Micropollutants in Bernese Waters

Claudia Minkowski*, Matthias Ruff, and Rico Ryser

*Correspondence: Dr. C. Minkowski, Water and Soil Protection Laboratory, Office of Water and Waste Management of the Canton of Berne (OWW), Schermenweg 11, CH-3014 Bern, E-mail: claudia.minkowski@bve.be.ch

Keywords: Micropollutants · Plant Protection Products (PPP) · Wastewater

Micropollutants such as residues of pharmaceuticals, ingredients of products for daily use or plant protection products (PPP) occur in the aquatic environment in concentrations of microgram to nanogram per liter. Some of them can be harmful for water organisms even at such low concentrations. Micropollutants enter the water bodies either by discharge of wastewater, as so-called point sources, or as diffuse entrances directly from the site of application into the water, e.g. by run-off of PPPs. Major rivers are mainly affected by point sources from urban wastewater, with pollution increasing the higher the percentage of wastewater. Due to the large water amounts, these micropollutants are diluted to lower concentrations, thus reducing the ecotoxicological risk for water organisms. But the high load of micropollutants in these major waters is a matter of concern. Diffuse inputs account quantitatively less than point sources. But since they affect all sizes of water bodies, especially in small rivers and lakes, they are often responsible for enhanced concentrations. In these cases, the associated risk increases with the intensity of land use in the catchment area. The main source for diffuse inputs is agriculture, especially the use of PPPs. It is therefore not surprising that peaks of high concentrations of critical substances are found mainly during the application period.

Micropollutants, especially if they are persistent and mobile, are also found in groundwater aquifers. Concentrations are usually very low and mostly non-hazardous for humans and animals. However, these micropollutants in the groundwater lead to a potential contamination of our drinking water. For precautionary reasons we should strive to keep this important resource free of impurities. Besides, groundwater aquifers tend to being inert and having a long lasting memory. It will take ages to decades for showing improvements, even if measures are implemented today.

Micropollutants are ubiquitous in Bernese Waters and can be detected in running waters, in lakes, and in groundwater. Pollution increases with population density and intensity of agricultural activities in the catchment area. For precautionary reasons, especially water bodies being used for the production of drinking water deserve special protection.

Acknowledgement
A special thanks goes to the collaborators of the Water and Soil Protection Laboratory.

Received: June 3, 2019

Reference
Further information on the Water and Soil Protection Laboratory or the water quality of bernese waters can be found on https://www.bve.be.ch/bve/de/index/wasser/wasser/gewaesserqualitaet.html.

Can you show us your analytical highlight?
Please contact: Dr. Veronika R. Meyer, Unterstrasse 58, CH-9000 St. Gallen
Tel.: +41 71 222 18 81, E-mail: VRMeyer@bluewin.ch