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CHEMICAL INDICES OF DRINKING WATER
FROM WELLS IN FARMS SITUATED IN THE BUFFER ZONE
OF THE BIEBRZA NATIONAL PARK

Key words: farm well, nutrients, the Biebrza National Park, water quality

Summary

The study dealt with the quality of drinking water from traditional (dugout) and deep (drilled) wells in selected farms localized on bog Kuwasy in the middle Biebrza River basin and in the lower Biebrza River basin within the Biebrza National Park. The concentrations of N-NO₃, N-NH₄, P-PO₄, Na, K, Mg, Ca, Cl and of dissolved organic carbon (DOC) were determined. Water in all analysed wells showed elevated nutrient concentrations though its quality did not meet the quality standards in only 6 out of 13 studied wells mainly due to high concentrations of nitrates and ammonium. Increased concentrations of nitrates, ammonium ions, potassium, sodium and chlorides found in all wells in the whole study period originated from agricultural and/or domestic pollution. This was confirmed by a high concentration of potassium in traditional wells, clearly higher than that of sodium. Combined concentration of both cations was significantly higher than the concentration of chlorides. The concentration of nitrates in water from traditional wells was significantly correlated with the concentration of chloride, sodium, potassium, magnesium, calcium and DOC. This concentration in deep wells was positively correlated with the concentration of phosphate, and negatively with the concentration of ammonium ions. The water from farm wells is a part of ground water; therefore, the observed elevated nutrient concentrations in these wells from farms located inside the Biebrza National Park or its buffer zone demonstrate the possibility of non-point pollution also within the National Park.

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