Identifying Critical Areas in the Central Muscatatuck Watershed Plan
Location of Central Muscatatuck Watershed

Area: 164,000 acres.
Watershed Land Use
Mainly forest, pasture, row crop agriculture with conventional tillage
Process the group used to choose critical areas

1. Determine what people think are the potential stressors
2. Collect and analyze data:
   – Water quality monitoring (professional and volunteer)
   – Windshield surveys
3. Select the most impaired sub watersheds according to data and land use that can attribute to the indicated stressors
1. Determine what people think are the potential stressors

– Developed through surveys during public meetings and committee steering meetings.

Figure 26: Agricultural Concerns
PRIORITIZING PUBLIC CONCERNS

• Public Concerns Prioritized by Steering Committee:
• I. Water Quality
  • 1) Trash dumped into water  2) Heavy metals 3) Low water supply 4) Need more enforcement of public dumping laws 5) Soil erosion 6) Handling of run-off  7) Pollution 8) Flash flooding 9) E. coli 10) Maintaining biodiversity in and near streams and wetlands 11) Drinking water quality 12) Healthy water ways for recreation, fishing, swimming, etc. 13) Sinkhole pollution
• II. Land Use
• III. Education
  • 1) Do places like the power plant affect the watershed? 2) Do people know how they affect their watershed? 3) Is the drinking water really clean? 4) Is the water healthy? 5) Education of children/public 6) Everyone knowing their watershed and protecting it 7) Public involvement 8) Safe and healthy water ways for recreation, fishing, swimming, etc.
2. Water quality monitoring

Professional Monitoring:

Volunteer Monitoring:
# Professional Monitoring

<table>
<thead>
<tr>
<th></th>
<th>Nitrogen Concentration (mg/L)</th>
<th>Phosphorous Concentration (mg/L)</th>
<th>E. Coli Concentration (colonies/100ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average</td>
<td>High</td>
<td>Average</td>
</tr>
<tr>
<td>PS1</td>
<td>1.47</td>
<td>2.27</td>
<td>0.06</td>
</tr>
<tr>
<td>PS2</td>
<td>0.80</td>
<td>2.06</td>
<td>0.04</td>
</tr>
<tr>
<td>PS3</td>
<td>0.93</td>
<td>1.96</td>
<td>0.04</td>
</tr>
<tr>
<td>PS4</td>
<td>0.71</td>
<td>1.20</td>
<td>0.03</td>
</tr>
<tr>
<td>PS5</td>
<td>0.40</td>
<td>0.70</td>
<td>0.04</td>
</tr>
<tr>
<td>PS6</td>
<td>0.61</td>
<td>1.30</td>
<td>0.05</td>
</tr>
<tr>
<td>PS7</td>
<td>0.64</td>
<td>1.31</td>
<td>0.06</td>
</tr>
<tr>
<td>PS8</td>
<td>0.77</td>
<td>1.76</td>
<td>0.05</td>
</tr>
<tr>
<td>PS9</td>
<td>0.71</td>
<td>2.02</td>
<td>0.04</td>
</tr>
<tr>
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<td>1.55</td>
<td>0.03</td>
</tr>
<tr>
<td>PS11</td>
<td>0.75</td>
<td>1.50</td>
<td>0.05</td>
</tr>
<tr>
<td>PS12</td>
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<tr>
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<td>0.16</td>
</tr>
<tr>
<td>PS14</td>
<td>0.29</td>
<td>1.03</td>
<td>0.04</td>
</tr>
<tr>
<td>PS15</td>
<td>0.83</td>
<td>2.08</td>
<td>0.04</td>
</tr>
</tbody>
</table>

- Exceeds Indiana Average - 0.05 mg/L
- Exceeds Indiana Target - <235 CFU/100 ml
## EXAMPLE OF CRITICAL AREAS

<table>
<thead>
<tr>
<th>Cause/Source (Activity/Behavior)</th>
<th>Indicators</th>
<th>Benchmark/Supporting Data Sources</th>
<th>Critical Area/Issue</th>
<th>High Priority Locations In watershed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trampling of Stream Banks from Livestock</td>
<td>Stream Bank Erosion</td>
<td>Windshield Data Survey</td>
<td>Cattle access to creeks was observed in more than ½ of the creeks in the survey</td>
<td>Priority locations to reduce trampling of banks by livestock are the following 14 digit subwatersheds: 05120207010030-Camp Creek-Big Creek 05120207010060-Harberts Creek-Big Creek 05120207010070-Little Creek-Headwaters 05120207010080-Ramsey Creek 05120207010090-Little Creek-Chicken Run 05120207010100-Big Creek-Walton Creek 05120207010110-Neils Creek 05120207010120-Big Creek/Lewis Creek 05120207030020-Coffee Creek</td>
</tr>
<tr>
<td>Turbidity Levels</td>
<td>Professional&amp; Volunteer Water Quality Monitoring</td>
<td></td>
<td>Turbidity levels, indicating sedimentation, were greater at the lower Muscatatuck River testing sites resulting from upstream cattle access to tributaries</td>
<td></td>
</tr>
</tbody>
</table>
Concern of Steering Committee: Critical area should not override opportunity to improve the watershed

7.3 Critical Area/Issue Designations

The steering committee prioritized the following critical area/issue designations, which are presented in order of their priority, through discussion, their knowledge and analysis of the compiled project data. **It is not the steering committee’s intention that critical area/issue designations preclude all other best management practice measures within the watershed in non-critical areas/issues, should opportunities arise that would improve the health of the watershed, upon situational review.** However, implementation funding and efforts will be primarily focused and ranked on the following main, specific critical area/issue designations within the watershed:
Example

Legend - Region 2
- Streams
- Cities
- Central Muscatatuck Watershed
- Region 6
- Region 5
- Region 4
- Region 3
- Region 1
- Confined Feeding Operation

Land Use
- Developed: Agriculture, Pasture/Grassland (9.32%)
- Developed: Agriculture, Row Crop (47.96%)
- Developed: High Density Urban (<1%)
- Developed: Low Density Urban (<1%)
- Developed: Non-Vegetated (<1%)
- Wetland: Sparsely Vegetated or Non-Vegetated (<1%)
- Wetland: Forest and Shrubland (4.76%)
- Terrestrial: Deciduous Shrubland (<1%)
- Terrestrial: Deciduous Forest (38.17%)
- Water (<1%)
- Counties

This Map intended for educational display purposes only
DO NOT MISS OUT ON OPPORTUNITIES

• The SW section of this region's land use looks fairly wooded and most data indicates that it is not very impaired.

• Although windshield survey indicated that there are some areas of heavy livestock grazing along wooded streams with livestock access to stream.
  – So the main goal is to not exclude an area that might have say 200 cattle that could be improved even though it is not in the designated critical watersheds.
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