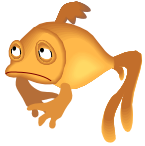


COLD WATER FISH are kept by most pond keepers in this area. Some examples are Comets, Shubunkins, Orandes and Koi. If you added



tropical fish during the season, they should be moved to an indoor aquarium during the early fall. Assuming that your pond is a least 24" deep in the ground, most cold-water fish can winter in the pond given a little attention to late season clean up. Fish metabolisms slow down when the water tempters fall below 50o F. Therefore, they require less oxygen and little or no food (it is also true that colder water holds more oxygen than warmer water requiring less oxygenation.) Fish continue to graze on the algae on the walls of the pond, but cannot digest complex foods such as commercial fish food. **STOP FEEDING** your fish when the temp. falls below 50o F.

Hardy Water Plants live in the garden pond year round. They die back like "terrestrial" perennials in the fall. As they do so, clip the dead foliage and clean up the pots. Most hardy plants can winter at the same depth in your pond as you have them during the growing season.



- Marginal Plants with leaves that grow up out on the water, "emergents" (e.g. Iris, Rushes & Sedges) Can typically freeze solid and come back bigger and stronger if you leave them high where they can get sun's early spring rays.
- Exception – Pickerel Rush, although rated hardy to Zone 4, winters more predictable if the top of the pot is dropped to 9" or lower.
- Water Hawthorn & Water lily Crowns do not want to freeze. Be sure the TOP of the pot is the least 12" below water Level.
- Lotus Growing Ends with die when the water gets cool to save themselves from freezing. Be sure the Bottom of the pot is between 18 – 24" below the water level.

Zone 6 Plants include Thalia Dealbate, Marsilea (all 4-Leaf -clovers), Pennywort, Parrot Feather, Golden Club, Floating Heart, Dwarf Aquatic Bamboo, and Arundo Donax.

- These plants stay in the pond for the winter. Clip the foliage as it dies back, clean up the pots and place the plants **ON THE FLOOR** of the pond, the tops of the pots well below the 12" freeze potential.

Tropical Plants will not survive in the pond through winter. In our area we have two choices.

- Treat tropicals as we do house plants and be sure to bring them inside before the first frost
- Treat them as annuals.

Many people enjoy setting up a small indoor water garden in the house to winter their tropical water plants.



Tropical Lilies are treated as annuals by most people, but can be wintered in a greenhouse or well-lighted indoor pond – or – by storing the tuber in damp sand or in a plastic bag in a dark, cool location until it is time to plant it in the spring.

Dredging & Cleaning is important in the winterizing process. Decay of debris uses oxygen and produces gases, which are toxic to fish. In the growing season this is not a problem, as the gases dissipate into the air. During the winter, an ice mass can prevent the escape of the gases which can kill the fish.

Preparing your pond for winter may include a full pond cleaning or just netting out accumulated debris and removing the dead and dying foliage. However, here are a few more fall and winter protection ideas.

Net your pond during heavy leaf fall (around Halloween) to keep added organic-material from



getting into the pond. Use a bamboo pole or garden stake in a bucket of sand as a “Tent Pole” in your pond, place the netting over the

pond and secure the sides of the net with bricks or stones. The net will shed the leaves to the sides of the pond where they can be collected. Netting can usually be removed after you have cleaned up the leaves in your yard (typically between Thanksgiving and Christmas).

Turn off small fountains or waterfalls for the winter. Freezing and thawing may produce stress on the lines and may cause stones to fracture. Ice buildup may also create dams which reroutes moving water out of the system. You can leave the pump and the filter on the floor of the pond, or remove them altogether. In either case, the pump should not be stored where it can freeze. Don't forget to give your pump, impeller and hoses a good cleaning before storing them for the winter. Lower the water below stone level to prevent sprawling and fractures caused by freezing and thawing.

Winter bubblers make a nice alternative to waterfalls and fountains. A small pump with a PVC riser will create a gurgling effect at the surface of the pond and for the most part keep the pond open for the winter, allowing toxic gases to escape. This adds winter interest and also provides a water source for birds and other “critters”. A winter bubbler pump should be positioned so that:

- The intake pulls water from the mid-depth area (e.g. 9-16” below the surface) leaving the warmer bottom water undisturbed.
- You can easily reach the intake screen / filter for periodic cleaning without treading on ice.

Floating Deicers are another option to keep part of the pond open. Although they use more electricity than a small bubbler pump, you do not have to clean them.