

Quarantine/Hospital Tank

It is a good idea to plan ahead to be sure that the new fish you buy stay healthy and do not bring any problems into your pond. Quarantine is by far the best way to insure both your new and old fish stay healthy. With the increasing incidence of Koi Herpes Virus, it is becoming essential to use a proper quarantine procedure whenever introducing fish to your pond. I am going to give some suggestions on how to set up a basic quarantine tank. After all, not only are those new fish valuable but so is your current collection and well worth protecting.

One reason to use a quarantine tank is to have your new fish where they will be easy to observe for problems and in case a problem occurs easier to detect & treat. Hopefully your new fish were also quarantined by the dealer or breeder where you bought them. However, no matter how good the breeder or dealer where you buy fish you need to quarantine new fish yourself. Problems with new fish can happen and you need to be ready to deal with them. Also, you want to minimize the stress on these new arrivals. That means great water quality, low light, and noise, (the first few days) and lots of aeration. Also, this same set up will serve as a hospital tank when you need to treat one of your current pets that is not doing so well.

If you are buying goldfish a 30-gallon aquarium would do just fine for 2-4 fish depending on their size. However, Koi require a much larger tank--at least 100 gallons and up to 300 gallons and larger if you are buying fish over 10 inches long would be even better. For Koi the optimal shape would be round so that the Koi can easily swim without having to make a sharp turn; next desirable shape would be oval, and last would be a rectangle/square. You want the tank to be smooth inside and without places for your fish to bump and hurt themselves. For Koi you will also need a top for your tank as they tend to jump in small tanks. In warmer weather netting works fine but in cooler weather you will need a plastic cover to hold in the heat. Finally, you will need very strong aeration for your quarantine tank. Low oxygen levels will greatly increase the stress on your new fish.

Your quarantine facility whether a goldfish aquarium or Koi tank should have a fully conditioned filter and water tests performed routinely to be sure water is maintained in top condition without any ammonia or nitrites present. You will need to have a couple of fish live in this hospital tank all the time to keep the filter active. Fish are schooling creatures and will become highly stressed if kept alone.

Setting up and tearing down a temporary system every so often is not usually very successful. It takes too long to cycle in the filter system. Besides you should have a tank always ready to use to treat sick fish. When it is least convenient is when I find I have to deal with sick or injured fish.

You should maintain this tank as you would any other tank or pond. You will want to perform routine water changes. When adding new fish add about 1 teaspoon of non-iodized salt per gallon or 1 lb. per 100 gallons to maintain a 0.1% salt concentration. (Replace this salt as necessary with every water change the first week or two) Optimal water temperature is 76-78 degrees. You will also need to use dechlorinator for the water changes.

I would not feed new fish for several days to give them a chance to settle down. Be especially watchful for flashing (rubbing on the sides of the tank) or any visible sores or red spots appearing. When you start feeding go very lightly. I would very lightly feed with a good basic fish food in very small amounts once day. Use sinking pellet foods for fancy goldfish and good floating food pellets for Koi.

With KHV and other fish diseases around today it is critical to catch any potential problems while in quarantine instead of introducing them to your pond. KHV is a very deadly disease that can hide inside fish that appear to be healthy. KHV is temperature dependent. It only replicates and causes disease in a narrow temperature range. Approximately 70F to 83F. So, it is critical to quarantine any new Koi in the middle of this range about 76-78F. If everything goes well after three to four weeks you need to introduce a Koi from your pond to ensure the new fish are not carriers of KHV. KHV carriers are KHV survivors that have recovered from KHV but continue to harbor the KHV virus and could infect other Koi. After 3-4 additional weeks at 76-78F if both the new Koi and your "canary" Koi are healthy then they can be added to your pond. It is critical to maintain Koi in the quarantine at the proper temperature range for long enough to allow KHV to break. If you buy Koi in warmer months where the quarantine water temperature is warmer than 78 F you would have to wait until cooler weather to start the clock running on your quarantine procedure. If you have a chiller as well as a heater for your system you could maintain the right temps no matter what.

Biosecurity is a must. You must avoid at all costs any introduction of water from your q-tank to your main pond while you are in a quarantine situation. This means care to not use nets, bowls, or anything else in contact with your q-tank with your main pond. The rule of last in last touch is a good one. Get into the habit of taking care of your main pond first and you q-tank last. That way any possible contamination goes from you main pond to your q-tank. Think about any possible contamination from fill or drain hoses, water test kits, etc. It is best to have completely different equipment for the q-tank if possible.

The secret to successful introduction of new fish to your pond is to start preparing several weeks before the new fish arrive. Since your quarantine filter system is probably not conditioned for a large increase in biomass you might want to catch a few fish out of your pond and place them in your quarantine tank to get the filter bacteria load built up for the new arrivals. This will supplement the Q-tank residents' fish you have living in your quarantine tank at all times. Most of us

have a couple ugly pond fish that we keep in our quarantine tanks just for this reason. This keeps the biological filter active and gives new arrivals or a sick fish some tank mates to help them feel more secure. Remember these are schooling animals by nature and will be less stressed in a group.

Now let's talk about a filter system for a quarantine tank. If you are using an aquarium for goldfish or very small Koi install a trickle type wet/dry outside filter. These types of filters work very well and can more quickly adapt to increased fish loads and ammonia levels than submerged in tank filters. You need a clean bare tank without gravel or rocks or anything that makes it harder to keep clean. You will need a cover, a small air pump, air stone, and a aquarium heater to keep the water temperature a constant 76-78F degrees.

With Koi you will need a 150-300 gallon or larger tank. Look for a plastic or fiberglass tank. Round or oval are the best shapes. You can find these type tanks at water gardening stores and feed stores as water tanks. Another plus is a bottom PVC type fitting to be used as an inlet to your pond/filter and also a drain. You want an external water pump and filter to minimize fish bumping into things in your tank. A filter can easily be made by using a large bucket or similar container filled with filter material. It is best to have your filter sit above the tank and pump water up into the filter and then gravity flow filtered water back into your tank. You should consider a trickle tower design or similar type filter system. These types of filters are much faster to respond to increased fish loads and ammonia levels. You can easily make a trickle filter from a 3-4-foot length of 6-8" PVC. Water is sprayed into the top of the trickle tower filter and then it trickles down through the media (bioballs or similar type material) and flows out the bottom) Use a PVC type fittings to step down to 1-1/2" PVC pipe and then use 1-1/2" tubing to return filtered water back to your tank. Remember you need good water circulation. Pump water out of the bottom on one side of the tank and return filtered water back to the surface on the opposite side of the tank.

Because trickle tower filter material is suspended in air vs submerged in water it "works" much better as a biofilter and aerator than submerged type filters. You will need to be able to heat your Koi quarantine/hospital tank in the winter so consider insulation and you will need a plastic cover to retain the heat. Be aware that Koi like to jump, and you will need a very secure top for Koi to prevent having them jump out of the tank. I had a tragic situation where a large Koi was placed in my quarantine tank and managed to jump out by pushing off a heavy Plexiglas cover. I now put clamps on the cover to hold it down securely.

So, what will a quarantine tank setup cost? Actually, you should be able to do this project fairly cheaply and it is a great DIY. I would think you could buy the following stuff for a quarantine aquarium for about \$100.

- 30 gallon tank with cover (used if possible)
- oversized trickle type wet/dry filter

Submersible Aquarium Heater with thermostat (about 30 watts per 10 gallons)
thermometer
Air pump and air stone

A quarantine tank for Koi would cost a little more depending on size (\$150-\$400)

100-300+ gallon plastic or fiber glass tank
Cover for the tank
Material to build a DIY filter
Water pump (rated at your tank volume per hour), tubing, and valves
Air pump and air stones
Submersible Heaters (300 watts per 100 gallons)
thermometer

I would also suggest you place your tank inside the garage or a shed but under a window for sunlight. This gives you access to electricity and moderates the changes experienced when placed in the open. This need not be a beauty project. Think utilitarian and where possible use used equipment to save money. Just be sure that used tanks or filter containers did not contain anything toxic. Used plastic can absorb many chemicals and slowly release them into your water over time. Be careful.

I like to quarantine our new arrivals, or Koi coming back from a show, for at least 3 weeks. 3 months is even better, as I have often seen parasites appear after a month or two in quarantine. Use of a microscope to identify and treat appropriately for any parasites is paramount, rather than the more common "shotgun approach" used by many people.

If all this seems like just too much trouble, please consider the hassles of trying to treat your entire collection if you introduce a problem into your pond. Also, some diseases like KHV are untreatable and would be a death sentence to your entire collection if it gets into your pond.