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Lab report: Water quality in the urban environment Introduction and purpose

Water is an essential commodity to living things and its quality, the degree to which it is free from pollutants, is important in determining the involved risks in consuming water from an identified source. Water pollutants such as chemical and biological materials, as well as physical properties such as temperature and oxygen concentration, form the basis of determining water quality by measuring the elements' levels in water. Values within a recommended range identify certified quality while extreme values mean poor quality of a tested water sample that should not be recommended for consumption. Turbidity, temperature, pH level, oxygen concentration, hardness, and concentration of elements like aluminum, nitrogen ions, phosphate ions, and ammonia molecules are examples of determinants of water quality (Miller and Spoolman, p. 532).

This paper reports on a laboratory experiment on environmental analysis that aimed at understanding anthropogenic and natural sources of water pollutants and the quality level of a water sample.

Materials used and procedure

The used materials for the experiment are water sample, open container, turbidity chart, thermometer, and pH indicators.

Water sample was collected on Cherry Creek using a wide mouthed jar and the jar rinsed three times. The jar was then held from its base, immersed in water and then turned into the water current. Water was allowed to flow into the container for 30 seconds and filled up to the turbidity line. Turbidity chart was then held against the container and comparisons made to determine the

water sample's turbidity level that was recorded. Tests were then conducted for alkalinity level, pH dissolved oxygen, hardness, temperature, and nitrate and phosphate levels. Results were recorded for each measurement.

Data

The following table summarizes the experimental results.

Element

measurement

Turbidity

20 tnu

Alkalinity

400 ppm

Dissolved oxygen

5

Water temperature

160 c

Hardness

7200 ppm

Nitrate ions

3

pH level

8

Phosphate

2

Ammonia

0

Results

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The water sample reported a turbidity level of 20 jhu units, a value that is far beyond the recommended level of less than 1 jhu. The concentration of dissolved oxygen that was reported at 5 ppm is consistent with the recommended level of between 4 and 5 ppm. The alkalinity level of the water sample was recorded at 400 ppm, far above the minimum recommended value of 30 while temperature was recorded at 160 c, a comparatively lower value than the recommended 250 c. The hardness measure also superseded the recommended minimum value of 60 ppm while the reported pH level was within the recommended range of between 5 and 9 units. Nitrogen, phosphate and ammonia levels were reported at 3, 2, and 0 units, values that are within the recommended levels of 3, 2.25, and 1.5 units respectively (Twort, Ratnayaka and Brandt 222- 225).

Conclusion

The sample's low temperature was lower than the recommended levels for water quality. Its biological properties, as reported through turbidity level, also identify excess pollutants and hence poor quality. The chemical properties in alkalinity level, pH level, and nitrogen, ammonia, and phosphorous concentrations, together with oxygen concentration are however within quality limits. The physical and biological properties therefore identify poor quality of the water sample for human consumption and aquatic life.

Works cited

Miller, Tyler and Spoolman, Scott. Living in the Environment. Belmont, CA: Cengage Learning, 2011. Print.

Twort, Alan, Ratnayaka, Don, and Brandt, Malcolm. Water supply. London, UK: Butterworth-Heinemann, 2000. Print.

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