

Cycling your pond or aquarium water

Understanding how the nitrogen cycle works is the single most important lesson any fish keeper can learn. The nitrogen cycle is the chemical reaction that takes place in our aquariums or ponds when certain toxins are present. Basically two forms of bacteria establish colonies not only on the bio media but all over the aquarium or pond, it is these bacteria (nitrobacter and nitrosomonas) that convert deadly ammonia and nitrite into less harmful nitrate.

Dependant on your filtration system you will have some form of biological media i.g ceramic rings, plastic ring, these provide an enormous amount of surface area in which beneficial bacteria can grow. As well as growing on our biological media these invisible bacteria grow on all surfaces in our ponds and aquarium.

The problem that we face as fish keepers when setting up a new aquarium or pond is these beneficial bacteria's will only populate our ponds and aquariums once these toxins are present in our water, leaving our fish living in poor water conditions for potentially many weeks. There are many options available to us which will keep our fish safe during the maturation period Aqualife2u has always advised its customer follow the following method;

Set up your aquarium or pond as normal, fill and decorate to taste then leave the system running for at least two weeks this will ensure that the pumps, heaters etc are functioning properly. Next its time to stock your pond or aquarium with fish, in order to do this we must know what our maximum stocking capacity is;

Tropical and Coldwater fish 1" per gallon or 2.5cm per 4.55 litres

Pondfish 10" per 100 gal/2.5 cm per 455 litres

Once you know your maximum stocking capacity divide this total by half and this should be your initial stocking level for example if my aquarium had a maximum stocking level of 12" i would initially stock the aquarium with 6" of fish.

Now you should add a 'filter start' product, this is not a source of nitrosomonas or nitrobacter but in fact a bacteria that once present in your aquarium or pond encourages the beneficial bacteria to grow.

Once you have stocked a third of your total stock you must test your water with a good reliable test kit. The important parameters to check for are Ammonia (NH₃) and Nitrite (NO₂) initially you should check for these toxins every 2 days.

You may (dependant on aquarium size and feeding regime) see a small reading of Ammonia, never let this get above 0.02ppm, ammonia is extremely toxic to fish and will wipe out an aquarium or pond overnight. Once the bacteria has started to colonise, the ammonia will be broken down into nitrite which although not as toxic as ammonia is still a killer. Nitrite levels should never exceed 0.2mg/litre (less with some species).

Now you have stocked your aquarium or pond with a half of your maximum stocking level you should carry out 10% water changes every 2- 3 days or whenever you see any readings of ammonia or nitrites.

If at any point you see levels of ammonia or nitrite climb steeply in your pond or aquarium above the figures above you must water change or add a chemical remover until levels are safe.

Ensure that you use a suitable water conditioner if you are using tap water for your water changes and equalise temperatures and ensure the new water is of a similar pH before adding to an aquarium or pond.

After two weeks if you are not getting any readings for ammonia and nitrites you should now be getting a nitrate reading. Nitrate is not very toxic to fish providing levels are not allowed to climb too high. Nitrate is the end product of the nitrogen cycle, once you get a nitrate reading and no ammonia and nitrite readings you know that your biological filtration is working correctly.

You may now add your second batch of fish, do this slowly remember although your bacterial colonies have grown to deal with the waste from your first introduction of fish it will have to take on an extra load of toxins when you introduce new fish, therefore ammonia and nitrite levels may climb again. Change 10% of your water every 2-3 days or whenever you see any ammonia or nitrite readings. After 2 weeks providing your water parameters have settled and your fish are healthy you can add your final batch of fish, remember toxins will climb again so water change and test regularly. After 2-3 weeks your water parameters should have settled and you can reduce your water changes to 20% every 5-7 days.

Note-Calculating stocking levels for a pond or aquarium is not an exact science and there are many factors that come into play including filtration type, water capacity and size of fish. Always bear in mind the fish you buy are not adults and will grow; you should base your calculations on their max size. Large fish will produce more toxins than the same overall length or small fish so a 10" koi will pollute the water more than x10 1" Koi.