

# Investigation of the ecological state of the Sudervé River basin reservoirs.

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## 1. Introduction.

Every year anthropogenic impact on nature increases, and in order to find ways to solve this problem, it is necessary to have complete and timely data on it. Small rivers in cities experience a strong anthropogenic load. We decided to study the condition of the Sudervé River basin reservoirs.

## 2. Experimental Setup.

5 points were selected for the study. The expedition was held on June 26, 2017. Samples were taken of water with a volume of 500 ml each. To assess the quality of water a chemical analysis was carried out. Then we studied the Hydrogen index (pH) -determined using a universal indicator, determination of chlorides -titration of the chloride ion with  $\text{AgNO}_3$  solution, determination of lead ions- Potassium iodide gives a characteristic precipitate of  $\text{PbI}_2$  in solution with lead ions, detection of phosphates- using a smart test, detection of phosphates- using smart test. The essence of this technique is that the species diversity and abundance of animals can be judged on the purity of water. Clean reservoirs are inhabited by freshwater mollusks, springfly larvae, dayflies, alderflies and caddis flies. They can not stand pollution. Moderately polluted water bodies are inhabited by water hogfish, amphipods, larvae of Simuliidae, bivalves, fingernail clams, bithinia, river snails, dragonfly larvae and leeches. Excessively polluted water bodies inhabit oligochaetes, sewage worm, larvae of mosquitoes. During the experiments we relied on Lithuanian hygiene norms HN 92: 2007.

## 3. Results.

According to the results of the chemical analysis, the water in the reservoirs of the Sudervé river basin is moderately contaminated with nitrogen and phosphate compounds. As a result of the expeditions, it was found that the main reason for the increase in the concentration of nitrates and phosphates is the runoff of mineral fertilizers from the fields into the water, and their irrational use in agriculture, which is provided by the nettles on the banks, the presence of blue-green algae in the water of the river. The river basin experiences a high anthropogenic load. Among the factors of anthropogenic impact, we identified pollution with household waste, construction debris, diffuse flushing of organic and mineral substances in places of plowing of lands, pollution with oil products, reinforced with a reaction load.

## 4. Conclusion

According to the research, most pure water in the pool of the River Sudervé is PK No. 1 Lake Balchea, PK No. 2 Lake Salotes and PK No. 3 Lake Bewardes are moderately polluted. The most polluted are the sections of the Sudarevo River PK No. 4 and No. 5. The Sudervé river basin is densely populated, as the river flows through the suburbs and microdistricts of the city of Vilnius. On the territory of the basin there are 10 large and 4 small settlements, 2 large microdistricts of the city of Vilnius, where active construction of residential complexes is conducted. The Sudervé river basin experiences a significant anthropogenic load, as it is used for recreation.