



IZAAK WALTON LEAGUE OF AMERICA



## 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-siense 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 \_\_\_\_\_

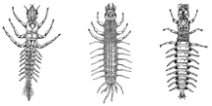



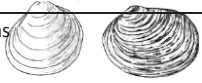





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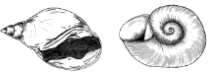



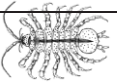
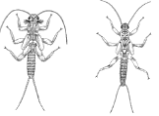

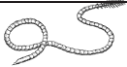
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## MACROINVERTEBRATE COUNT

Macroinvertebrate	Tally	Count
Alderflies, Fishflies, and Hellgrammites 		
Beetles 		
Black Flies 		
Caddisflies (not Common Netspinning)		
		
Clams 		
Common Netspinning Caddisflies 		
Crayfish 		
Dragonflies and Damselflies 		
Flat Worms 		
Gilled Snails 		

Macroinvertebrate	Tally	Count
Leeches 		
Lunged Snails 		
Mayflies 		
Midges 		
Scuds 		
Sowbugs 		
Stoneflies 		
True Flies 		
Worms 		
Other benthic macroinvertebrates		
Total number of organisms in the sample (include "other" category)		

# FOMR FAMILY LEVEL BENTHIC DATA

(Class/Order/Family)	Total	# Individuals	(Class/Order/Family)	Total	# Individuals
<b>NON-INSECTS</b>			<b>Trichoptera (Caddisflies)</b>		
Turbellaria (Flatworms)			Hydropsychidae (Netspinner)		
Hirudinea (Leeches)			Philopotamidae (Fingernet)		
Oligochaeta (Worms)			Polycentropodidae (Tube Net)		
Amphipoda (Scuds)- <b>preserve</b>			Rhyacophilidae (Free-living)		
Decapoda (Crayfish)			Brachycentridae (Humplless)- <b>preserve</b>		
Asellidae (Sow Bugs)			Hydroptilidae (Micro)- <b>preserve</b>		
Unionacea (Mussels)- <b>return to stream</b>			Glossosomatidae (Saddlecase)- <b>preserve</b>		
Corbiculidae (Asian Clams)			Heliocepsydae (Snailcase)- <b>preserve</b>		
Sphaeriidae (Pea Clams)			<b>Diptera (True Flies)</b>		
Pleuroceridae (Pleurocerid Snails)			Athericidae (Watersnipe)		
Hydrobiidae (Hydrobiid Snails)			Chironomidae (Midge)		
Ancylidae (Ancylid Snails-lunged)			Simuliidae (Black)		
<b>INSECTS</b>			Tabnidae (Horse/Deer)		
<b>Plecoptera (Stonefly)</b>			Tipuliidae (Crane)		
Capniidae (Small Winter)			<b>Megaloptera</b>		
Chloroperlidae (Green)			Corydalidae (Dobson/Fishflies)		
Nemouridae (Nemourid)			Slalidae (Alderflies)		
Perlidae (Common)			<b>Coleoptera (Water Beetles)</b>		
Perlodidae (Perlodid)			Dytiscidae (Predaceous Diving)		
Taeniopterygidae (Winter)			Elmidae (Riffle Beetle Adult)		
<b>Ephemoptera (Mayfly)</b>			Elmidae (Riffle Beetle Larva)		
Baetidae (Small Minnow)			Haliplidae (Crawling)		
Caenidae (Small Squaregills)			Hydrophilidae (Water Scavenger)		
Ephemerellidae (Spiny Crawler)			Psephenidae (Water Penny)		
Ephemeridae (Common Burrower)			<b>Odonata (Dragon &amp; Damselflies)</b>		
Heptageniidae (Flatheaded)			Gomphidae (Clubtails)		
Leptophlebiidae (Pronggilled)			Aeshnidae (Darners)		
Isonychiidae (Brushlegged)			Calopterygidae (BW-damselflies)		
Tricorythidae (Little Stout Crawlers)			Coenagrionidae (NW-damselflies)		
<b><u>Preserve all Unknowns, Case Makers and Scuds. (Do not record.) Thanks.</u></b>			<b>OTHER ORGANISMS</b>		
<b>Total</b>			<b>Grand Total</b>		

INDIVIDUAL METRICS

	Organism Groups	Number of Organisms		Total Number of Organisms in the Sample		Percent <i>(This is your value for this metric.)</i>
Metric 1	Mayflies + Stoneflies + Most Caddisflies ( <i>not</i> Common Netspinning)		÷		Multiply by 100	_____ %
Metric 2	Common Netspinning Caddisflies		÷		Multiply by 100	_____ %
Metric 3	Lunged Snails		÷		Multiply by 100	_____ %
Metric 4	Beetles		÷		Multiply by 100	_____ %

Metric 5: Tolerant

Organism Groups	Number of Organisms
Black Flies	_____
Clams	_____
Dragonflies and Damselflies	_____
Flatworms	_____
Leeches	_____
Lunged Snails	_____
Midges	_____
Scuds	_____
Sowbugs	_____
Worms	_____

Total Tolerant	_____
	divided by
Total number of organisms in sample	_____
	multiply by 100
Percent <i>(This is your value for Metric 5.)</i>	_____ %

Metric 6: Non-Insect

Organism Groups	Number of Organisms
Clams	_____
Crayfish	_____
Flatworms	_____
Gilled Snails	_____
Leeches	_____
Lunged Snails	_____
Scuds	_____
Sowbugs	_____
Worms	_____

Total Tolerant	_____
	divided by
Total number of organisms in sample	_____
	multiply by 100
Percent <i>(This is your value for Metric 6.)</i>	_____ %

MULTIMETRIC INDEX (STREAM HEALTH SCORE)

Metric Number	Metric Organism	Your Metric Value	2	1	0
1	Mayflies + Stoneflies + Most Caddisflies		Greater than 32.2	16.1 – 32.2	Less than 16.1
2	Caddisflies: Common Net-spinning		Less than 19.7	19.7 – 34.5	Greater than 34.5
3	Snails: Lunged		Less than 0.3	0.3 – 1.5	Greater than 1.5
4	Beetles		Greater than 6.4 _____	3.2 – 6.4 _____	Less than 3.2 _____
5	Tolerant		Less than 46.7 _____	46.7 – 61.5 _____	Greater than 61.5 _____
6	Non-Insects		Less than 5.4 _____	5.4 – 20.8 _____	Greater than 20.8 _____
			<b>Total # of 2s:</b> _____	<b>Total # of 1s:</b> _____	<b>Total # of 0s:</b> _____
		<b>SUBTOTALS</b>	<b>Multiply by 2:</b> _____	<b>Multiply by 1:</b> _____	<b>Multiply by 0:</b> _____

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)

Unacceptable Ecological Condition (0 – 7)

## STREAM CONDITIONS

<b>Fish water quality indicators:</b> scattered individuals scattered schools trout (pollution sensitive) bass (somewhat sensitive) catfish (pollution tolerant) carp (pollution tolerant)	<b>Barriers to fish movement:</b> beaverdams man-made dams waterfalls (> 1 ft.) none other _____	<b>Surface water appearance:</b> clear clear, but tea-colored colored sheen (oily) foamy milky muddy black grey other _____	<b>Streambed deposit (bottom):</b> grey orange/red yellow black brown silt sand other _____
<b>Odor:</b> musky oil sewage other _____ none	<b>Stability of streambed</b> (bed sinks beneath your feet in): no spots a few spots many spots	<b>Algae appearance:</b> light green darkgreen brown coated matted on stream bed hairy	<b>Algae located:</b> everywhere in spots _____ % bed covered
<b>Stream channel shade:</b> More than 75% full 50% - 74% high 25% - 49% moderate 1% - 24% slight none	<b>Streambank composition (=100%):</b> _____ % trees _____ % shrubs _____ % grass _____ % bare soil _____ % rocks _____ % other	<b>Streambank erosion:</b> More than 75% severe 50% - 75% high 25% - 49% moderate 1% - 24% slight none	<b>Riffle composition (=100%):</b> _____ % silt (mud) _____ % sand (1/16" – 1/4" grains) _____ % gravel (1/4" – 2" stones) _____ % cobbles (2" – 10" stones) _____ % 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.

____ Oil & gas drilling	____ Urban uses (parking lots, highways, etc.)	____ Agriculture (type: _____)
____ Housing developments	____ Sanitary landfill	____ Trash dump
____ Forestry	____ Active construction	____ Fields
____ Logging	____ 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](http://www.vasos.org). If you have any questions about this protocol, please contact the VA SOS Coordinator at [vasos@iwla.org](mailto: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.