



O.P.C.E.S. Water Quality Index (WQI) – Work Sheet

Group: _____ School: _____ Date: _____ Time: _____ to _____

Water System: Otter Point Creek / Bush River Site Location/Address: 700 Otter Point Road, Abingdon, MD 21009 – HA Co.

General Details:

Site Longitude/Latitude: _____ Nearest Town: _____

Water Conditions: _____ Weather Conditions: _____

Air Temperature: _____

TEST	RESULTS (averages from both groups)	Q VALUE (from reference graphs)	Weighting Factor	TOTAL (Q Value x Weighting Factor)
DO	_____ % Sat.		0.17	
FC	_____ Colonies/100mL		0.16	
pH	_____ units		0.11	
BOD	_____ mg/L		0.11	
Δ Temp	_____ °C		0.10	
Phos.	_____ mg/L		0.10	
Nitr.	_____ mg/L		0.10	
Turbidity	_____ meters		0.08	
TSS	_____ mg/L		0.07	
Overall Water Quality Index (total of individual totals above)				_____ %

Overall Water Quality Index	Quality of Water
90-100%	Excellent
70-89%	Good
50-69%	Medium
25-49%	Bad
0-24%	Very Bad

Directions and Details for completing the WQI Work Sheet

The WQI Work Sheet plugs data and calculations (from your field and lab work) into a form that provides a qualitative look at the water system you were investigating. By this means, you can assign a quality of water (from *Very Bad* to *Excellent*) based on facts and calculations. Here are some hints for helping you complete the WQI Work Sheet:

1. **RESULTS** - come from the completed calculations on your **Field Collection** and **Lab Work** Data Record Sheets. Be sure that you have used the correct unit of measurement for each result.
2. **Q VALUE** - (for each individual result) is derived from applying the result to a given reference graph. These graphs are provided and have been mathematically set to give you a Quality Value for every parameter measured. The closer the Q-value is to 100%, the healthier this body of water for that parameter. Be sure to check your unit of measurement and be careful in manipulating the graphs. Not only can these results be compiled to form an overall quality calculation, but each test can be looked at individually (you might find out that the Fecal Coliform condition is *Excellent* but the Dissolved Oxygen condition is *Bad*), to identify specific problem areas.
3. **Weighting Factor** – you will notice that all the Weighting Factors together add up to 1.00 (or 100%). These factors help to determine the importance of each test with regard to the whole picture. Therefore, you will notice that TSS (Total Suspended Solids) carries the least weight with regard to all the tests and DO (Dissolved Oxygen) carries the most weight with regard to all the tests. Simply put, some **factors** are more important than others, but they all add up to create the whole picture.
4. **TOTAL** – each test will provide you a total (Q Value x Weighting Factor). This modifies the test result with respect to its importance to the other test results.
5. **Overall Water Quality Index** – by adding all the modified results together, you come up with an overall percentage of quality for the water system being surveyed. The result will provide you with a qualitative indication (*Very Bad* to *Excellent*) that is supported by your data and mathematics.

Once you have completed the WQI Work Sheet you should be prepared to put forth your recommendations on the proposed project. As you develop your recommendations you can refer back to the WQI Work Sheet to support your concerns and suggestions. Remember: it is hard to argue with carefully assembled and clearly communicated mathematics. Good luck!