LACUSTRINE ARCHIVES AS RECORDS FOR THE INPUT OF ANTHROPOGENIC AND GEOGENIC POLLUTANTS OVER THE PAST 50 YEARS: AN EXAMPLE FROM NORTHRHINE-WESTFALIA, GERMANY.

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Over the past 50 years, policy changes, developments in industrialization, urbanization and technical developments have resulted in a constantly changing input of pollutants into the environment. In order to trace these developments in high temporal resolution, geological archives were utilized. Water reservoirs provide ideal archives to trace the input of geogenic and anthropogenic pollutants into the environment. They are characterized by generally high sedimentation rates and well documented records of water quality and, hence, allow to quantify the changing pollutant input at high temporal resolution. To monitor the pollutant record of a highly industrialized area of Germany, Northrhine-Westfalia, we study the sedimentary record of 5 water reservoirs from urban areas. Those are compared with areas of low industrialization and population density. The approach of our study is to date water reservoir sediments in high temporal resolution by cesium and lead isotopes. In combination with varve-counting in ideal cases a sub-annual resolution can be achieved. The resultant chrono-stratigraphic framework is used to trace pollutants such as PCBs and PAHs over the past 50 years. The aim of our study is to provide a basis for policy-makers to evaluate the efficiency of regulations and laws and predict the long ranging effects of environmental legislation.