

INTRODUCTION

The Major Lakes and Streams Monitoring Programs are designed to protect the significant investment in water quality improvement and protection made by the people of King County. These monitoring programs are designed to evaluate the effect point source pollution (emanating from an identified source such as a pipe) and non-point source pollution (pollution generated from multiple diffuse sources in a watershed, often associated with land use activities) has on the quality of the region's waters.

Sewage and wastewater used to be discharged directly into Lakes Washington, Union, and Sammamish. Sewage and wastewater now enter secondary treatment facilities at West Point and Renton, from which clean treated water is discharged into the well-mixed waters of Puget Sound. While the diversion of sewage resulted in dramatic improvements in lake water quality, monitoring is still important to ensure the proper functioning of the pump stations on or near the shores of the lakes. The program also tracks the proper functioning of the miles of sewer pipelines that lie on the bottom of lakes Sammamish and Washington, as well as the pipelines crossing most tributary streams in the watershed.

With the control of the majority of the point source pollution, non-point source pollution related to the urbanization of the watershed currently has the greatest impact on water quality. The long-term environmental impacts of non-point pollution on the quality of lakes and streams can only be evaluated by sampling at multiple sites throughout the watershed.

During certain strong storm events, combined sewer overflows (CSOs) still discharge some dilute sewage and storm water into Lake Washington, the Ship Canal, and Lake Union (King County, June 2000). (Over flow events are controlled to one event per year as agreed to with the Washington State Department of Ecology). Sampling and flow monitoring sites are distributed around the lakes and streams to monitor the point source pipe and pump systems, as well as the more diffuse non-point source pollution and to monitor the long-term environmental quality of these waters. Information regarding the lake monitoring program can be found at the King County Lakes web page (<http://dnr.metrokc.gov/wlr/waterres/lakedata/Index.htm>).

In addition to the Major Lakes and Streams Monitoring Programs the County is conducting the Sammamish Washington Analysis and Modeling Project (SWAMP). SWAMP is a coordinated water quantity and quality monitoring and modeling project that will develop the science based tools to support water resource decisions for the Lake Washington and Sammamish watersheds.

A major component of this project is to configure a hydrodynamic-eutrophication computer model for Lakes Washington, Sammamish, and Union. Coupled with this model will be a watershed model that simulates stream flow and water quality resulting from historic, current, and future land use within King County watersheds. The SWAMP program is directly linked and coordinated with current King County water resource monitoring efforts. Data collected through the Major Lakes and Streams Program will be used to develop and calibrate the SWAMP modeling effort. Likewise, modeling efforts may result in the modification of the existing lake and stream monitoring programs.

As part of the Stream Monitoring Program, sixty-three sites on three rivers and twenty-seven streams have been sampled monthly – some for more than twenty years. This report covers twenty of these sites, primarily those in the northern Lake Washington/Lake Sammamish basins. The data from these sites were analyzed with the following objectives:

- Characterize the general water quality condition of the stream
- Determine if applicable State and Federal water quality criteria were met
- Compare baseline and storm water quality
- Evaluate the levels of metals in the storm water and sediments
- Identify long-term water quality trends