



CASE STUDY | Capitol Region Watershed District

Stormwater & Water Quality Monitoring

ABOUT KISTERS

KISTERS is a global software solutions and technology firm dedicated to effective long-term management of water resources. Our environmental experts help clients achieve organizational goals through the deployment of powerful and flexible software.

Water Information Systems KISTERS (WISKI) provides quick and powerful access to manage and edit time series water data. Water resource professionals enjoy the capability of handling large volumes of data and calculating cumulative impacts of urban development while web service users can view and download data with ease.

“Automating the calculation of pollutant loads enables us to perform expanded data analysis and utilize findings to inform project design or program planning.”

-- Britta Suppes

*Monitoring Coordinator
Capitol Region Watershed District*

Tracking Pollutants from Lawns to Lakes

Based in the Minneapolis-St. Paul, Minnesota area, the Capitol Region Watershed District (CRWD) protects and manages wetlands, creeks, lakes and part of the Mississippi River Basin by managing stormwater runoff in a densely urbanized watershed. The existing database housing CRWD’s stormwater monitoring data was adequate but the district had more aggressive goals to better analyze the data, in order to identify source contaminants and make overall decisions for improved water quality. With an ever-growing dataset of continuous flow and water quality data, calculating pollutant loads efficiently as well as consistently to inform those management decisions would constrain operational performance. With WISKI, the District was able to produce a more timely, accurate and consistent process to measure pollutants and enable water resource professionals to focus on water quality improvement solutions.

Challenge

To determine how chemicals such as phosphorus enter urban lakes and streams from pollutant-laden stormwater runoff, CRWD gathers data in two ways. Sensors measure the flow of stormwater in tunnels and automatic samplers extract flow-paced samples during events to be analyzed by a lab. Staff manually identified start and stop of storm events and computed the total volume of water for each event. Annual pollutant load calculations were then manually calculated to quantify the total amount of constituents in various water bodies during dry weather conditions and storm events. Multiplying the total volume by the concentration of a pollutant from lab analyses resulted in the total amount of the pollutant in pounds. This process was manually done for each event and each contaminant investigated.

Over time CRWD’s stormwater dataset expanded to include more than 10 years of continuous flow data from a growing number of monitoring stations. Data management and evaluation became increasingly time consuming. Time for additional analysis to inform decisions was compromised. Trend analysis over the lifetime of the water quality program grew difficult due to the subjectivity of manually identifying storm events (start and end points). CRWD needed to automate load calculations and standardize identification of events, by defining and applying specific rules and procedures to its data.



