



Biological Monitoring Data Form for Muddy Bottom Method

Name of Stream: _____ Station ID: _____

Name of Certified Monitor(s): _____

Group/Organization: _____ Number of Participants: _____

Latitude: _____ Longitude: _____

County/State: _____

Survey Date: _____ Start Time: _____ End Time: _____

Description of Site Location: _____

MUDDY BOTTOM SAMPLING

Record the number of jabs taken from each habitat type (20 jabs total). Total jabs taken from a particular habitat type should be proportionate to the overall percentage of the habitat type in the sample area.

Banks _____ Woody Snags _____

Riffles (Cobble Areas) _____ Submerged Aquatic Vegetation _____

PHYSICAL CONDITIONS (check all that apply)









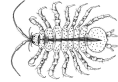





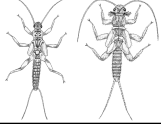





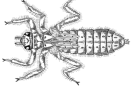
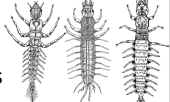
Today: ☐ Sunny ☐ Overcast ☐ Intermittent Rain ☐ Steady Rain ☐ Heavy Rain ☐ Snow
Yesterday: ☐ Sunny ☐ Overcast ☐ Intermittent Rain ☐ Steady Rain ☐ Heavy Rain ☐ Snow
Day Before Yesterday: ☐ Sunny ☐ Overcast ☐ Intermittent Rain ☐ Steady Rain ☐ Heavy Rain ☐ Snow

Water Temperature: _____ °C Avg. Stream Width _____ ft.

Flow Rate: _____ (high, normal, low) Avg. Stream Depth _____ in.

OTHER COMMENTS

MACROINVERTEBRATE COUNT

Macroinvertebrate	Tally	Count	Macroinvertebrate	Tally	Count
Worms 			Common Netspinning Caddisflies 		
Flat Worms 			Most Caddisflies (not Netspinning) 		
Leeches 			Beetles (ex. riffle beetles, water pennies) 		
Crayfish 			Midges 		
Sowbugs 			Black Flies 		
Scuds 			True Bugs 		
Shrimp (Freshwater) 			True Flies (ex. crane flies, dance flies, watersnipes, etc) 		
Stoneflies 			Gilled Snails 		
Mayflies 			Lunged Snails 		
Dragonflies (not Gomphidae) and Damselflies 			Clams 		
Gomphidae (clubtail) Dragonfly 			Other benthic macroinvertebrates (ex. aquatic caterpillars) *If unknown, use online tools or SOS staff assistance to identify before submitting		
Alderflies, Fishflies, and Hellgrammites 			Total number of organisms in the sample (include "other benthic macroinvertebrates" in total)		

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 (<i>not Common Netspinning</i>)		÷		Multiply by 100	%
Metric 2	Gomphidae (clubtail) Dragonflies		÷		Multiply by 100	%

Metric 3: Tolerant

Organism Groups	Number of Organisms
Black Flies	
Clams	
Dragonflies and Damselflies	
Flatworms	
Leeches	
Lunged Snails	
Midges	
Scuds	
Sowbugs	
Worms	
Total Tolerant	
÷	
Total number of organisms in sample	
Multiply by 100	
Percent (This is your value for Metric 3.)	%

Metric 4: Non-Insect

Organism Groups	Number of Organisms
Clams	
Crayfish	
Flatworms	
Gilled Snails	
Leeches	
Lunged Snails	
Scuds	
Sowbugs	
Worms	
--	--
Total Non-Insect	
÷	
Total number of organisms in sample	
Multiply by 100	
Percent (This is your value for Metric 4.)	%

MULTIMETRIC INDEX (STREAM HEALTH SCORE)

	Metric Organism	Your Metric Value	6	3	0
Metric 1	Mayflies + Stoneflies+ Most Caddisflies		Greater than 7.8	0.85 - 7.8	Less than 0.85
Metric 2	Gomphidae (clubtail) Dragonflies		Greater than 0.5	0 - 0.5	0
Metric 3	Tolerant		Less than 63	63 - 85	Greater than 85
Metric 4	Non-Insects		Less than 27	27 - 70	Greater than 70
			Total # of 6s:	Total # of 3s:	Total # of 0s:
			Multiply by 6:	Multiply by 3:	Multiply by 0:
		SUBTOTALS			

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

- ☐ **Acceptable Ecological Condition (Greater than 14)**
- ☐ **Ecological conditions cannot be determined at this time/Grayzone (8 - 14)**
- ☐ **Unacceptable Ecological Condition (0 - 7)**

STREAM CONDITIONS

Fish water quality indicators: <input type="checkbox"/> scattered individuals <input type="checkbox"/> scattered schools <input type="checkbox"/> trout (pollution sensitive) <input type="checkbox"/> bass (somewhat sensitive) <input type="checkbox"/> catfish (pollution tolerant) <input type="checkbox"/> carp (pollution tolerant)	Barriers to fish movement: <input type="checkbox"/> beaver dams <input type="checkbox"/> man-made dams <input type="checkbox"/> waterfalls (> 1 ft.) <input type="checkbox"/> none <input type="checkbox"/> other _____	Surface water appearance: <input type="checkbox"/> clear <input type="checkbox"/> clear, but tea colored <input type="checkbox"/> colored sheen (oily) <input type="checkbox"/> foamy <input type="checkbox"/> milky <input type="checkbox"/> muddy <input type="checkbox"/> black <input type="checkbox"/> grey <input type="checkbox"/> other _____	Streambed deposit (bottom): <input type="checkbox"/> grey <input type="checkbox"/> orange/red <input type="checkbox"/> yellow <input type="checkbox"/> black <input type="checkbox"/> brown <input type="checkbox"/> silt <input type="checkbox"/> sand <input type="checkbox"/> other _____
Odor: <input type="checkbox"/> musky <input type="checkbox"/> oil <input type="checkbox"/> sewage <input type="checkbox"/> other _____ <input type="checkbox"/> none	Stability of streambed (bed sinks beneath your feet in): <input type="checkbox"/> no spots <input type="checkbox"/> a few spots <input type="checkbox"/> many spots	Algae color: <input type="checkbox"/> light green <input type="checkbox"/> dark green <input type="checkbox"/> brown coated <input type="checkbox"/> matted on stream bed <input type="checkbox"/> hairy	Algae located: <input type="checkbox"/> everywhere <input type="checkbox"/> in spots <input type="checkbox"/> % covered _____
Stream channel shade: <input type="checkbox"/> full (more than 75%) <input type="checkbox"/> high (50% - 74%) <input type="checkbox"/> moderate (25% - 49%) <input type="checkbox"/> slight (1% - 24%) <input type="checkbox"/> none	Streambank composition (=100%): _____ % trees _____ % shrubs _____ % grass _____ % bare soil _____ % rocks _____ % other	Streambank erosion: <input type="checkbox"/> severe (more than 75%) <input type="checkbox"/> high (50% - 74%) <input type="checkbox"/> moderate (25% - 49%) <input type="checkbox"/> slight (1% - 24%) <input type="checkbox"/> none	Riffle composition (=100%): _____ % silt (mud) _____ % sand (1/16" - 1/4" grains) _____ % gravel (1/4" - 2" stones) _____ % cobbles (2" - 10" stones) _____ % boulders (> 10" stones) (Not applicable to Muddy Bottom Streams)

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 datasheets to your regional coordinator or submit them online at www.vasos.org (For VA Monitors) or www.cleanwaterhub.org (For MD Monitors). If you have any questions about this protocol, please contact the Mid-Atlantic SOS Coordinator at vasos@iwa.org. Data sheets must be stored for five years after sampling. If you are unable to keep your datasheets, please contact the SOS Coordinator.