

# **Evaluating the environmental effectiveness and cost-efficiency of water quality trading in the South Nation watershed, Ontario, Canada**

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## **ABSTRACT**

A Water Quality Trading (WQT) phosphorus management program was implemented throughout the South Nation watershed in Ontario, Canada from 1993-2010 as a cost-effective alternative to point-source water treatment upgrades. This report improves on the methods used in the 5-Year Program Evaluation by performing eight difference-in-difference tests on South Nation watershed phosphorus data using Rideau Valley watershed data as a control. Two of four water-monitoring stations in the South Nation watershed showed statistically significant differences in phosphorus concentrations before (1980-1992) and after (1993-2010) WQT implementation. Regression analyses were performed combining phosphorus concentration data from Environment Canada with WQT program data from the South Nation Conservation Authority to test how – (1) spending an extra million dollars on each phosphorus abatement project-type, (2) building an extra hundred of each project-type, and (3) reducing an extra 100 kg/yr of phosphorus from each project-type – affects phosphorus concentrations at water-monitoring stations throughout the South Nation watershed.