Life Overload and Fish keeping

FISH KEEPING

A few Basics and Fish tank cycling

MARCH 3, 2020 | ANNABELLA | LEAVE A COMMENT
No this does not mean a bike the shape of a fish tank, or strapping a fish tank to a bike and going for a cycle. What this means is getting a nitrogen cycle in place to help remove fish waste.
There are 3 ways to cycle a fish tank into working order. they are

1. Fish in cycling.
2. Fishless cycling.
    - Fish food method
    - Ammonia method
    - Ammonia and Fish food combined
3. Plant cycling.

Things to take note of:
This is to help give you an idea of wights and measurements

- 1 US Gallon = 3.8 litres
  26.5 US Gallon = 100 liters
- 2.2 lbs = 1kg

Wight of Bio media needed in a filter.

- Community tropical aquarium = 1kg per 100 litres
- Coldwater aquarium = 1kg – 1.5kg per 100 litres
- Predator aquarium = 1.5kg – 2kg per 100 litres
- Large cichlid aquarium = 1.5kg – 2kg per 100 litres
- Malawi / Tanganyikan aquarium = 1.5kg – 2kg per 100 litres
- Marine aquarium = 1.5kg – 2kg per 100 litres
- Mixed fish pond = 1kg per 200 litres
- Koi and/Or Goldfish pond = 1kg per 150 litres

The Nitrogen Cycle (beginner basic)

Well before we can get into the different ways of cycling your fish tank. You first have to an understanding basics of how the nitrogen cycle works so you can understand what it is you are trying to do.
You are trying to set up a Nitrogen cycle in your fish tank to help process fish waste. It is a key thing to **remember that fish are basically swimming in their own Toilet** so you have to filter that out to stop it being toxic.
In the home aquarium the nitrogen process is less a cycle and more a biochemical chemistry that involves the continual chemical degradation of nitrogenous compounds this is usually done with Bacteria in your filter and tank that breaks down the chemicals. The bacira do not live in the water itself. but on the sides of your tank, on your gravel, plants, in your filter and on your decorations. Basically any surface that is underwater. These Bacteria brake down the chemicals and form your Nitrogen cycle.

Ammonia (fish pee) > Ammonia eating Bacteria & plants > Nitrite > Nitrite eating Bacteria > Nitrate > Removed by Water change & Plants

The final nitrates are then removed by aquarium plants but are also removed from the water with a water change. We do water changes to remove the toxin for the fish to stay healthy but also to re depleted add minerals.

Filter Media

There are main 3 types of Filter media

- **Mechanical**
  The job of mechanical filtration is to filter out all the dirt and particles from your water. so you start with coarse > medium > fine to help it better filter out the dirt.

  - Sponge media, (this comes in coarse medium and fine)
  - Filter floss & Polishing pads.
    This is a cotton like material that traps fine particles of dirt,
    (a cheap alternative is Quilt batting but make sure it is chemical free they sometimes sell the aquarium friendly stuff on amazon named as "Pond Filter Wool Koi Carp Pump Aquarium Pond Filter Media Medium Wool Floss")
- **Biological**
  There are 2 types of Biological filtration plants and media you put in your tank/filter this is where aerobic and anaerobic beneficial bacteria grow

  - **live plants plants**
  - **Bio-media**
    The job of this Biological media is to be a place for beneficial bacteria to grow to help filter out toxins. includes your plants leaves, Gravel / sand / substrate, the sides of your tank and every submerged surface. Even the Machinal filters Sponge media can be used as a biological filter media as well. You also get media you can add to your filters, such as;

    - Bio balls
    - Bio max
    - Ceramic bio media
    - Plastic Bio balls
    - Biohome Ultimate filter media

      Cheap Bio media Alternatives
    - Lava rock
    - Plastic Scouring Pads
    - Left over Gravel
    - Filter sponge

- **Chemical**.
    - Carbon
    - Chemical filter Resin
    - Poly-Filter
    - Granular ferric oxide (GFO),
    - Crushed coral,
    - Peat or peat granules
    - Ammonia chips
    - Clay

Types of Filters

There are a lot of different kinds of filters out there. some for salt water some for fresh water some for ponds, But I'm only going to short list the more common, popular filters you will find on a goldfish tank here today.
The reason for this is because the different kinds of filters have such a wide range they could make a huge post or two all on their own.

Power filters

Power Filters are Filters that use a pump or propeller system to suck water into the filter and pump it back into the main tank.

External Canister

external canister filters offer a greater quantity of filter materials and flexibility. Water enters the canister filled with the chosen filter material through an intake pipe, The water is forced to pass through the filter media and is then fed back to the aquarium through the return pipe. Water is forced to circulate through the filter by a pump typically installed at the top of the canister, Depending on the design of the canister filter.

Hang on back filters

HOB (hang on back) filters, are impeller powered filters that hang on the back or sides of your fish tank. They remove water from the aquarium, usually with a long intake tube or pipe, which is then pulled through a series of different filter media and returned to the aquarium via an outrake tube or even waterfall like effect. These are the most common type of aquarium filter. They are far easier to maintain than internal filters.

Internal filters

Internal filters are filters that are placed within the confines of the aquarium.

Airlift / up lift filters

These are filters that use bubbles from an air pump air line and sometimes with an air stone to create an upward flow of water that pulls tank water into the filter, suitable for small and lightly stocked aquaria (sponge filters may also be used with fish fry)

- **Air fed Sponge Filters**
  Sponge filters are as the implies. It is a sponge through which the water is drawn in with an air feed. This provides mechanical filtration as well as biological filtration. Sponges will come come in a variety of shapes and sizes, as well as pore sizes such as fine, medium and course.
- **box filters**
  A air pump fed box, normally a plastic box often clear (but not always) and come in all sorts of shapes, from cylinders, boxes, corner shapes and even cone shapes. with slits on its side and/or top where the intake or water will take place. Inside they may have 2 or 3 types of filter media normally consisting of Floss, Spunge, gravel or ceramic Bio media and Charcoal / Activated carbon.

- **Undergravel filters**
  Undergravel filters are one of the oldest types of filters, They are known to be detrimental

to the health of aquatic plants. Fine substrates such as sand or peat will clog an undergravel filter.
They are not effective if the substrate bed is uneven so an uneven or even thick gravel bed will be a hindrance to the filter system. As water will flow only through the thin portions of the bed, leaving the more heavily covered areas to become anoxic (depleted in oxygen) which is why they are not as popular in the hobby today.

Planted Tank Filter systems

- **Heavy planting (Or No filter system)**
  this is where you have a very heavy planting of aquarium plants with the aim to filter out all the toxic fish waste.
  In my personal opinion This method is best left to experienced aquarium hobbyists I do not wish to put you off if you are new to the hobby it's just experienced hobbyists have had time to get to know the care range of plants, what plants go best with what fish, which ones are more resistant and which ones are harder to care for.
  But if you know what you are getting yourself into then I wish you the best of luck and may your tank look green and fabuless.
  If you plan on going for the no filter system do not rush into it, spend time researching and getting to know the temp ranges, water ranges, what plants grow best with which fish. But I will tell you now a Goldfish will eat anything it can get its mouth around so the heavy planting method with goldfish and they heavy bio load is not all that common.

- **The Algae Method / Algae filters / Algae scrubber**
  The idea is that it filters water by moving water rapidly over a rough Surface (Such as a filter sponge) that is kept illuminated. The light and fish tank water then causes algae to start growing in large amounts.
  As the algae grows it consume the toxic chemicals in the water for nutrients such as nitrate, Silica, phosphate, nitrite, ammonia, ammonium and even metals such as copper and iron from the water

Things To Consider When Choosing A Filter

When choosing a filter for your fish tank it is very important to remember there is no such thing as to much filtration. The beneficial Bacteria will only colonise as much as is needed. So lets say you have a filter designed for a 400l tank on say a 100l tank, but you have the bio load needs of a 50l tank. That big filter will be just fine as the beneficial bacteria will only grow to the capacity of the waste they will need to break down.

What you do need to remember is there are a few things you need to check.

- **To much out flow Current**

This is the flow of water your filter pumps out, this might be to strong for your fish to swim against and rather then poisoning them to death with ammonia, nitrates or nitrites you may end up weakening their immune systems via stress and exhaustion.
Many types of filters have things like spray bar kits to help break this flow up, So you can get maximum filtration with a more controlled outflow. this tends to be limited to canister and sump type filters, But some internal filters may also have attachments then help to do this. The key is to even out the water out flow so you still get a good amount of water agitation this is to keep your fish happy and the water moving it's way back into the filter.

- **To little out flow current**
  This is where you get almost no movement in the tank to the point you get dead zones and the filter can not even filter correctly. This could be because you have to much filter media in your filter, a filter that is to small for the tank you are using it on, Or because you have one of those extra add on filter canisters packed with to much floss and sponges
- **A filter that is to small.**
  lets say you get a filter that can deal with the bioload of a 20l tank. and you've put it on to a 100l tank. That little filter is not going to cope on it's own with the larger water volume and the heavy bioload that comes with it.
- **Calculating rate of your filter will filter water**
  Manufacturer's love to say their filters do more then they can. But this all depends on the bio load of your tank. Some kinds of fish are heavy bio loads (Cichlids and goldfish for example) where others are light on the bio load. It also depends on how much stock you have in the tank. (stock meaning fish) the more fish the more bio load you have to account for.
  So the rule of the thumb with filters, you take their "up to" capacity they are claimed to filter and divided it in half. So example you have a filter that says it can filter up to 1000l of water. Its actual capacity for filtration will be 500l
  Of course you can help these filters by having heavy planting in the tank or even an aquaponics system to help with filtering the water.
- **Once set up AVOID rinsing the filter media with tap water**
  Rinsing your media in tap water is fine when you get it brand new and it's the first time you are using it, this gets the dust and other things off it. However once your tank is set up and you've already done the whole pre wash thing to get rid of harmful things, Do your best to avoid washing that media in tap water.
  There is a reason for this. in all your media beneficial bacteria is collinating, washing in tap water kills this beneficial bacteria which *can* trip your tank into a problem called new tank syndrome, often referred to as a crashed cycle.
  Remember the beneficial bacteria it's self does not live in the water column (the water) it lives on the surface of things. so washing out the media in tank water you are about to throw away is the best option. and the best part is that dirty water those plants in your plant pots will love it.
- **Do you need a Booster canister?**
  If you have an external Canister filter you may want to consider a Booster Filter,
  This is a smaller Canister that is packed with foams and polishing pads to provide Mechanical filtration, this then allows you to set up your main canister filter as a purely biological filtration system with media like lava rock, Bio rings or balls, Gravel, sponges. But know that these Boosters can effect your filters out put so they can be good if you've got a filter for a 400l aquarium on a 100l and you need to reduce the flow, or simply if you need more filtering capacity but don't want to fork out a small fortune getting a bigger filter if you do not need to yet.

- **Do you need a UV sterilizer**
  The UV Sterilizers are a handy bit of kit anyway so even if you do not need one you still may want to consider one.
  They keep harmful bacteria fungus and algae in check. If you suffer from green water or cloudy water and no matter how many water changes or changes in light you do, or how your 3 usual suspect toxins are reading safe levels, and polishing pads are not picking it up and even filter clay is not getting rid of that cloudy water and your still getting this problem, then you may find you need a UV sterilizer to help clear that water up. There is a wide range of these as well, you can get them inbuilt into your canister filters, some hand on back filters have them as well now. but you can also buy them independent as their own mini filter unit in their own right.

Other things you will need

So by now you are asking Which products should I use to cycle an aquarium? Well below is a list of things you are going to need to help you.

Get a good water test kit

There are loads of test kits out there, all based around ponds, Marine and freshwater. so make sure you get the right test kit for needs. Avoid the silly test strips they have been proven to have 2 seconds of accuracy and it's guess work as to when that tiny window takes place. So invest in a liquid test kit, Get the type of test kit you need, if you are dealing with salt water or brackish you want a test kit that tells you it deals with Marine, if you are dealing with fresh water then you want one that says Freshwater.
The types most commonly found are

Freshwater tank test kits

- API Freshwater Master Test KIT (https://apifishcare.com/product/freshwater-master-test-kit)
- JBL Testlab (https://www.jbl.de/en/products/detail/2446/jbl-testlab)
- NT labs – Aquarium Lab Multi-Test (https://www.ntlabs.co.uk/browse-products/indoor/aquarium-lab/aquarium-lab-multi-test/)

- Tetra Water Test Set FreshWater (https://www.tetra.net/en-gb/products/tetra-watertest-set)

Fresh water Pond test kits

- Api Pond master test kit (https://apifishcare.com/product/pond-master-test-kit)
- NT Labs – Pondlab 200 Pond Water Test Kit (https://www.ntlabs.co.uk/browse-products/outdoor/pondlab/pondlab-200/) (Also called Pondlab 200)
- JBL Testlab Koi (https://www.jbl.de/en/products/detail/5904/jbl-testlab-koi)
- Yamitsu Kockney Koi Professional Pond Water test kit (http://kockneykoi.co.uk/products/pond-water-test-kit.php)
- Tetra Water Test Set FreshWater (https://www.tetra.net/en-gb/products/tetra-watertest-set)

Marine and Reef Tank test kits

- Api Salt water Master kit (https://apifishcare.com/product/saltwater-master-test-kit)
- Api Reef Master test kit (https://apifishcare.com/product/reef-master-test-kit)
- NT labs – Marine Lab – Marine Multi-Test (https://www.ntlabs.co.uk/browse-products/indoor/marine-lab/marine-lab-multi-test/)
- NT labs –Marine Lab – Reef Multi-Test (https://www.ntlabs.co.uk/browse-products/indoor/marine-lab/marine-lab-reef-multi-test/)
- JBL Testlab Marin (https://www.jbl.de/en/products/detail/2522/jbl-testlab-marin)
- JBL TestCombi Set Marin (https://www.jbl.de/en/products/detail/8146/jbl-testcombi-set-marin)
- Red sea – MARINE CARE MULTI TEST KIT (https://www.redseafish.com/reef-care-program/marine-care-program/marine-care-test-kit-2/)

Other test kits

- JBL (https://www.jbl.de/en/products/group/2154/water-test)

Water Container

These are to remove harmful things from your tap water such as chlorine and heavy metals. they go by all sorts of names, but to keep it simple you are looking for chlorine removers, they are very often listed as water containers or Dechlorinator

Additives

These are not normally needed but you might find them helpful depending on your needs (you do not need to buy them all, just pick 1 or 2 that suite your needs. if you do Seachem do both Stability and Prime)

- API Quick Start
- Seachem Stability & Seachem Prime
- Tetra SafeStart Plus
- Fluval Biological Enhancer & Fluval Cycle
- Dry Format Bacteria
- ATM Aquarium Products Colony Nitrifying Bacteria
- Dr. Tim's Aquatics Natural Aquarium Products
- Fritz Aquatics FritzZyme Nitrifying Bacteria
- Instant Ocean BIO-Spira

How Cycle Your New Aquarium

Part of this is you are going to need to monitor the levels of toxicity, this is where you use a test kit to test the levels of ammonia and nitrite as a daily routine check. Ideally, ammonia levels and Nitrite levels should be at 0mg/l once the cycle starts to work . Overall, the cycling process is complete when both the ammonia and nitrite levels drop so low that they are undetectable this is a reading of 0.
A complete cycle normally lasts between 6 to 8 weeks. After you add a new fish, wait another week and test the waters to ensure the ammonia and nitrite levels are low before you introduce another fish.
Once you have a complete cycle and you finally have all the fish you should start to get low readings in ammonia and nitrite as the cycle starts to deal with the ongoing fish waste these should be within safe limits on your water test, should any of the 3 start to move into the unsafe ranges that is when you do a water change of around 50% This should happen on it's own weekly or longer if the cycle in place is working correctly and is not over loaded. if you find that they are toxic to often and you are having to do a lot of water changes, then you could be feeding your fish to much, have a tank that is to small. a filter that is too small or even an over stocked tank. these are all fac-

tors you need to be keeping an eye on and never letting your guard down on at any given time. if your fish start to look under the weather and it's not due for a weekly water change, test the water 90% of fish illness is down to poor water and an overloaded or broken cycle.

Fishless Cycling

This is the best and most preferred method as it stops your fish dying from toxic conditions.
its one of the single most common stories of heartbreak you hear from fish keepers how they wish they had known about it before the let that pet store give them really really bad advice. there are many seasoned fish keepers who wish very much that pet stores would encourage all need fish keepers to take a short course on fish care, Not because we think fish should be hard to get but because we want to stop you repeating the same mistakes other fish keepers made all over again and to improve fish welfare.

Fishless Cycling The Chemical/Ammonia method

For star by testing your tap water for Nitrates. Some tap water have nitrates already and you will need to find an alternative water source for your fish tank if that is the case.

Now assuming your tap water is fine this is where you are going to need a bottle of household ammonia from the supermarket, chemist, and sometimes even your local fish store. You will also need a syringe, an Ammonia calculator and a water test kit for testing ammonia, nitrite and nitrate.

Household ammonia is usually around 10% ammonia, the quantities are where you need to use the calculator (I personaly like to use http://www.fishtanksandponds.co.uk/calculators/ammonia.html (http://www.fishtanksandponds.co.uk/calculators/ammonia.htmlhttp://www.fishtanksandponds.co.uk/calculators/ammonia.html)).
The more common amounts added to the tank are between 2ppm and 5ppm (parts per million). 3ppm as a very easy and good level to keep an eye on at the start so that's where I am basing things from.

1. Set up your tank with your washed gravel and set up filter and add plants, light heaters your treated water you can even throw in a few snails at this stage. Basically set up the type of tank you are aiming to set up.
2. You need to know how much water is in your tank. If you do not know already what size tank you have and how many liters it holds then to find out requires a tiny bit of math work. you start by measuring the height, width and length in centimetres of your tank, then multiply those figures together and then divide by 1000 (or use this calculator (https://www.thinkfish.co.uk/calculators/aquariumvolumecalc)). If you have a lot of substrate and décor in your tank you need to take 10-20% off your calculated figure to allow for this.
3. work out the amount of ammonia in millilitres (ml) to introduce it to your tank. then roughly wait 24 hours

4. The next day use the ammonia test kit to measure the ammonia in the tank. If it's below 3ppm you added the day before, use an ammonia calculator (http://www.fishtanksandponds.-co.uk/calculators/ammonia.htmlhttp://www.fishtanksandponds.co.uk/calculators/ammonia.html) again to calculate how much ammonia to add to the tank to bring the level back up to 3ppm. This process may take several days before you start to see a significant drop. Repeat this stage every day for 1 week. This process is to start the cycle off (the initial bacterial growth) and keep the bacteria alive by feeding them ammonia at the correct concentrations in the tank water. you can boost this by betting bottled bacteria that you can buy from your fish store and adding that to your tank.
5. After around a week you should finally start to test for nitrite in the water. This is because the Ammonia has been converted to Nitrite in the first part of the Nitrogen cycle so when you can detect it. Hooray! it means the cycle has started!
6. Next continue testing for ammonia every day. As soon as it drops below 3ppm add enough ammonia to bring the level back up to 3ppm again using an ammonia calculator to make sure you get the correct dose. But at this stage you will also now need to keep testing for nitrite every other day. You should see nitrite rise and then start falling after 1 to 2 weeks.
7. Start testing for Nitrate after 1 week. Nitrate is the last part of the process where the bacteria convert the nitrite to nitrate. When the test kit starts showing a fall in the nitrites you should see a rise in the nitrates. Hooray! it means the cycle is working. Continue the above steps for 1 more week to insure your cycle is in place.
8. Congratulations it's time to add your first fish you no longer need to keep adding that ammonia if you have your first 1 or 2 fish ready to add to the tank. But before you add the fish you are going to need to do your first water change to drop your Nitrate levels to a safe level and add your first 1 or 2 fish. Do not do more then a few at a time at this point as your cycle is still very delecute and may not be able to cope with a large influx of fish all of a sudden which will result in the toxic levels rising and you will see your fish getting sick and dying.

Fishless Cycling – Fish food method

will fish food and a test kit for measuring ammonia, nitrite and nitrate. This time we are going to be using a Type of cycling that uses decaying food to provide a source of ammonia that the cycle requires to start.

1. Set up your tank with your washed gravel and set up filter and add plants, light heaters your treated water you can even throw in a few snails at this stage. Basically set up the type of tank you are aiming to set up.
2. Drop a few flakes of fish food into the tank then leave it for a few days and then test for ammonia.
3. Test your water for ammonia, If there's no reading or the reading is below 3ppm drop a few more flakes in wait a couple of days
4. Keep testing every other day and add a couple more flakes if the reading is below 3ppm
5. After about a week you can start to test for Nitrite in the water. this is the next step in the cycle

where the ammonia is converted to Nitrite. If you can detect nitrite in the water then the cycle has started.

6. Continue testing for ammonia and nitrite every other day and dropping afew flakes when ammonia drops below 3ppm. After a week or two the nitrite level should start to drop and if you now start testing for Nitrate. You should start to see Nitrate levels rise as this is the last step in the nitrogen cycle where the nitrite is turned into nitrate.
7. Do your first water change to drop your Nitrate levels to a safe level and add your first 1 or 2 fish. Do not do more then a few at a time at this point as your cycle is still very delecute and may not be able to cope with a large influx of fish all of a sudden which will result in the toxic levels rising and you will see your fish getting sick and dying.

Fishless Cycling – Ammonia and Fish food combined

as you can tell by the title of this one It really does not need any explanation. it's literally following ALL of the steps of the above two methods in unison with each other.

Fish in cycling

For emergencies and experienced fish keepers as this is a high risk method

This is where so many sad stories come from. the new fish keeper who has not been told about cycling an aquarium and they have just thrown their fish into some water thinking that all is going to be well. and in a few days their fish start to get sick and die and they can not work out for the life why. maybe they hit the internet and start to research, or maybe they go back to the fish or pet store to complain about all their fish dying and then get asked "Did you cycle your fish tank first?" and are left wondering if the person they are talking to is speaking some kind of alien langues all of a sudden. SADLY this is all to common and is something many fish keepers want to put a stop to as it's an avoidable mistake to many new fish keepers make due to pure lack of knowledge of the subject. So here i'm going to tell you how do to that fish in cycle, because 1: you were a new fish keeper who is stuck in the all to common sad tail 2: a fish keeper who's just suddenly been hit with their cycal dying off and you are having to research that emergency of re starting your cycle with the fish in the aquarium. Or maybe even you have recused some fish or a fish tank has broken and you have no other choice. well don't panic it's not as hard as you'd think but it really is an avoid if you can situation as it's a very high risk for your fish and this method is the single biggest reason for mass fish deaths with new fish keepers.

1. Like with the fishless cycle Fish Waste is what is going to provide us with the chemicals, Fish pee, poop and uneaten fish food break down, releasing ammonia, a toxic chemical, into the water and remember you are going to need to be testing for all 3, Ammonia, Nitrites and Nitrates, every day.
   With the fish being in the tank you need to keep an extra eye on those toxins to try to keep them in safe levels you also need to be keeping on the fish as this will be stressing them out and make them more prone to becoming sick. So you may need to perform emergency water changes.

2. Since we want this to get started as soon as possible for the sake of the fish Add Beneficial bacteria from bottles you can buy form your fish store to eat the ammonia and release nitrites. This will kick start your cycle.
3. the last stage is a beneficial bacteria eat the nitrites and convert them to nitrates this is a sure sign your cycle is back in action, but do not let your guard down. you now need to be doing small water changes every few days until it settles down.

The Heavy planting Method

As the name implies in this method it means a LOT of plants, this is a system where there is no filter other then the plants themselves. To start you can use the fishless method of Food or ammonia. I would recommend that you do this with no fish in at all to start as you are first aiming to get your plants established while maintaining a cycle. your plants are going to be your filter i would also recommend an air stone in a tank like this to provide water agitation for your fish. Here I am going to use the food method because it's by far the easier method to use and can be helped along with a few snails.

1. Set up your tank with your washed gravel and add **a lot** of plants, set up your lights and if you are doing tropical heaters. Then carefully add your treated water once again you can throw in a few snails at this stage as they will eat the rotting food. Also in this method Algae growing on things is your friend not your enemy. however Green water is not so good so keep an eye on that.
2. Drop a few flakes of fish food into the tank then leave it for a a few days (unless you have snails then its only 1 day) and drop some food in and then test for ammonia.
3. Test your water for ammonia, If there's no reading or the reading is below 3ppm drop a few more flakes in wait a couple of days and repeat the process.
4. Keep testing every other day and add a couple more flakes if the reading is below 3ppm
5. After about a week you can start to test for Nitrite in the water. this is the next step in the cycle where the ammonia is converted to Nitrite. If you can detect nitrite in the water then the cycle has started.
6. Continue testing for ammonia and nitrite every other day and dropping afew flakes when ammonia drops below 3ppm. After a week or two the nitrite level should start to drop and if you now start testing for Nitrate. You should start to see Nitrate levels rise as this is the last step in the nitrogen cycle where the nitrite is turned into nitrate.
7. Do your first water change to drop your Nitrate levels to a safe level and add your first 1 or 2 fish. Do not do more then a few at a time at this point as your cycle is still very delecute and may not be able to cope with a large influx of fish all of a sudden which will result in the toxic levels rising and you will see your fish getting sick and dying.