

## Benthic Macroinvertebrate Field Data Sheet (front)

Station ID: \_\_\_\_\_ Ecoregion: \_\_\_\_\_ Land Use: \_\_\_\_\_  
 Field Team: \_\_\_\_\_ Survey Reason: \_\_\_\_\_ Start Time: \_\_\_\_:\_\_\_\_  
 Stream Name: \_\_\_\_\_ Location: \_\_\_\_\_ Finish Time: \_\_\_\_:\_\_\_\_  
 Date: \_\_\_\_/\_\_\_\_/\_\_\_\_ Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_

### Stream Physicochemical Measurements

Instrument ID number: \_\_\_\_\_ pH: \_\_\_\_\_  
 Temperature: \_\_\_\_\_ °C Conductivity: \_\_\_\_\_ uS/cm  
 Dissolved Oxygen: \_\_\_\_\_ mg/l Did instrument pass all post-calibration checks? Y / N  
 If NO - which parameter(s) failed and action taken: \_\_\_\_\_

### Benthic Macroinvertebrate Collection

Method used (circle one)	Single Habitat (Riffle)	Multi Habitat (Logs, plants, etc)	
Riffle Quality (circle one)	Good	Marginal	Poor
Habitats sampled (circle one)	Riffle	Snags	Banks
# jabs			Vegetation
			Area Sampled (sq. m.): _____

### Weather Observations

Current Weather (circle one)	Cloudy	Clear	Rain/Snow	Foggy
Recent precipitation (circle one)	Clear	Showers	Rain	Storms
Stream flow (circle one)	Low	Normal	Above Normal	Flood
				Other _____

### Biological Observations

0 1 2 3	Periphyton	0 1 2 3	Salamanders	0 1 2 3	Other....
0 1 2 3	Filamentous algae	0 1 2 3	Warmwater Fish	0 1 2 3	_____
0 1 2 3	Submerged Macrophytes	0 1 2 3	Coldwater Fish	<b>0 = Absent</b>	
0 1 2 3	Emergent Macrophytes	0 1 2 3	Beavers	<b>1 = Sparse</b>	
0 1 2 3	Crayfish	0 1 2 3	Muskrats	<b>2 = Common to Abundant</b>	
0 1 2 3	Corbicula	0 1 2 3	Ducks/Geese	<b>3 = Dominant -</b>	
0 1 2 3	Unionidae	0 1 2 3	Snakes	abnormally high density where other taxa are insignificant in relation to the dominant taxa. There can be situations where multiple taxa are dominant such as algae and snails.	
0 1 2 3	Operculate Snails	0 1 2 3	Turtles		
0 1 2 3	Non-operculate Snails	0 1 2 3	Frogs/Tadpoles		

### NOTES:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## Low Gradient Habitat Data Sheet

	Optimal	Suboptimal	Marginal	Poor
<b>1. Epifaunal Substrate/Available Cover</b>	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e. logs/snags that are not new fall and not tranisent).r	40-70% mis of stable habitat; well suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of new fall, but not yet prepared for colinzation (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; sbstrate frequently disturbed or removed.	Less than 20% stable habitat lack of habitat is obvious; substrate unstable or lacking.
<b>SCORE</b>	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
<b>2. Pool Substrate</b>	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common..	Mixture of soft sand, mud, or clay; mud may be dominant some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or submerged vegetation.
<b>SCORE</b>	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
<b>3. Pool Variability</b>	Even mix of large-shallow, large-deep, small shallow, small deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools	Majority of pools small-shallow or pools absent.
<b>SCORE</b>	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
<b>4. Sediment Deposition</b>	Little or no enlargement of islands or point bars and less than 5% (<20% for low-gradient streams) of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment. 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50-80% for low-gradient) of the bottom affected; moderate dep. of pools	Dominated by 1 veolcity/depth regime (usually slow-deep).
<b>SCORE</b>	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

5. Channel Flow Status	Optimal	Suboptimal	Marginal	Poor
	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or 25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Channel Alteration	Optimal	Suboptimal	Marginal	Poor
	Channelization or dredging absent or minimal; stream with normal patter.	Some channelization present, usually in areas of bridge abutements; evidence of past channelization, i.e., dredging, (greater than past 20 yr.) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 - 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	Optimal	Suboptimal	Marginal	Poor
	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easilly rated in these areas).	The bends in the stream increase the stream length 2 to 3 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer then if it was in a straight line.	Channel straight; waterway has been channelized for a long distance.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Optimal	Suboptimal	Marginal	Poor
	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. < 5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable, 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas "raw" areas
SCORE LB	10 9	8 7 6	5 4 3	2 1 0
SCORE RB	10 9	8 7 6	5 4 3	2 1 0
9. Vegetative Protection (score each bank)	Optimal	Suboptimal	Marginal	Poor
	More than 90% of the stream bank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or non-woody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of stream bank surfaces covered by native vegetation, bnut one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the stream bank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble hieght remaining.	Less than 50% of the stream bank surfaces covered by vegetation; disruption of stream bank vegetation is very high; vegetation has been removed to 5 cm or less in average stubble height.
SCORE LB	10 9	8 7 6	5 4 3	2 1 0
SCORE RB	10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank)	Optimal	Suboptimal	Marginal	Poor
	Width of riparian zone >18 m; human activities (i.e. parking lots, roadbaeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 m; human activites have impacted zone only minimally.	Width of riparian zone 6-12 m; human activiteid have impacted zone a great deal.	Width if riparian zone <6 m; little or no riparian vegetation due to human activities.
SCORE LB	10 9	8 7 6	5 4 3	2 1 0
SCORE RB	10 9	8 7 6	5 4 3	2 1 0
SCORE	-----			