

## Relations between the users of water in Bütgenbach and Robertville reservoirs (Belgium)

by

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The "Warche" stream and its two reservoirs, Bütgenbach and Robertville, is exploited intensively for several different uses including:

- production of hydro-electricity at Bütgenbach and Robertville dams;
- production of drinking water at the Robertville water treatment station;
- intensive tourism on the two lakes for bathing, sailing, fishing, etc.;
- reception of discharge of domestic and industrial effluents;
- flood control.

The Walloon Region has established the following water quality objectives for the different uses:

- the basin upstream of Robertville dam is reserved for drinking water supply and for bathing;
- the streams in this part of the basin are classified as "salmonid waters";
- the waters of the two reservoirs are classified as "cyprinid waters".

The constraints on water quality upstream of Robertville are thus very diverse and this part of the Warche basin is a very sensitive zone.

Recent observations show a water quality to be relatively good in the upper part of the basin but reveal two major problems:

- Eutrophication of the two water bodies by direct inflow of industrial (dairy) and domestic waste-waters; and also from the leaching of fertilisers used by agriculture;
- A risk of bacterial contamination of bathing waters.

Some problems for the flora and fauna have been caused by the modification of the environment caused by the two waterbodies:

- Variations in lake level disturb the breeding of certain fish species, for example pike and a majority of the cyprinids. This problem is partially solved by artificial floating nurseries and other specific management practices;
- eutrophication of the lakes produce periodic blooms of blue-green algae which pose problems for water treatment and cause fish mortalities;
- two species of coregonids have been stocked regularly in the lakes since 1979 but do not breed, apparently because their eggs fail to develop due to lack of oxygen at the lake bottom.

Management of the different uses of water in the Warche basin, and especially in the reservoirs, is complex and needs a multidisciplinary approach, which takes into account the experience of similar situations elsewhere.