VIRGINIA SAVE OUR STREAMS IZAAK WALTON LEAGUE OF AMERICA

PAGE 1-Biological Monitoring Data Form for Rocky Bottom

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-siene 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"

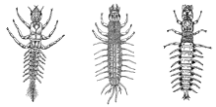
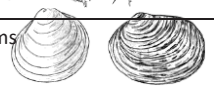
PHYSICAL CONDITIONS (check all that apply)

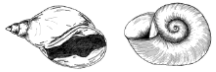
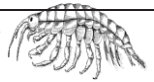
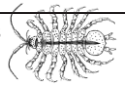
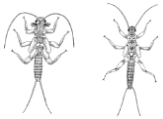
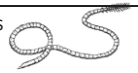
Today:	Sunny	Overcast	Intermittent Rain	Steady Rain	Heavy Rain	Snow
Yesterday:	Sunny	Overcast	Intermittent Rain	Steady Rain	Heavy Rain	Snow
Day Before Yesterday:	Sunny	Overcast	Intermittent Rain	Steady Rain	Heavy Rain	Snow

Water Temperature_____ F° or C° (circle Fº or Cº) Avg. Stream Width_____ft. Avg. Stream Depth_____in. Flow Rate _____ (high, normal, low, negligible)

OTHER COMMENTS_____

PAGE 2- MACROINVERTEBRATE COUNT (Tally Sheet)

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)		

PAGE 3- FOMR FAMILY LEVEL BENTHIC DATA (Data Sheet)

(Class/Order/Family)	Total	# Individuals
NON-INSECTS		
Turbellaria (Flatworms)		
Hirudinea (Leeches)		
Oligochaeta (Worms)		
*Amphipoda (Scuds)-**preserve***		
Decapoda (Crayfish)		
Asellidae (Sow Bugs)		
*Unionacea (Mussels)-**return to stream***		
Corbiculidae (Asian Clams)		
Sphaeriidae (Pea Clams)		
Pleuroceridae (Pleurocerid Snail-gil)		
Hydrobiidae (Hyrdrobiid Snail-gil)		
Ancylidae (Ancylid Snails-lunged)		
INSECTS		
Plecoptera (Stonefly)		
Capniidae (Small Winter)		
Chloroperlidae (Green)		
Nemouridae (Nemourid)		
Perlidae (Common)		
Perlodidae (Perlodid)		
Taeniopterygidae (Winter)		
Ephemoptera (Mayfly)		
Baetidae (Small Minnow)		
Caenidae (Small Squaregills)		
Ephemerellidae (Spiny Crawler)		
Ephemeridae (Common Burrower)		
Heptageniidae (Flatheaded)		
Leptophlebiidae (Pronggilled)		
Isonychiidae (Brushlegged)		
Leptohyphidae (Little Stout Crawlers)		
<u>Preserve all Unknowns, Case Makers and Scuds</u> (do not record on this sheet). *Thanks.*		
Total		

(Class/Order/Family)	Total	# Individuals
Trichoptera (Caddisflies)		
Hydropsychidae (Netspinner)		
Philopotamidae (Fingernet)		
Polycentropodidae (Tube Net)		
Rhyacophilidae (Free-living)		
*Brachycentridae (Humpless)-**preserve***		
*Hydroptilidae (Micro)- **preserve***		
*Glossosomatidae (Saddlecase)- **preserve***		
*Helicopsychidae (Snailcase)- **preserve***		
Diptera (True Flies)		
Athericidae (Watersnipe)		
*Chironomidae (Midge**)***		
Simuliidae (Black)		
Tabnidae (Horse/Deer)		
Tipuliidae (Crane)		
Megaloptera (Dobson & Alderflies)		
Corydalidae (Dobson/Fishflies)		
Slalidae (Alderflies)		
Coleoptera (Water Beetles)		
Dytiscidae (Predaceous Diving)		
Elmidae (Riffle Beetle Adult)		
Elmidae (Riffle Beetle Larva)		
Haliplidae (Crawling)		
Hydrophilidae (Water Scavenger)		
Psephenidae (Water Penny)		
Odonata (Dragon & Damselflies)		
Gomphidae (Clubtails)		
Aeshnidae (Darners)		
Calopterygidae (BW Damselflies)		
Coenagrionidae (NW Damselflies)		
OTHER ORGANISMS		
Grand Total		

PAGE 4- INDIVIDUAL METRICS

	Organism Groups	Number of Organisms		Total Number of Organisms in the Sample		Percent *(This is your value for this metric.)*
Metric 1	Mayflies + Stoneflies + Most Caddisflies (*not* 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 _____%
(This is your value for Metric 5.)

Metric 6: Non-Insect

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

Total Non-Insect _____

divided by

Total number of organisms in sample _____

multiply by 100

Percent _____%
(This is your value for Metric 6.)

PAGE 5- 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	Caddiflies: Common Netspinning		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
			Total # of 2s:	**Total # of 1s:**	**Total # of 0s:**
		SUBTOTALS	**Multiply by 2:**	**Multiply by 1:**	**Multiply by 0:**

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)

PAGE 6- 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	**Stability of streambed** (bed sinks beneath your feet in): no spots a few spots many spots	**Algae appearance:** light green dark green brown coated matted on stream bed hairy	**Algae located:** everywhere in spots ____ % bed covered
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)

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
____Housing developments
____Forestry
____Logging
____Urban uses (parking lots, highways, etc.)
____Sanitary landfill
____Active construction
____Mining (type:_____)
____Agriculture (type:_____)
____Trash dump
____Fields
____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.