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Question 25 (5 marks)

What is the relationship between dissolved oxygen and biochemical oxygen demand and why is it important to monitor both in natural ways? 5

Monitoring the quality of water in natural waterways is crucial for maintaining a high quality source of water & natural ecosystem.

There is an observable relationship between dissolved oxygen & biochemical oxygen demand in natural ways. While not available in huge supplies, dissolved  $O_2$  is imperative to maintaining the quality of natural waterways - if not present, or present in insufficient amounts, ~~the~~ organisms in the waterways will die, the water becomes stagnant & eutrophication occurs. D.O. is measured electronically.

Biochemical oxygen demand is a measure of the demand organisms in water place upon the presence of dissolved oxygen. This can be measured by taking a sample of water, testing it for dissolved  $O_2$ , then leaving the sample closed in a black cupboard for 5 days before retesting. The difference in measurements is the BOD. If demand is too great for amount of D.O., there is an issue with the water source that should be addressed to regain health to the natural way.

It is thus essential that scientists continually monitor water sources - to maintain the quality of the water, the health<sup>3</sup> of the ecosystem & to prevent disease.