Abstract: Physicochemical parameters of water and phytoplankton composition were studied in the dimictic, submountain Dobczyce Reservoir (southern Poland) affected by summer stormflow, which took place in September 2007. During summer (except September) temperature, pH, dissolved oxygen, and carbonates showed vertical differentiation. Stormwater flow through the system had a destabilizing effect on summer stratification. It diluted the concentrations of salts (sulphate and chloride) and slightly increased the concentration of nutrients in the reservoir. In phytoplankton some changes in the dominant species among the Cyanobacteria group were noted.