Biological Monitoring Data Form for Rocky Bottom Method

Name of Stream: Gupton Run
Site ID: C2-GR-01

Your Name: Rebecca Shoer
Name of Certified Monitor(s): Rebecca Shoer

Group or Organization Name: Izaak Walton League
Number of Participants: 3

Latitude: 38.694926
Longitude: -77.726912

County/State: Caroline County, VA
Survey Date: 7/2/2020
Start Time: 1:30PM
End Time: 4:00PM

Description of Site Location: Park on Kelly Meadows Ln, walk 600 feet downstream. First riffle after large boulder.

ROCKY BOTTOM SAMPLING
Using a kick-sieve net, take up to four samples in the riffle area of 20 to 90 seconds each (75% of the time rubbing rocks, 25% of the time disturbing the streambed). Adjust the length of the sampling period to ensure you collect at least 200 macroinvertebrates. Write the length of each sampling period in seconds and place a check mark next to the net mesh size used.

Net 1______sec  Net 2______sec  Net 3______sec  Net 4______sec  Net mesh size:
1/16"  1/32"  1/50"

PHYSICAL CONDITIONS (check all that apply)

Today: ☑ Sunny  ☐ Overcast  ☐ Intermittent Rain  ☐ Steady Rain  ☐ Heavy Rain  ☐ Snow
Yesterday: ☐ Sunny  ☑ Overcast  ☐ Intermittent Rain  ☐ Steady Rain  ☐ Heavy Rain  ☐ Snow
Day Before Yesterday: ☐ Sunny  ☑ Overcast  ☐ Intermittent Rain  ☐ Steady Rain  ☐ Heavy Rain  ☐ Snow

Water Temperature 15°F or 6°C
Avg. Stream Width 10 ft.
Avg. Stream Depth 6 in.
Flow Rate low (high, normal, low, negligible)

OTHER COMMENTS
Lots of new erosion, fallen tree upstream of site.
<table>
<thead>
<tr>
<th>Macroinvertebrate</th>
<th>Tally</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alderflies, Fishflies, and Hellgrammites</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Leeches</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Lunged Snails</td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>Mayflies</td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>Midges</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>Clams</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Common Netspinning Caddisflies</td>
<td></td>
<td>18</td>
</tr>
<tr>
<td>Scuds</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Sowbugs</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>Stoneflies</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>True Flies</td>
<td></td>
<td>18</td>
</tr>
<tr>
<td>Worms</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Other benthic macroinvertebrates</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Total number of organisms in the sample (include &quot;other&quot; category)</td>
<td></td>
<td>237</td>
</tr>
</tbody>
</table>

**MACROINVERTEBRATE COUNT**

- **Alderflies, Fishflies, and Hellgrammites**: 3
- **Leeches**: 2
- **Lunged Snails**: 7
- **Mayflies**: 20
- **Midges**: 10
- **Clams**: 2
- **Common Netspinning Caddisflies**: 78
- **Crayfish**: 3
- **Stoneflies**: 15
- **True Flies**: 10
- **Worms**: 18
- **Other benthic macroinvertebrates**: 2
- **Total number of organisms in the sample (include “other” category)**: 237
### INDIVIDUAL METRICS

<table>
<thead>
<tr>
<th>Metric</th>
<th>Organism Groups</th>
<th>Number of Organisms</th>
<th>Total Number of Organisms in the Sample</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metric 1</td>
<td>Mayflies + Stoneflies + Most Caddisflies (not Common Netspinning)</td>
<td>42</td>
<td>237</td>
<td>17.7%</td>
</tr>
<tr>
<td>Metric 2</td>
<td>Common Netspinning Caddisflies</td>
<td>78</td>
<td>237</td>
<td>32.9%</td>
</tr>
<tr>
<td>Metric 3</td>
<td>Lunged Snails</td>
<td>0</td>
<td>237</td>
<td>0%</td>
</tr>
<tr>
<td>Metric 4</td>
<td>Beetles</td>
<td>7</td>
<td>237</td>
<td>2.9%</td>
</tr>
</tbody>
</table>

### Metric 5: Tolerant

<table>
<thead>
<tr>
<th>Organism Groups</th>
<th>Number of Organisms</th>
<th>Total Tolerant</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black Flies</td>
<td>30</td>
<td>91</td>
<td>38.4%</td>
</tr>
<tr>
<td>Clams</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dragonflies and Damselflies</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flatworms</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leeches</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lunged Snails</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Midge</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scuds</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sowbugs</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Worms</td>
<td>18</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Tolerant**

| Total number of organisms in sample | 237 | |

**Percent**

(This is your value for Metric 5.)

### Metric 6: Non-Insect

<table>
<thead>
<tr>
<th>Organism Groups</th>
<th>Number of Organisms</th>
<th>Total Tolerant</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clams</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crayfish</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flatworms</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gilled Snails</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leeches</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lunged Snails</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scuds</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sowbugs</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Worms</td>
<td>18</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Tolerant**

| Total number of organisms in sample | 237 | |

**Percent**

(This is your value for Metric 6.)

16.0%
## MULTIMETRIC INDEX (STREAM HEALTH SCORE)

<table>
<thead>
<tr>
<th>Metric Number</th>
<th>Metric Organism</th>
<th>Your Metric Value</th>
<th>2</th>
<th>1</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mayflies + Stoneflies + Most Caddisflies</td>
<td>17.7</td>
<td>16.1 – 32.2</td>
<td>19.7 – 34.5</td>
<td>Greater than 32.2</td>
</tr>
<tr>
<td>2</td>
<td>Caddisflies: Common Netspinning</td>
<td>32.9</td>
<td>0.3 – 1.5</td>
<td>3.2 – 6.4</td>
<td>Less than 0.3</td>
</tr>
<tr>
<td>3</td>
<td>Snails: Lunged</td>
<td>0</td>
<td>46.7 – 61.5</td>
<td>5.4 – 20.8</td>
<td>Greater than 46.7</td>
</tr>
<tr>
<td>4</td>
<td>Beetles</td>
<td>2.9</td>
<td>19.7 – 34.5</td>
<td>Greater than 6.4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Tolerant</td>
<td>38.4</td>
<td>Greater than 46.7</td>
<td>16.0</td>
<td>Less than 5.4</td>
</tr>
<tr>
<td>6</td>
<td>Non-Insects</td>
<td>16.0</td>
<td>46.7 – 61.5</td>
<td>Greater than 20.8</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th><strong>Total # of 2s:</strong> 2</th>
<th><strong>Total # of 1s:</strong> 3</th>
<th><strong>Total # of 0s:</strong> 1</th>
</tr>
</thead>
</table>

**SUBTOTALS**

|                | Multiply by 2: 4 | Multiply by 1: 3 | Multiply by 0: 0 |

Add the three subtotals to get the Save Our Streams Multimetric Index Score: 7

- ☐ Acceptable Ecological Condition (9 – 12)
- ☐ Ecological conditions cannot be determined at this time (8)
- ✅ Unacceptable Ecological Condition (0 – 7)
### Fish water quality indicators:
- [ ] scattered individuals
- [ ] scattered schools
- [ ] trout (pollution sensitive)
- [ ] bass (somewhat sensitive)
- [ ] catfish (pollution tolerant)
- [ ] carp (pollution tolerant)

### Barriers to fish movement:
- [ ] beaver dams
- [ ] man-made dams
- [X] none
- [ ] other __________

### Surface water appearance:
- [ ] clear
- [ ] clear, but tea-colored
- [X] colored sheen (oily)
- [ ] foamy
- [ ] milky
- [ ] muddy
- [ ] black
- [ ] grey
- [ ] other __________

### Streambed deposit (bottom):
- [ ] grey
- [ ] orange/red
- [ ] yellow
- [ ] black
- [ ] brown
- [ ] brown
- [ ] silt
- [ ] sand
- [ ] other __________

### Odor:
- [ ] musky
- [ ] oil
- [ ] sewage
- [ ] other __________
- [X] none

### Stability of streambed (bed sinks beneath your feet in):
- [X] no spots
- [ ] a few spots
- [ ] many spots

### Algae appearance:
- [X] light green
- [ ] dark green
- [ ] brown coated
- [ ] matted on stream bed
- [ ] hairy

### Algae located:
- [ ] everywhere
- [ ] in spots
- [ ] 15 % bed covered

### Stream channel shade:
- [ ] More than 75% full
- [X] 50% - 74% high
- [ ] 25% - 49% moderate
- [ ] 1% - 24% slight
- [ ] none

### Streambank composition (=100%):
- [ ] 15 _____% trees
- [ ] 30 _____% shrubs
- [ ] 5 _____% grass
- [ ] 45 _____% bare soil
- [ ] 5 _____% rocks
- [ ] other __________

### Streambank erosion:
- [ ] More than 75% severe
- [X] 50% - 75% high
- [ ] 25% - 49% moderate
- [ ] 1% - 24% slight
- [ ] none

### Riffle composition (=100%):
- [ ] 15 _____% silt (mud)
- [ ] 15 _____% sand (1/16” – ¼” grains)
- [ ] 15 _____% gravel (1/4” – 2” stones)
- [ ] 55 _____% cobbles (2” – 10” stones)
- [ ] 55 _____% boulders (> 10” stones)

### Land uses in the watershed (upstream and surrounding sampling site):
Indicate whether the following land uses within a one-mile radius of your sampling site have a high (H), moderate (M), slight (S), or no (N) potential impact to the quality of your stream.

- [N] Oil & gas drilling
- [H] Housing developments
- [N] Forestry
- [M] Logging
- [H] Urban uses (parking lots, highways, etc.)
- [N] Sanitary landfill
- [H] Active construction
- [N] Mining (type:___________)
- [H] Agriculture (type:___________)
- [N] Trash dump
- [M] Fields
- [M] Livestock Pasture
- [ ] Other __________

### Comments:
Describe the amount and type of litter in and around the stream and indicate the current and potential future threats to the stream’s health.

No visible litter, but erosion seems to be getting worse. Construction upstream may be contributing sediment and stormwater runoff.

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Please send your data sheets to your regional coordinator or submit them online at www.vasos.org. If you have any questions about this protocol, please contact the VA SOS Coordinator at vasos@iwla.org. Data sheets must be stored for five years after sampling. If you are unable to keep your datasheets, please contact the VA SOS Coordinator.