Biological Monitoring Data Form for Rocky Bottom Method

Name of Stream: _____________________________________________________ Site ID:______________

Your Name: _______________________________ Name of Certified Monitor(s):________________________

Group or Organization Name: ______________________________ Number of Participants:________________

Latitude: __________________________________ Longitude:_____________________________________

County/State: ___________________ Survey Date:__________ Start Time: _________ End Time: __________

Description of Site Location: _________________________________________________________________

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 _____F° or C°   Avg. Stream Width _____ft.   Avg. Stream Depth _____in.   Flow Rate ______
(circle F° or C°) (high, normal, low, negligible)

OTHER COMMENTS

_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
<table>
<thead>
<tr>
<th>Macroinvertebrate</th>
<th>Tally</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alderflies, Fishflies,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>and Hellgrammites</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leeches</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lunged Snails</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mayflies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Midges</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scuds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sowbugs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stoneflies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>True Flies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Worms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other benthic macroinvertebrates</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of organisms in</td>
<td></td>
<td></td>
</tr>
<tr>
<td>the sample (include “other”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>category)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 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>$\div$</td>
<td>Multiply by 100</td>
<td>_________%</td>
</tr>
<tr>
<td>Metric 2</td>
<td>Common Netspinning Caddisflies</td>
<td>$\div$</td>
<td>Multiply by 100</td>
<td>_________%</td>
</tr>
<tr>
<td>Metric 3</td>
<td>Lunged Snails</td>
<td>$\div$</td>
<td>Multiply by 100</td>
<td>_________%</td>
</tr>
<tr>
<td>Metric 4</td>
<td>Beetles</td>
<td>$\div$</td>
<td>Multiply by 100</td>
<td>_________%</td>
</tr>
</tbody>
</table>

### Metric 5: Tolerant

<table>
<thead>
<tr>
<th>Organism Groups</th>
<th>Number of Organisms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black Flies</td>
<td>_________________</td>
</tr>
<tr>
<td>Clams</td>
<td>_________________</td>
</tr>
<tr>
<td>Dragonflies and Damselflies</td>
<td>_________________</td>
</tr>
<tr>
<td>Flatworms</td>
<td>_________________</td>
</tr>
<tr>
<td>Leeches</td>
<td>_________________</td>
</tr>
<tr>
<td>Lunged Snails</td>
<td>_________________</td>
</tr>
<tr>
<td>Midge</td>
<td>_________________</td>
</tr>
<tr>
<td>Scuds</td>
<td>_________________</td>
</tr>
<tr>
<td>Sowbugs</td>
<td>_________________</td>
</tr>
<tr>
<td>Worms</td>
<td>_________________</td>
</tr>
</tbody>
</table>

**Total Tolerant**

\[ \frac{\text{Total number of organisms in sample}}{\div} \]

**Percent**

(This is your value for Metric 5.)

\[ \text{Multiply by 100} \]

---

### Metric 6: Non-Insect

<table>
<thead>
<tr>
<th>Organism Groups</th>
<th>Number of Organisms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clams</td>
<td>_________________</td>
</tr>
<tr>
<td>Crayfish</td>
<td>_________________</td>
</tr>
<tr>
<td>Flatworms</td>
<td>_________________</td>
</tr>
<tr>
<td>Gilled Snails</td>
<td>_________________</td>
</tr>
<tr>
<td>Leeches</td>
<td>_________________</td>
</tr>
<tr>
<td>Lunged Snails</td>
<td>_________________</td>
</tr>
<tr>
<td>Scuds</td>
<td>_________________</td>
</tr>
<tr>
<td>Sowbugs</td>
<td>_________________</td>
</tr>
<tr>
<td>Worms</td>
<td>_________________</td>
</tr>
</tbody>
</table>

**Total Tolerant**

\[ \frac{\text{Total number of organisms in sample}}{\div} \]

**Percent**

(This is your value for Metric 5.)

\[ \text{Multiply by 100} \]

\[ \text{_______ %} \]
### 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>Greater than 32.2</td>
<td>16.1 – 32.2</td>
<td></td>
<td>Less than 16.1</td>
</tr>
<tr>
<td>2</td>
<td>Caddisflies: Common Netspinning</td>
<td>Less than 19.7</td>
<td>19.7 – 34.5</td>
<td></td>
<td>Greater than 34.5</td>
</tr>
<tr>
<td>3</td>
<td>Snails: Lunged</td>
<td>Less than 0.3</td>
<td>0.3 – 1.5</td>
<td></td>
<td>Greater than 1.5</td>
</tr>
<tr>
<td>4</td>
<td>Beetles</td>
<td>Greater than 6.4</td>
<td>3.2 – 6.4</td>
<td></td>
<td>Less than 3.2</td>
</tr>
<tr>
<td>5</td>
<td>Tolerant</td>
<td>Less than 46.7</td>
<td>46.7 – 61.5</td>
<td></td>
<td>Greater than 61.5</td>
</tr>
<tr>
<td>6</td>
<td>Non-Insects</td>
<td>Less than 5.4</td>
<td>5.4 – 20.8</td>
<td></td>
<td>Greater than 20.8</td>
</tr>
</tbody>
</table>

**Total # of 2s: __________________**  
**Total # of 1s: __________________**  
**Total # of 0s: __________________**

**SUBTOTALS**  
Multiply by 2: __________________  
Multiply by 1: __________________  
Multiply by 0: __________________

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

- [ ] Acceptable Ecological Condition (9 – 12)
- [ ] Ecological conditions cannot be determined at this time (8)
- [x] Unacceptable Ecological Condition (0 – 7)
**STREAM CONDITIONS**

**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
- waterfalls (> 1 ft.)
- none
- other _________

**Surface water appearance:**
- clear
- clear, but tea-colored
- colored sheen (oily)
- foamy
- milky
- muddy
- black
- grey
- other _________

**Streambed deposit (bottom):**
- grey
- orange/red
- yellow
- black
- brown
- silt
- sand
- other _________

**Odor:**
- musky
- oil
- sewage
- other _________
- none

**Surface water appearance:**
- clear
- clear, but tea-colored
- colored sheen (oily)
- foamy
- milky
- muddy
- black
- grey
- other _________

**Stability of streambed (bed sinks beneath your feet in):**
- no spots
- a few spots
- many spots

**Odor:**
- musky
- oil
- sewage
- other _________
- none

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

**Streambank composition (=100%):**
- ______% trees
- ______% shrubs
- ______% grass
- ______% bare soil
- ______% rocks
- ______% other

**Streambank erosion:**
- More than 75% severe
- 50% - 75% high
- 25% - 49% moderate
- 1% - 24% slight
- none

**Riffle composition (=100%):**
- ______% silt (mud)
- ______% sand (1/16” – ¼” grains)
- ______% gravel (1/4” – 2” stones)
- ______% cobbles (2” – 10” stones)
- ______% boulders (> 10” stones)

**Algae appearance:**
- light green
- dark green
- brown coated
- hairy

**Algae located:**
- everywhere
- in spots
- _____ % bed covered

**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.

- Oil & gas drilling
- Urban uses (parking lots, highways, etc.)
- Agriculture (type:__________)
- Sanitary landfill
- Trash dump
- Fields
- Active construction
- Mining (type:__________)
- 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.

____________________________________________________________________________________
____________________________________________________________________________________

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.