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## **Starting Up a New Tank**

### **The Nitrogen Cycle**

Fish produce waste and your aquarium's ecosystem develops over time to cope with it. Not understanding the nitrogen cycle is the most common reason fish die when setting up a new aquarium.

#### **How does the nitrogen cycle work?**

Fish in your tank create waste in the following ways:

1. Fish excrete toxic ammonia as part of respiration.
2. Decaying fish waste creates ammonia.
3. Uneaten food also produces ammonia.

Special kinds of bacteria go to work on the ammonia and turn it into nitrites (also harmful), which are then converted into nitrates (slightly less harmful).

The bacteria required for this process build slowly on the surface of your filters and gravel. This process can take four to eight weeks, starting from the day that you first add fish to your aquarium.

#### **How do I manage the nitrogen cycle?**

##### **1. Go slowly**

Add a few hardy fish, ones that are tolerant of changing water conditions. We recommend no catfish, nothing less than 2 cm and nothing overly expensive. You should start with fewer fish than your aquarium can hold, then add any additional fish over a period of weeks, allowing the ecosystem in the aquarium to readjust (recycle) in between.

Each step needs to be gradual so the bacteria have enough time to multiply and break down the increasing amount of waste products.

##### **2. Water treatment**

Always dechlorinate tap water before adding it to the tank. Chlorine is put in our drinking water to prevent bacteria living in it (the kind that make us sick). Unfortunately, this means chlorine interferes with the good bacteria that you want to build up in your aquarium.

It is also highly recommended to add a 'good bacteria' water treatment to speed up the nitrogen cycle process. You should treat the water whenever you add new water to the

tank, as well as once a week for maintenance.

### 3. Partial water changes

Every two to four weeks you should change 15–20 per cent of the water in your tank. This helps reduce the nitrate level in the water by removing some.

#### **How many aquarium fish should I start with?**

Remember, with a small tank you should start with only one fish, where a 50–70 L tank can start with three or four fish. It doesn't sound like much, and in the larger tanks you may not even see the fish, but this is the safest way to get the tank going and reduce the potential of losing too many fish – and wasting your money.

#### **When should I add new pet fish?**

New fish might find these levels deadly, unlike the original fish, which have become accustomed to the gradual changes. So a basic rule is only add more if the first fish look okay and you have waited a week; a couple of days won't do. But again, just a small number of fish as the bacteria will readjust now to the added levels of fish.

#### **How do I keep my bacteria healthy?**

Once the nitrogen cycle has completed the start-up phase, your aquarium will be able to detoxify constant levels of ammonia and other chemicals as long as you maintain the bacteria colony. Keeping those colonies healthy, or optimising the amount of bacteria in the aquarium, can be a function of the type of filtration equipment that you choose to use.

Looking after any animal will require some type of maintenance. With aquariums, fish live in their own waste so it becomes the responsibility of their owner to ensure they receive the right conditions for living. Keeping your aquarium as work-free as possible actually requires small amounts of work, done every two to four weeks. In so doing, you'll find that aquarium fish aren't as much work as some other pets.

As an example, for an aquarium of about 50 L, one 10 litre bucket (20 per cent) of water changed every two weeks, as well as a wipe of the glass, is all that is needed on a regular basis. We recommend you check your filter media, and rinse in aquarium water, every second partial change. This extends the life of the media, saves you money and keeps the tank running smoothly. Change the media as required and dependent on the dirt levels created by your fish.

Of course the longer you leave it the more work you may need to perform but ultimately your pet fish will love you more, plus be brighter and healthy, by doing a little regular maintenance.

Again, remember never change all the water in your fish tank at one time as you will shock the fish, cause potential disease or death and your aquarium filter will not work as well for a while. It will be like starting all over again. If you find that the aquarium tank is quite dirty and the water needs more changed, then perform small water changes every third day for a couple of weeks. This allows time for fish and bacteria to adjust, removes lots of mess and shouldn't alter too much of the aquarium's water chemistry.