoral benthos (68 and 42 % in the upper and lower reservoir respectively). Trophic guilds share in littoral benthic fauna of reservoirs studied was differentiated. In the upper reservoir plant/detritus feeders strongly dominated both in terms of numbers and biomass, accompanied only by predatory organisms. No filtrators were found in this reservoir. In the lower reservoir fully developed trophic structure of littoral benthos community was observed, with plant/detritus feeders also dominating in numbers, but with high share of predators in biomass, and some representation of filtrators. In Myczkowce Reservoir the bottom fauna of profundal zone was much more abundant and differed in species composition from that in Solina Reservoir. The most abundant were chironomids with *Asellus aquaticus* L. as subdominant, whereas in Solina the oligochaets were dominant in numbers and biomass. Much higher abundance and diversity of bottom fauna observed in the Myczkowce Reservoir is caused by the influence of Solina Reservoir on its hydrological regime, physical parameters of water and nutrients loads.