

# Keeping Koi in Your Pond During the Cold Months

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This year may be the year you decide that instead of keeping your pond fish indoors in the winter, you want to try to keep them in the pond. The good news is that no matter where you live, you can keep fish in your pond over the winter. Here are a few helpful facts and tips:

First, you must establish the groundwork for healthy fish by preparing your pond correctly in the fall, including doing an aggressive cleanout of the pond. Good fall maintenance means less loss of fish by maintaining better water chemistry, as well as less chances of fish coming down with bacteria/parasites in the spring, when fish are weaker from overwintering. See sidebar, right, for a simple chart with temperature recommendations for winterizing your pond in fall.

There are four vital actions for successfully keeping your pond fish healthy over the winter in any climate: enough oxygen and gas exchange, feeding your fish correctly for the temperature, appropriate depth so that fish can get to warmer areas of the water, and ensuring the fish don't become stressed, so they'll be healthy in the spring.

## Aeration

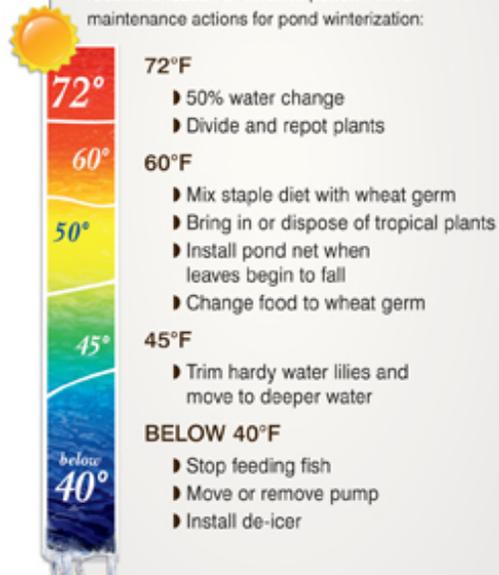
The number one reason fish die over winter is due to a lack of oxygen. A good way to prevent this is to test your water regularly. Regular testing provides crucial information regarding the health of your pond. Before you winterize your pond, perform a comprehensive water test, using a kit like the [Master Liquid Test Kit](#). Another essential test is for oxygen itself, which you can test with the [Pinpoint Oxygen Meter](#) to determine current conditions. Monitor any parameters that are awry and take steps to rectify the factors that contribute to them.

To ensure there is enough oxygen in your pond in winter, your pond must have proper gas exchange. There are several things you can do to make sure oxygen is adequate.

### *Tips for winterizing your pond by water temperature:*

An essential piece of equipment for overwintering fish success is a quality thermometer. We recommend the E-Z Read Pond Thermometer, found on page 6, to monitor water temperature.

Check the following temperatures for our recommendation of when to perform which maintenance actions for pond winterization:





Install a [deicer](#) to keep a hole thawed at the top of the ice so that gas exchange can take place.

Put in an aerator. We suggest the [KoiAir Aeration Kit](#), which includes tubing, compressor, and more, so you don't have to buy everything separately. Aeration is one of the safest ways to provide water circulation, as it creates little water movement (see the section on fish stress to learn why this is important).

Keep winter-hardy plants, like zone-appropriate [bog plants](#) or non-tropical [water lilies](#), inside the pond to emit oxygen and use up carbon dioxide.

## Fish digestion

Even though your fish need to bulk up for winter, be careful not to overfeed. Starting when the water temperature reaches about 70°F, gradually reduce the amount of food you are feeding. Feed 2-3 times a day what they'll eat in 5 minutes or less, then remove any excess food. Gradually add lower-protein (wheat-germ-based) foods, like our [Spring & Fall Diet](#) to your fishes' staple diet when the temperature of the water reaches about 60°F. When the temperature reaches 50°F, you should be exclusively feeding wheat germ foods, as the bacteria in a fish's digestive system are no longer able to process food efficiently. Once the water temperature falls below 40°F, you should stop feeding your fish.

## Water depth

Fish must have a place to go when the water in the pond freezes. If you have ever been in a lake in the summer, you know that the deeper you go, the cooler the water is. Well, in the winter, this process reverses, so that as the depth increases, the water gets warmer. This process is a form of temperature inversion. To help this process, you must provide a deeper area where the fish can find refuge. The needed depth of the area depends on the minimum temperature in your zone, and can range from 18" to 9 feet deep. Knowing the frost line in your zone is vital. Your local garden shop, extension service, or building inspectors will know where the frost line in your zone is. Above the frost line, the temperature gets colder than 32°F, and below, it will generally stay above freezing. As a general rule, the deepest area of the pond

should be at least double the depth of the frost line, to be safe.

### **Don't stress the fish**

Stress causes immune systems to falter, affecting fish health. There are a number of ways you can keep your fish stress-free in the winter. One way is not to overstock your pond, so the fish don't compete for space. Another is to minimize water movement where the fish are. The fish will be resting at the depths of the pond, and movement of the water there causes them stress, because they'll be using vital energy to keep their bodies stable in the moving water. If you use an aerator or any other kind of agitating equipment in your pond over the winter, use lower gph to ensure that only the top part of the water is moving. Also, NEVER use a hammer or other instrument to crack a hole in the ice as the vibration will also agitate the fish.

These four points are essential to keep your fish healthy in winter so your aquatic life is in good physical condition when it's time to open your pond fully in the spring.