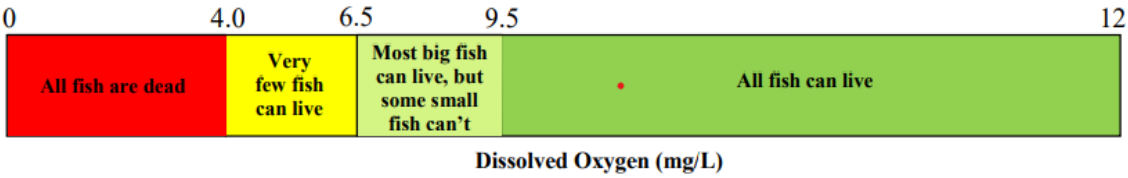
WATER POLLUTION MONITORING

Dissolved Oxygen (D.O)

- Dissolved oxygen (D.O) refers to molecular oxygen dissolved in water. The unit is mg/L, which means how many milligrams oxygen in per litre of water.
- Water bodies receive oxygen from the atmosphere and from aquatic plants. Running water, such as that of a swift moving stream, dissolves more oxygen than the still water of a pond or lake.
- This dissolved oxygen is breathed by fish and zooplankton and is needed by them to survive. Bacteria in water can consume oxygen as organic matter decays.
- Low levels of oxygen (hypoxia) or no oxygen levels (anoxia) can occur when excess organic materials, such as large algal blooms, are decomposed by microorganisms. During this decomposition process, DO in the water is consumed.
- In some water bodies, DO levels fluctuate periodically, seasonally and even as part of the natural daily ecology of the aquatic resource. If DO levels drop, some sensitive animals may move away, decline in health or even die.



D.O level in water and status of living beings

- Healthy water should generally have dissolved oxygen concentrations above 6.5-8 mg/L

Chemical Oxygen Demand (COD)

- COD is an indicative measure of the amount of oxygen that can be consumed by reactions in a measured solution. It is commonly expressed in mass of oxygen consumed over volume of solution, which in SI units is milligrams per litre (mg/L).
- It is an indicator of the contents of reducing substances in the water, which are organic, nitrite, sulphide, ferrous salts, etc., and the organic is dominant.
- COD detection can be used to easily quantify the amount of organics in water. The higher the COD value, the more serious the pollution of organic matter by water.
- The most common application of COD is in quantifying the amount of oxidizable pollutants found in surface water (e.g., lakes and rivers) or wastewater

Biochemical Oxygen Demand (B.O.D)

- BOD, also called Biological Oxygen Demand, is the amount of dissolved oxygen needed (i.e., demanded) by aerobic biological organisms to break down organic material present in a given water sample at certain temperature over a specific time period.
- The BOD value is most commonly expressed in milligrams of oxygen consumed per litre of sample during 5 days of incubation at 20 °C and is often used as a surrogate of the degree of organic pollution of water
- Biochemical Oxygen Demand (BOD) reduction is used as a gauge of the effectiveness of wastewater treatment plants.
- BOD of wastewater effluents is used to indicate the short-term impact on the oxygen levels of the receiving water.
- Most pristine rivers will have a 5-day carbonaceous BOD below 1 mg/L. Moderately polluted rivers may have a BOD value in the range of 2 to 8 mg/L. Rivers may be considered severely polluted when BOD values exceed 8 mg/L.