

## Your Fish Have Bugs Part 2

### Adding Plants

With the above in mind, it is very important in the case of adding plants, that they be treated prior to their introduction into the pond. There are many commercial treatments, which can accomplish this, but I prefer to use potassium permanganate or 37% Formalin. In the case of Formalin, which is more readily available, simply put the plants in a container of water and add the appropriate amount of Formalin (3cc per every ten gallons of water) and leave them in this solution overnight. They now should be pathogen free and can be introduced into the pond. Rinse the plants. **DO NOT ADD THE WATER THEY WERE SOAKING IN TO THE POND. DISCARD IT IN AN APPROPRIATE WASTE DRAIN.**

### Quarantining New Fish

As you should be aware by now, it is very important to quarantine all new fish before adding them to the general population of your pond. The fish currently living in your pond, as well as the pond water itself, potentially house a certain type and quantity of parasite and or bacterial strains. Your existing fish's immune system is capable of keeping these under control due to the tolerances acquired over time. When you add new fish without quarantining, you could be introducing new pathogens, which your existing fish haven't built immunities too. This could cause health problems for your existing fish. At the same time, the new fish could not be prepared for the pathogens currently living in your pond and on your existing fish, and they too could become sick and possibly die. It is recommended quarantining all new arrivals.

### Proper Acclimation

To insure the health of your new fish, it is vital to properly acclimate them to the body of water in which you are releasing them. The most important element of acclimation is temperature compatibility between the water they are shipped in and the water they are released in. If the fish have been in the bags for less than four hours, follow the steps outlined in Temperature Acclimation. If they have been in the bags for more than four hours and appear distressed in any way, and the temperature difference is less than ten degrees between the bags and the tank or pond, you could consider releasing them immediately. If they do not appear distressed, or the temperature difference is greater than ten degrees, then follow the temperature acclimation procedures below. It is critical for you to have checked the water quality in the tank or pond **PRIOR** to releasing them. Especially check the pH, temperature, ammonia, and nitrite. The pH should be between 7 and 9, and you should have **ZERO** ammonia or nitrite.

### Temperature Acclimation

If the fish appear to be ok in the bags upon arrival home, promptly float the shipping bag, with the fish inside, in the pond or aquarium. Your goal here is to get the temperature in the bag exactly the same as in the pond or aquarium. This will take anywhere from 15 minutes to one-half hour, depending on the temperature difference between the two. If you are putting the fish outdoors, make sure you do not

float them in direct sunlight. Put something over the floating bag to shade the fish. Once you are sure the temperature in the bag is exactly the same as the pond or aquarium, or at minimum with five degrees, you should pour the fish into an appropriate container. Once in that container, use a net or likewise to release them to your tank or pond. I prefer to use my hands, but that can be difficult for the inexperienced hobbyists. NEVER PUT THE SHIPPING WATER INTO YOUR TANK OR POND.

#### Other Hints and Suggestion

1) ALL NEW FISH SHOULD BE QUARANTINED IN A SEPARATE FACILITY FOR A PERIOD OF THREE TO SEVEN WEEKS BEFORE INTRODUCTION TO YOUR POND.

2) Once you pick up your fish, transporting them for more than an hour in hot weather may require you to keep them cool. Your goal is not really to cool the water, but to keep it from getting hotter. The hotter water gets the less oxygen it can hold. So, for this reason, you may need to utilize ice, but not in direct contact with the water in the bag. If needed, put it near the bag to cool the surrounding area, but not directly against the water.

3) WARNING: Koi are known for jumping out of new, unfamiliar waters the first 24 hours or so after release, it is best to cover your pond during this time. A secondary method would be to float something such as Styrofoam on the surface to give them a feeling of security as well as to deter any jumping.

#### Chemical Acclimation

Ammonia becomes more toxic as the pH rises above seven. When a fish is in the shipping bags, especially for more than four hours, carbon dioxide builds up as a byproduct of their respiration. This carbon dioxide when mixed in the water changes to carbonic acid, thus lowering the pH. Also ammonia is rapidly rising due to the respiration, but it is not as toxic or harmful to the fish due to the lowered pH. The pH in shipping bags can commonly drop to five or six because of this reaction, so even though the ammonia can exceed ten ppm, it is not very harmful to the fish, because it is in the form of ammonium at these pH levels. You must realize however, that fish cannot be housed permanently in these low pH levels. It is the worse of two evils.

As soon as you open the bag, you are releasing the carbon dioxide from the bag; therefore the pH will rise very quickly. When the pH rises, the ammonia in the bag becomes instantly more toxic. The same holds true if you add pond or tank water to the bag. If the pH of your tank or pond is where it should be, (7to8.5) then by adding this water to the bag, you are also quickly raising the pH, thus causing the ammonia to become toxic. If the fish are then left in the bag for a longer time, the ammonia can harm them. Therefore, do not add pond or tank water to the shipping bag. When opened, simply release the fish to their new home, but do not dump the water from the bag into the pond or tank.

To summarize, if the fish have been in the bags for less than four hours, float the bag to get the temperature to within five degrees of your tank or pond. Then release them without dumping the bag water in the tank or pond. If they have been in the bag for four hours or more and appear distressed, and the temperature in the bag is less than ten degrees different, it is better to release them as soon as

possible, rather than leave them in the deteriorated bag water. If the temperature difference is more than ten degrees, float them only enough time to get it to within ten degrees, and release them.

Joe