

Water Quality Indicators Guided Notes

Name: _____

Extra Notes:

Parts Per Million

- A. Most _____ substances found in _____ are measured in parts per million (_____) or even smaller amounts.
- B. This means that for every _____ million parts (units) of water there is a certain number of parts of the _____.
- C. Example:
- a. $8 / 1,000,000 =$ _____ ppm

Water Quality Indicators

D. Alkalinity

- a. is _____ to neutralize _____.
- b. produced by minerals such as _____.
- c. _____ sediment composed of _____.
- d. Water with _____ alkalinity is usually _____.

E. Ammonia

- a. produced by the _____ of organic matter and animal _____.
- b. _____ to most aquatic life, especially at high _____.
- c. Bacteria readily _____ ammonia to _____.
- d. Nitrates are a plant _____.
- e. is a form of _____ and part of the _____.

F. Bacteria

- a. Most bacteria are _____ in nutrient and other organic cycles.
- b. Excess _____ cause algal _____.
- c. As algae die and _____, the high bacterial load rapidly _____ dissolved oxygen.
- d. Certain types of bacteria indicate _____ and _____ waste _____.
- e. *Escherichia coli* are _____ bacteria found in the _____ of warm-blooded organisms. Most strains are harmless but one *E. coli* strain can cause severe diarrhea and kidney _____.

G. Dissolved Oxygen

- a. a product of _____ and _____.
- b. The _____ the water, the _____ oxygen it can hold.
- c. Summer is often a time of oxygen _____ for _____ organisms.
- d. Most organisms need at least _____ or _____ ppm of oxygen in order to _____.
- e. Even _____ water rarely contains more than _____ ppm.

H. Conductivity

- a. measures the water's ability to _____.
- b. _____ water is a _____ conductor.
- c. The addition of _____ solids, especially _____, increases the _____ of water.
- d. _____ is measured using a conductivity _____.

I. Hardness

- refers to the _____ of _____ and _____ in water.
- Hard water has _____ concentrations of these _____.
- Soft water has _____ concentrations.
- Water hardness often originates from _____.

J. Nitrate

- a primary plant _____.
- Nitrate is _____ soluble and moves _____ from surface to _____.
- Excess nitrate causes _____ blooms that _____ water quality.
- Under normal conditions, the _____ keeps the amount of available nitrogen in _____ with the demands.
- However, excessive use of _____ and _____ release have created a surplus of nitrate.
- The result is _____ from excess _____ and _____ with reduced _____.

K. Pesticides

- Effects on _____ organisms – Moderately to highly _____ to mammals, _____, _____, and _____.

L. pH

- pH is the _____ of the _____ ion (H^+) concentration.
- The pH scale is _____ to _____.
- Seven is _____, below seven is _____, and above seven is _____ (or _____).
- Most _____ organisms exist within a pH range of _____.

M. Phosphate

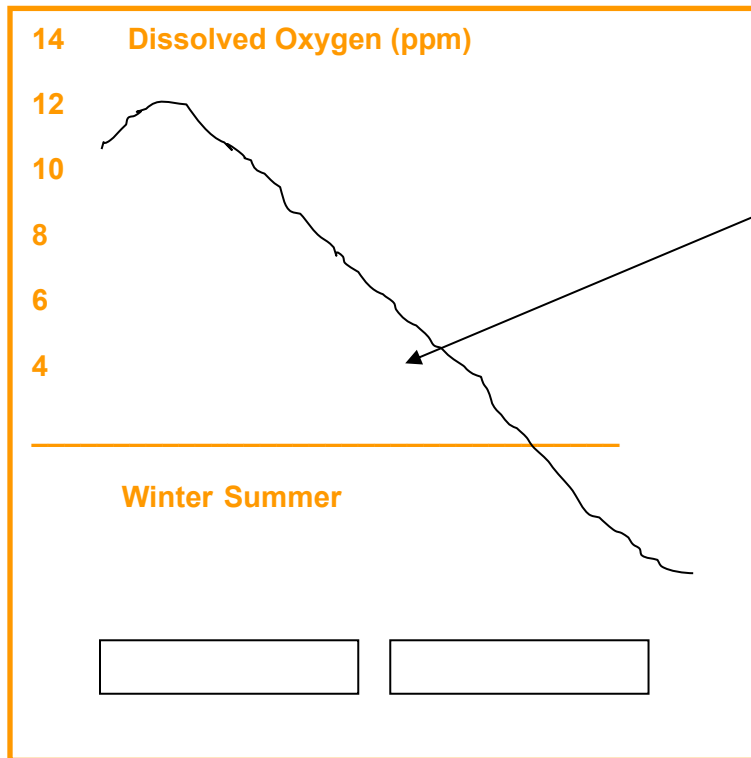
- Phosphate's concentrations in _____ water is generally _____; however, phosphorus is used extensively in _____ and other _____.
- The primary sources of phosphates to surface water are _____, _____, and _____.
- High levels of _____ can over stimulate the growth of _____ and _____.
- This in turn, will cause high DO _____ and _____ to fish and many aquatic _____.

N. Sediment

- _____ causes loose soil to _____ the waterways
- Suspended sediment _____ to plants and _____ dissolved oxygen.
- As sediments settle, they can _____ bottom (_____) organisms.

O. Temperature

- Most aquatic organisms live within a temperature range of +32° F (+0° C) to 90° F (32° C).
- Rapid temperature change and temperature extremes can stress aquatic organisms.
- Temperature affects the oxygen-carrying capacity of water.
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As the water

_____, the
amount of dissolved oxygen

_____.

P. Total Dissolved Solids (TDS)

- TDS is the measure of the material _____ in _____.
- This measure is related to _____, _____ and conductivity.
- Hard water has _____ TDS than _____ water.

Q. Total Suspended Solids

- TSS is the measure of the _____ in the water.
- TSS is related to _____.
- Water with high TSS usually has high _____ (TDS) as well.

R. Turbidity

- Turbidity refers to water _____.
- _____ suspended in the water _____ turbidity.
- A _____ is one type of instrument used to measure turbidity.

S. Toxic Chemicals

- Toxic chemicals usually come from _____ and _____ production.
- The effects are often _____ until years after they have entered the _____.
- Toxic chemicals include heavy metals (_____, mercury), organic compounds (_____, PCB), inorganic substances (arsenic) and others.