

Sample essay on acid rain

[Environment](#), [Water](#)



The area chosen for analysis of the acid rain effect is New Hampshire. Fig. 1 shows the effect of acid rain in Hubbard Brook Experimental Forest. In the area, researchers discovered acid rain by analyzing rainfall and runoff in brooks (Fig. 1) (Evans-Brown, 2014).

Acidity change in water bodies induces dissolving aluminum from soils and rocks and affects fish population since aluminum is toxic. It also stimulates leaching of nutrients from soil, and slows growth of the crops and trees.

The pH of the brook fluctuates within 4.9-5.1 for the last 20 years (Campbell et al., 2007). Apparently, there is a slow pH increasing tendency, and it has changed from 4.9 in 1960s to 5.0 in 2005 (Campbell et al., 2007). Therefore, the acid rain impact has decreased, and ecosystems have greater capacity for self-recovery.

The brooks in Hubbard Brook Research Forest are less acidic than other water bodies in the region. For instance, Cone Pond (Thornton) and Bracket Pond (Wentworth) are characterized by pH 4.7, and Bear Hill Pond (Allenstown) has pH of 4.5 (New Hampshire Department of Environmental Services, 2004). Hubbard Brook Research Forest is a conservation area, which is distant from industrial plants, therefore the rainfall is less acidic than in other areas.

The most probable cause of acid rain in the area is combustion of fossil fuels, namely coal or gas, and formation of nitrogen and sulfur oxides. The substantial quantities of oil used by private vehicles cause emission of acidic oxides. In atmosphere, they react with water and form sulfuric and nitric acid.

Currently, the Acid Rain Program is in action. It aims to reduce the emissions

of nitrogen and sulfur oxides from electric power industry, and a significant progress has been achieved in the field. For instance, sulfur oxide emissions decreased three times in 2009 comparing to 1970 (Environmental Protection Agency, 2014). The citizens of a state can reduce the emission of acid rain precursors by efficient energy use at homes and by usage of cars with post-combustion catalyst and rational use of cars. If every individual decreases emission by 10%, total emission will be decreased by 10% as well.

References

- Campbell, J. L., Driscoll, C. T., Eagar, C., Likens, G. E., Siccama, T. G., Johnson, C. E., , Buso, D. C. (2007). Long-term trends from ecosystem research at the Hubbard Brook experimental forest. Retrieved from: www.nrs.fs.fed.us.
- Environmental Protection Agency (2014). Emission and compliance data. Retrieved from: http://www.epa.gov/airmarkets/progress/ARPO9_1.html.
- Evans-Brown, S. (2014). Is climate change to thank for dramatic recovery of acid rain's 'canary in the coal mine'? Retrieved from: <http://nhpr.org/post/climate-change-thank-dramatic-recovery-acid-rains-canary-coal-mine>.
- New Hampshire Department of Environmental Services (2004). Air pollution transport and how it affects New Hampshire. Retrieved from: <http://des.nh.gov/organization/commissioner/pip/publications/ard/documents/r-ard-04-1.pdf>.