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

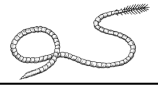
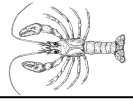
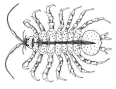
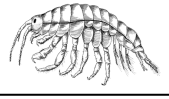
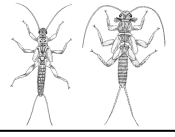
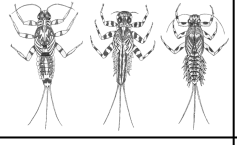
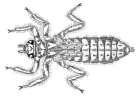
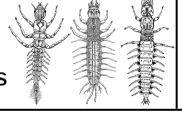
Day Before Yesterday: ☐ Sunny ☐ Overcast ☐ Intermittent Rain ☐ Steady Rain ☐ Heavy Rain ☐ Snow

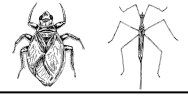
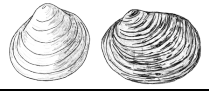
Water Temperature: _____ C° Avg. Stream Width _____ ft.

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

OTHER COMMENTS _____

MACROINVERTEBRATE COUNT

Macroinvertebrate	Tally	Count
Worms 		
Flat Worms 		
Leeches 		
Crayfish 		
Sowbugs 		
Scuds 		
Shrimp (Freshwater) 		
Stoneflies 		
Mayflies 		
Dragonflies (*not* Gomphidae) and Damselflies 		
Gomphidae (clubtail) Dragonfly 		
Alderflies, Fishflies, and Hellgrammites 		

Macroinvertebrate	Tally	Count
Common Netspinning Caddisflies 		
Most Caddisflies (not Netspinning) 		
Beetles (ex. riffle beetles, water pennies) 		
Midges 		
Black Flies 		
True Bugs 		
True Flies  (ex. crane flies, dance flies, watersnipes, etc) 		
Gilled Snails 		
Lunged Snails 		
Clams 		
Other benthic macroinvertebrates (ex. aquatic caterpillars) *If unknown, use online tools or SOS staff assistance to identify before submitting		
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 (*not Common Netspinning)*		÷		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:**
		SUBTOTALS	**Multiply by 6:**	**Multiply by 3:**	**Multiply by 0:**

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:	**Barriers to fish movement:**	**Surface water appearance:**	**Streambed deposit (bottom):**
☐ scattered individuals ☐ scattered schools ☐ trout (pollution sensitive) ☐ bass (somewhat sensitive) ☐ catfish (pollution tolerant) ☐ carp (pollution tolerant)	☐ beaver dams ☐ man-made dams ☐ waterfalls (> 1 ft.) ☐ none ☐ other_____	☐ clear ☐ clear, but tea colored ☐ colored sheen (oily) ☐ foamy ☐ milky ☐ muddy ☐ black ☐ grey ☐ other_____	☐ 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 color:** ☐ light green ☐ dark green ☐ brown coated ☐ matted on stream bed ☐ hairy	**Algae located:** ☐ everywhere ☐ in spots ☐ % covered_____
Stream channel shade: ☐ full (more than 75%) ☐ high (50% - 74%) ☐ moderate (25% - 49%) ☐ slight (1% - 24%) ☐ none	**Streambank composition (=100%):** _____ % trees _____ % shrubs _____ % grass _____ % bare soil _____ % rocks _____ % other	**Streambank erosion:** ☐ severe (more than 75%) ☐ high (50% - 74%) ☐ moderate (25% - 49%) ☐ slight (1% - 24%) ☐ 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 <u>one-mile radius</u> 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@iwla.org. Data sheets must be stored for five years after sampling. If you are unable to keep your datasheets, please contact the SOS Coordinator.