Dissolved Oxygen Conc as an Indicator of water Quality.

As we know O_2 is absolutely essential for survival of most MO's except anaerobic one as well as aquatic microflora like fishy, molluscs, prawns etc. Hence it must be ensured that there must be adequate level of dissolved O_2 in river, ponds etc. Ideally the O_2 conc should be atleast 90% of the saturation conc at ambient temp and salinity of water.

The effluent containing soluble and particulate organic matter can influence the dissolved O_2 conc.

One widely used method used is to measure 'BOD' which can be defined as Quantity of oxygen required to degrade organic matter in water by MO at a given temp'. More is the organic matter more will be the BOD and less will be the Quality of water.

This test is only an estimate of biodegradable material, Hence recalcitrant or Inhibitory compound might be overlooked and it takes atleast 5 days.

Hence it is replaced by 'COD' chemical oxygen demand. a chemical test usually takes few hours to complete.

In this method - Treating the sample with known amount of acidic Potdichromate solution for 2 to 4 hrs and then treating excess dichromate with $FeSO_4$. The oxidized organic matter is taken as being proportional to the Potassium dichromate utilized. Most compounds are oxidized even those which are not biodegradable.

BOD : COD ratio for sewage is normally 0.2 : 1 and 0.5 : 1

Very Low BOD : COD ratio Indicate High conc of Non biodegradable organic matter and Consequently cannot be treated by biological treatment process.