

# WYOMING STREAM TEAM WATER MONITORING

**STREAM NAME:** \_\_\_\_\_

**SITE LOCATION:** \_\_\_\_\_ **WATERSHED:** \_\_\_\_\_

**LEGAL SITE DESCRIPTION:**  
 UTM: Northing \_\_\_\_\_ Easting \_\_\_\_\_ or Latitude: N \_\_\_\_\_ Longitude: W \_\_\_\_\_

**DATE:** \_\_\_\_\_ **TIME:** \_\_\_\_\_ **ELEVATION:** \_\_\_\_\_

**ORGANIZATION AND COLLECTORS:** \_\_\_\_\_

**WEATHER CONDITIONS: AIR TEMPERATURE:** \_\_\_\_\_ °C  
**Today:** Sunny Overcast Intermittent Rain Steady Rain Heavy Rain Snow  
**Past 24 Hours:** Sunny Overcast Intermittent Rain Steady Rain Heavy Rain Snow

**WATER AND WATERSHED INFORMATION:** Circle what best applies. Others that apply can be underlined.

<b>Water Appearance:</b> clear multi-colored sheen foamy muddy brown green orange/red milky scummy other _____	<b>Water Smell:</b> Sulphurous (rotten-egg) chlorine sewage petroleum chemical none other _____
<b>Dominant Land Use:</b> factories pavement agriculture logging grazing homes mining coal bed methane recreational wildlands waste treatment plant other _____	<b>Secondary Land Use:</b> factories pavement agriculture logging grazing homes mining coal bed methane recreational wildlands waste treatment plant other _____
<b>Present Upstream:</b> irrigation diversion road crossings dam irrigation return channelization beaver dam fish migration barriers fish habitat structures other _____	<b>Point Sources of Pollution:</b> _____ _____ <b>Non-Point Sources of Pollution:</b> _____ _____

## WATER QUALITY PARAMETERS

Mandatory Parameters	Optional Parameters
<b>Water Temperature:</b> _____ °C Max warm fisheries: 27°C, Max cold fisheries: 20°C	Nitrates: _____ mg/l Optimal Range: < 10 mg/l
<b>DO:</b> _____ mg/l Optimal Range: 6-12 mg/l	Orthophosphates: _____ mg/l Optimal Range: < 0.05 mg/l
<b>Alkalinity:</b> _____ mg/l Optimal Range: 100-250 mg/l	Coliform: _____ colonies/100ml Not to exceed mean of 200 colonies / 100 ml
<b>pH:</b> _____ WY Allowable Range: 6.5 - 9.0	<b>Notes:</b> 1 ppm = 1 mg / l
<b>Turbidity:</b> _____ NTU Unacceptable: increases > 10 NTU's above normal	
<b>Conductivity:</b> _____ μS/cm Optimal Range: 150 -500 μS/cm	

## MACROINVERTEBRATES

Macroinvertebrates should be collected from a representative riffle if riffles are present within your sample reach. If no riffles are present, collect macroinvertebrates from each habitat type (pool, backwater area, eddy, undercut banks). # found column is used when counting the number of each type of macroinvertebrate. % of total = # found / total number collected\*100.

**PTI** = Pollution Tolerance Index

1= fairly tolerant of pollution 2 = moderately tolerant of pollution 3 = intolerant of pollution

Macroinvertebrate		√ if found	PTI #	enter PTI # if √	# found	% of total
Ephemeroptera	Mayflies		3			
Trichoptera	Caddisflies		3			
Plecoptera	Stoneflies		3			
Chironomidae	Midge Larvae		1			
Tipulidae	Craneflies		2			
Simuliidae	Blackfly Larvae		1			
Pelecypoda	Clams		1			
Amphipoda	Scud/Shrimp		2			
Hydracarina	Water Mites		2			
Turbellaria	Flatworms		1			
Odonatia	Damselflies		2			
Odonatia	Dragonflies		2			
Gastropoda	Snails		3			
Sialidae	Alderfly Larvae		2			
Atherix	Snipfly Larvae		3			
Megaloptera	Fishfly Larvae		3			
Megaloptera	Dobsonfly Larvae		3			
Tabanidae	Horsefly or Deerfly		1			
Decapoda	Crayfish		1			
Hemiptera (Gerridae)	Waterstriders		2			
Hemiptera (Notonectidae)	Backswimmers		2			
Lepidoptera	Aquatic Catepillars		2			
Isopoda	Sowbugs		2			
Oligochaeta	Aquatic Worms		1			
Hirudinea	Leeches		1			
Coleoptera (Elmidae)	Riffle Beetle		3			
Coleoptera (Psephenidae)	Water Penny		3			
Hemiptera (Corixidae)	Water Boatman		2			
<b>Totals</b>						

**PTI Total:** Excellent > 22, Good 17 - 22, Fair 11-16, Poor < 11



## Velocity and Discharge

Distance (D) = \_\_\_\_\_ ft.

Time Trial 1 = \_\_\_\_\_ s

Time Trial 2 = \_\_\_\_\_ s

Time Trial 3 = \_\_\_\_\_ s

Avg. Time ( $t_{avg}$ ) = \_\_\_\_\_ s

Corrected Time (t) =  $t_{avg} * K$

K = 0.8 for rocky bottom;  
0.9 for sand, silt bottom

Corrected Time (t) = \_\_\_\_\_ s

Velocity (V) =  $\frac{D}{t}$

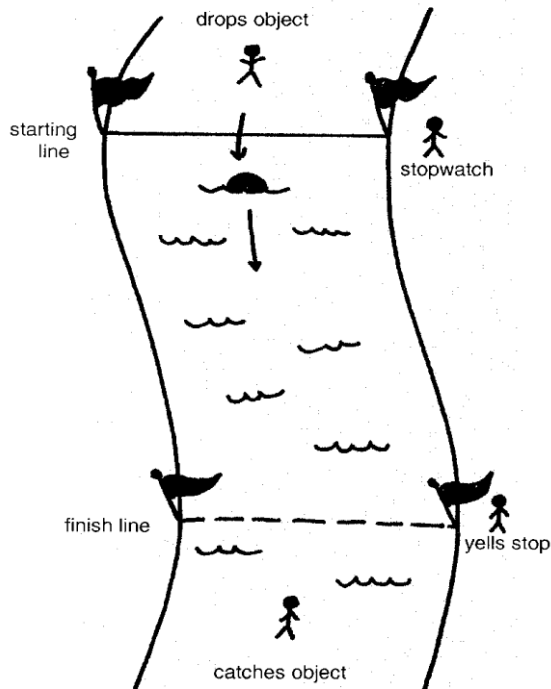
Velocity (V) = \_\_\_\_\_ ft/s

X-Sectional Area = \_\_\_\_\_ ft<sup>2</sup>

Graph cross section or  
mean width\*mean depth

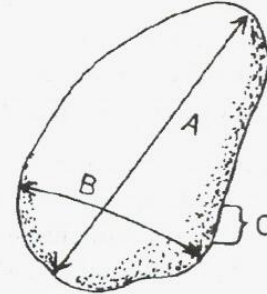
Discharge (D) =  $V * X\text{-Sect. Area}$

Discharge (Q) = \_\_\_\_\_ cfs



## Pebble Count

Measure and tally the size of the intermediate axis of 100 substrate samples.



A = LONGEST AXIS (LENGTH)

B = INTERMEDIATE AXIS (WIDTH)

C = SHORTEST AXIS (THICKNESS)

Class	Size (mm)	Size (in)	Tally
Bedrock	Solid rock		
Boulder	>256	>10	
Cobble	64-256	3-10	
Gravel	64-2	1/16-3	
Sand	2-0.062	1/500-1/16	
Silt/Clay	<.062	<1/500	

# RIPARIAN VEGETATION

GREENLINE		Vegetation Categories				
		Deep Rooted Plants		Shallow Rooted Plants		Bare Ground
		Sedges and Rushes	Shrubs and Trees	Grasses	Forbs	
Row 1	Record Vegetation Category at Each Pace Along 100 ft. Greenline					
Row 2	Total Observations Per Category					
Row 3	Total # Observations (total # of paces)					
Row 4	% of Each Category (divide row 2 values by total in row 3. Multiply by 100)					
Row 5	Factor	9	8	6	3	1
Row 6	Site Score (multiply row 4 by row 5)					
Row 7	Total (sum of row 6 scores)	The higher your score the stronger your plant roots are and the more your stream banks will resist erosion.				

CANOPY COVER		Miss (Open Sky)	Hit (Vegetation)
Row 1	At each pace along greenline, record as a slash whether you see a miss (open sky) or hit (vegetation) with your ocular tube		
Row 2	Total (sum the slash marks above)		
Row 3	Total observations (total # paces)		The higher the percent canopy cover, the greater shading received by the stream.
Row 4	Percent Canopy Cover (divide row 2 hits (vegetation) by row 3 and multiply by 100)		

## GROUND COVER (15 paces at five transects)

	1	2	3	4	5	Category Total	Percent of Each Category (category total divided by 75 (the total number of paces))
Live Vegetation							
Litter							
Rocks							
Bare Ground							

