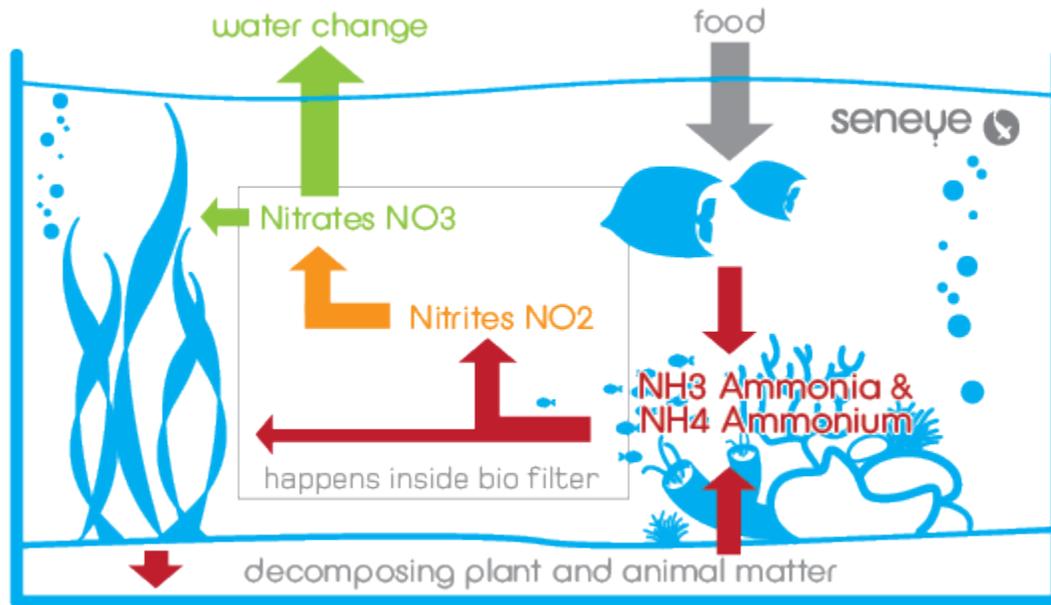
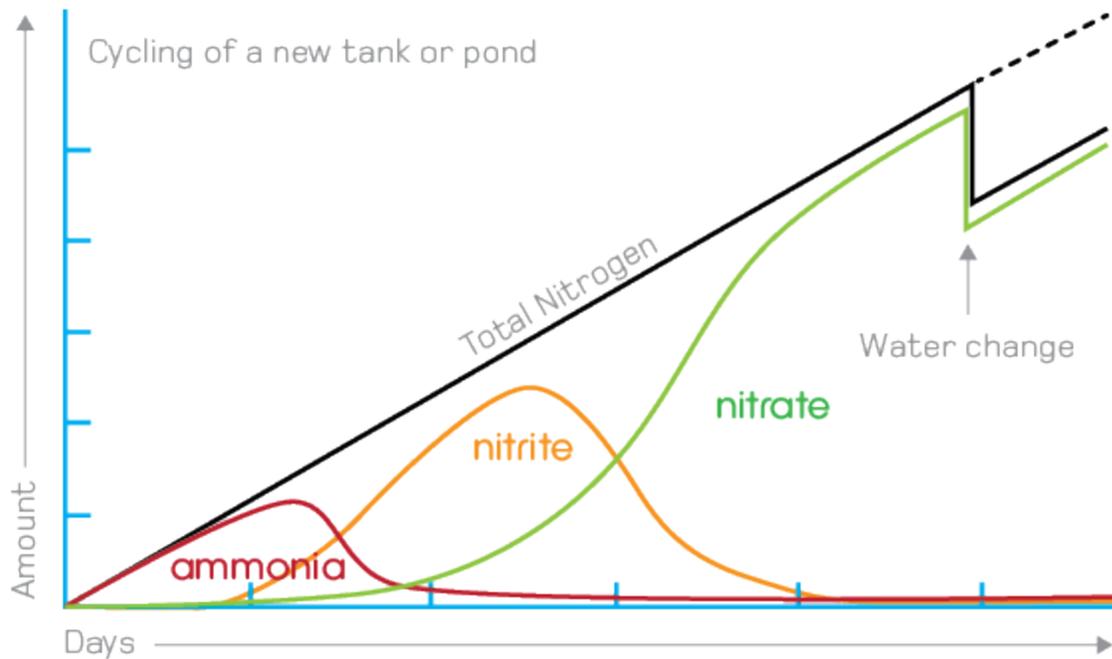


Beneficial bacteria are essential to fish keeping and the aquarium as they process the [toxic biological waste](#) produced by the fish. The most toxic substance is [NH<sub>3</sub>, free ammonia](#) and this comes from the fish passing urine and excreta from the gills.



There are two main types of beneficial bacteria required for water purification in fish tanks or pond; in mature ponds and aquariums they live everywhere, but most prolifically in the filter system where conditions are ideal for them.

The first type of bacteria is called nitrosomonas, and these are aerobic bacteria which convert deadly [ammonia](#) into another less toxic substance called nitrite. The second type is called nitrobacter, another aerobic bacteria, which converts nitrites into less harmful nitrate. Without the bacteria, toxic pollution can quickly build up and kill any fish present.



In a new aquarium or pond you can avoid [new tank syndrome](#) by slowly cycling or maturing the aquarium. This is essential because there will be very few bacteria present in a clean new aquarium/filter and they need time to multiply.

The best plan is to mature the aquarium, slowly adding fish stocks gradually and feeding lightly. You should also monitor the [NH<sub>3</sub>/NH<sub>4</sub>](#) level continuously to ensure the fish are safe. If ammonia rises, you can do things about it - click here for [help](#). Because the speed of aquarium cycling depends on how quickly bacterial colonies grow, here are a few ways to accelerate the process and get more bacteria sooner. One method is to migrate bacterial colonies from a disease-free established aquarium or pond by moving gravel, décor or filter media to the new tank. Usually your local fish store will give you some dirty water to help kick-start the biological processes.

As bacteria are a living organism they need to be cared for just as anything else does. Large swings in temperature, [pH](#) and pollution can cause bacteria colonies to reduce or die away, even in mature aquariums. [A seneye device](#) can be used to watch for the changes that can cause [filter crashes](#).

Some people use [fishless cycling](#) to establish bacteria before adding fish but this also has some risks, such as understanding where the ammonia level is at all times with exhaustive [testing](#) regimes. An alternative is to use the [seneye device](#).