

Understanding Water Quality Index Procedure and Table

1. Record Test Results in Table I below.
2. Determine the Q-value for your test results by using the weighting graphs.
 - a. Find the weighting curve graph for your test.
 - b. Mark your test result with a pencil on the X-axis (horizontal) of the weighting curve graph.
 - c. Draw a vertical line from that point to the weighting curve. Then draw a line from the intersection point on the curve to the Y-axis (vertical) of the graph. The point where your line intersects the Y-axis is the Q-value for your test result.
3. Multiply your Q-value by the weighting factor. Record the product in the Total block. (Note: the weighting factor indicates the importance of each parameter to the WQI. On the table the parameters have been ordered according to their weighting factor.)
4. Add the values in the total column to get your raw "total."
5. If you are missing the Fecal Coliform or BOD test results see table II
6. Use table III to Determine the WQI description.

Table I

Parameter	Test Result	Q-Value	Weighting Factor	Total
Dissolved Oxygen _____mg/L _____°C			0.17	
Fecal Coliform			0.16	
pH			0.11	
BOD			0.11	
Temperature Change			0.10	
Orthophosphates			0.10	
Nitrates			0.10	
Turbidity			0.08	
Total Dissolved Solids			0.07	

	Overall WQI	
	WQI Description	

Note: To calculate BOD, subtract DO in mg/L of the 5-day old sample from the DO in mg/L on the day the sample is taken.

Sometimes it is not practical or possible to collect or read a sample for the fecal coliform or BOD tests. In these cases, WQI results are skewed because the “Total” does not account for the missing data. It is possible to adjust the score so that students can make an educated guess at what the WQI description should have been. Each parameter result has a maximum potential contribution to the overall stream score, and so one can adjust the total based on that potential.

Fecal Coliform accounts for 16% of the total result.

Biological Oxygen Demand accounts for 11% of the total result.

Total Dissolved Solids accounts for 7% of the total results.

Table II

If you are computing WQI without Fecal Coliform Result	Divide your raw “total” by 84 to get your adjusted “total.”
If you are computing WQI without Biological Oxygen Demand Result	Divide your raw “total” by 89 to get your adjusted “total.”
If you are computing WQI without Total Dissolved Solids Result	Divide your raw “total” by 93 to get your adjusted “total.”
If you are computing WQI without Fecal Coliform AND Biological Oxygen Demand AND Total Dissolved Solids Result	Divide your raw “total” by 66 to get your adjusted “total.”

To check for correct math, the adjusted “total” should be a greater number than the raw “total.”

Table III

WQI	Description
100-90	Excellent
89-70	Good
69-50	Moderate

49-25	Bad
24-0	Very Bad