Root River Watershed Restoration Plan Progress Report

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Southeastern Wisconsin Regional Planning Commission
Partners and Funding Agencies

- Wisconsin Coastal Management Program
- sweet water: Southeastern Wisconsin Watersheds Trust, Inc.
- WIN Root-Pike Watershed Initiative Network
- MMSD: Preserving the Environment, Improving Water Quality
- Municipalities and Counties of the Root River Watershed
- Racine County Wisconsin
- The Fund for Lake Michigan
Background
Issues Identified in the Findings of the Regional Water Quality Management Plan Update (RWQMPU) and Other Recent Planning Efforts

- Impairments related to low dissolved oxygen
- Impairments due to fish consumption advisories
- High fecal indicator bacteria concentrations
- Poor quality fishery upstream of Horlick Dam
- Fragmentation of terrestrial habitat
- Streambed and streambank erosion
- Access to the River
- Invasive species
Proportions of Samples Meeting Water Quality Criteria

**Dissolved Oxygen**

- 1975-1986: 100%
- 1987-1993: 100%
- 1994-1997: 100%
- 1998-2004: 40%

**Ammonia**

- 1975-1986: 100%
- 1987-1993: 100%
- 1994-1997: 100%
- 1998-2004: 100%

- Samples Not Meeting Water Quality Standards and Criteria
- Samples Meeting Water Quality Standards and Criteria
Proportions of Samples Meeting Water Quality Criteria

**Fecal Coliform Bacteria**

- 1975-1986: 90% not meeting criteria, 10% meeting criteria
- 1987-1993: 80% not meeting criteria, 20% meeting criteria
- 1994-1997: 70% not meeting criteria, 30% meeting criteria
- 1998-2004: 80% not meeting criteria, 20% meeting criteria

**Total Phosphorus**

- 1975-1986: 90% not meeting criteria, 10% meeting criteria
- 1987-1993: 80% not meeting criteria, 20% meeting criteria
- 1994-1997: 70% not meeting criteria, 30% meeting criteria
- 1998-2004: 80% not meeting criteria, 20% meeting criteria

- **Samples Not Meeting Water Quality Standards and Criteria**
- **Samples Meeting Water Quality Standards and Criteria**
General Plan Goal—Refine and Detail RWQMPU

- Identify a set of focus issues to address over a relatively short time frame
  - Tractable
  - Three to five focus issues
  - Five year time frame
  - Make improvements
Plan Approach

1. Summarize Recommendations of the Regional Water Quality Management Plan Update (RWQMPU)
2. Evaluate Implementation of the RWQMPU
3. Inventory Recent and Ongoing Projects, Programs, and Initiatives and Integrate these Into Recommendations
4. Review and Refine Initially Identified Focus Issues
5. Characterize the Watershed Concentrating on Features Related to the Focus Issues
Plan Approach

6. Identify Targets to be Achieved by the End of the Plan Period
7. For Each Target, Identify Actions to be Taken
8. Identify Foundation Actions
9. Present Actions in Addition to those Recommended in the RWQMPU
10. Develop an Implementation Strategy
Focus Issues

1. Water Quality
2. Recreational Use and Access
3. Habitat Conditions
4. Flooding
Focus Issues

1. Water Quality
   - Examples ➔ Nutrients, sediment, chloride

2. Recreational Use and Access
   - Examples ➔ Bacteria, access points, fishery quality

3. Habitat Conditions
   - Examples ➔ Buffers, connectivity, passage barriers, invasive species

4. Flooding
Summarizing the Recommendations of the Regional Water Quality Management Plan Update
Recommendations of the Regional Water Quality Management Plan Update

- Land Use (5)
Recommendations of the Regional Water Quality Management Plan Update

- Land Use (5) ➔ R, H, F
Recommendations of the Regional Water Quality Management Plan Update

- Land Use (5)
- Point Source Abatement (9)

⇒ R, H, F
Recommendations of the Regional Water Quality Management Plan Update

- Land Use (5) ➔ R, H, F
- Point Source Abatement (9) ➔ W, R
Recommendations of the Regional Water Quality Management Plan Update

- Land Use (5) ➔ R, H, F
- Point Source Abatement (9) ➔ W, R
- Rural Nonpoint Source Controls (11)
Recommendations of the Regional Water Quality Management Plan Update

- Land Use (5) ➔ R, H, F
- Point Source Abatement (9) ➔ W, R
- Rural Nonpoint Source Controls (11) ➔ W, R, H, (F)
Recommendations of the Regional Water Quality Management Plan Update

- Land Use (5) ➔ R, H, F
- Point Source Abatement (9) ➔ W, R
- Rural Nonpoint Source Controls (11) ➔ W, R, H, (F)
- Urban Nonpoint Source Controls (10)
Recommendations of the Regional Water Quality Management Plan Update

- Land Use (5) ➔ R, H, F
- Point Source Abatement (9) ➔ W, R
- Rural Nonpoint Source Controls (11) ➔ W, R, H, (F)
- Urban Nonpoint Source Controls (10) ➔ W, R, (H)
Recommendations of the Regional Water Quality Management Plan Update

- Land Use (5) ➔ R, H, F
- Point Source Abatement (9) ➔ W, R
- Rural Nonpoint Source Controls (11) ➔ W, R, H, (F)
- Urban Nonpoint Source Controls (10) ➔ W, R, (H)
- Instream Water Quality Measures (9)
Recommendations of the Regional Water Quality Management Plan Update

- Land Use (5) ➔ R, H, F
- Point Source Abatement (9) ➔ W, R
- Rural Nonpoint Source Controls (11) ➔ W, R, H, (F)
- Urban Nonpoint Source Controls (10) ➔ W, R, (H)
- Instream Water Quality Measures (9) ➔ W, R, H, (F)
Recommendations of the Regional Water Quality Management Plan Update

- Land Use (5) ➔ R, H, F
- Point Source Abatement (9) ➔ W, R
- Rural Nonpoint Source Controls (11) ➔ W, R, H, (F)
- Urban Nonpoint Source Controls (10) ➔ W, R, (H)
- Instream Water Quality Measures (9) ➔ W, R, H, (F)
- Inland Lake Water Quality (3)
Recommendations of the Regional Water Quality Management Plan Update

- Land Use (5) ➔ R, H, F
- Point Source Abatement (9) ➔ W, R
- Rural Nonpoint Source Controls (11) ➔ W, R, H, (F)
- Urban Nonpoint Source Controls (10) ➔ W, R, (H)
- Instream Water Quality Measures (9) ➔ W, R, H, (F)
- Inland Lake Water Quality (3) ➔ W, R, H
Recommendations of the Regional Water Quality Management Plan Update

- Land Use (5) ➔ R, H, F
- Point Source Abatement (9) ➔ W, R
- Rural Nonpoint Source Controls (11) ➔ W, R, H, (F)
- Urban Nonpoint Source Controls (10) ➔ W, R, (H)
- Instream Water Quality Measures (9) ➔ W, R, H, (F)
- Inland Lake Water Quality (3) ➔ W, R, H
- Auxiliary Water Quality Measures (12)
Recommendations of the Regional Water Quality Management Plan Update

- Land Use (5) ➔ R, H, F
- Point Source Abatement (9) ➔ W, R
- Rural Nonpoint Source Controls (11) ➔ W, R, H, (F)
- Urban Nonpoint Source Controls (10) ➔ W, R, (H)
- Instream Water Quality Measures (9) ➔ W, R, H, (F)
- Inland Lake Water Quality (3) ➔ W, R, H
Recommendations of the Regional Water Quality Management Plan Update

- Land Use (5) → R, H, F
- Point Source Abatement (9) → W, R
- Rural Nonpoint Source Controls (11) → W, R, H, (F)
- Urban Nonpoint Source Controls (10) → W, R, (H)
- Instream Water Quality Measures (9) → W, R, H, (F)
- Inland Lake Water Quality (3) → W, R, H
- Groundwater Management (4)
Recommendations of the Regional Water Quality Management Plan Update

- **Land Use (5)** ➞ R, H, F
- **Point Source Abatement (9)** ➞ W, R
- **Rural Nonpoint Source Controls (11)** ➞ W, R, H, (F)
- **Urban Nonpoint Source Controls (10)** ➞ W, R, (H)
- **Instream Water Quality Measures (9)** ➞ W, R, H, (F)
- **Inland Lake Water Quality (3)** ➞ W, R, H
- **Auxiliary Water Quality Measures (12)** ➞ W, R, H
- **Groundwater Management (4)** ➞ W, H
Recommendations of the Regional Water Quality Management Plan Update

- Land Use (5) ➔ R, H, F
- Point Source Abatement (9) ➔ W, R
- Rural Nonpoint Source Controls (11) ➔ W, R, H, (F)
- Urban Nonpoint Source Controls (10) ➔ W, R, (H)
- Instream Water Quality Measures (9) ➔ W, R, H, (F)
- Inland Lake Water Quality (3) ➔ W, R, H
- Groundwater Management (4) ➔ W, H
- Water Use Objectives (2)
Recommendations of the Regional Water Quality Management Plan Update

- Land Use (5) ➔ R, H, F
- Point Source Abatement (9) ➔ W, R
- Rural Nonpoint Source Controls (11) ➔ W, R, H, (F)
- Urban Nonpoint Source Controls (10) ➔ W, R, (H)
- Instream Water Quality Measures (9) ➔ W, R, H, (F)
- Inland Lake Water Quality (3) ➔ W, R, H
- Groundwater Management (4) ➔ W, H
- Water Use Objectives (2) ➔ W, R, H
Characterization of the Watershed
Characterization of the Watershed

- Examine watershed on finer scale than was done in the RWQMPU
- Examine those factors that are most closely related to the focus issues
- Update and expand upon those analyses that are most closely related to the focus issues
Characterization of the Watershed

- Examine watershed on finer scale than was done in the RWQMPU
- Examine those factors that are most closely related to the focus issues
- Update and expand upon those analyses that are most closely related to the focus issues
- First step ➔ Divide the watershed into subunits for assessment and analysis ➔ Assessment Areas
Starting point was to examine the assessment points used to evaluate the model results from the RWQMPU

- Defined the contributing areas
- Looked to see whether they could be consolidated
Defining Assessment Areas

- Existing land use
Defining Assessment Areas

- Existing land use
- Expected 2020 achievement of water quality criteria
Defining Assessment Areas

- Existing land use
- Expected 2020 achievement of water quality criteria
- Planned 2035 land use
Defining Assessment Areas

- Existing land use
- Expected 2020 achievement of water quality criteria
- Planned 2035 land use
- Adjacency/flow relationship
Assessment Areas

- 15 Assessment areas
- Correspond to subwatersheds or portions of subwatersheds
- Use for geographic analysis of the watershed
Preliminary Water Quality Results
## Preliminary Water Quality Results

### Dissolved Oxygen

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<th>Watershed</th>
<th>Percent Samples 5.0 mg/l or above</th>
<th>Samples</th>
<th>Percent Samples 5.0 mg/l or above</th>
<th>Samples</th>
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<td>66.5</td>
<td>731</td>
<td>91.4</td>
<td>1,721</td>
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## Preliminary Water Quality Results

### Dissolved Oxygen

<table>
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</thead>
<tbody>
<tr>
<td></td>
<td>Percent Samples</td>
<td>Samples</td>
<td>Percent Samples</td>
<td>Samples</td>
</tr>
<tr>
<td></td>
<td>5.0 mg/l or above</td>
<td></td>
<td>5.0 mg/l or above</td>
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</tr>
<tr>
<td>Watershed</td>
<td>66.5</td>
<td>749</td>
<td>91.4</td>
<td>1,882</td>
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<td>Milwaukee County</td>
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<td>Racine County</td>
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<td></td>
<td>Percent Samples 0.075 mg/l or below</td>
<td>Samples</td>
<td>Percent Samples 0.075 mg/l or below</td>
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<td>Watershed</td>
<td>24.0</td>
<td>549</td>
<td>21.0</td>
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</table>
Ongoing Efforts

- Characterize the Watershed Concentrating on Features Related to the Focus Issues
- Inventory Recent and Ongoing Projects, Programs, and Initiatives and Integrate these Into Recommendations

- Need you to provide
  - Information about these
  - Plans
  - Descriptions of projects
Project Web Site

- Presentations from RRRPG meetings
- Draft chapters as they are completed
- Comment screen
Review and map identified problems in Racine County based on input from municipalities
- Focus on flooding of habitable buildings and roadways and railways

Characterize the nature of reported problems to the degree possible (e.g., stormwater-related, overflow from stream or river)

Recommend priorities and levels of funding for future studies of case-by-case alternatives to mitigate specific high priority problems
Root River Watershed: Racine County
Stormwater and Flooding Inventory

- Racine County
- City of Racine
- Villages of
  - Caledonia
  - Mt. Pleasant
  - Sturtevant
  - Union Grove
- Towns of
  - Dover
  - Norway
  - Raymond
  - Yorkville
Root River Watershed: Racine County
Stormwater and Flooding Inventory

- Locations of stormwater and flooding problems
  - Dates of flooding
  - Number of buildings affected
  - Depths of flooding
  - Nature of flooding (e.g., basement, first floor, roadway)
  - Available flood damage costs
  - Proposed, or implemented, measures to address problems
- Pertinent reports, studies, and ordinances
- Some information already obtained by SEWRPC during preparation of the *Racine County Hazard Mitigation Plan Update: 2010-2015*
Root River Watershed: Stormwater Runoff Pollution

- WDNR provided WinSLAMM information for all municipal separate storm sewer system (MS4) permitted communities
  - Milwaukee, Racine, and Waukesha Counties
  - All cities and villages except Union Grove (no MS4 permit)
  - All towns, except Dover, Norway, Raymond, and Yorkville (no MS4 permit)