

Statistical Analysis of BMP Effectiveness in the Cannonsville, NY Watershed

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Abstract. The Cannonsville Watershed is located in the Catskills region of Upstate New York and drains into a reservoir that supplies drinking water to New York City. In recent decades, the water quality in the Cannonsville reservoir has been degraded by non-point source pollution from agricultural activities in the basin. In order to improve water quality in the basin, New York City has implemented an aggressive watershed management plan, which relies heavily on the use of best management practices (BMPs) to reduce non-point source pollution. Widespread BMP implementation began during the mid-1990s and most farms in the 1,200 km² watershed are now employing at least one type of BMP. The purpose of this study is to determine whether BMP implementation has resulted in statistically significant improvements in water quality, and if so, to what extent. The results of several univariate and multivariate statistical analyses, which make use of both measured data and predictions from a continuous simulation model, confirm that BMP implementation has resulted in significant reductions in dissolved phosphorus loads to the Cannonsville Reservoir.

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