SWaMP Stream Monitoring Data Sheet

Date: _____ Time:_____

School:_____

Name (s):_____

Introduction:

Stream health can be looked at in many ways. Today you will use several chemical tests to determine the water quality including measuring the water temperature, turbidity (water clarity), dissolved oxygen, pH, total dissolved solids, E. coli bacteria, nitrate, and phosphate. You will also complete a visual assessment of the stream and surrounding area to give a broader picture of the health of the stream and factors that might be affecting it.

Instructions for Chemical Tests:

1. Before performing each test, rinse the collection tube in the stream 3 times to make sure the sample doesn't get contaminated by a past test.
2. When collecting samples avoid disturbing the stream. Disturbance (like walking in the stream) can stir up sediment from the bottom and make your results inaccurate.
3. Follow the directions included with each test kit – use the correct amount of water for each test and the correct tablets.
4. If you're not sure about a result, compare your result to other groups. If you're still not sure, re-do the test.
5. Record your results on this data sheet.
6. When you're done with a test, empty the colored water on the ground away from the stream. The tablets are safe for the water but might contaminate other groups' tests.

Stream Name:	
Describe the specific area you are monitoring:	
Weather Today (rain, clouds, etc.):	
Days Since Last Rain:	Air Temp (°F):
Water Temp (°C):	Dissolved Oxygen (ppm):
Turbidity (cm):	DO % Saturation:
pH:	Total Dissolved Solids (ppm):
Nitrate (ppm):	Phosphate (ppm):
E. coli (per 100ml):	Total Coliforms:

Visual Assessment Data Sheet

Instructions for Visual Assessment:

For each category, read the instructions and all the descriptions. Circle the description that best fits the site. At the end you'll add up all the scores for numbers 3-10 and calculate a score for the health of the stream (detailed instructions and a tally sheet are on the last page).

1. Water Conditions

Odor	Normal Sewage Petroleum Chemical Rotten Eggs Other
Surface Coating	None Oily Foam Scum Other
Stream Flow	Slow Moderate Fast Combination

2. Trash Present

Circle the term that best describes the amount of man-made trash near the stream reach.

No trash	Some trash present	Lots of trash present

3. Nutrients

Signs of excess nutrients (nitrogen and phosphorus) in the water include algae, green water, and lots of aquatic plants.

Aquatic plant community is diverse with low quantities of many species; little algal growth present.	Some algal growth (floating or attached to rocks and stream channel).	A few types of aquatic plants dominate; abundant algal growth.	Dense stands of aquatic vegetation clog stream.
10	7	3	1

4. Stream Channel

Look at the stream channel (the area where the stream flows). How much of the channel is natural? A natural channel has stream banks sloping into the stream and the stream itself may curve in some areas. An altered channel may have concrete or rock baskets on the stream bank or on the stream bottom and may be unnaturally straight.

Stream channel is >90% natural.	Stream channel is 75-90% natural with some alteration in limited areas (like near bridges or roads).	Stream channel is 25-75% natural.	The majority of the stream channel is modified. <25% of the stream channel is natural.
10	7	3	1

5. Stream Bank Stability

Look at each stream bank and score how stable it is. An unstable bank has minimal or no vegetation growing on it and will erode easily in rain or with high stream flow. A stable bank is well vegetated. When you face upstream, the left bank is on your left side and the right bank is on your right side. Score the stability of each bank separately.

Stream bank is stable with minimal signs of bank erosion.	Stream bank is moderately stable; small areas of erosion are present.	Stream bank is moderately unstable; 30-60% of bank has areas of erosion.	Unstable stream bank with many eroded areas.
Left Bank: 5	4	2	1
Right Bank: 5	4	2	1

6. Stream Bank Vegetation Width

Look at the plants growing on the stream bank – how wide is this strip of vegetation? Score the width of each stream bank separately. When you face upstream, the left bank is on your left side and the right bank is on your right side.

Width of stream bank vegetation >50 feet; human activities (i.e., parking lots, roads, lawns) are not present in this area.	Width of stream bank vegetation is 35-50 feet; human activities have minimally impacted the area.	Width of stream bank vegetation is 20-35 feet; human activities have impacted zone a great deal.	Width of stream bank vegetation is <20 feet; there is little or no vegetation due to human activities.
Left Bank: 5	4	2	1
Right Bank: 5	4	2	1

7. In-Stream Habitat

Look for these different habitat types in the stream and count how many different types you see: woody debris, submerged logs, overhanging vegetation, boulders, cobble, coarse gravel, undercut banks, dense beds of aquatic vegetation, fallen leaves.

>7 habitat types available	6-7 habitat types available	4-5 habitat types available	2- 3 habitat types available	0- 1 habitat types available
10	8	5	3	1

8. Stream Flow and Depth

Look for these 4 flow and depth combinations: fast flow/shallow depth; fast flow/deep depth; slow flow/shallow depth; and slow flow/deep depth.

All 4 flow/depth combinations are present.	3 flow/depth combinations are present.	2 flow/depth combinations are present.	Only 1 flow/depth combination is present.
10	7	3	1

9. Canopy Cover

Look at the tree canopy (branches and leaves) over the stream and rank the canopy cover *over the stream* (in an open canopy you can see the full sky; in a closed canopy you can't see any sky). If it's the fall estimate what the canopy would look like in the spring.

Canopy is closed.	Canopy is mostly closed.	Canopy is partly open.	Canopy is mostly open.	Canopy is open.
10	8	5	3	1

10. Stream Bottom (Only complete in rocky bottom streams)

Look at the stream bottom. What percent of the bottom is fine sediment (not gravel-size rocks or larger)? In streams with muddy bottoms or very few rocks, leave this blank.

0-25% of stream bottom is fine sediment.	25-50% of stream bottom is fine sediment.	50-75% of stream bottom is fine sediment.	More than 75% of stream bottom is fine sediment.
10	7	3	1

Overall Score:

Add all the points from questions 3-10 and write that as your total score. Use this to see how your stream site ranks.

Total Score: _____ Number of questions scored (7 or 8): _____

Total score divided by number of categories scored: _____

<6.0 Poor 6.1-7.4 Fair 7.5-8.9 Good >9.0 Excellent

Site Sketch:

Include the direction of water flow, surrounding land uses (buildings, parking lots, parks, roads, etc.), and anything else you feel is important to stream health at the site.