TMDL Development for Mississippi River Watershed

Background

Over the last 30 years, waters in Illinois have been monitored for chemical, biological, and physical conditions. In some cases, the conditions of those rivers and lakes fall short of the need to support basic water quality use goals. These waters are deemed impaired since they cannot meet use expectations set for them under state and federal law. When this happens, Total Maximum Daily Load (TMDL) reports are developed for impaired waters to determine the maximum amount of a pollutant a water body can receive and still meet water quality standards and support its designated uses. Designated uses include aquatic life, public water supply, swimming, recreation, fish consumption, and aesthetic quality.

TMDLs are done in stages to allow for public involvement and input. TMDL development in Illinois begins with water quality data collection, point source discharge, precipitation, soils, geology, topography, and land use—within the specific watershed. All impaired water body segments within the watershed are identified, along with potential pollutants causing the impairment. Illinois EPA determines the tools necessary to develop the TMDL. In most cases, computer models are used to simulate natural settings and calculate pollutant loads. Along with data analysis, model recommendations are made in the first stage of the TMDL. This information is presented at the first public meeting.

The appropriate model or models are selected based on the pollutants of concern, the amount of data available and the type of water body. In some cases, additional data needs to be collected before continuing. The model is used to determine how much a pollutant needs to be reduced in order for the water to be meeting its designated uses.

An implementation plan is developed for the watershed spelling out the actions necessary to achieve the goals. The plan can specify limits for point source dischargers and recommend best management practices (BMPs) for nonpoint sources. Another public meeting is held to discuss this plan and to involve the local community. Commitment to the implementation plan by the citizens who live and work in the watershed is essential to success in reducing the pollutant loads and improving water quality.

Waterbody Designated Uses and Impairments

<table>
<thead>
<tr>
<th>Waterbody</th>
<th>Designated Use(s)</th>
<th>Impairment(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mississippi River</td>
<td>Public and Food Processing Water Supplies</td>
<td>Atrazine</td>
</tr>
</tbody>
</table>

Watershed Information

This study addresses the approximately 1,753 square mile Mississippi North Central River watershed area (portion included in Illinois only) located in northwestern Illinois. The Mississippi River in this watershed is a large river with contributing drainage area in Minnesota, Wisconsin, Iowa, and Illinois.

The watershed includes land within Hancock, Henderson, Henry, Knox, Mercer and Warren Counties in Illinois. Major tributaries from the Illinois portion of the river include Pope Creek, Henderson Creek, Ellison Creek, Honey Creek, and Camp Creek.
The Mississippi River (IL_K-22) has been placed on the State of Illinois §303(d) list for not supporting Public and Food Processing Water Supplies due to elevated levels of atrazine and requires development of a TMDL. Atrazine is an herbicide that is commonly applied to row crops in the spring or summer and can be applied pre- or post-emergent. Transport mechanisms include overland runoff, discharge from drainage tiles and contaminated dust that is delivered to the waterway through wet and dry atmospheric deposition. Atrazine is also transported easily in water, in the dissolved phase.

There are no point source discharges (e.g. municipal or industrial wastewater treatment plant) in this watershed. The 2014 impaired waters list identifies Unknown Sources as the cause of impairment.

For more information on this specific TMDL or the TMDL program, visit the Illinois EPA website at http://www.epa.state.il.us/water/tmdl/.

For information on the assessment of Illinois waters, refer to the Integrated Report and 303(d) List at http://www.epa.state.il.us/water/tmdl/303d-list.html.

If you have any questions, please contact the project manager, Brian Willard (Planning Unit) at 217-782-3362 or by email at Brian.Willard@Illinois.gov or Abel Haile by phone at 217/782-3362 or email at Abel.Haile@illinois.gov.