

## What Caused My Pond Winter Fish Kill?

A “Fish Kill” is an event where large numbers of fish die in a pond or lake. Sometimes a fish kill indicates a problem in the pond or lake, other times a sudden fish die off can be caused by a series of natural events that when combined cause oxygen levels to drop below the acceptable level for some or all of the fish species to survive.

Fish kills can be caused by a variety of factors, most often though suffocation due to the depletion of dissolved oxygen is the ultimate cause. Oxygen can be depleted by many factors: extreme water temperatures, weed or algae die off, or excess organics and muck that uses valuable winter oxygen. Most fish kills are natural events.

**WINTER FISH KILLS:** Are generally caused by a depletion of dissolved oxygen. Winter kills occur

most frequently in very shallow, nutrient rich ponds that are subject to abundant growth of aquatic

plants and algae. Conditions conducive to winter kill arise when heavy snow cover on top of ice inhibits sunlight penetration, thereby preventing aquatic plants and algae from producing oxygen via photosynthesis. This may be exasperated by natural bacteria that consume pond muck. Without [aeration](#), photosynthesis is the sole means of oxygen creation under ice-covered ponds. The greater the load of dead and decaying plants and other organic material, the more rapid the loss of oxygen and the more quickly fish can be stressed or killed by low dissolved oxygen levels. Fish typically die during the winter and are only observed following ice-out. Drilling holes in the ice for oxygen is NOT an effective solution.

**HOW TO PREVENT A WINTER KILL** : A [deicer or aerator](#) will allow oxygen and sunlight to enter the aquatic environment and almost eliminate the risk of winter kill. Aerating during the summer will provide higher oxygen levels that are needed for efficient muck removal. Adding beneficial pond bacteria in the summer months will digest leaf litter and other organic material that will become an issue come spring. Windmills can provide Free Aeration and Free deicing once they are initially purchased. Solar also provides Free Aeration, but solar aeration and solar fountains are more costly to initially purchase. A possible manual solution is to clear snow from several areas of the pond to allow sunlight to penetrate through the ice. Removal of at least 30% of the snow from the ponds

surface usually provides adequate sunlight transmission. Be sure the ice is safe before clearing any snow and remember your fish are not worth a heart attack!

**WILL A FISH COMMUNITY RECOVER FROM A WINTER KILL?** Winter kills that occur in large lakes are rarely serious in the long run because lakes support thousands of fish per acre. Usually enough fish survive, either in the lake or in connecting waters, to repopulate the lake. Fish kills can sometimes be beneficial for the fish community by reducing over-populated, slow growing fish species. More severe winter kills that result in the complete elimination of the pond fish community are more likely to occur in very small, privately owned ponds. In this case, it may be necessary to restock your pond. You

can contact us for a Pond Evaluation and rates for restocking.

**WHAT TO DO IF YOU OBSERVE A FISH KILL:** Once dying fish are observed it is usually too late to stop a fish kill. Pond owners who may observe abnormally high fish mortality after ice out in the spring should notify their local fisheries office. Any fish kills observed in rivers, lakes, ponds and streams, at any time of the year, should be reported to your local fisheries office. While most fish kills are natural occurrences, some have been attributed to accidental or unauthorized human actions such as chemical releases, farm runoff and flow modifications or poorly designed or conducted management activities.