The WQI is calculated using the weighted product of the nine parameters, according to the following formula:

$$IQA = \prod_{i=1}^{9} q_i^{w_i}$$

Where:
WQI = Water Quality Index. A number between 0 and 100;
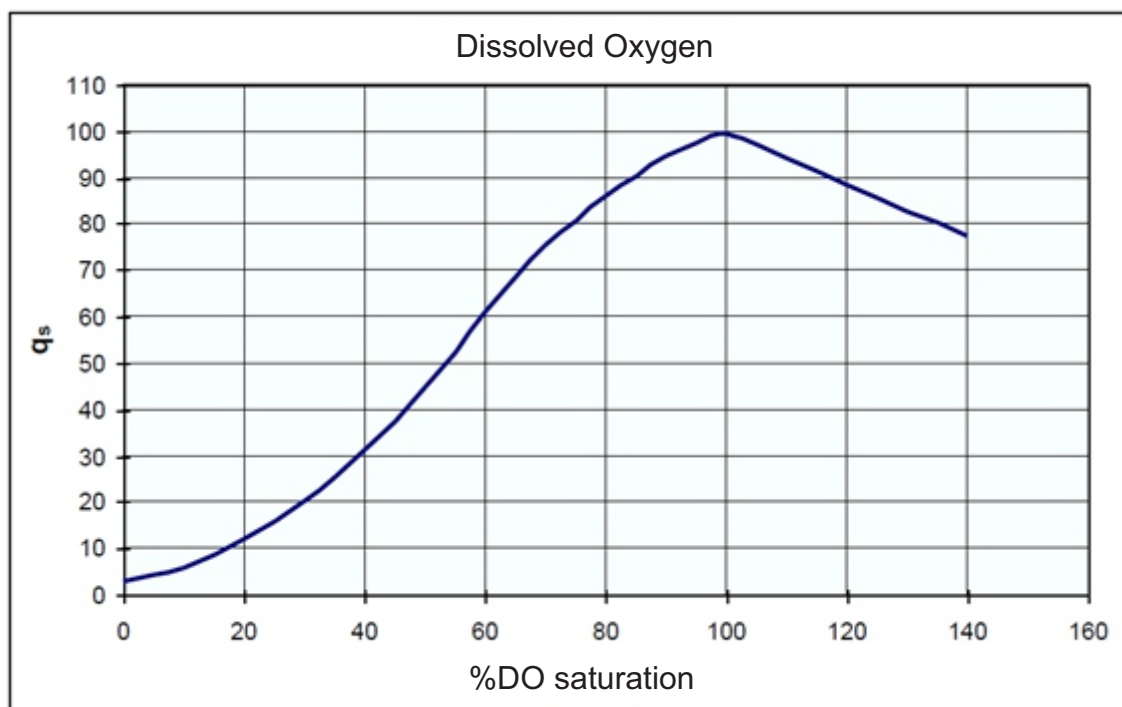qi = quality of the i-th parameter. A number between 0 and 100, obtained from the respective quality chart, as a function of its concentration or measurement (analysis result);
wi = weight corresponding to the i-th parameter fixed according to its importance for the global conformation of quality, that is. a number between 0 and 1, so that:

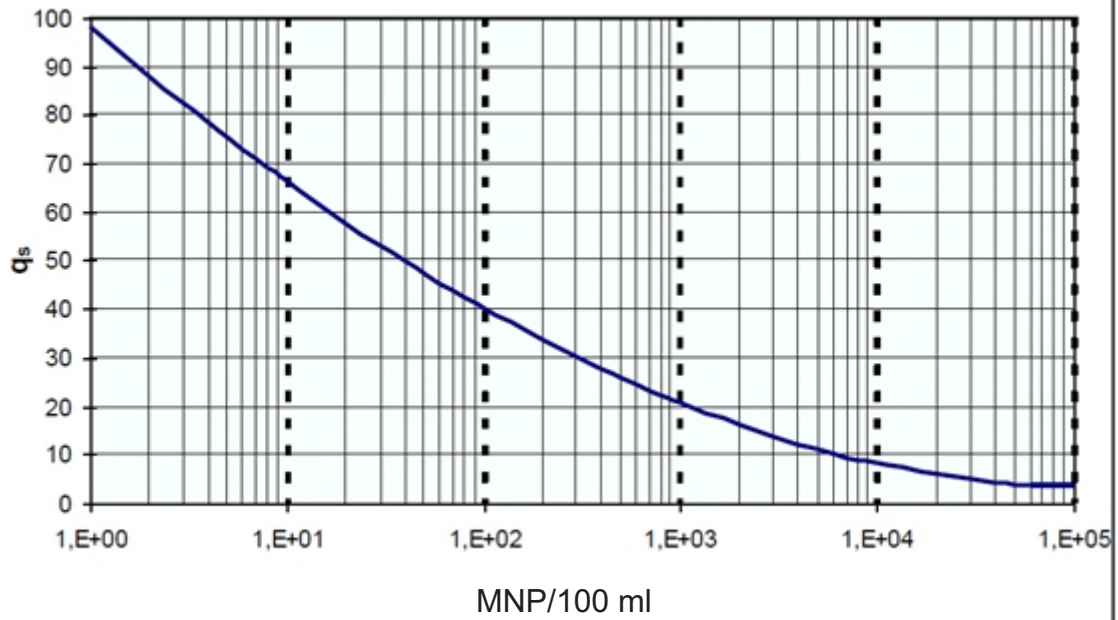$$\sum_{i=1}^{n} W_i = 1$$

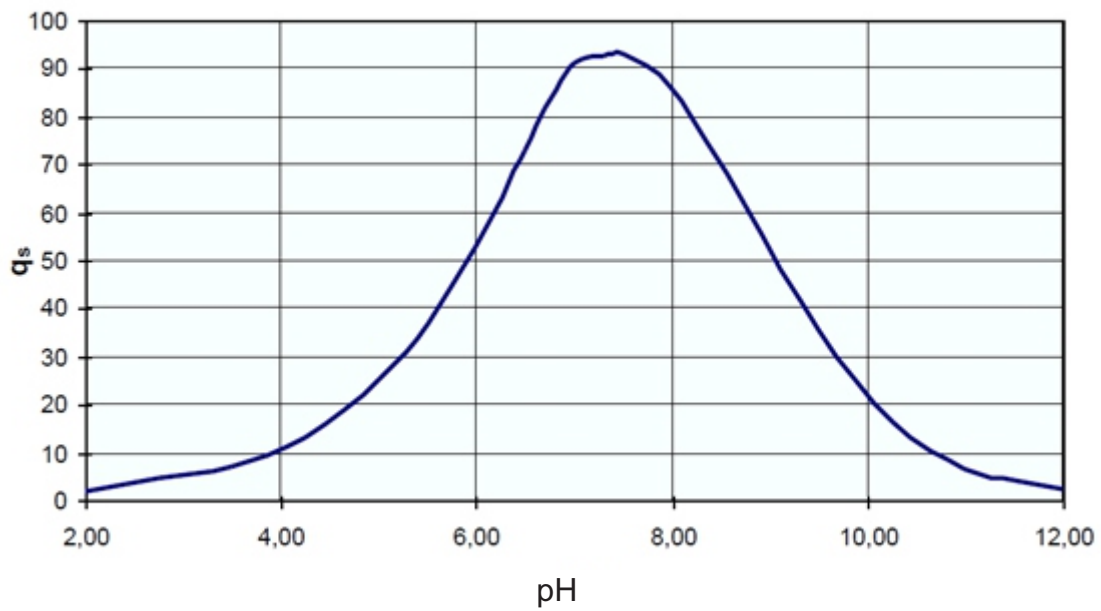where n is the number of parameters that enter the WQI calculation.

AVERAGE QUALITY CURVES OF PARAMETERS

Dissolved Oxygen

%DO saturation

Escherichia coli

q_s vs MNP/100 ml

pH

q_s vs pH

Total Phosphorous

q_s vs PO_4 (mg/L)

Nitrate

Plot of q_s versus NO_2 (mg/L). The curve starts at $q_s = 100$ at $NO_2 = 0$, decreasing rapidly to about $q_s = 10$ near $NO_2 = 70$, then leveling off near zero from about 90 to 200 mg/L.

Biochemical Oxygen Demand

Plot of q_s versus BOD (mg/L). The curve starts at $q_s = 100$ at BOD = 0, decreasing to about $q_s = 58$ at BOD = 5, $q_s = 33$ at BOD = 10, $q_s = 20$ at BOD = 15, then gradually declining to about $q_s = 5$ at BOD = 30.

Water temperature

Plot of q_s versus °C variability. The curve starts at $q_s = 51$ at -5, rising to a peak of about $q_s = 93$ at 0, then decreasing to about $q_s = 50$ at 5, $q_s = 20$ at 10, leveling off near $q_s = 10$ from about 16 to 20.

Turbidity

Total Dissolved Solids