



## Diagnose Pond Water Quality Problems

Use this handy page to find problems with your pond water's quality and clear them up. Most of the time there is a simple solution. Every pond should have good water quality and it's for certain koi and goldfish cannot live without it.

Symptom	What It Is
Green Water / Pea Soup	<a href="#">Algae Bloom</a>
Smells Like Rotten Eggs	Accumulation of <a href="#">Sludge</a>
Small Floating Debris	Filter Needs Cleaning / Insufficient <a href="#">Mechanical Filtration</a> / Use <a href="#">Coagulator</a>
White Hazy Water	<a href="#">Bacterial Bloom</a>
White Foam	<a href="#">Protein Buildup</a> / Spawning
Brown Cloudy Water	Often <a href="#">Rain RunOff</a> / Dirt in Water / Use <a href="#">Coagulator</a>
pH Tests High (over 8.0)	Pond Too <a href="#">Alkaline</a>
pH Tests Low (under 7.0)	Pond Too <a href="#">Acidic</a>
Ammonia Tests Positive	Inadequate Biological Filtration / <a href="#">Nitrosomas Bacteria Not Established</a>
Nitrite Tests Positive	Inadequate Biological Filtration / <a href="#">Nitrobacter Bacteria Not Established</a>
Oily Residue on Surface	Oil "Spill" / Oil-based Product Used in Pond
Algae Clumping on Top	<a href="#">Blanket Algae</a>
Algae Strands Growing on Rocks	<a href="#">String Algae</a>

### Algae Bloom

#### Definition:

A very natural and expected phenomena. It almost always occurs in new ponds within the first month. When sunlight hits the water and it heats up (like what happens in spring) microscopic algae thrive. This is a type of algae that is microscopic in size, (you can't see it with the naked eye) floats in water (in such a large number that it clouds the water) and does not cling to the sides of the pond. The result is a "bloom" of algae that can be so thick that one cannot see his hand a foot below the waterline.

## String or Blanket Algae

### Definition:

The type of algae that attaches itself to the sides of the pond, rocks on the waterfall and other places in the pond is called String Algae. The type of algae that forms in clumps and floats on top of the water and among the lily pads is called Blanket Algae. Neither is harmful unless enough accumulates and robs the pond of dissolved oxygen.

### How to Clear It Up:

Quickly kill both without harming the fish and plants by using AlgaeFix. Prevent it from coming back by using Barley Bales.

## Sludge Accumulation

### Definition:

When more than an inch of muck collects between rocks, on the bottom of the pond and in-between pots it can become anaerobic. This means that bad bacteria that thrive in low-oxygen environments are growing. These bacteria, such as aeromonas and pseudomonas, can present health problems for the fish as well as turn your pond into a sewer. Enzymes are available that help eat up this sludge but the most effective way of cleaning up the muck is to perform a thorough pond cleaning. To prevent it from accumulating to the point where it gets dangerous for the fish one should never line the bottom of the pond with rocks.

## Getting Rid of Algae Bloom the "Natural" Way

This is an effective method of clearing the pond only about 10% of the time -- and all the factors must be right for that to happen. If the pond is in full sun the chances of success are reduced dramatically because algae feeds off of sunlight. If there is a heavy fish load again the chances decrease because algae feeds off nitrates created from the fish's waste. Ponds that are in full shade are better candidates for this method. To clear the water the "natural" way one MUST have plenty of plants and plenty of patience. Plants absorb nitrates (fertilizer) from the water so the theory here is that plants eventually starve out the algae -- and the operating word here is "eventually". IF the pond reaches its balance it will take up to several months for that to happen. We can help it along by adding enzymes to the water. Enzymes will not work overnight and are only to be regarded as a "help" with clearing the water.

## Bacterial Bloom

This is a normal process that happens most often during spring and to new ponds. It is when bacteria suddenly grows and most the time it's anaerobic (or good) bacteria. Normally not considered a problem and will go away on its own in a week or two. We see it most often in indoor aquariums.

## Biological Filtration / the Nitrifying Cycle

### **The Nitrifying Cycle:**

A biological filter is a filter that houses and encourages the colonization of good, nitrifying bacteria. The nitrifying cycle must be active for a pond to be healthy. Fish and dying plants give off waste. This waste must be converted to fertilizer or it will kill the fish in the pond. It is the job of the nitrifying cycle to do the conversion.

### **Ammonia:**

The waste from fish and dying plant material is called Ammonia. Ammonia burns the gills of the fish and they will die. No reading of Ammonia is acceptable. Nitrosomonas is the bacteria responsible for changing Ammonia to Nitrites and that is the first leg of the nitrifying cycle. If any reading of Ammonia is present you know that there's not enough Nitrosomonas growing in the filter.

### **Nitrites:**

Nitrites, having been converted from Ammonia, are still very deadly and need to be converted to Nitrates (fertilizer) by a good bacteria called Nitrobacter. If a Nitrite test shows any amount of Nitrites it shows us that our biological filter is lacking enough Nitrobacter to do the job.

Regardless of which bacteria it is -- if our biological filter is lacking either or both of the two, it sets up a dangerous situation for the fish. Steps must be taken immediately to keep the pond and its inhabitants healthy.

- Immediately perform an 80% water change.
- Stop feeding the fish until you've attained a week of negative test results.
- Add BioSeed to encourage the growth of the two nitrifying bacteria.
- Add adequate biological filtration.

## Mechanical Filtration / Debris Coagulation

### **Definition:**

Mechanical filtration means removing solids from pond water. A filter that traps solids as water flows through the filter's material is referred to as a mechanical filter. Often mechanical filters double as biological filters. Floating debris and dirty brown water can be cleared up by using a coagulator that binds the debris and dirt together so that it falls to the bottom of the pond to be circulated through the filter or settles and adds to your layer of sludge. It's important to clean the filter pads (or backwash bead filters) after using a coagulator. Several filter cleanings may be necessary as the coagulator does its job.

### **Prevent Brown Water:**

Prevention is the key! If after a rain one notices the water turns brown it is probable that rain water runoff is running directly into the pond. Reroute the runoff by creating ground swells or digging drainage ditches or laying drainage pipe that leads the water around the pond, not through it.

## Protein Build Up

### **Definition:**

Whenever proteins build up in pond water it causes the water to create foam, especially around the area at the bottom of the waterfall. One of the most frequent causes of protein build up is when the fish spawn so we see more foam in ponds during spring when spawning most often

takes place. It's not dangerous but can be unsightly. Use fish-safe de-foaming agents to clear water.

## Alkalinity

### **Definition:**

The pH of a pond fluctuates. It's at its highest in the afternoon and lowest in the morning. When the pond water's pH reading is above 8.0 the water is too alkaline and is harmful to both plants and fish. Simply lowering the pH is only a temporary fix to the problem. It needs to be stable. To correct the problem lower the pH to a point between 7.2 and 7.8 then stabilize it.

## Acidity

### **Definition:**

The pH of a pond fluctuates. It's at its highest in the afternoon and lowest in the morning. When the pond water's pH reading is below 7.0 the water is too acidic and is harmful to both plants and fish. Simply raising the pH is only a temporary fix to the problem. It needs to be stable. To correct the problem raise the pH to a point between 7.2 and 7.8 then stabilize it.

## Oil Spills

Oil-cooled submersible pumps are most often the culprit when an oil spill occurs. Any submersible pump especially designed for use 24 hours per day in a pond is safe, even if it leaks the oil because it uses mineral oil. Submersible sump pumps not designed for ponds can leak toxic oil (petroleum) that will kill the fish. That's why we don't recommend using these pumps in a pond at all.

One must change out the water when a spill happens. This is done most effectively by allowing the pond to fill up and spill over. Oil floats on top. It should float over the edge. Newspaper spread across the top of the pond will also absorb much of the oil. Any pots or waterfalls coated with the oil must be sprayed down until all traces of oil are gone.