Chapter V

PROGRESS MONITORING AND EVALUATION

MONITORING AND EVALUATION

The monitoring and evaluation of program efforts is important to ensure the effectiveness of the planned activities described in Chapter IV of this plan. The Milwaukee County Environmental Services Division currently employs and plans to expand a variety of methods to monitor and evaluate the progress of program efforts. Those methods include the geographic information system (GIS) database, advisory committees, annual progress reports, and water quality monitoring. Monitoring program effectiveness will be carried out through analyses and quantification of soil erosion and sediment delivery, priority farm compliance, tracking the level of protection of environmentally sensitive lands, and analysis of water quality data. This chapter describes some of these efforts in more detail and how they will be used to monitor and evaluate the success in implementing planned activities.

GIS/Database Tracking System
Milwaukee County’s priority farms strategy will involve the identification and evaluation of farmland for compliance with performance standards and prohibitions. Milwaukee County will use GIS as a tool to identify priority farms for compliance determinations, track progress on implementing performance standards, and meet reporting requirements. This database will be designed to inventory parcel ownership, track notices sent to landowners and record conservation measures installed and cost-share funds awarded. In addition, the Environmental Services Division will be able to track progress and compliance of riparian buffer and other best management practice installation accomplished through the U.S. Department of Agriculture Conservation Reserve Program or other programs.

Progress Reporting
Regular meetings are currently held to report progress to the Milwaukee County Board Parks, Energy and Environment Committee (acting as the County’s land conservation committee) regarding conservation plans and nutrient management plans, implementation of buffers, contacts made, and educational activities. These meetings are used to evaluate the effectiveness of current practices, to approve and review cost-share contracts, and to change or modify programs to better address current conditions and local priorities.

Water Quality Monitoring
Water quality monitoring is an important means to assess the present condition of water resources and to gauge the effectiveness and progress of land conservation-related activities and best management practices. Unfortunately, due to the high number of variables involved in monitoring water quality, nonstandardized parameters and sampling techniques, and the broad spatial and temporal sampling effort, it is often difficult to interpret the data. As a result of ongoing monitoring efforts by a variety of agencies and groups, considerable water quality monitoring information is available on some streams in Milwaukee County, as described below. Much of the recent data were summarized in Chapter II of this report. Milwaukee County supports citizen-based
monitoring programs such as Water Action Volunteers. The County also plans to continue to work on collecting water quality data in cooperation with conservancy and environmental organizations, State and Federal Agencies, school districts, utility companies, local governments, the Milwaukee Metropolitan Sewerage District (MMSD), and adjacent County and local governments and other groups such as the Southeastern Wisconsin Watersheds Trust, Inc., Milwaukee Riverkeeper, Root-Pike Watershed Initiative Network, and SEWRPC. All of these groups work directly or indirectly, through project funding, to collect water quality data on a regular basis.

**Wisconsin Department of Natural Resources (WDNR) Water Quality Monitoring**

The WDNR conducts baseline monitoring of streams in Milwaukee County. The Department staff conducts fish collections and habitat assessments and examines macroinvertebrates at a number of locations throughout the County. This information is summarized in periodic State of the Basin reports.

**U.S. Geological Survey Monitoring**

The U.S. Geological Survey (USGS) is actively collecting surface water resources data at several locations in Milwaukee County and at numerous locations around Wisconsin. Streamflow is monitored at 16 locations in the County that continuously record water-stage and/or record crest stages of larger individual floods. These stations include sites along the mainstem of the Kinnickinnic River, Wilson Park Creek, and a tributary to Holmes Avenue Creek in the Kinnickinnic River watershed; the mainstem of the Menomonee River, the Little Menomonee River, Underwood Creek, and Honey Creek in the Menomonee River watershed; the mainstem of the Milwaukee River and Lincoln Creek in the Milwaukee River watershed; the mainstem of Oak Creek in the Oak Creek watershed; and the mainstem of the Root River in the Root River watershed.

The USGS also monitors water quality both through the use of continuously recording probes and by collecting and analyzing water samples. Many of these stations are located at the sites of streamflow gages. In 2010, continuous data were collected at 11 stations and water quality samples were collected at 25 stations. These stations include sites along the mainstem of the Kinnickinnic River, Edgerton Ditch, Wilson Park Creek, and a tributary to Holmes Avenue Creek in the Kinnickinnic River watershed; the mainstem of the Menomonee River, the Little Menomonee River, Underwood Creek, and Honey Creek in the Menomonee River watershed; the mainstem of the Milwaukee River and Lincoln Creek in the Milwaukee River watershed; the mainstem of Oak Creek in the Oak Creek watershed; and the mainstem of the Root River in the Root River watershed. The type of data collected in the USGS sampling varies depending on program and project scope, but available data include historical and current streamflow on selected waterbodies and water quality. The USGS regularly partners with WDNR, MMSD, SEWRPC, Milwaukee County, and other agencies and local interest groups to collect information on the condition of surface and groundwater resources. More information on the variety of data collected by the USGS and the ability to view real-time stream gage data can be found at the USGS website: [http://wi.water.usgs.gov/](http://wi.water.usgs.gov/).

**MMSD Water Quality Monitoring**

The MMSD is actively collecting surface water quality data at over 100 sampling stations along streams within its service area and the associated nearshore areas of Lake Michigan. Most of these sampling stations are located in Milwaukee County. Those sampling stations that are not located in Milwaukee County are located in upstream reaches of streams which flow into the County. The District analyzes samples for about 44 different water quality parameters, including chemical parameters, suspended material, nutrients, and metals. Streams that are currently being monitored include the mainstem of the Kinnickinnic River in the Kinnickinnic River watershed; the mainstem of the Menomonee River, the Little Menomonee River, Underwood Creek, and Honey Creek in the Menomonee River watershed; the mainstem of the Milwaukee River, Southbranch Creek, Indian Creek, and Lincoln Creek in the Milwaukee River watershed; the mainstem of Oak Creek in the Oak Creek watershed; the mainstem of the Root River in the Root River watershed; and Fish Creek in the Lake Michigan Direct drainage area. In partnership with the USGS, the District has also established 10 real-time continuous water quality monitoring stations along streams within its service area. Seven of these stations are located in the County. More information on the data collected by the MMSD and the ability to view real-time stream water quality data can be found at the MMSD website: [http://v3.mmsd.com/](http://v3.mmsd.com/).
**Milwaukee Riverkeeper/Water Action Volunteers Water Quality Monitoring**

Since 2006, Milwaukee Riverkeeper has conducted a volunteer monitoring program under which trained citizen volunteers monitor streams and rivers within the Milwaukee River basin. In Milwaukee County, this program conducts monitoring on the mainstems and tributaries of the Kinnickinnic, Menomonee, and Milwaukee River watersheds. In the Menomonee and Milwaukee River watersheds, this program also monitors at sites upstream from Milwaukee County. The program trains two levels of volunteers. Level I volunteers measure dissolved oxygen, air and water temperature, turbidity, flow, macroinvertebrates, stream habitat, and streamflow velocity on a monthly basis. The data produced from this monitoring is entered into the Water Action Volunteers database, hosted by UW-Extension. Level II volunteers monitor water quality using equipment from the WDNR. This monitoring includes measurements of pH, dissolved oxygen (DO), turbidity, and temperature using automated dataloggers. The data that is collected is entered in the WDNR’s SWIMS database.

**Lake Michigan Beach Monitoring**

The Federal Beach Act was passed in October of 2000, requiring States that border coastal or Great Lakes waters to develop beach monitoring and public notification programs. The Beach Act also authorized the U.S. Environmental Protection Agency (USEPA) to provide grants to States that have beaches bordering these coastal waters for the purpose of developing and implementing monitoring and public notification programs. The WDNR and its partners have participated in this grant program since the 2002 swimming season. The Wisconsin Beach Monitoring Program was developed in accordance with USEPA performance criteria. Several health departments within Milwaukee County adhere to the performance criteria for monitoring, public notification, and reporting. These include the City of Milwaukee Health Department, the North Shore Health Department, the City of Oak Creek Health Department, the City of St. Francis Health Department, the Shorewood/Whitefish Bay Health Department and the City of South Milwaukee Health Department. Milwaukee County beaches that are tested regularly include: Atwater Park Beach, Bay View Park Beach, Bender Beach, Bradford Beach, Grant Park Beach, Klode Park Beach, McKinley Beach, South Shore Beach, South Shore Rocky Beach, Tietjen Beach, and Watercraft Beach. Water quality data are posted daily from Memorial Day to Labor Day. Water quality conditions at the monitored beaches are posted at the beaches and at the State of Wisconsin beach condition website. The State beach condition website is [updated daily](http://www.wibeaches.us), and, therefore, has the latest available advisories. The State of Wisconsin beach website is: [www.wibeaches.us](http://www.wibeaches.us).

**SUMMARY**

Consistent and thorough evaluation and monitoring of conservation efforts is essential to ensure the effectiveness of the Milwaukee County Land and Water Resource Management Plan. An annual progress report will be the primary method used to evaluate progress of implementing the planned activities outlined in Chapter IV of this plan. The progress report will utilize the standardized units of measurement for conservation practices and information and education activities prescribed by DATCP. The progress report will consist of a summary of the annual outcomes and accomplishments of planned activities outlined in the work plan. This summary may include, but is not limited to: completed information and education activities, landowners contacted, BMPs designed and installed, conservation and nutrient management plans written or revised, cost-share agreements developed, compliance monitoring and status, and other planned program results. These annual progress reports will be compiled and forwarded to the Department of Agriculture, Trade and Consumer Protection and the Department of Natural Resources. The results of the monitoring and evaluations described in this chapter, and conducted over the term of this plan (2012 to 2016), will be used to improve the next land and water resource management plan.