



Regional medicine use in the Rhine basin and its implication on water quality

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Do Germans use more painkillers than the French? Pharmaceuticals used in our Western society form an important group of contaminants found in the river Rhine. As this river is the drinking water source for millions of Europeans, methods to investigate relations between drug use and their penetration in the watercycle are of great importance. An analysis is presented relating medicine residue in the river Rhine to the number of people living in its watershed. An extensive measuring campaign was carried out, sampling river Rhine at 42 locations from its source to the start of its delta (Dutch-German border). The samples were analyzed for 40 common pharmaceuticals. Using discharge data, digital elevation models and demographic data from Eurostat, the relation between total load of drug residue and population was analyzed. Results show regional differences in drug use as well as implications for (down)stream water quality concerning contamination with pharmaceuticals.