Fish Rescue & Welfare Charity

www.fishrescueandwelfare.org

www.facebook.com/groups/fishrescueandwelfare

Questions

1. **What is fishless cycling?**
2. **Why fishless vs. traditional?**
3. **What items do I need for my fishless cycle?**
4. **Should I use bacteria in a bottle?**
5. **Where can I get the right ammonia source?**
6. **I have live plants! Can I put them in the tank yet?**
7. **What are the step by step instructions to fishless cycle an aquarium?**
8. **What is the best seeding material?**
9. **Should I use carbon? Why not? What other filters then?**
10. **Where does the bacteria grow?**
11. **Should I clean my tank / filters?**
12. **Are there any tricks to speed up my fishless cycle?**
13. **Will pH affect my cycle / pH crash at end of cycle?**
14. **Should I do pwc's during my cycle?**

15. **Do I need a dechlorinator?**
16. **My ammonia level is not going down!**
17. **My nitrItes / nitrAtes are not appearing!**
18. **My nitrItes / nitrAtes are sky high! Is that okay?**
19. **My cycle is stalled, what can I do?**
20. **What should my readings be if my cycle is complete?**
21. **I think I'm done! What now?**
22. **How can I keep bacteria alive after my cycle is done?**
23. **My cycle seems to have reverted after big pwc! Showing ammo / nitrItes!**
24. **All finished! How many fish should I add initially?**
25. **How can I keep my bio-filter healthy down the road?**

Answers

1. <u>What is fishless cycling?</u>

Fishless cycling is a fast, efficient and humane process of preparing your aquarium to be safe for fish. Basically, it is the process of growing 2 types of beneficial bacterial colonies in your aquarium. These bacteria will convert the dangerous waste your fish produce into a much less toxic form (ammonia > nitrIte > nitrAte).

Normally, cycling a tank involves sacrificing or permanently damaging a few "hardy fish" to grow these colonies of bacteria. Doing a fishless cycle uses a pure ammonia source instead of the ammonia a fish produces to feed and grow this healthy bio-filter, cutting out the middle man (or middle fish) to achieve this . In an uncycled, unprepared aquarium, even fish food is toxic. A fishless cycle insures you have the strongest and safest home for the fish that will soon move in!

2. <u>Why fishless vs. traditional cycling?</u>

Traditional cycling with fish in your aquarium has many drawbacks. First off, having fish in the tank during this process is cruel. Cycling always involves high levels of ammonia and nitrIte. Ammo and no2 are both extremely dangerous to fish, and even if they survive the process they can be permanently damaged and exposed to having their gills burned and scarred. Their quality of life will be greatly

reduced by putting them through this process.

Secondly, fishless cycling is MUCH less work for you. Traditional cycling can take months and requires daily water changes and constant monitoring of water parameters. Many people who purchase fish to cycle their tank end up desperately searching for a temporary home for them so they can do a fishless cycle, simply because traditional cycling takes a lot of physical labor and tons of bucket carrying and back pain.

Also, a fishless cycle establishes a stronger, healthier bio-filter in much less time than traditional cycling. A fishless cycle can be completed in a matter of days or weeks as opposed to potentially taking months with traditional methods. I personally completed my first fishless cycle in 20 days and if you have seeding material from another tank…it can be completed in days.

Believe it or not, fishless cycling can be fun and exciting, and the peace of mind that you are cycling your tank FOR your fish…not WITH your fish is a good feeling and a great lesson to teach your kids.

3. <u>What items do I need for my fishless cycle?</u>

If you already have all the normal items that are required for a fish tank (heater, filter, test kit, etc…) the cost of doing a fishless cycle can be paid for with the change in your pocket. The only additional item required is a pure ammonia source picked up from your local hardware store. A bottle of pure ammonia only costs a couple of dollars. If you want to have a few items on hand to help things go super-fast, a small packet of fish food (a great source of phosphates for the bacteria) and a good source of oxygen (air stone, bubble wand) can really speed things up. Also make sure you have a quality dechlorinator like Seachem Prime and a reliable test kit (we all use the API Master Test Kit). Strips are notoriously inaccurate. A journal or notebook is also a great idea to track your progress.

***If you have very soft or low alkalinity water, I personally recommend purchasing a bag of crushed coral or aragonite. Both of these products will buffer the water and assist in keeping the pH stable while cycling your tank. The vast majority of problems related to fishless cycling are due to a lack of buffers that the bacteria consume during the process. This has the potential to cause a dramatic pH crash which can prevent the beneficial bacteria from colonizing…and actually cause a die-off if the pH becomes acidic enough. If you purchase it, you can place a handful into a mesh bag (sold at most fish stores) and fit it into your filter or simply hang it in your tank. After completing your cycle, you can simply take the mesh bag out of your aquarium, do a water change and from then on use only your natural tap water. This is really only necessary if your water has low hardness or alkalinity, but there are no downsides to using it during a fishless cycle. If you have an extra £10 to spend, it's never a bad idea to be on the safe side and ensure things go smoothly.**

4. <u>Should I use bacteria in a bottle?</u>

This is a matter of some debate. I personally recommend against using them. I have heard too many stories over time about crashed bio-filters and sudden spikes of ammonia and nitrItes that are tracked back to an "instant cycling" product. There are some reputable sources that sell "active" sponges which they claim contain good portions of natural beneficial bacteria. If you decide to take a short cut, this is the method I would prefer over the bottled products.

If the guy at your fish store managed to talk you into a cycling product and you've already added it in, I would implore you to keep a very sharp eye on all water parameters for quite some time after your aquarium (appears) cycled. It is also common to experience some very odd readings which seem to defy the laws of science if you have added them to the water.

If and when a product is developed that is 100% proven to establish a healthy, consistent, stable and natural bio-filter, I will happily take down this guide and simply post a picture of that product…until then, keep reading!

5. <u>Where can I get the right ammonia source?</u>

This is one of, if not the most important part of a successful fishless cycle. If your bottle of ammonia is not 100% pure…run away! The right ammonia will have no surfactants, no dyes, no perfumes and no detergents. Even though the wrong stuff will have ammonia in it… it would be like pouring a bottle of dish soap or cologne into your fish tank along with it. Most members here have good luck at Ace Hardware finding the correct stuff. It is Ace Brand Janitorial Strength Ammonia. There are plenty of other stores to find pure ammonia, but Ace Hardware seems to be the most reliable.

Many people use frozen shrimp or fish food in a mesh bag, and while these things work, I suggest you put in the effort to find pure ammonia as it is much easier to maintain a constant level and take a more scientific approach to the process. There are also several negative consequences that are possible from using shrimp or fish food (molds, fungus, etc…).

6. <u>I have live plants! Can I put them in the tank yet?</u>

Sure! Plants love the ammonia and nitrAte rich environment that is created during a fishless cycle. While technically they are a competing source for the ammonia you are adding in, it will not make any noticeable difference or slow down your fishless cycle in any way. Plants removed from an established tank will have some degree of beneficial bacteria on them to help get you started, but it is up to you to decide whether to add them directly into your tank or use a plant sanitizing method of your choice. Plus, they give you something to look at and play with while you wait for your fish to move in! Try to keep the lighting only to the amount your plants require to discourage algae growth until your cycle is complete.

7. <u>What are the step by step instructions to fishless cycle an aquarium?</u>

A) Fully set up your aquarium. Get it filled up with water, filter filtering, bubble wand bubbling, decorations decorating, heater heating, etc… I personally recommend against using carbon filters…I'll explain later.

Any live plants you plan on keeping are also welcome to be placed in the tank at this point, they will actually benefit from the water conditions during a fishless cycle.

If you have decided to use crushed coral or aragonite as an insurance method, go ahead and get that in as well.

rolleyes Add your dechlorinator to remove any chlorine / chloramines / heavy metals in your tap water. Chlorine is made to kill bacteria… bacteria is what you're trying to grow. These 2 things don't mix.

C) Crank your heater up and get the water temperature between 77-86 degrees. This is the range that the beneficial bacteria colonize the fastest. It's smart to leave your tank light off at this point as well (assuming you don't have real plants). Algae also love the water conditions you're creating, and leaving the light off will help prevent it from growing. Hey, there's nothing to look at yet anyway!

D) Crank the bubble wand up! The more bubbles the better! If you don't have an air stone or similar item, lower the water level a bit so the filter water splashes onto the water surface and creates bubbles.

E) Go ahead and add in your ammonia. Aim for around 4ppm. Start with a small amount, wait about 20 minutes for it to circulate and add more if needed. Repeat until you achieve the correct amount. If you add too much, you can do a partial water change to bring down the level. Keep track of how much you added to achieve the desired result.

F) Get some seeding material! Beg your friends, a friendly guy at the lfs, basically anybody with a healthy, established tank to donate a used filter, gravel, decorations…anything will help! Stick it in the tank, preferably into the filter area as this is where most of the bacteria grow. Technically, if you got enough seeding material you could instantly cycle your tank since you'd be adding in so much of the bacteria you need. If you can't get anything, no biggie! The bacteria you want are free and in the air around you. Also, you can add a tiny bit of finely ground up fish food to add nutrients and phosphates

into the water that the bacteria like.

G) Have patience. Test your ammonia level every few days. When you see it start dropping down… the party's getting started. Let it go down to about 1ppm and then dose it back up to 4ppm. Don't let it drop to zero because you'll be starving the bacteria of the food they need.

H) Once the ammonia starts dropping, start testing for nitrItes. It is normal for there to be a delay of several days between the time ammonia drops and nitrItes show up. It will appear slowly at first then start rising pretty quickly. You should be excited! We're almost halfway home!

I) Keep dosing the ammonia up to 4ppm. It should be dropping fairly quickly by now. Watch your nitrite levels, and once they've gotten really high…start testing for nitrAtes. Once the nitrAtes show up, it's all downhill from here!

J) When your levels of nitrItes and nitrAtes get so high that they're off what your test kit can show you… do a 50-60% water change. A water change will have no negative impact on your cycle and will help keep things moving and bring your levels low enough so you can actually tell what they are. You can also add another pinch of ground up fish food just to make sure the bacteria has lots of nutrients and phosphates to grow. A water change will also restore the buffers in your water to prevent any fluctuations in pH at the end of your cycle. Remember your dechlorinator!

K) Wait for the magic to happen. Keep watching your levels and adding the ammo up to 4ppm. Keep a very sharp eye on pH at this point. If you see any hints of the pH level dropping…time to break out the bucket and bottle of Prime to do a 50% water change. We want to make sure we have plenty of buffers in the water to keep the pH stable.

One morning you'll wake up and when you test the water…Ammo and nitrItes will be gone! They'll have vanished overnight! Technically this means your cycle is complete, but we've still got a bit of testing to do to make sure.

L) Add your ammonia up to 4ppm one more time. Look at the clock. If within 24 hours you can turn that 4ppm of ammonia > nitrItes > nitrAtes… congratulations! After the 24 hours your test results should be ammo-0 nitrItes-0 and have lots of nitrAtes. You grew one heck of a bio-filter and are going to have ridiculously happy fish!

M) Now you've just got to keep your bacteria alive until you add fish. Add around 1ppm of ammonia

daily just to keep the bacteria alive.

N) The day before you plan on adding fish, you've got 2 important things to do… Number one, TURN THE HEATER BACK DOWN! The bacteria love the warm water, but your fish probably don't want to be dropped into a hot tub. Also, perform a HUGE water change… I'm talking around 90%. The nitrAtes will have built up like crazy during this process and you've got to get them into a safe level for fish. The lower the better, but as long as you can get them below 20 you're good to go!

O) Add some of your fish. You're bio-filter is so strong that you could technically add the full stocking level to your tank, but you don't necessarily want to. Some types of fish need time to establish territory and dominance, so if you throw them all in at once it can be asking for trouble. Personally I stocked my tank around 50-60% full initially with peaceful community fish. You don't want to add too many at first, but if you only added a couple tiny fish at the beginning they won't provide the amount of ammonia that your new bio-filter needs to stay strong. Shoot for a middle ground and add a reasonable sized amount of fish depending on your tank size and by researching the type of fish you plan on getting. This is where common sense is most important.

P) Final steps… enjoy your fish and tell your friends to fishless cycle!

8. <u>What is the best seeding material?</u>

Seeding material refers to any type of item that comes from a healthy, established aquarium that is used to introduce some of the beneficial bacteria into your tank. The best seeding material comes from a filter because the vast majority of good bacteria live here. A nice dirty filter pad, cartridge, ceramic media… anything from this area is fantastic. Even a handful of gravel or a decoration from an established tank will help though.

Make sure that the tank you get these items from is healthy, because everything that is alive in there (including algae, disease, parasites, etc…) will soon be alive in yours.

Whatever you get, make sure it stays wet until you get it moved to your aquarium, because if it dries out…that's the end of your seeding material.

9. <u>Should I use carbon? Why not? What other filters then?</u>

You know that little cartridge that comes with basically every HOB filter on the planet? The one that you're supposed to use for a month, throw away and replace with a new one? They are one of the worst things you can do for a healthy tank and a horrible aspect of this hobby.

The carbon itself is not the problem. Carbon can be used to absorb odors, help with a cloudy tank or take out medicine you might need to add. The problem is that the companies that make fish keeping products need to make money, so they tell people that you need to purchase cartridge filters on a monthly basis. As I said, the VAST majority of your beneficial bacteria live in your filter, so by throwing it away and replacing it, you are literally throwing a huge piece of your bio-filter into the trash. This can lead to mini-cycles, ammonia spikes and very unhappy fish.

Instead of buying the cartridges, go to the lfs and buy a roll of filter media that you can cut down to size and stuff into your filter. The rule is to never throw away a filter until it is literally falling apart. During each pwc swish the filter around in a bucket of tank water (not tap water!) to remove loose debris and stick it back in where it was. When you're getting to the point that it needs to be replaced, stuff a new piece of filter in right next to it and leave it as long as possible. That way the old filter can seed the new, and when you have to throw away the old there will be another ready to take over.

10. <u>Where does the bacteria grow?</u>

Beneficial bacteria grow on virtually every surface of your tank… the walls, the gravel, the little ceramic octopus you've got in there, everywhere! It however especially loves the oxygen rich area inside your filter. That is why it's so vital to never throw away a filter unless it is no longer viable.

The bacteria do not live in the water as many people think. There may 1 or 2 little guys floating around, but this is why pwc's are not harmful during a cycle.

11. <u>Should I clean my tank / filters?</u>

One of the great things about a fishless cycle is that there is virtually no tank maintenance during the process. With the exception of a couple pwc's in the middle and a massive one at the end of your cycle…you really don't need to touch anything. In fact, trying to clean the gravel, decorations or the filter pads is detrimental to the process as you will always remove some of the bacteria you're trying to grow.

Once your tank is up and running, weekly pwc's and swishing your filter around in a bucket of tank water to remove debris is normally all that's required. Types of fish have different requirements for tank maintenance, so make sure you research what your little friends need to stay healthy.

12. Are there any tricks to speed up my fishless cycle?

As long as you followed the step by step instructions in the guide, you've already done the tricks. If it seems like things are starting to slow down and you're numbers haven't moved in a while, a 50% pwc can get things going again. Also another little pinch of fish food can restore nutrients and get things moving.

13. Will pH affect my cycle / pH crash at end of cycle?

pH will not have a huge impact on the speed of your cycle. Some bacteria prefer it a little higher, the other a little lower. As long as you do not have extremely high or low pH values, everything will be fine. If your pH is below 6.5 or well above 8…it may be time to consider getting the water into a more neutral range. If so, I much prefer natural methods like crushed coral to raise it, and things like peat to lower your levels. I am against altering pH in 99% of cases, but during a fishless cycle when there are no fish in the tank it will not cause harm. The almost complete water change upon finishing the cycle will restore the natural value of your waters pH and natural additives will no longer be needed.

During the process of the cycle, there is the possibility of pH fluctuations. The ammonia has basic properties which can raise the pH as you add it, and the nitrifying bacteria produces acidic waste which will lower it as the cycle progresses. If you have low hardness and alkalinity to your water, these pH fluctuations can be much more dramatic. Performing a 50% pwc at the height of your cycle will restore buffers and prevent any serious crashes or drops in pH. Remember to always keep a close eye on your pH in the last stages of a fishless cycle. People with low alkalinity are much more prone to sudden drops and the potential for pH crashes and damage to the beneficial bacteria.

14. Should I do pwc's during my cycle?

Partial water changes are not harmful, but usually only necessary at certain parts of your fishless cycle. First, if you accidentally overdose the desired level of ammonia, do a pwc to bring it down to the correct range. Second, at the height of your cycle, when your levels of no2 and no3 are so high that they are unreadable on your test kit, do a 50% pwc. This brings the nitrIte and nitrAte down to a level where you can monitor them, as well as restoring nutrients and buffers to the water that are needed to continue growing bacteria and stabilizing your water.

Though not normally necessary, remember to keep a close eye on pH and do a water change if you see the pH lowering significantly towards the end of the fishless cycle. Lastly, when you complete your fishless cycle and are ready to bring home fish, do a massive (90 %) pwc the night before to lower the nitrAtes to safe levels. The lower the better, but anything around 20ppm is fine.

Remember that the vast majority of beneficial bacteria live in your filter and the surfaces in your aquarium, so a pwc will not interrupt your cycle… but they are normally unnecessary except for the

reasons listed above. And always remember to use your dechlorinator when doing pwc's!

15. <u>Do I need a dechlorinator?</u>

If your home is connected to a municipal water supply, the answer is ABSOLUTELY! Chlorine / chloramines are deadly to bacteria and need to be neutralized to prevent any damage to the bacteria you're trying to grow. Even if you are on a private well, a quality water conditioner is still a good idea to neutralize any heavy metals which may be in your water supply. Don't worry if your bottle of dechlorinator says it "removes ammonia and nitrItes"…this is actually not true. It temporarily converts ammo and no2into a non-toxic form that is still available for your bacteria to consume. Remember to always add this during any pwc, especially once you have fish in your tank.

16. <u>My ammo level is not going down!</u>

Chances are you just need to be a little more patient. My first fishless cycle took 7 or 8 days before I saw any drop in ammonia, and I had lots of seeding material in my filter. If it has been a substantial amount of time without any change…you should review all the steps in the guide to make sure you didn't miss anything. The biggest cause of this is people using the wrong type of ammonia. Double check the bottle, if it says it contains surfactants, dyes, perfumes or other additives… you've unfortunately got some water draining and serious rinsing of things in your future…and the bad news is you're gonna need to scroll to the top of this article and start again.

17. <u>My nitrItes / nitrAtes are not appearing!</u>

Just as with the ammonia not dropping quickly, you probably just need a bit more patience. The ammonia > nitrite bacteria will develop first, and the nitrite > nitrAte bacteria will take a bit longer to start showing up. The bacteria that produces the nitrAtes needs to have nitrItes to feed on and colonize, and chances are that nitrItes haven't been in your tank long enough to let the nitrAtes show up yet. Stay patient and test nitrItes and nitrAtes every few days. It's an exciting feeling when you finally see the nitrAtes show up on your test!

18. <u>My nitrItes / nitrAtes are sky high! Is that okay?</u>

Extremely high levels of nitrItes and nitrAtes are a normal and expected part of cycling a tank. That is why cycling without fish is so important because these high levels are deadly to them.

If your nitrItes and/or nitrAtes get so high that they are unreadable, do a 50% water change. This will bring the levels down to readable levels to save your sanity and also to be able to monitor your cycle more efficiently. Those super high levels can also stall your cycle, so by doing the pwc you can prevent this and also restore nutrients and buffers into your water.

19. <u>My cycle is stalled, what can I do?</u>

First off, are you sure your cycle is stalled and this is not just one of the times where you need patience? If ammo has been dropping and is now staying the same, or nitrAtes were climbing but are now level…it is possible the cycle is actually stalled.

The vast majority of stalled cycles are due to the bacteria using up all of the nutrients in the water. Think of it as fertilizer for plants. A plant can grow with light and water, but it needs nutrients from the soil to be healthy and flourish. It's the same for the bacteria in your water. Doing a pwc and adding a pinch of finely ground up fish food will restore these nutrients and get your cycle back on track.

20. <u>What should my readings be if my cycle is complete?</u>

In a fully cycled tank, your readings should always be ammonia-0, nitrItes-0 and levels of nitrAtes can vary. If you can add 4ppm of ammonia, and 24 hours later there is no trace of ammonia or nitrItes, your tank is fully cycled with a strong bio-filter. *Note- never try this little experiment once you get fish…because you won't have live fish anymore after that 24 hour period.

21. <u>I think I'm done! What now?</u>

If you believe your tank is finished cycling, you should do the 4ppm ammo down to 0 ammonia and 0 nitrItes in 24 hour test once more. If that test is successful, you're almost ready to move in your fish! Do a massive (90%) pwc to bring your nitrAte levels down to a safe range. Anything under 20 is safe to start stocking. If you aren't going to add fish for a while, continue to keep the bacteria fed until the night before you add fish by adding only 1ppm of ammonia every day. Remember to always do the pwc the night before adding fish anytime you've been adding pure ammonia to the tank.

22. <u>How can I keep bacteria alive after my cycle is done?</u>

Your new beneficial bacteria can last quite some time without food, but it is wise to continue feeding them small levels of ammonia every day until you introduce your fish. At this point 4ppm is not necessary, just dose the tank up to around 1ppm of ammonia daily and make sure to do your big pwc the night before adding fish.

23. <u>My cycle seems to have reverted after big pwc! Showing ammo / NitrItes!</u>

It takes a pretty serious problem such as a MAJOR pH crash to actually cause your cycle to go backwards after it is completes. Most likely, if you just dosed your tank up to high levels of ammonia again, you are actually watching the conversion of ammo > nitrItes > nitrAtes happen. Try adding a small dose of around 1ppm of ammonia and see if you can keep the levels of nitrItes virtually at 0 during the conversion. Fish put out a small, steady stream of ammonia instead of dumping in 4ppm at

one time. Your bio-filter can handle the fish, but it's still a good idea to make sure your tank can handle low levels of ammonia without any type of nitrite spike.

If your water supply has chloramines in it, on many test kits it will show as an ammonia level. As long as you used a dechlorinator (like Prime) the ammonia is rendered non-toxic and will quickly be gobbled up by your bio-filter.

24. <u>All finished! How many fish should I add initially?</u>

You're bio-filter is so strong that you could technically add the full stocking level to your tank, but you don't want to. Fish need time to establish territory and dominance, so if you throw them all in at once it's asking for trouble. Personally I stocked my tank around 50% full at first with peaceful community fish. You don't want to add too many at first, but if you only added a couple tiny fish at the beginning they won't provide the amount of ammonia that your new bio-filter needs to stay strong. Shoot for a middle ground and add a reasonable sized amount of fish depending on your tank size and by researching the type of fish you plan on getting. This is where common sense is most important.

25. <u>How can I keep my bio-filter healthy down the road?</u>

The great thing about building a large bio-filter with fishless cycling is that it is a self-sustaining system that requires virtually no further work from you. The only things to keep in mind are to never throw away old filters until they are falling apart, and always seed a new filter before you throw the old one out. Also avoid doing heavy vacuuming of the substrate (floor of the aquarium). While most of your bacteria do live in the filter, plenty of it is also in the substrate. I recommend vacuuming only small sections of the gravel at a time. Last thing, if you are doing a large pwc, don't take a lunch break in the middle of it. If you leave the tank walls without water for too long, the bacteria on them can dry out and die.

Congratulations on doing a perfect fishless cycle! I hope you learned the basics and tricks of building a healthy home for your fish. Now just sit back and enjoy your healthy, happy fish for years to come