

**Menomonee River Watershed Restoration Plan Fact Sheet**  
**MN-9, Reach 848, RI-21, Menomonee River Downstream of Butler Ditch (127<sup>th</sup> St. Extended)**

Data resulting from model runs:

<b>Figure</b>	<b>Overall Project Team Assessment</b>	<b>Analysis</b>
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 fall below this level infrequently.
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 about two-thirds of the days, but the concentrations exceed 1.5mg/l on some of the days.
Suspended solids v. days per year	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. In other parts of the watershed, chloride is higher in March – probably a residual from road salt. As this is not the case here, it is possible that chloride may not be problematic at this site.
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 portions of the ranges for each month is fairly typical; however, the lower portions of the ranges (below the 25 <sup>th</sup> percentile) decline more than would be expected during the summer. This may indicate excess organic matter and biochemical oxygen demand within the stream.
Monthly fecal coliform	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 to Poor	In most months, phosphorus concentrations exceed the planning guideline about 25% to 50% of the time. Note that the phosphorus concentrations increase in March and is likely from snow melt.
Monthly suspended solids	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 without data from the winter months; however, the data suggests that high flows may dilute the chloride concentration.
Dissolved oxygen by flow	Good	Note the decline in dissolved oxygen concentration 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 substantial non-point loads are already present. Note that during periods with the highest flows, fecal coliform counts exceed the regulatory standard more the 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.).
Phosphorus by flow	Moderate to Poor	Concentrations of phosphorus are greatest at high and low flows. This suggests a background source that is particularly noticeable during low flows (perhaps from non-contact cooling water) as well as non-point loading of phosphorus during medium and 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.