CONNECTICUT DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION

**Inland Fisheries Division**
**Habitat Conservation and Enhancement Program**

# Winter Fish Kills Fact Sheet

**WHAT IS A FISH KILL?** An event where large numbers of fish die, indicating a problem in the body of water. Fish kills can be caused by a variety of factors including dissolved oxygen depletion, extreme water temperatures, fish diseases or introduction of pollutants. Most fish kills are natural events.

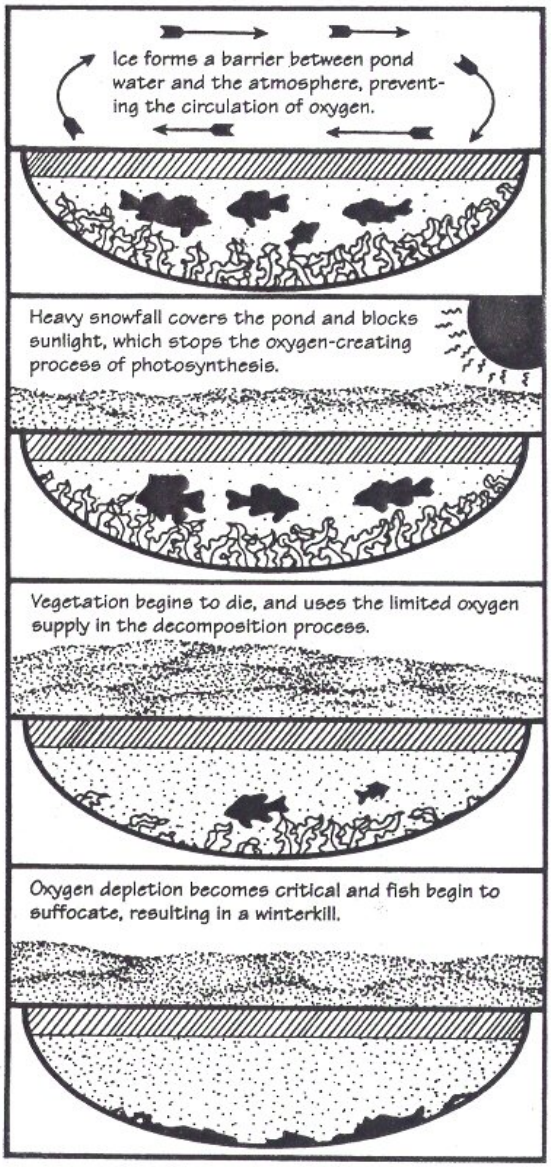
*Example of Winter Kill in a Connecticut Pond*

**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 winterkill arise when heavy snow cover over ice inhibits sunlight penetration, thereby preventing aquatic plants and algae from producing oxygen via photosynthesis. This process is the sole means of oxygen creation under ice-covered ponds. Also, 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 (See Figure 1). Fish typically die during the winter and are only observed following ice-out.

**HOW TO PREVENT:** Generally, a thaw that occurs in or around February provides enough sunlight to recharge oxygen supply by means of photosynthesis and melt waters. However, for a harsh winter with a lot of snow and an extended period of ice cover, one of the best things to do is 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!**

**WILL A FISH COMMUNITY RECOVER FROM A WINTER KILL?** Winter kills that occur in larger lakes are rarely serious in the long run because lakes support thousands of fish per acre. Fortunately, 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 winterkills that result in the complete elimination of the pond's fish community are more likely to occur in very small, privately owned ponds. In this case, it may be necessary to restock your pond. Contact DEEP Inland Fisheries Division biologists for restocking recommendations. A list of private commercial fish hatcheries where you can purchase fish is listed at the DEEP website: www.ct.gov/deep. You can also consult the publication "Small Ponds in Connecticut: A Guide for Fish Management" that can be purchased at the DEEP Bookstore.

**Figure 1. The Winter Kill Process**




**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 mortalities after ice out in the spring should notify the DEEP Inland Fisheries Division at the numbers listed below. The public is also reminded that any fish kills that they observe in rivers, lakes, ponds and streams, at any time of the year, should be reported to the DEEP Inland Fisheries Division. Biologists will discuss the caller's observations and determine if a field investigation and involvement of other DEEP units is needed. 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. Anyone reporting fish kills is asked to provide as much detail as possible concerning location, time and date, estimated size, numbers and types of fish involved, and other relevant site-specific information.

**INLAND FISHERIES DIVISION**

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