



ENVIRONMENTAL CONSULTING, INC.
Providing Environmental Solutions



302-684-5201

envirotechcinc.com

info@envirotechcinc.com

Fish Kills

Hot summer weather causes surface waters to warm up more rapidly than deeper waters. This leads to a difference in water temperature between the upper and lower levels of the water column (thermocline). The thermocline acts as a physical barrier and prevents water mixing between the two layers (surface and deep). In most water bodies, photosynthesis and therefore oxygen production occur only in the upper portion of the water column which is directly exposed to light. This physical phenomena leads to the development of an oxygen-rich upper layer, and a colder oxygen-deprived lower layer. This stratification can



be disturbed during summer thunderstorms which bring heavy rain and high winds. When the stratification breaks down, the oxygen-rich surface waters mix with oxygen-deprived bottom waters. If the oxygen demand is sufficient, all D.O. present will rapidly be removed from the water column, resulting in severe oxygen depletion and a potential fish kill.

Most stormwater management wet ponds serve as fisheries. Fish kills are often reported during excessive heat conditions and may be caused by low oxygen levels in the water column. As the temperatures rise and less rain falls, the water levels and oxygen levels drop in ponds resulting in increased stress on fish. Using aeration, when available, can help limit lethal fish kills but they cannot control temperature.

Also plant materials and algae create oxygen during the day while photosynthesis is occurring. However, at night, these same plants and algae need oxygen to respire and survive. High oxygen levels during the daylight hours and low oxygen levels during night house is know as the Diurnal Oxygen Cycle.

EECI is available to conduct water testing and water samples if needed and assist with cleanup. If you have any questions or concerns, please contact EECI at 302-684-5201 or email info@envirotechcinc.com



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