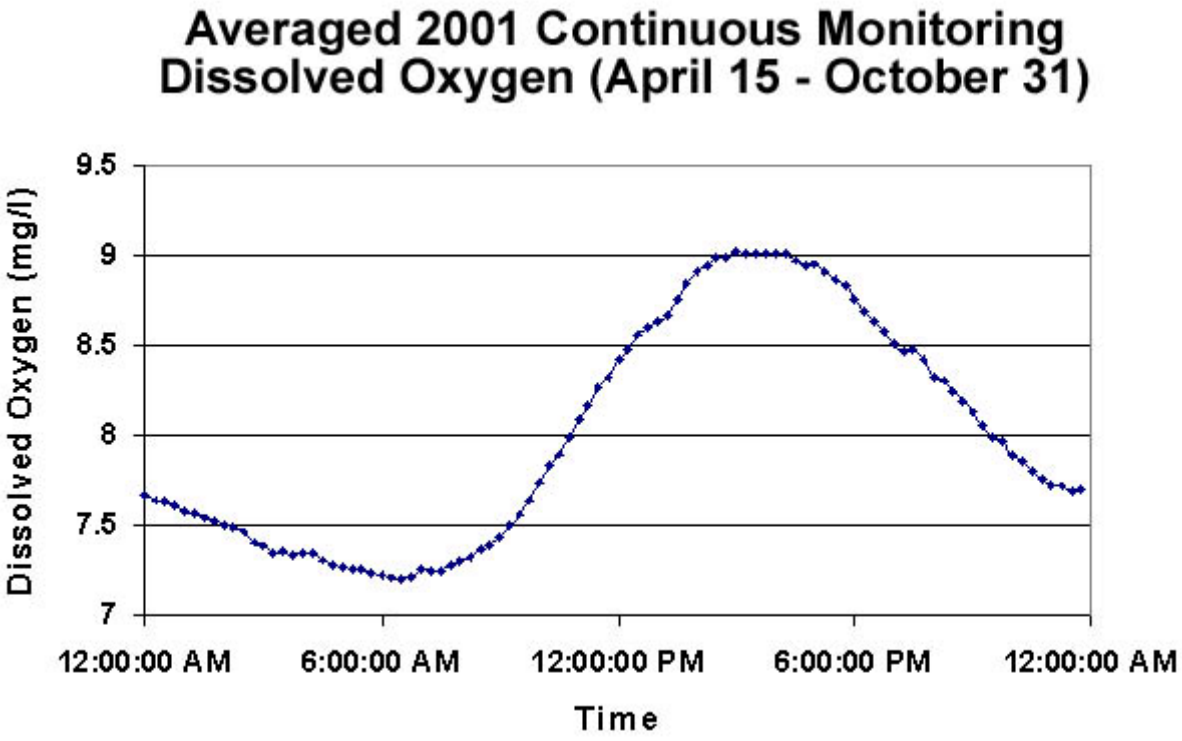
A Daily DO Cycle
(Student Copy)

What effect do plants have on dissolved oxygen levels?

At what time of day should DO be increasing if it's caused by the photosynthetic activity of plants? At what time will it start to drop? When would you expect DO to be at its highest and lowest?



Notice on the graph above, how dissolved oxygen begins rising early in the morning. It continues rising all day and then begins to drop by evening. This pattern often occurs as aquatic plants carry out photosynthesis in the daytime, releasing oxygen and thus driving up the dissolved oxygen content of the water. But at night there is typically a loss of dissolved oxygen since no oxygen is being added and animals and bacteria keep taking up oxygen to use for respiration. In situations where there is a lot of bacterial decomposition, such as when excess nutrients cause big blooms of short-lived algae (eutrophication) and the dead algae are consumed by decomposers, the dissolved oxygen levels can get so low in the middle of the night that fish and other aquatic animals cannot survive.