



Maintaining the region's water resources for maximum economic and environmental benefit is a full-time endeavor for the St. Paul District. Congress mandates the Corps of Engineers maintain a 9-foot channel on the Mississippi River and control the water levels and monitor the water quality at each of its projects on a daily basis. To do this, a water control team located in the district's water control and hydrology section in the St. Paul office focuses solely on water resources.

The different Corps projects maintained by the district are operated for many purposes, such as navigation, flood control, water supply or environmental enhancement. Both the river and the reservoirs have water control plans, which have been approved by the Corps' Mississippi Valley Division, the Corps' headquarters and Congress.

### **Upper Mississippi River**

The Corps operates the locks and dams on the Mississippi River for navigation, not flood control. The locks and dams create slack-water pools for navigation during periods of low- and moderate-level water. These dams, combined with dredging, allows the Corps to maintain the 9-foot river channel. The district regulates the pool levels from Upper Saint Anthony Falls in Minneapolis to Lock and Dam 10 in Guttenberg, Iowa. For each pool, there is a primary control point, where a predetermined water elevation must be kept for navigation to continue. Water Control personnel collect data on main stem and tributary flows to make proper gate adjustments to maintain the correct elevation at each control point. In times of flood, the gates are raised clear of the water, thereby having minimal impact on the river's natural flow.

### **Corps Reservoirs**

Unlike the operating plan for the river, which is operated for navigation, the reservoir dams are operated mainly for flood control, recreation purposes and environmental enhancement. Most of the reservoirs are drawn down in the winter to provide for spring rain and snowmelt storage. Water Control personnel collect data on current lake elevations, computed inflows and outflows and forecasted weather to predict how high or low the gates on each dam need to be moved to maintain the correct lake elevation. For each reservoir, there is a set recreation season during which the pool is held within prescribed maximum and minimum elevations.

## **Water Gauge System**

Water Control personnel maintain a system of around 100 gauges throughout the district's rivers and projects. While all gauges measure water level, some also record water and air temperature, wind speed and wind direction. These Data Collection Platforms, or DCPs, send information to the Corps' water management system via satellite. Corps operators then use this data when determining when dam gate changes need to be made.

## **Water Quality**

The Corps is required to monitor the water quality at all of its reservoir projects, as well as the locks and dams, to determine a baseline for water quality conditions and to identify problems; and when problems are found, the Corps works with other environmental agencies to develop improvement strategies. Water control personnel ensure proper samples are taken throughout the district and then sent to a lab for testing on a regular basis.