1 Million Turtles
COMMUNITY CONSERVATION PROGRAM

Term 3, Lesson 1

Water Quality Parameters

Learning Objectives:

1. Describe water quality parameters and explain how they relate to wetland health;
2. Use applications to plan scientific investigations, through the identification of sites for wetland sampling.

Photo credit: Dr. James Van Dyke

Why do we test water quality?

Water quality testing can tell us how healthy the water is in our local rivers, creeks and wetlands.

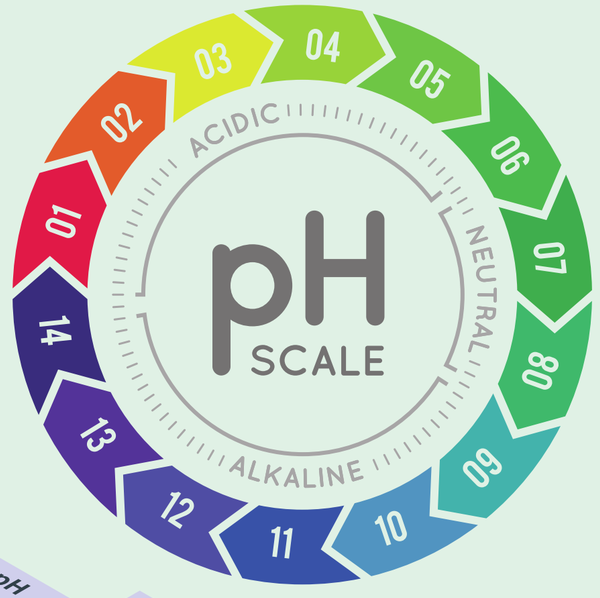
The health of the aquatic habitat can be influenced by:

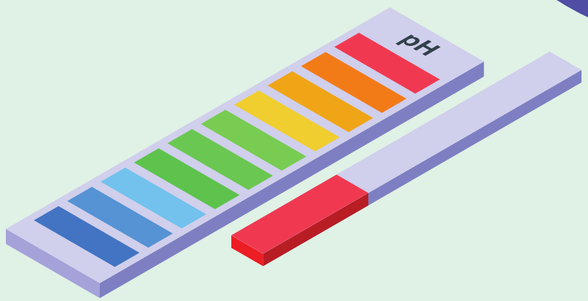
- Land clearing, agriculture, road works and erosion;
- The use of fertilisers and pesticides;
- Pollution;
- Weeds and feral animals.

Water quality parameters - pH

pH is a measure of how acidic or alkaline the water is.

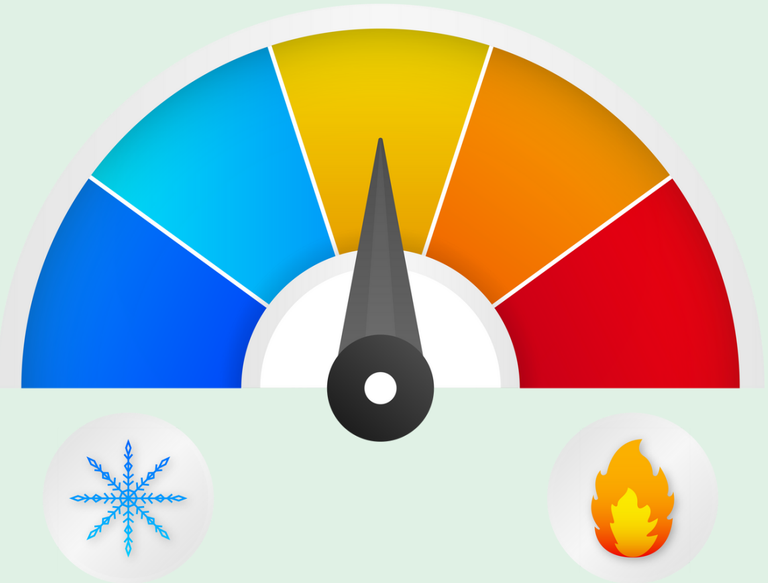
- Different aquatic organisms have specific pH ranges within which they thrive.
- pH can affect biological processes such as enzyme and microbial activity.
- pH changes can interfere with the reproductive success, growth and population dynamics of fish and invertebrate species.





Water quality parameters - Temperature

Temperature is how hot or cold the water is.

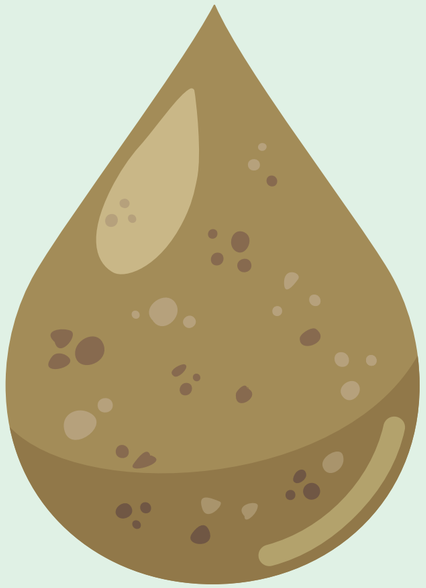


- Temperature affects the metabolic rates of aquatic organisms.
- It affects the solubility of gases in water, such as oxygen. As water temperature increases, the waters capacity to hold dissolved oxygen decreases.
- Some species are adapted the specific temperature ranges and changes in temperature can influence species composition and diversity.

Water quality parameters - Turbidity

Turbidity is a measure of how murky or cloudy the water is and is usually caused by suspended particles.

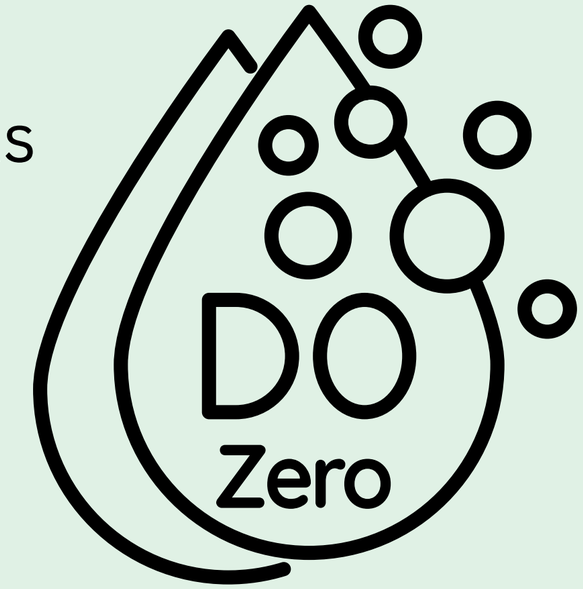
- High turbidity levels can reduce water quality.
- Suspended particles in turbid water can interfere with the feeding mechanism of filter-feeding organisms.
- Can impact water temperature by affecting the absorption and reflection of sunlight.
- High turbidity can indicate increased erosion and runoff in the watershed.



Water quality parameters - Dissolved Oxygen

Dissolved oxygen is crucial for the survival of aerobic organisms as they rely on oxygen for respiration.

- Warmer water has lower oxygen-holding capacity. Monitoring of dissolved oxygen levels ensures it remains within sutiable ranges for aquatic life.
- Low dissolved oxygen levels can be indicative of increased organic matter decomposition.
- Nutrient runoff or organic pollutants can lead to oxygen depletion.



Water quality parameters - Salinity

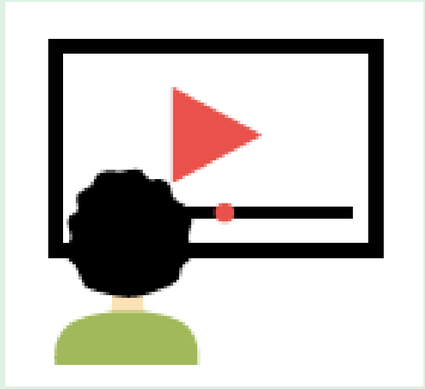
Salinity refers to the concentration of dissolved salts in water.

- Species have varying tolerances to salinity levels.
- Salinity influences the osmotic regulation of aquatic organisms. Changes in salinity can affect the balance of water and salts within the cells of organisms.
- Elevated salinity levels can be indicative of human activities.

Classroom Activities

Activity 1 - Video: Water Quality Testing (Victorian Environmental Protection Authority)

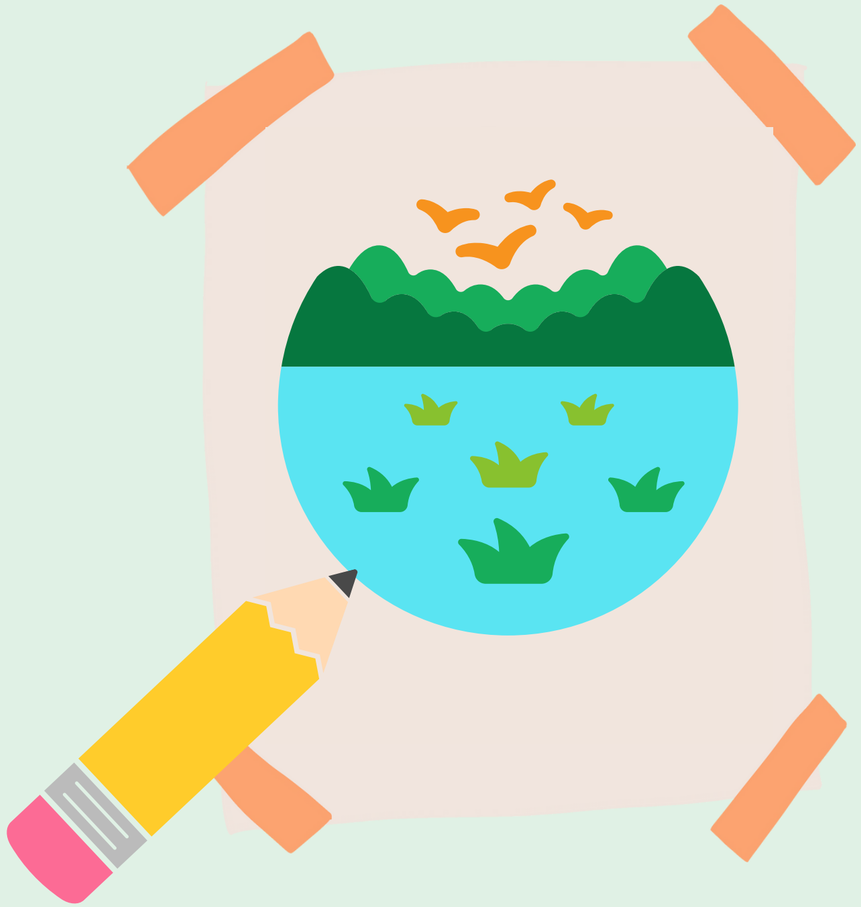
https://www.youtube.com/watch?v=94YcjbYBchc



Classroom Activities

Activity 2 - Worksheet

Define the water quality parameters in the worksheet.



Classroom Activities

Activity 3 -

- Use Google Earth to view your local wetland.
- Select site for water quality testing around your local wetland. This will be the focus of Lesson 2.