

Menomonee River Watershed Restoration Plan Fact Sheet

MN-12, Reach 857, RI-22, Menomonee River Downstream of the Little Menomonee River (Hampton Avenue)

Data resulting from model runs:

Figure	Overall Project Team Assessment	Analysis
Flashiness index	Good	The Flashiness Index quantifies the frequency and rapidity of short-term changes in stream flow. The index ranges from 0 to 2, with 0 being constant flow. The flashiness is reasonable at this location.
Dissolved oxygen v. days per year	Good	Typically, aquatic communities need 5 mg/l or more of dissolved oxygen to survive. Concentrations at this site rarely fall below this level and never below 3 mg/l.
Fecal coliform v. days per year	Variable (some good, some bad)	For recreational uses, lower fecal coliform counts (a measure of bacteria) are better (preferably under 400 counts / 100ml). The counts on majority of the days are either 'below 400' or 'above 5,000'. A potential goal in this case may be to determine the conditions that create the 'above 5,000' days and discourage recreational use on days that meet these conditions. An additional goal could be to find ways to decrease fecal coliform loads in order to increase the number of days that have 'below 400' counts.
Phosphorus v. days per year	Moderate to Poor	Phosphorus is a nutrient that can lead to increased growth of algae. The concentrations are at or below the 0.1 mg/l planning standard on most of the days, but the concentrations exceed 0.5mg/l on some of the days.
Suspended solids v. days per year	Very Good to Good	Suspended solids cause water to become cloudy, which is aesthetically unpleasant. They can also clog the gills of fish and invertebrates, make feeding difficult, and lead to sediment deposition (poor habitat). The concentrations are less than 25 mg/l on most of the days, but the concentrations exceed 200 mg/l on some of the days.
Monthly chloride grab samples (CL not from models)	Inconclusive (no winter data)	These samples have chloride concentrations that are below levels that are toxic to fish and invertebrates. However, a common source of chloride is road salt and there is no winter data. Note that March data (which include snow melt and spring runoff) are higher than the rest of the year. Winter chloride concentrations would be expected to exceed those measured in March.
Monthly dissolved oxygen	Good	The decline in dissolved oxygen concentrations during the summer is normal due to the decreased solubility of oxygen in warmer water. The upper portion of the ranges for each month is fairly typical; however, the lower portions of the ranges (below the median or 25 th percentile) declined more than would be expected, particularly during the summer. This may indicate excess organic matter and biochemical oxygen demand in the stream.
Monthly fecal coliform	Moderate to Poor	While the ranges of values are fairly consistent throughout the year, note that the median and 75 th percentile values decline during the summer swimming season. This may be related to the die-off of bacteria due to solar radiation. Also note that the conditions are poorest in March and are likely related to snow melt.
Monthly phosphorus	Moderate to Poor	In most months, phosphorus concentrations exceed the planning guideline between 25% and 50% of the time.
Monthly suspended solids	Very Good	The maximum concentrations of suspended solids are lowest in the winter. This is likely due to frozen conditions, decreased construction activities, and low-impact storms (snow doesn't pound the soil like rain).

Figure	Overall Project Team Assessment	Analysis
Chloride by flow (Cl not from models)	Inconclusive (no winter data)	It is difficult to assess chloride trends without data from the winter months; however, it appears that when chloride is not being actively applied, some amount is in a 'reservoir' (sediment). This chloride is gradually released and this is particularly noticeable during mid-to-dry conditions. During higher flow conditions, the concentration becomes diluted.
Dissolved oxygen by flow	Good	Note the decline in dissolved oxygen concentrations at low flows. This is likely due to a combination of decreased water agitation and higher temperatures (low flow conditions are often associated with the warm summer months).
Fecal coliform by flow	Poor	Generally, a pollutant that is present at high concentrations during high flows and low concentrations during low flows (fecal coliform, in this case) is attributed primarily to non-point sources. The infrequent sewer overflows (once every 2-5 years) would only contribute during the high flows when a substantial non-point load is already present. Note that during periods with the highest flows, fecal coliform counts exceed the regulatory standard nearly all of the time. During low flows, the standard is met over 75% of the time. This would be the safest time for any recreational uses (boating, swimming, wading, etc.).
Phosphorus by flow	Moderate	Concentrations of phosphorus are greatest at high and low flows. This suggests a background source of phosphorus that is particularly noticeable at low flows (possibly from non-contact cooling water) as well as non-point loads of phosphorus during high flows.
Suspended solids by flow	Good	The concentrations of suspended solids increase with increased flows, suggesting contributions from non-point sources. The suspended solids may come from runoff that carries a sediment load, from stream bank erosion, or re-suspended stream sediments.