

**VOLUMETRIC AND SEDIMENTATION RATE CHANGES IN
SPRING LAKE RESERVOIR, IL 1927-1996**

By
Dennis K. Wells

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ABSTRACT

Spring Lake Reservoir was constructed in 1927 by the City of Macomb, Illinois, for a long-term high quality water supply. A high rate of sediment inflow, however, seriously reduced storage volume. In 1968, therefore, a new dam was constructed with a higher spillway elevation creating an expanded lake still in use today. Sedimentation continued to reduce storage capacity at an alarming rate. To decrease infilling a watershed protection plan was implemented in 1983.

This study determines the existing volume of Spring Lake using the Global Positioning System (GPS) for location reference and a calibrated tape to record water depth. A terrain modeling computer program calculates the reservoir capacity to be 1715 ac-ft (2,100,000 m³). The current rate of sedimentation, based on the change of storage volume, is determined to be 12.9 ac-ft/yr (15,900 m³/yr). Factors that alter or influence basin erosion/lake infilling, such as land use, turbidity, precipitation and other factors were investigated.

The amount of sediment entering Spring Lake has varied and is presently lower than any rate calculated in the past. The watershed protection plan using structures, conservation tillage, grassed waterways and other erosion control measures probably had the greatest influence in reducing the rate of sedimentation.