

Fish Care

A Garden Guide

Water quality

Water is the great solvent. Everything in the air (pollutants, spores, acid rain, etc.); and everything in the ground, minerals, salts, and biotic materials derived from the combined effect of climate and topography are a part of your fishes' living environment. Things like pesticide runoff or fertilizers used in your landscape can affect water quality. Clear water is not an indication of water quality. Ammonia, nitrite, pH, chlorine, and nitrate, factors that can adversely affect fish health are not visible. Water quality should be checked on a regular basis, at the very least, in the early spring. Over the winter, the biological balance in the pond changes dramatically and the advent of warm weather can cause fluctuations in water quality.



Nitrification Cycle

With the exception of a spring fed pond, ornamental ponds are a closed recirculating system – basically a big fish bowl. Fish produce waste (ammonia etc.), which can't escape and would quickly accumulate in concentrations that would be fatal. Fortunately nature provides beneficial bacteria that convert fish waste to non-toxic substances. Without this miraculous phenomenon fish keeping would be impossible. This bacteria occurs throughout your pond, and in the biological part of your filter. It is present in products like biofilter booster and starter bacteria. Briefly the cycle goes like this: Toxic ammonia is converted by nitrosomonas bacteria into nitrite (also toxic), nitrite is converted by nitrobacter bacteria into nitrate. Nitrate is a form of nitrogen, harmless plant food, although there is some evidence that large amounts of nitrates can be harmful.

Disease

Pathogens (bacteria, parasites, harmful protozoans) are present in the water all the time. Only when your fish are stressed, and their immune systems are compromised, are they susceptible.

Causes of Fish Stress

1. Prolonged exposure to poor water quality (check your water).

2. Not using a dechlorinator when you add water from a city water supply. Not only does this reduce the level of beneficial bacteria in your pond, but Koi are very sensitive to chlorine, and even small amounts can be fatal. In this case, what doesn't kill you does not make you stronger. Even if not fatal, chlorine and chloramines can cause irreversible gill damage, lessening the fish's ability to absorb oxygen, and lowering their ability to resist disease.
3. Not acclimating fish properly.
4. Overcrowding.
5. Low oxygen levels, caused by unremoved dead algae or poorly circulating water.
6. Poor nutrition. Although there are plenty of natural sources of food for your fish, algae, insects, and insect larvae, a good quality food should be fed on a regular basis to make sure your fish get all their vitamins and minerals. Old food should be avoided. Important vitamins can deteriorate rapidly.



Keep Your Fish Happy

Fish are social creatures. They like to mingle and associate with their own kind, and they rely on their relationship with you as well. Koi especially can be as individualistic and lovable as domestic pets, and just like with your dog, you should be aware of any unusual or abnormal behavior that requires attention. Are they sluggish or hiding, have a normal appetite, is their joie de vivre waning?

Even if you haven't named them, you should recognize these behaviors. The sooner you catch issues, the simpler and more successful treatment will be.

Abnormal Behavior

1. Excessive scratching on objects (some scratching is normal).
2. Gasping at the surface.
3. Isolating or lethargic behavior during the day. (Fish do sleep.)
4. Split or damaged fins.
5. Lesions or redness, spots or bumps.
6. Unexplained deaths.
7. Not eating normally

What to do

1. Do a **partial water change** – topping off your pond is not a water change. Remove 25% of your water and add new dechlorinated water. Water quality is often an issue, and this will lessen the adverse effect, and buy a little time.
2. **Test** your water. We will do it here at Reems Creek for free.
3. If serious, **remove** affected fish.
4. **Medication** –There are several organic and natural medications available that are effective treatments for the most common bacterial and fungal problems. Medicating or treating fish without correcting water quality will have no beneficial effect.

Winterizing Your Fish

A pond 18 to 24" deep is safe for fish in this area.

What to do

1. Clean the bottom of debris in the fall (See Pond Care Garden Guide). Decomposing organic matter can cause oxygen depletion, harmful gasses, and bacterial problems over the winter.
2. Warn your fish that it's about to get colder. They probably already know, and are preparing for their winter hibernation. As this time approaches you should stop feeding your fish. Tapering off as it gets colder, and then stopping when daytime temperatures are in the 40's. Even if it goes up to 70 degrees in January, do not feed them. Their metabolism is shut down, and if they try to eat their inability to process the food can cause serious indigestion, or intestinal blockage that can be fatal.
3. During the winter, when the surface freezes for any prolonged period of time, we recommend running the waterfall as much as necessary, or using a deicer to keep an opening in the ice to allow for gas exchange. Banging a hole in the ice with a blunt instrument is not recommended. Shock waves can cause trauma to the fish and their sensitive hearing. Only during extreme cold, which is rare and temporary in our climate should the waterfall be turned off to prevent ice dams that can occur, emptying your pond of water.

