

## Menomonee River Watershed Restoration Plan Fact Sheet

### MN-5, Reach 823, RI-16, Menomonee River at Washington-Waukesha County Line (County Line Road)

Data resulting from model runs:

Figure	Overall Project Team Assessment	Analysis
Flashiness index	Very 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 reasonably low 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.
Fecal coliform v. days per year	Moderate	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 'below 400'. This site exhibits fewer spikes of 'above 5,000' counts than many of the downstream sites.
Phosphorus v. days per year	Moderate to Poor	Phosphorus is a nutrient that can lead to increased growth of algae. The concentrations on most days are at or below the 0.1 mg/l planning guideline, but occasionally, the concentrations exceed 0.5 mg/l.
Suspended solids v. days per year	Very 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 during most of the days and the concentrations of suspended solids do not exceed 125 mg/l on any day
Monthly chloride grab samples (CL not from models)	Inconclusive (no winter data)	These samples exhibit chloride concentrations that are below those that are toxic to fish and invertebrates. Concentrations measured in March consistently exceed the chronic toxicity threshold. However, a common source of chloride is road salt and there is no winter data. Note that concentrations in the March samples (which include snow melt and spring runoff) are higher than the rest of the year. However, chloride concentrations during the winter would be expected to be greater than those measured in March.
Monthly dissolved oxygen	Good	Note the decline in dissolved oxygen concentrations during the summer. This is normal due to the decreased solubility of oxygen in warmer water. Conditions in early-to-mid summer approach the dissolved oxygen standard. While this is not a problem, it suggests that small amounts of additional organic inputs or algal growth may increase biochemical oxygen demand and create problems.
Monthly fecal coliform	Good to Moderate	While the ranges of values are fairly consistent throughout the year, notice that the median and 75 <sup>th</sup> 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	In most months, phosphorus concentrations exceed the planning guideline 25% to 50% of the time. Note that the lowest range of concentrations increase in the late spring and early summer, possibly related to fertilizer runoff.
Monthly suspended solids	Good	The concentrations of suspended solids are relatively low year-round and lower during the winter months. The lower concentrations during the winter are probably related to a number of factors including frozen conditions 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)	As the field data used to develop this figure do not include samples from the winter, it is impossible to draw accurate conclusions regarding chloride from this figure.
Dissolved oxygen by flow	Good	Note the slight decline in the concentration of dissolved oxygen that occurs 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	Moderate to 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 substantial non-point loads are present. Note that during any period with the highest flows, fecal coliform counts exceed the regulatory standard 75% of the time. During low flows, the standard is met more than 75% of the time. This would be the safest time for any recreational uses (boating, swimming, wading, etc.), although the amount of water in the stream may limit recreational use to wading.
Phosphorus by flow	Moderate to Poor	Concentrations of phosphorus are greatest at high and low flows. This suggests a background source of phosphorus that is particularly noticeable during low flows as well as non-point loading of phosphorus at high flows (likely associated with suspended sediment).
Suspended solids by flow	Very Good to 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.