



FISH KILLS

A sudden appearance of dead fish in a lake or pond causes considerable concern and alarm for most people. The first reaction is to suspect someone of poisoning the water body. Rarely are fish kills the result of spills or illegal discharges of toxic substances. Fish kills usually result from too little oxygen in the water. The EPC receives 20 - 30 fish kill reports each year. Most fish kills result from natural events, however, human activities can influence their frequency and severity.

For a dissolved oxygen or DO-related fish kill to occur, several environmental conditions often happen at the same time. Weather patterns, water temperature, water depth, amount and type of plant growth, and fish community structure are all factors that can trigger a fish kill. Lakes, ponds, and canals located in residential areas are particularly vulnerable to DO-related fish kills. Developed areas create runoff that can contain nutrients from septic tanks, streets, pets, and lawn chemicals. These enter water bodies and cause water quality problems. High levels of nutrients from fertilizers applied to lawns, golf courses, and farms can cause aquatic plants to thrive.

Ponds with high nutrient levels can produce dense blooms of microscopic plants called algae. When sunlight is available, algae use nutrients and produce oxygen through the process of photosynthesis. Most oxygen available to fish comes from algae. At night, or during times of cloudy weather, a lack of sunlight causes algae to switch from photosynthesis (producing oxygen) to respiration (consuming oxygen). In acute conditions, algae can consume virtually all of the dissolved oxygen (anoxia) causing fish to suffocate. Additionally, prolonged events of low DO (hypoxia) can cause fish to become stressed and susceptible to viral or bacterial infections.

Most times, fish can tolerate temporarily depressed DO levels (hypoxia). Severe fish kills occur when several contributory factors occur simultaneously. Prolonged cloudy weather, drought conditions, overcrowded fish populations, excessive algal or other plant growths, and high water temperatures are the most common factors that combine to cause fish kills. In Florida, most DO-related fish kills occur in the warmer months from May through September, although winter cold fronts can also trigger DO lags. A typical scenario occurs when fish are observed at the water surface appearing to gasp for breath. It is not uncommon for many of the larger fish to die, since they need more oxygen, while the smaller fish seem to be unaffected.

During the spring, kills involving only one species can occur and these are often caused from stress brought on by spawning activities. Along coastal areas of Florida, surface and groundwater inflows of salt water can kill freshwater fishes. Herbicide spraying of problem aquatic plants often results in fish kills. Over spraying can have toxic effects, however, it is more common for the decaying vegetation to use up oxygen at a rapid rate thus suffocating the fish. Application of pesticides to control lawn and crop insects can also enter a pond during heavy rains and cause a fish kill. Use of any type of chemical pesticide or fertilizer should be done with extreme caution around all water bodies.

Once a kill starts, there is really nothing that can be done. Usually the conditions that caused the fish kill will not last for more than a few days. Repeated fish kills and chronically low dissolved oxygen levels may necessitate the installation of an aeration system designed to maintain healthier DO levels. It is important to note that the county does not clean up dead fish. Private landowners must undertake the task themselves. The good news is, very few fish kills result in total loss of the population. Remaining fish can usually reproduce and quickly restore the population.

Individuals are encouraged to report fish kills to the EPC, especially if they suspect that a kill is a result of toxic spills. EPC will make an on-site investigation to determine the cause of the fish kill and provide recommendations to the residents that may help to prevent future kills. EPC can be reached at 813-627-2600.

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