

**Part of the PetFish.Net Guide Series**

# **The PetFish.Net Basic Aquarium Keeping Guide**

# The Basic Guide To Starting An Aquarium Part 1

## The Tank

- If it's a new tank it shouldn't leak, but check it anyway, but do it at a place where water won't damage anything.
- If it's a used tank it should be cleaned out. If you suspect there were some sick fish in this tank before you got it then you should first sterilize it with about a cup of chlorine. Fill it with water and add the chlorine. Let it stand for a day then rinse it out several times with clean water. Never use soap in an aquarium, it's a poison to fish and other aquatic life.
- Try to get a standard size and shape aquarium. Hexagons and other exotic shaped tanks will become a problem when it's time to furnish them with lights, hoods and other equipment. I learned this the hard way, and like so many others I've talked to, I say "never again"

## The Stand

- An aquarium stand is not a requirement. But if another item is used to support the tank it needs to be strong enough to hold the tank with it's water and all the other equipment. Water weighs about 8.5 pounds per gallon, so a 10 gallon tank will weigh in at over 85 pounds plus the glass, gravel and other decorations.
- The stand or it's substitute should be absolutely level. Unlevel aquariums are more prone to leak and are more easily damaged.

## The Cover

- Aquarium covers are in my opinion a necessity. I've lost too many fish from their jumping out of an uncovered tank. It also reduces evaporation, keeps dust and debris from entering the tank and allows for a more stable temperature.

## The Filter

The choices for filtration are sometimes overwhelming. Here's a list of some of the different types of filtration with the good and bad points of each.

- No Filter - Very cheap, very easy to maintain, but you have to have an extremely low stocking level, or do almost daily water changes.
- The Under-Gravel Filter - Almost as easy as no filter, and once you buy it, it's with you for the long haul. Drawbacks include: The gravel will eventually fill up with crud that has to be vacuumed out with an aquarium siphon, UG filters tend to acidify the water, plants that have extensive roots don't do well with an UG filter, requires you to have either a air pump or

power-head to supply the circulation and the need to keep a low stocking level still exists with the UG filter

- The Hang-On-The-Back Filter - Medium price range of about \$20.00. Has to have its filter pad changed or cleaned about once every two weeks. The motor tends to wear out in about 2 years. These filters are good for plant tanks and for creating good water circulation. It's easy to use carbon and other filtration chemicals with a HOB filter. Other disadvantages include; tend to be a pain to restart after a power failure, sometimes develop leaks, new filter pads and chemical additives have to be added periodically.



- Bio-Wheel - All the advantages of a HOB filter and the added bonus of allowing a tremendous population of the "Good" bacteria that do the biological filtering. Much more efficient than nearly any other kind of filter, it allows you to keep more fish per gallon. The wheel is almost permanent and only has to be replaced if you accidentally damage it. Disadvantages are the same as for the HOB filters.
- Internal-Power-Filters - Usually more expensive than other types of filters. They provide chemical and biological filtration and do a better than average job. They provide good circulation with a fairly strong current that might bother some fish. The disadvantages include, as you can imagine, the fact that you have to take the dripping thing out of the tank to clean it and replace the chemicals and floss etc.
- Sponge Filters have seen increased use among experienced hobbyist, especially those who use smaller tank for Killifish, Bettas and raising small batches of fry etc. I am now using sponge filters in most of my tanks.
- Other Filters are good for certain tasks. Read the product literature and make an informed decision about what filter to use. Beware of gimmicks.

## Lights

Most tank kits come with some kind of lights. The incandescent lights are really not fit for aquarium use; they get too hot, use too much electricity for the amount of light they put out and generally don't do much for plants. They are fine for fish only tanks but if there's no plants in the tank then the lights are needed only for viewing the tank and should be turned off at other times to prevent algae from getting started in your tank. Hopefully a set of florescent lights will come with your tank. Florescent lights can be bought that are made specifically for aquarium use. There are lights that will enhance the color and "mood" of the tank, lights that will make plants grow bigger and better and even lights that reproduce sunlight. Fish-only tanks will be bright enough for viewing with only one tube, but for some plants you will need at least 2 tubes. That doesn't include the Easy Plants, they will get by fine on one tube.

## Heaters

Quality is the name of the game when it comes to heaters. You want one that is completely submersible and not prone to leaking. A busted heater can be a shocking experience, in more ways than one. Cheap heaters are also more apt to stick, that is the contacts get stuck and the heater just keeps on heating, finally cooking the fish. In many cases heaters are not required; if you keep your home at a reasonable temperature of between 70 and 85 F, then most fish can adapt quite well.

# The Basic Guide To Starting An Aquarium Part 2

## Gravel And Decorations

Usually gravel bought from a petshop will be problem free. But even if it says "no rinsing needed" rinse it anyway. If you use gravel from another source, such as a home and garden center you should test it first. Using a small cup or bowl add a few table spoons of the gravel and then pour a little vinegar over the gravel. If you observe any fizz at all then the gravel is not inert and will probably gradually leach water hardening minerals into your water and could even cause a almost permanent cloudiness to your tank. Personally I do like to use home center gravel, but i always test it first. Remember that most fish are more comfortable over darker gravel, and their colors will be brighter. White gravel will just about always cause the fish to appear "washed out". Be very careful about any decorations you put in the tank, they should be sterilized if there's any doubt about them, using the same technique as you used on the tank. Most plastic or glass decorations will be inert and cause no problems. Driftwood has to be cured or it will leach out into the water causing a dark tint to the water. Any rocks you use should be put to the same test as the gravel, and if it's been in a tank before it should be sterilized unless you know for sure it wasn't contaminated.

## The Water

Water from your tap should be fine for your fish. It does need to be chemically treated to remove chlorine and or chloramines that are added by the water company. There are many brands and they all do about as well. Look for "water conditions" or "Chloramine remover", it isn't very expensive ad a small bottle should last a long time. You can have your tap water tested at your local petshop to see exactly what your pH and hardness is. I strongly advise getting fish that are naturally happy in your local water conditions. It is very important to NOT be adding chemicals to alter the pH and hardness of the water. Most fish will adapt to your local water and will be much more comfortable if it remains stable. Adding chemicals to adjust the pH will have the tank pH going up and down on a never ending cycle and cause you and your fish a lot of unnecessary trouble. I always advise adding a teaspoon of salt per gallon to all freshwater tanks. It helps the fish in many ways, it prevents most diseases and makes the fish more comfortable. After your tank is set-up and fish are in it you need to start a regular water changing schedule. Changing some of the water is always a good way to perk up a tank. Ideally changing about 20% per day would be fantastic. But in the real world nobody is going to do that. A good compromise is 25% every 2 weeks. It is best to never change more than 35% of the water at one time. Again stable conditions are best for the fish and drastic water changes are not stable. Changing a little at a time as often as possible is the best way to go. The key is stability.

## Aquarium Plants



This tank is planted with Anubias a little off center and Java fern on both sides.

Do you want live plants? There's a lot of failure involved with the planted tank. I think this is really due to a few misconceptions and bad procedures. I have a short list of plants that I really do believe you can grow and be proud of. The trouble with most planted tank with beginners is that they get the wrong kind of plants. A lot of the plants sold at petshops are either bog plants or outright non-aquatic plants that don't have a chance to make it in an aquarium over the long run. Here is a list of plants that will work for you: Duck Weed, Java Fern, Anubias, Najas, Java Moss and Water Sprite. Although all of these plants are easy to keep I have them listed above in what I think is the order of easiness, Duck Weed is easiest and of those listed above Water Sprite is probably the hardest to keep, but still down right easy. Using the plants above you can have an absolutely beautiful planted tank and everyone will think you are an Aquarium genius, and they will never guess how easy it can be.

## **Adding Fish**

Adding fish to a new aquarium is a test of your patience. There's a whole subject all of it's own about the "nitrogen cycle", it's about breaking in the tank and getting the filter working properly. To be honest I don't even think about the nitrogen cycle, I know that you need to add a very few fish to begin with and wait a week or two and add a few more and so on until you have the tank stocked. If you will just follow that suggestion you won't have to worry about "new tank syndrome". Don't over stock your tank. That means don't put more fish in the tank than it can support. And if there's any doubt about it, don't add anymore fish. When choosing fish try to get ones that you will be happy with over the long run, don't buy on impulse, think about it before you buy a fish. Make sure that the fish are going to be compatible with your other fish, and do the research on this before you make the purchase. And always give potential new fish a good look for disease. A lot of fish in the petshop are at a critical time of their lives, they have been caught , possibly drugged, bagged and shipped to the petshop, kept in a strange bare tank with bright lights and lot's of traffic, crowded, over stocked and generally treated pretty rough. Some of them are going to succumb to this treatment. That's why the death rate for "new" fish is so much higher than it is for the fish you've had for a while. My theory is that if your new fish makes it past two weeks he should do fine. There are so many choices about what fish to get that there's really no use in trying to address that here, but the rest of the website and the message board will help you decide. ALWAYS use a quarantine tank for new fish. The quickest way to mess up a good aquarium is to introduce a sick fish and have the disease spread to all the other fish. If you ignore this tip you will eventually pay the price.

## **Cruising**

OK you have your tank set-up and the fish are swimming around nicely. Remember to feed lightly, change the water often, avoid drastic changes in the water conditions and you should be in cruise control.

# Aquarium Basics

## Colour Of The Fish

By Essabee

We, those in this hobby, are fascinated with the shapes, behaviours and not in the least by the colour of the fish we keep or wish to keep.

To look after our fishes we spend quite a sum on their food, and many come with the words like "Contains natural pigment enhancers to intensify the radiant colours of your fish"..... have you ever wondered about what could be these substances? Or if it were of any effect or at all needed???? Or how does the fish colour up? Is the fish in any sort of control over its colouration?

Many fishes do not show any sort of colouration till sexual maturity. We can take it from this observation that the colourings of such fishes are governed by their endocrine hormones.

Then even with fishes who show their colours from a young age, fishes do sometimes look washed out; happens when they are under stress, therefore the pigments giving the colourations are placed on the skin in a way that they can be near the surface to augment the colouration or removed from near the surface of the skin to give the washed off look. This happens in special cell called 'chromatophores' which branches away from just below the surface of the skin and are linked to the nervous system. At times of stress the pigment contained in the chromatophores goes into the deeper branches giving the fish the washed out look.

So we should expect good healthy unstressed mature fishes to show the brightest of colours. That is not always the case. The reason for this is that out of the many pigments used by fishes for colouration, some can not be synthesized by the fish, and the fish depends upon the availability of these pigments in the food that they eat.

Pigments like melanin (Brown to black), and crystals like iridophores (Shiny silver) are synthesized by the fish. Fishes cannot synthesize pigments like Carotenes (Orange to red), Xanthophylls (Bright yellow), Phycocyanins (Blue).

To get the fish to look its best we must then see that the required amount of pigment is available in the food we feed the fish. Carotenes are available in, yes carrots but in much superior quantities in salmons and krill. Most green plant food will contain Xanthophylls, but did you know that the bright yellow petals (brackets actually) of marigold and sunflower has the highest concentration of these pigments and dried petals could be incorporated into fish food. For Phycocyanins don't go looking for blue-bells but look for the villain BGA, yes the Cyno-bacter and remember that spirulina too is a cyno-bacter and can provide this pigment.

Now next time you read those colour enhancing advertisements about fish food you know what it is speaking of - And if like me - you too prepare your own fish food you know what to add to your various formulations.

# Can someone explain cycling to me?

By Essabee

Nitrogen compounds are building blocks of life, all living organism need them, use them, and excrete them. Some of these nitrogen compounds are poisonous to specific groups of living species but may be a food article for another group of living species. In the aquarium ammonia  $\text{NH}_3$ , is a nitrogen compound which although food for plants, algae and certain bacteria is poison for fishes. This ammonia in the aquarium is produced from the excretions of fishes and also from breakdown of organic matters like uneaten food, dead leaves, feces, urinary compounds, etc.

For the safety of the fish the ammonia must be somehow absorbed and converted into a non-poisonous compound. Unless this can be done fish will die, this often happens in a newly setup aquarium and is given the name 'new tank syndrome'.

There are types of bacteria which can convert ammonia into nitrite,  $\text{NO}_2$ . These bacteria can live in the water and attaches itself on surface of solids like the gravel, leaves, glass and also filter media etc. The amount of ammonia that these bacteria can convert depends upon their population, in a new aquarium the population of these bacteria is too small for them to be able to handle the ammonia produced by even one fish.

Again nitrite,  $\text{NO}_2$ , that these bacteria convert ammonia to, is also poisonous to fish, although much less poisonous than ammonia. We need another group of bacteria which converts nitrite into nitrate,  $\text{NO}_3$ , a compound which is even less poisonous to fish. Again the population of these bacteria is too small in a new aquarium.

Building up the population of these bacteria in a new aquarium is called 'cycling the aquarium'. When the population of the bacteria has become large enough to quickly convert large amounts of ammonia into nitrate,  $\text{NO}_3$ , we have a cycled aquarium which is ready to take fishes and keep them safe from poisonous ammonia and nitrite.

From this point on you can have fishes in your aquarium, but you have to keep them safe from nitrate,  $\text{NO}_3$ . Aquarium plants will help you, for they will absorb nitrates for their own use, but still unless the plants are growing vigorously, you have to help in keeping the nitrates down by doing routine water changes. The normal routine is changing 25% of the aquarium water each week.



# Aquarium Filters - How They Work and the Benefits and Negatives of Each Type

By Carl Strohmeyer

## AQUARIUM FILTERS

There are several different kinds of aquarium filters, each with advantages and disadvantages. Most work best when used in combination to compliment each other, this redundancy is also important for peace of mind in case one filter fails, another will keep your aquarium filtering. I give my opinion too with each of these types of filters, based on 28 + years maintaining a Large Aquarium maintenance company in Los Angeles, California. I used many different types and brands of filters during this time, and continue to try new ones out.

### UNDERGRAVEL (UGF)

An old standby that is good for biological filtration (the conversion of fish waste from ammonia and nitrites to less harmful nitrates), but is poor for mechanical filtration (the removal of debris- organic and inorganic). Although I have use many over the years with good results, I do not generally recommend them anymore. Most also do not perform chemical filtration although some have small carbon cartridges that go on the exhaust of the lift tube (Lee's makes such a UGF). They are also not real good for planted aquariums; the roots have a hard time thriving with the filter plants just below the gravel (although you add potted aquarium plants to aquariums with UGFs). UGF are also poor at denitrification, as they do not allow for the fine sand and anaerobic bacteria needed for Nitrate removal.

If used, I recommend a HOB (power filter) as a compliment, they have better mechanical and chemical filtration, but tend to be lacking in biological filtration (some are better than others for this).

### HANG ON BACK-POWER FILTERS (HOB)

Another more popular filter now, these filters are good for mechanical and chemical filtration, and sometimes biological filtration. This does vary widely with the model though. The Aqua Clear is better than most for biological filtration, but it's design tend to lead to flow-by, resulting in poor mechanical filtration (they also have poor impellers, and in my experience, have a higher than normal break down record). The Penguin has good mechanical filtration (little flow-by), but are not as good for bio filtration, EVEN with the Bio-Wheel! I have run many Penguins since they came out, but their bio-wheels tend to stop easily, and I have run ammonia and nitrite tests with heavily loaded aquariums and observed little difference with or without (I added a seeded Sponge filter to these same tanks and observed an immediate improvement in these levels). Whisper and ReSun use cartridges that are best rinsed in used aquarium water, or else should have a small sponge placed in them to preserve bio colonies, otherwise these would be my HOB of choice.

HOB filters are good compliments to sponge filters or under gravel filters.

### SPONGE FILTERS

Probably one of the most under rated filters available. These filters are excellent biological filters and reasonable mechanical filters. They are simple and inexpensive. The type of sponge material makes a large difference in the filters bio capacity. Reticulated filter foam is the preferred sponge

material. One of the sponge filters benefits is their ease in cleaning, which in turn lowers the amount of organic material being broken down in the nitrogen cycle. It takes only minute to clean a sponge filter by rinsing it used aquarium water, while it may take half an hour to clean a canister filter.

Internal filters and HOB small aquariums are good compliments to sponge filters. Canister filters are good compliments to sponge filters in large aquariums.

I have a lot more information about sponge filters in my article: "Sponge Filters"

## INTERNAL FILTERS

Not as common a filter but a much less alternative to expensive and bulky canister filters. Internal filters are basically a power head with a filter of varying capacity attached. They are useful for improved water circulation, generally are good mechanical and biological filters (although generally they do not have a large capacity). They are a great secondary or even third filter in large aquariums, and a good secondary are even primary filter in small aquariums (under 60 gallons). Internal filters are a good compliment to almost any filter (especially fluidized).

I prefer the Via Aqua internal filters for the flow rates, internal sponges and durability.

## CANISTER FILTERS

Popular filters for larger aquariums in particular, Canister filters are known for their large capacity, which sometimes can be their problem. Many aquarists will not clean canister filters often enough as they are "still running well", but in reality are have a large build up of organic sludge turning them into 'nitrate factories". I do recommend them if they are serviced regularly, as their ability to hold large amounts of different filter media and their excellent mechanical filtration set canister filters above most other filters. For the money I prefer the Via Aqua or Jebo (the Jebo is the same basic filter), the Eheim is excellent but way over priced for the slightly better quality. The Magnum has unique convertible features (the ability to switch between standard canister filtration and micron), but their capacity is poor compared to the rest. Although popular, I am less than impressed with the Fluval. They have weak motors, poorly designed impellers, and have a larger flow-by than most others. I have had dozens of Fluvals on my maintenance route over the years, and their longevity is less than most others.

Canister filters are good compliments to internal and sponge filters.

## WET/DRY FILTERS

Popular with marine aquariums in particular, these filters are great biological filters, but poor mechanical filters. They also can become "nitrate factories" like canister filters if not maintained properly.

They are two basic types; the under tank wet/dry which uses a siphon to take aquarium water out to the "sump" where the bio balls are other biological media are, and uses a pump or powerhead to return the water. With this type of wet/dry you want to make sure that you do not over fill the aquarium past where the sump will over flow with the pump off in case of a power or pump failure. This type also usually has a pre filter box to add mechanical filtration to the wet/dry. You can run a variety of bio media in this type of wet/dry. Bio balls and ceramic bio media are popular; live rock, plant refugiums, sponge filters attached to the pump intake, or all of the above are also popular.

The other type is the built into the back wet/dry. These wet/drys are usually much more reasonably priced (along with the aquarium they are attached to). They usually do not have the versatility or capacity as the under tank wet/drys do though.

Internal filters are usually good compliments to wet/dry filters.

## FLUIDIZED BED FILTERS

These filters are primarily biological filters only. They work well attached to an internal or canister filter (I prefer an internal). Fluidized bed filters use fine sand kept suspended in a water flow for aerobic biological filtration. The plus is they are basically self cleaning as the sand is constantly rubbing against other grains keeping down the organic buildup. The negative is do not supply a lot of oxygen for the aerobic bacteria. I have set up fluidized filters in marine aquariums in place of wet/drys with excellent results (I set up a whole marine aquarium store department this way). But I strongly recommend other filters (especially internal) to make up for the weakness of fluidized filters. If properly installed, their strengths will shine (they are not the nitrate factories that wet/drys are).

## MUD FILTERS

These filters are primarily biological filters. Their advantage is they work both aerobically and anaerobically (removing nitrates). They are not good as the only filter and do not replace mechanical or even germicidal filtration (in marine). They do make an excellent alternative to sometimes difficult to use protein skimmers.

## GERMICIDAL FILTRATION

Germicidal filtration is the use of UVC radiation or ozone to kill disease pathogens and improve the Redox Potential in aquariums. I believe they are essential to a healthy marine fish aquarium. But are equally important to expensive and sometimes delicate freshwater fish such as Discus. Many articles I have read state that a UV is not that beneficial to an established aquarium as a healthy aquarium depends on beneficial bacteria typically growing on media in your filter which neutralize ammonia. Unfortunately the problem with this statement is beneficial bacteria belongs in the filter, not in the open water. Also this is great for advanced aquarists who are not adding fish and have a healthy Redox Potential, but not in the real world of average and above average aquarists that I have dealt with in the 100s of aquariums I have serviced.

I have a very in depth article about "Why you should use a UV Sterilizer and how it works" . I strongly recommend reading this article.

## PROTEIN SKIMMER;

Protein skimmers remove nitrogenous wastes (protein based organic waste) via foam refraction. The protein skimmer collects this waste in a cup, where it is then emptied. There are pump driven and air driven models. Protein skimmers generally only work in marine aquariums where they are very popular in reef aquaria, as they are needed to keep nitrates below .20 ppm for the delicate marine invertebrates. The advantages are that they remove nitrogenous waste before they can go thru the nitrogen cycle and become nitrates. The disadvantages are they are messy, take frequent adjustments (at least on many commercial models), and in my experience, over rated. I have kept many reef aquariums successfully with and without protein skimmers (I believe lighting such as metal halide is more important to a successful reef aquarium than a protein skimmer). The key to keeping low nitrates without a protein skimmer is;

\*Proper feeding of foods with highly digestible proteins so as to lower the nitrogenous waste produced.

\*Good anaerobic filtration via live rock, live sand, or mud filtration.

\*Plant refugiums and or good plant and green algae growth in the aquarium.

\*Proper and frequent cleaning procedures. Using a gravel vacuum (or better, the Aquarium Cleaning Machine , which with recirculation of water thru a micron cartridge after the initial water change, insures better waste removal with less water changed.) to remove waste before it can go thru the nitrogen cycle, but not digging so deep so as to disturb anaerobic filtration in the sand (I prefer a layer of fine sand under #3 gravel to achieve this).

By Carl Strohmeyer

<http://aquarium-filters.blogspot.com/>

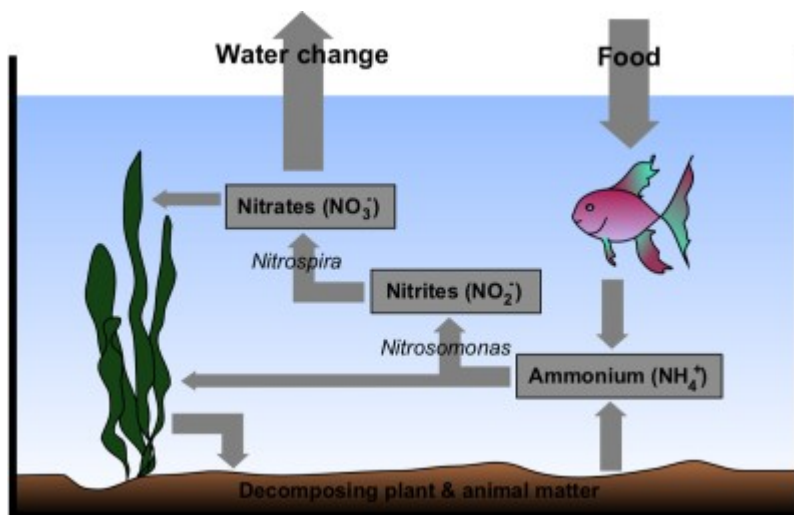
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# The Nitrogen Cycle

The nitrogen cycle in an aquarium. Of primary concern to the aquarist is management of the biological waste produced by an aquarium's inhabitants. Fish, invertebrates, fungi, and some bacteria excrete nitrogen waste in the form of ammonia (which may convert to ammonium, depending on water chemistry) which must then pass through the nitrogen cycle. Ammonia is also produced through the decomposition of plant and animal matter, including fecal matter and other detritus. Nitrogen waste products become toxic to fish and other aquarium inhabitants at high concentrations.

A well-balanced tank contains organisms that are able to metabolize the waste products of other aquarium residents. The nitrogen waste produced in a tank is metabolized in aquaria by a type of bacteria known as nitrifiers (genus *Nitrosomonas*). Nitrifying bacteria capture ammonia from the water and metabolize it to produce nitrite. Nitrite is also highly toxic to fish in high concentrations. Another type of bacteria, genus *Nitrospira*, converts nitrite into nitrate, a less toxic substance to aquarium inhabitants. (*Nitrobacter* bacteria were previously believed to fill this role, and continue to be found in commercially available products sold as kits to "jump start" the nitrogen cycle in an aquarium. While biologically they could theoretically fill the same niche as *Nitrospira*, it has recently been found that *Nitrobacter* are not present in detectable levels in established aquaria, while *Nitrospira* are plentiful.) This process is known in the aquarium hobby as the nitrogen cycle.



In addition to bacteria, aquatic plants also eliminate nitrogen waste by metabolizing ammonia and nitrate. When plants metabolize nitrogen compounds, they remove nitrogen from the water by using it to build biomass. However, this is only temporary, as the plants release nitrogen back into the water when older leaves die off and decompose.

Although informally called the nitrogen cycle by hobbyists, it is in fact only a portion of a true cycle: nitrogen must be added to the system (usually through food provided to the tank inhabitants), and nitrates accumulate in the water at the end of the process, or become bound in the biomass of plants. This accumulation of nitrates in home aquaria requires the aquarium keeper to remove water that is high in nitrates, or remove plants which have grown from the nitrates.

Aquaria kept by hobbyists often do not have the requisite populations of bacteria needed to detoxify nitrogen waste from tank inhabitants. This problem is most often addressed through two

filtration solutions: Activated carbon filters absorb nitrogen compounds and other toxins from the water, while biological filters provide a medium specially designed for colonization by the desired nitrifying bacteria.

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# Tropical Fish And Aquariums

By Dave Klein

The hobby of aquarium keeping and tropical fish as pets is fairly recent in the Western World, and took a while to catch on. The keeping of fish in small indoor tanks was only seriously considered in the middle of the last century, when both in Britain and the rest of Europe a considerable interest in the subject developed...

At the beginning of the 1900's aquarists around the world began to keep tropical fishes, and it was the "trend" of so doing that started a new wave of popular fish culture (keeping fish as pets)...

The older aquarists were obsessed with copying nature in their tanks—or rather with the attempt to try and copy nature—whereas the keepers of warm-water fishes had to experiment and create suitable environments for them...

Often they started only with the knowledge that the fish must be kept warm, and this in itself raised problems, including the death of favorite weeds and water snails at higher temperatures...

So the aquarium gradually came to be regarded as most of us see it today, as a beautiful display, not a mirror held up to nature...

However, until the keeping of tropical fish, it seems that aquarists in general thought that the proper aim of an aquarium keeper was to reproduce a segment of nature...

They now realize that their task is the maintenance of a highly artificial and restricted community of animals and plants, with a balance that can easily topple with disastrous results to at least some of the members. At the same time, aquariums can generally be easily maintained as long as a few fundamental facts are recognized and applied with commonsense to the problems that arise...

So let's talk now about some of the characteristics of aquariums and tropical fish...

The old-fashioned fish bowl has almost completely replaced for serious fish-keeping by the rectangular glass tank, either made wholly of glass or with a metal frame and glass sides and a bottom of glass, slate, or other rigid material...

Except when used for spawning, for exhibition purposes, or as a hospital tank for the treatment of disease, the tank contains growing, rooted plants; these are set in a sand or gravel layer 1 or 2 inches thick. There may be decorative rocks, but the chief decoration is usually the plants themselves, which contribute more to the attractive appearance of a well set-up tank than do the fishes...

Rectangular tanks are usually between 5 and 25 gallons in capacity; a 15-gallon tank measures 24 X 12 X 12 inches and is a favorite size. Smaller tanks than these cannot house many fish or allow proper development of the plants...

Larger tanks are very attractive and give scope for beautiful planting arrangements and for fine growth of the fishes, but they are expensive and not likely to become generally popular. Most fish lovers therefore prefer a range of medium tanks rather than one or two very large ones, but it must

be emphasized that fine fishes can be grown in large tanks...

In general, tropical fishes can be housed in smaller tanks than cold-water fishes. This is because they are usually smaller and are also better able to withstand a relative deficiency of oxygen in the water...

Size for size, most tropical fishes can be crowded a good deal more than the common goldfish and very much more than fancy varieties of goldfish. A 15-gallon tank might comfortably contain a dozen 3-inch rosy barbs, four or five 3-inch common goldfish at the most, and not more than a pair of Orandas of the same size...

Fish consume solid food and excrete solid faeces. They breathe oxygen and exhale carbon dioxide, and therefore they tend to deplete their environment of oxygen and to pollute it with carbon dioxide and excrement...

Plants also breathe oxygen, but in sufficiently bright light they manufacture sugars, etc., from carbon dioxide taken from their surroundings, whether air or water, and they release oxygen. This is done in the green leaf...

Plants also absorb dissolved salts and use these together with carbon dioxide in building up complex organic compounds. Very few higher plants can utilize solid or very complex substances, and before animal excrement (usually known as "mulm" in the fish tank) is available to them it must be broken down by fungi or bacteria and made soluble...

So plants, in adequate light, tend to restore oxygen to the environment and to remove the waste products of animals. In poor light or in darkness they deplete the water or air of oxygen just as animals do. It is only in the daytime, or under bright artificial light, that they perform the complementary function to animals...

From these facts grew the concept of a balanced aquarium, with the waste products of the fishes absorbed by the plants, and the oxygen necessary for the fishes provided by the action of the plants in light...

The moral of the story? A well-planted tank with adequate illumination will usually stay clear and sweet for months or years with little attention...

Hopefully this article has given you a great insight into tropical fish as pets and the healthy keeping of aquariums.

About the Author: Dave Klein is the author of <http://www.tropicalfishltd.com> a comprehensive resource on tropical fish and aquariums. Visit <http://www.tropicalfishltd.com> to learn more about tropical fish as pets and how to keep them happy and healthy.

Source: [www.isnare.com](http://www.isnare.com)



# A Basic Tool Kit For Aquarist

**Net** - For catching fish that need to be moved. But ideally you shouldn't be moving your fish around any more than absolutely necessary.

**Thermometer** - Keep a close watch on your tank temperature. Even if you have a heater, don't assume anything, many fish have been lost to a heater malfunction. Personally, I don't use heaters. Most fish will do quite well with the normal household temperatures of from between 70 - 82°F.

**Gravel Vacuum** - One of the most important items in the Aquarist tool kit. Use this wonderful syphon to clean the gravel in your tank. It's not just for tanks with an undergravel filter. In fact a tank without an undergravel filter needs it's gravel vacuumed even more. They are much more prone to having pockets of anaerobic (bad guy) bacteria because there's not a constant flow of clean well oxygenated water moving through the gravel bed.

**Algae Scraper** - To keep the glass free of unwanted algae. I only scape the front of my tanks. Algae is not a bad thing if kept under control and in fact adds oxygen to the tank as well as feeding off of the excess nutrients available in the water.

**Bucket** - A 2 or 3 gallon bucket dedicated solely to aquarium chores. Never use any soap or other chemicals in your "aquarium" bucket. This will come in handy for the water changes and other wet chores associated with aquarium keeping.

**Dropper / Feeder** - I use a small eye-dropper type tool to feed my fish frozen and live foods. My "dropper" is actually a automotive antifreeze testing tool. Of course never use a used one. It is just the right size, where a eye dropper was too small and a turkey baster was too large.

**Table Salt** - Iodized or not, the amount of iodine in table salt is negligible. Salt is a wonder drug for freshwater fish. Many diseases can be cured and / or prevented with the simple addition of a teaspoon of salt per gallon of aquarium water.

**Timer** - A timer for your aquarium lights will definitely be a great time saver. Keeping the lights on at a consistent time will benefit your fishes health. After all, how would you like it if the sun came up an hour or two earlier or later every day.

# Setting Up A New Aquarium

Take It Slow and Be Successful

By: Jesse B. Hunt

<http://www.save1004.com>

It's an all too common occurrence, a new aquarist gets this brilliant idea to rush out and buy a new aquarium, set it up, and go straight to adding fish. This new aquarist has a beautiful new aquarium for about a week and then it happens, the aquarium begins to cycle and the fish begin to die. Before long this aquarist is discouraged and has given up, packed up the aquarium, and now it's sitting in a closet waiting on warmer weather so it can be sold in garage sale. Sadly, all of this could have been avoided if they had just done a little bit of planning.

Since your reading this article, I'm going to assume that you are making the right decision and doing your homework before you rush into a new aquarium. The first thing you need to do is sit down with a pencil and paper and plan out what you want to achieve with this aquarium; will it be fresh or salt water, and what type of inhabitants do you want. Once you have determined that, you should get books and do research on the Internet to determine what is involved in caring for the particular type of aquarium that you are interested in. While you are doing this research, you should take note of any specific types of equipment that are mentioned as being important for a particular type of aquarium.

Once you have done some basic research on aquariums and specific types of fish (or invertebrates,) you can begin to visit local aquarium stores and obtain prices on the necessary equipment. You should find a dealer who is willing to spend time with you and help you to determine exactly what fits your needs. If the dealer only seems interested in your money and doesn't seem to care about getting you set up with an aquarium that suits your needs, move on to a different store that will be more helpful as you pursue your new hobby.

By now you should be forming a general idea of what equipment this new aquarium will require and what kind of budget it will take to set it up. When you are confident that you have decided what aquarium and equipment you need, you can begin purchasing them. Don't, however, buy fish for this new aquarium. After you set the aquarium up it will undergo a chemical cycle that can be very stressful and often deadly to the fish. Use a chemical test kit (can be purchased at any fish store) to determine when it is safe to purchase fish. As a rule of thumb for the marine aquarium, wait until ammonia, nitrite, and nitrate levels have fallen to zero before adding any fish. Once the chemicals in your aquarium have reached safe levels then proceed cautiously in adding fish. Start with more hardy fish, watch to insure their good health in the new aquarium, and then slowly proceed to more fragile fish.

As a new aquarist it will be hard to resist the urge to jump off into the hobby head first, but the reward will be well worth the wait. Do your homework first, proceed with caution, and then enjoy the rewards.

Good Luck.

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# Is Your Aquarium Balanced?

By Nathan Miller

The world as we know it is in balance. Animals breathe in oxygen and give off carbon dioxide. Plant absorbs carbon dioxide and give off oxygen as part of there process of photosynthesis. Animals eat plants and animals wastes, feed plants. Water evaporated from the seas and come back to freshen the earth.

The absolute balance of an aquarium world is not usually possible for a beginner. Usually the fish give off more waste matter (both in gas and solids) than the plant life can absorb. And plants almost never provide sufficient food for fish life in an aquarium tank (the things that the aquarium keeper must provide to maintain plant life). But too much encourages the excess growth of algae, causing green water and green-coated tank walls.

Below are the 4 things you as an aquarium keeper must learn to balance:

Food:

It must be a balance of vegetable and animal matter. The reason is that insufficient food stunts the growth and lowers the resistance of fish to disease. On the flip side too much food can also harm the fish by polluting the aquarium.

Size of tank:

The tank must be larger enough to provide space according to the number and size of the fish. It mustalso have sufficient surface so that oxygen can be absorbed to satisfy them.

Temperature:

This poses no problem for us in this part of the world as the range of 24 degree centigrade to 30 obtainable here is most ideal for tropical fish.

Gravel:

One or two inches of sand gravel is all that is required to anchor plants. However be carefull because too much gravel accumulates waste matter that tends to pollute the aquarium.

Master balancing these 4 elements of your aquarium and your tank will look great and your fish will live a long happy life!

About the Author: For more great aquarium related articles and resources check out <http://aquariumfish.aquariumspot.com>

Source: [www.isnare.com](http://www.isnare.com)

# How To Properly Introduce New Fish Into Your Aquarium

By Nathan Miller

There are two areas of introducing new fish into an aquarium that you must be aware of:

## 1. Fish Quarantine

Fish quarantine is one big, singular factor that must be observed strictly before you can be sure that your new fish is of good health and not an apostle of doom for the other inmates. Most new fishkeepers don't take consider this very important factor.

For the benefit of intending aquarists, quarantine in the fish world refers to the physical and chemical treatment of new fishes (either imported or caught from the wild) to rid them of disease and restlessness before introduction into a new environment,

A small quarantine tank (30x20x25cm) is advisable for any serious aquarist. The alternative is to be sure that your pet shop has a functional quarantine section to cater for bacterial, fungal and viral diseases.

This is a sure guarantee against fish deaths. The unfortunate thing with most shops in the country is the lack of space and inadequate expertise to build and administer the prophylaxis procedure on new fish, as the procedure is sure to last at least nigh days! To the average aqua-investor, this is an unnecessary tie down of capital and you know what that means.

Admittedly, the expense incurred on quarantine by way of chemical purchase e.g. copper sulphate, wescodyne, malachite green, teremycin etc) is high. This is more or less reflected on the final sales price of the fish, which is slightly higher in our shop. But, this would pay you off in the long run, as it is unlikely that you will complain of fish deaths any longer.

I am quite sure, some fish farmers reading this column would be more concerned about the application of this procedure to solve their farm problems especially those with hatcheries or those who stock with post fry and fingerlings.

## 2. Feeding New Fish

When you just introduce a new fish to aquarium tank it's necessary to feed the fish. Though this will not be instant because no matter how carefully you add the fish to your aquarium tank they will look very unhappy for a while.

Thus it's necessary that you turn the flights out, and leave them overnight to get used to their new home first before thinking of feeding them. Then feed fish with aquarium fish food with fish flakes the next day, this will make the fish feel at home.

If you already have an established tank, it is advisable to quarantine new fish before adding them to an existing populated, and the cheapest way to do this is to purchase a plastic tank which will need no gravel or plants.

This can be used solely for quarantine and as a hospital tank.

Leave the fish in this tank for about three days during which any disease harbored by the fish would be evident for which it can be treated using available chemicals from your dealer. The fish can then be introduced into the tank in the same way as before.

When you add new fish to an established community, there will probably be a certain amount of harassment of the new arrivals by the original fish. Try to divert their attention by giving them a good feed when the fish are introduced.

About the Author: For more great aquarium related articles and resources check out <http://tropicalfish.aquariumspot.com>

Source: [www.isnare.com](http://www.isnare.com)

# How to Select the Right Tank and Fish

By [Jeanine Hughes](#)

Fish make excellent pets. You don't have to have any special skills for them. You need only have the right fish and equipment, and then give them the right care.

As a dry spectator to their watery world, you can actually lower your stress levels - their bright colors and graceful movements have a calming effect. You can enjoy them if you have very little space, or if you haven't time for more demanding pets.

There are two types of aquariums: fresh water and salt water. Because fresh water aquariums are much easier to maintain than salt water tanks, creating a tropical fresh water fish community is the best place to start.

When choosing the tank, you will need to consider two things in particular.

- 1) Where the tank will fit in your home, because that is a determinant of the size of the tank.
- 2) The water surface area of the tank, which determines the number of fish you can have.

In general, it doesn't matter how deep your tank is so much as how much water surface area the tank shape creates. This is because fish need oxygen, and it comes to them through the water's surface. If you overcrowd a tank, the fish can suffocate!

The following formula will help you decide on the right tank for the number of fish you'd like to have, given the space in your home that's available for the tank. For every inch of fish body length, you'll need 12 square inches of surface water area.

So, let's say you have two one-inch Neon Tetras. That's 2 linear inches of fish times 12 square inches of water surface apiece, which equals 24 total square inches of water surface needed for the Tetras to have enough oxygen.

A 5-inch by 6-inch rectangular tank would create 30 square inches of surface. That would support those two Tetras nicely, but wouldn't be big enough for three of them.

Once you've thought about the size of tank you have space to fit in your home, and you've figured out how many fish body inches that tank can support, the next step is to select the fish you'd like to have for your aquarium community. Think this through before you start buying the fish.

Fish behavior is ultimately more important to your decisions than color and size. You are creating a community of living creatures in which all members are forced to live, so plan ahead to save some of your pets from becoming another pet's dinner.

Each type of fish will prefer a different water level within the tank. Here are just a couple of your many choices among many tropical fresh water fish families.

The Anabantid Family. This is the family of the famous and popular Siamese Fighting Fish. Since the males will fight to the death, it is critical that you only have one male per tank. In the same family is the calm and peaceful Gourami, which grow from 1 to 5 inches. The stunning Gold Gourami and the Kissing Gourami are two types.

The Characin Family. This fish family includes everything from the tiny neon tetra to the piranha - which is not a recommended pet! The beautiful tetras, however, are excellent for aquariums. They prefer the middle level of the tank. The Hatchet Fish prefer the upper water levels.

There are species in the Characin Family for every water level. You will need groups of at least 4 fish for the schooling Characins to perform satisfactory schooling behaviors.

Careful selection will make your tank interesting and variable. Do your homework before you start buying the fish, and you will have long-term pleasure in the community you've created.

Jeanine Hughes has developed her expertise about fish and fishing over the course of a lifetime and enjoys sharing her interest with others. For articles by Jeanine, visit [Free Aquarium](#) or [Fishing Junky](#).

Article Source: [http://EzineArticles.com/?expert=Jeanine\\_Hughes](http://EzineArticles.com/?expert=Jeanine_Hughes)

# How To Keep Your Aquarium Clean

By Reef Saltwateraquarium

No one likes living in a dirty, stuffy house. Thank goodness a little dirt is not hazardous to our health. The same cannot be said for our aquatic friends. Most fish and invertebrates are unable to adapt to changes in water chemistry that result from increased bacteria, waste, and chemicals. Proper filtration can preserve the overall health of the aquarium and maintain its beauty.

Three types of filtration exist on the market – biological, mechanical, and chemical. Varying experts will assert that you must utilize all three in your tank. For a marine aquarium with a reef environment, that may be good advice. There is no definitive answer on what combination is suitable for your aquatic environment. Educating yourself on the functions of all three will enable you to pick the filter(s) that will safeguard your fish and invertebrates' natural habitat.

## Biological Filtration

Biological filters are a must for every aquarium. They stimulate the growth of nitrifying bacteria that breaks down harmful ammonia to less toxic chemicals such as nitrate. It sounds simple enough, but how this is accomplished is quite impressive. A widespread method of producing these beneficial bacteria is adding fish to the aquarium. The bacteria, which ride on the fish, drop off and spread throughout the tank and grow. This also leads to increased amounts of dangerous ammonia, so it is important to add fish gradually. It can take several months to establish this cyclical process.

Aquarist believed that they had an easier, quicker solution in under gravel filters and crushed coral. Along with the water, detritus and junk was pulled through the crushed coral, which clogged the filter bed. Some fish enthusiasts have gladly replaced these under gravel filters with biofilters such as canister filters, trickle filters, bio wheels, fluidized bed filters, or sponge filters. These devices incorporate other methods of filtration making them even more useful. Other aquarists opt for the natural route to biological filtration using a mixture of live sand and crushed coral as the tank's substrate.

## Mechanical Filtration

Mechanical filters use a more direct approach to remove particulate matter before it decomposes and adds to the ammonia load. These filters are the most versatile since they can be used in most filtration devices. The key to their efficiency is regular cleaning. Otherwise, waste can accumulate and your effort is in vain. Aquarium owners must always be mindful of the flow rate of their device, which is automatically set to manufacturer's standards. A reduced flow can lead to an unclean filter (or vice versa) and adversely affects the health of the entire aquarium.

There are a variety of mechanical filters on the market, each with its own advantages. The power filters' low price, ease of use, and maintenance makes it the most popular of all mechanical filtration devices. These quiet devices can also be used for chemical and biological filtration.

Canister filters are equally as versatile. These large-capacity filters, which run on their own pumps, can be used for mechanical, chemical, and biological filtration. Many aquarists prefer the hang-on-tank canister filters to promote water quality, but there are a large variety of canisters styles available.



Wet/Dry filters, also known as trickle filters or bio-towers, are more suitable for fish-only tanks than reef systems. This is due to the biomaterial inside the filter's wet/dry chamber that becomes dirty and results in a buildup of harmful nitrates.

Internal filters are a great option for smaller tanks. Their compact and simple design makes them easy to operate. As the name suggests, the filter runs within the aquarium and is powered by a small water pump, or air pump.

Protein skimming/foam fractionation is not mandatory, but it is a trusted method of maintaining water quality. Dissolved proteins linger to air bubbles and form protein foam. Protein skimming pumps the air bubbles through a small columnar removing the dissolved proteins from the tank.

#### Chemical Filtration

Particles are not the only thing floating in your aquarium's water. Copper, ammonia, and phosphates also threaten the stability of your tank's environment. Chemical filtration utilizes chemically enhanced products to treat the water. Activated carbon is the leading medium used. Others such as calcium hydroxide, zeolite, and even peat moss work as well.

Protein skimming, Power, Canister, and Internal filters are some of the most common filtration devices used for chemical treatment. Of course these double for mechanical filtration devices as well. Trickle filters are a popular choice amongst saltwater aquarium owners. The water is first drawn from the tank. Then, it is siphoned through the mechanical, biological, chemical, and auxiliary filters. Finally, it placed back into the aquarium.

To target specific chemicals, look to Reactors. Water is drawn through a canister-type chamber where it meets the chemical media. For even more effective filtration, they can be run pressurized.

The methods of keeping your aquarium's waters clean are numerous. Using biological filters as a base, there is a wealth of combinations that you can build upon to create a healthy environment for your pets.

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Reef Saltwateraquarium

About the Author: <http://www.reefsaltwateraquarium.com>

Source: [www.isnare.com](http://www.isnare.com)

# Getting Your Tropical Fish Home

By Rob Mellor

So now you've purchased some tropical fish. You've made sure you have selected healthy fish and you have done your homework to make sure the fish that you have will go together.

Your fish should have been packed in a plastic bag with oxygen and then put into a dark bag or polystyrene box to keep the heat in.

You should try and buy fish no longer than a couple of hours away. Fish can last over 24 hours if packed right but the longer you keep them in transit the more stress they go through. You should try and keep stress to a minimum to make sure the fish remain healthy.

Once you get them home you should float the bags in the water and then open the bags up. This will help equalize the temperature between the water in the tank and the water in the bag. You should also keep adding little bits of tank water to the bag. Add just a little and then leave for five minutes before adding more. This will help acclimatize the fish to the water chemistry of the tank and even the ph and water hardness out.

After doing this for about 20 to 30 minutes you should then gently release the fish to the tank and let them swim out of the bag on their own. Then you should leave them with the aquarium light on overnight. This will reduce stress because the fish can see where they are swimming and their surroundings and they will also see that there are no predators around.

You should not feed them for around 24 hours to let them settle in and then over the next few days only feed sparingly. It will take them a couple of days to get used to the tank and feeding.

It is a good technique to add the smallest and weakest fish to the tank first. This will prevent bullying in the aquarium between the fish. Please follow these steps to keep the stress of your new tropical fish to a minimum. This will help the fish settle in faster and in the end cause you less stress.

About the Author: Rob owns a few blogs on tropical aquarium fish, <http://aquarium--fish.blogspot.com> <http://saltwater-fish.blogspot.com> <http://tropical--fish.blogspot.com> <http://freshwater-fish.blogspot.com>

Source: [www.isnare.com](http://www.isnare.com)

# Questions and Answers For Beginning Aquarist

The opinions expressed here are my own, formed by personal experience, and might not always agree with other sources of Aquarium information. But they have worked for me. And remember, there are always some exceptions.

Q: How many fish can I keep in my tank?

A: Four medium size fish per 10 gallons, medium meaning about 2 to 3 inches long , such fish as: Platies, Swordtails, Catfish and Barbs etc. Small fish such as Guppies and Neon Tetras could safely be kept at up to 10 fish per 10 gallons. And large fish such as Angelfish, Sharks and other large Cichlids should be kept at only 1 or 2 fish per 10 gallons. Of course you could keep many more fish per ten gallons than this recommended ratio, but you will be pushing your luck and keeping yourself busy doing a lot of water changes and cleanup, not to mention the increased danger of disease.

Q: Why then do the pet shops have so many more fish in their tanks?

Because they have employees who just love to do daily water changes and aquarium cleaning.

Q: How much should I feed my fish?

A: An average 10 gallon tank of fish will need only a small pinch of fish food per day. If you then notice left over food, decrease to only half a pinch. Few if any aquarium fish, other than maybe the algae eaters, have ever died of starvation. Overfeeding is a much greater danger than underfeeding. You must remember that fish are cold blooded and don't require the same proportions of food that we do. Overfeeding is the single most common reason for failure in Aquarium Keeping!

Q: But my fish always seem so hungry.

That's good, that means they are healthy. If they aren't hungry, then there really is something wrong.

Q: What kind of filter should I use?

A: You can't go wrong with a "hang-on-the-back" type power filter or a canister filter. I am usually happy with an under-gravel filter. If you follow the rules of good aquarium keeping, then an under gravel filter will be a good choice. I employ mostly sponge filters in my set-up.

Q: What about lights?

A: The question of aquarium lighting will depend on your type of aquarium. If you are trying to grow live plants, then of course you'll need bright lights left on for at least 8 hours a day. But if you are keeping a fish only tank, then I would suggest keeping the lights on for only about 4 or so hours a day, at the time of day when you usually watch the fish and at feeding time. That is assuming the fish get normal room light, you wouldn't want them in total darkness for 20 hours a day. Leaving the

lights off most of the time will help cut down the growth of algae, and thus cut down the time you will have to spend cleaning the glass and decorations.

Q: Any Advice On Diseases?

A: Do water changes, don't overfeed and don't introduce diseased fish into your aquarium and you should have minimal problems with diseases. If you do notice a sick fish in your aquarium, remove it at once to protect the other fish. The only medications that I personally use is common table salt at the rate of 1 tablespoon per gallon as a general preventative, and increase it to 2 teaspoons per gallon if a disease does break out, and for the really stubborn cases I might use a product named "Had-A-Snail"; it's made to kill the snails in an infested aquarium, but I've found it to be a really good general cure-all in many cases. The main ingredient is copper, which will poison some fish (if over done) and kill all invertebrates, so use it cautiously. For sick marine fish my advice would be to use the medicines provided at the petshop where you got the fish. But, in the case of marine parasites I have found that a 4 minute dip in freshwater will usually cure the infected fish within about 3 daily dips.

Q: What's The Best Beginners Fish?

A: Here is an area where I really disagree with a lot of the info I see in books and hear at many petshops. Livebearers such as the Black Molly, Sword Tail, and Platies are not the best choice for a first time aquarium. Reason? : They are short lived and they are usually raised in outdoor ponds and sometimes shipped with diseases and parasites. My idea of a good beginners fish would be one that is hardy, easy to keep, active, and tolerant of less than ideal conditions.

My picks are:

1. Betta Splendens, also known as Siamese FightingFish, but don't keep more than one male in an aquarium at the same time.
2. Zebra Danios, little blue and gold speed demons, best kept in groups of at least six for a really good display.
3. Corydoras Catfish, cute, comical, very hardy and long lived.

# What Is Cycling

**By: Logan DeBorde**

Cycling the tank means that you are establishing a bacteria bed in your biological filter to remove toxins that the fish's metabolism creates. There are right and wrong ways to do this, and there are things you can do to slow this process (which is something you don't want to do). There are two steps to cycling, but you don't have to do anything special for either of them. First, your filter will grow bacteria that take ammonia and turn it into Nitrite, nitrite is more toxic than ammonia. In hard water, or water with a higher pH, it produces bacteria that digest Nitrite and turn it into relatively harmless Nitrate. Also, bacteria in the gravel will convert Nitrite to Nitrate. Nitrate will contribute to stress in your fish, as well as contributing to algae growth, so it is important to do regular water changes to keep your tank in the best possible condition; and, to keep Nitrites and Nitrates in check. Cycling your tank can not be stressed enough.

## What to do to cycle your tank

First you want to set up your tank and get everything going. To cycle your tank you want to get a very small amount of fish. I recommend Whiteclouds or Zebra Danios. Make sure to not get more than 2 or 3 fish, for up to a 20g. tank, to cycle. You will want more for bigger tanks. If you put too many fish in, it will defeat the purpose of cycling and add a large amount of harmful bacteria, which you do not want. For the first few days let your tank sit and feed little fish food, so there is not too much waste.

Every couple of days, you will want to do a 10%-15% water change, and after about a week, take a sample of your water to a local fish store and get it tested. Most pet shops will test fresh water for a small fee, or some will do it for free! If the store you got the fish from won't, check another store or buy yourself a test kit. At this point, your water should test with high ammonia and a trace of nitrite. If it doesn't, don't worry, just give it time. The cycling process usually takes four to eight weeks. The illustration is of a tank with live plants and shows the process of how the tanks biological process works.

After those 4-8 weeks, your ammonia and Nitrite levels should be acceptable (about trace), and you can add more fish. Do not add any more fish until the ammonia and Nitrite levels have both dropped. Remember to add new fish a few at a time to prevent over-stressing the filter and the water quality. If you add too many at once, your tank will have to cycle again, yet if you add a few at a time, your bacteria growth rate will increase for a short time, with minimal effect on your fish.

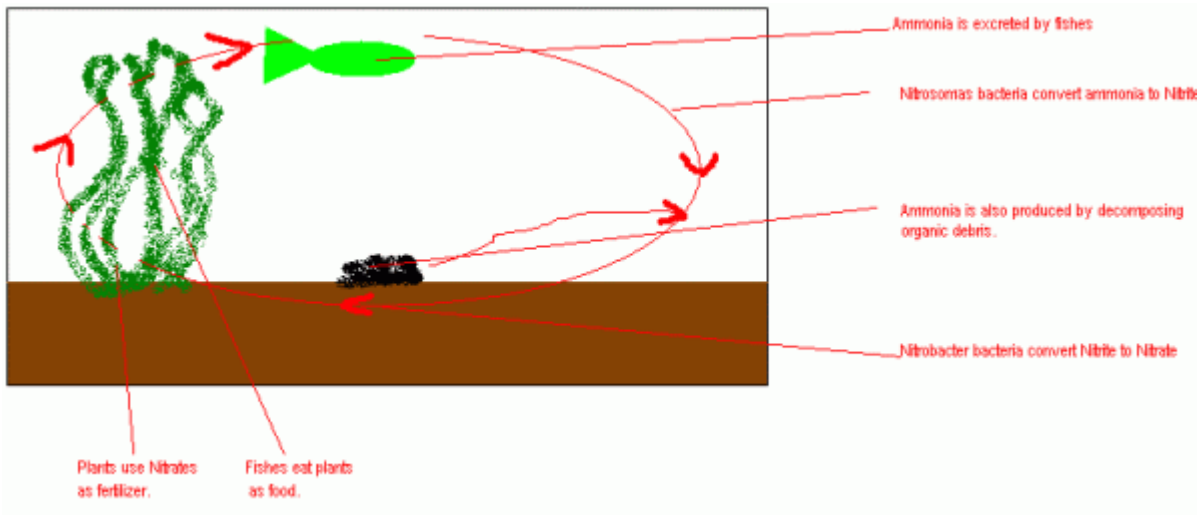
If you are not having satisfactory results there may be a few reasons why.

1. Did you forget to treat your water? Chlorine and Chloramine will kill "good guy" bacteria and stop the cycling process.
2. Did you do regular water changes? If not the "bad guy" bacteria will take over your tank, and kill fish and lower water quality.
3. Did you do large or small water changes? If you did too large of water changes it will remove the bacteria you are trying to cycle.

If any of these things happened you'll probably have to start all over.

The only bio-booster chemicals I would use are: Bio-Spira and Cycle. Also make sure to add Tap water treater, unless you have a Tap Water filter. Note: when using bio-booster chemicals do not rush the cycling process.

I hope this helps and explains cycling. Make sure to check out the setting up aquarium articles for other help.



The Nitrogen Cycle © Logan DeBorde

# Common Filter Types

By: SerVo

What is the best aquarium filter? Well that is all a matter of opinion. There are many kinds of filters out there that filter your aquarium water in different ways. One kind of filter you may like were as another person wouldn't even use it if it was free. Also all filters have their pros and cons.

Before we hit the actual filters, we must understand some basics on what they are actually doing. What is the filter actually filtering? Well there are 3 main filter process:

- Mechanical- the physical removing of particles and debris from the water in your aquarium
- Biological- a housing for beneficial bacteria meant to effectively use the nitrogen cycle
- Chemical- use of chemicals such as resins, carbon, or other synthetic material to remove bad chemicals from your aquarium water

Filters are not limited on only doing one of these functions. Some can do them all, others can do only one or two. Another note, oxygenation of the water is often a plus with these filters. Some are better than others.

Now the part you have been waiting for, the common types of filters out there:

## **Canister filters:**

These filters are useful especially in large tanks. Within them you can place numerous kinds of floss, bio-media, carbon, resins, whatever your little heart desires. To that you can see how easily you can customize this kind of filter. The actual filter consist of a canister, which is a container that houses a pump and compartments for your media. Then there are tubes that are your inlet and outlet. This feature can let the filter be located in a cabinet and not hanging on the back of your tank. However some units like the magnum H.O.T allow a fishkeeper to keep a canister filter on the back of a tank much like a power filter would. The canister filter utilizes mechanical, biological and chemical capabilities.

Cons? Yup, I already said no filter is perfect. Canister filters are more pricey than others out there. Also it's oxygenating capabilities are limited depending on how it is setup.

## **Under gravel filter (ugf):**

These filters can be considered a double edge sword to many aquarist. This kind of filter is inside your tank, so nothing hangs on the back. An actual unit consist of a plate at the base the tank which gravel rest upon and uplift tubes were the outlets (inlets if running in reverse) is located. You can operate one of these either with powerheads or an airstone. Normal operation pulls water into the gravel. However you can run these in reverse via a powerhead and push water up through the gravel. Being that water flow is directed at the gravel this encourages beneficial bacteria to grow there. Also ugf filters are cheap compared to many other filters. The ugf utilizes biological filtration, but can offer some chemical filtration and good oxygenation when airstones are used.

Cons? Remember that double edge sword stuff? Well here it is. With all the water moving under the gravel, debris and particles tend to collect under the plate. If left there, nitrate problems can arise due to the debris rotting. Also plants and burrowing fish may cause issues with the operation of an ugf.

**Sponge filter:**

These filters are probably some of the cheapest you can buy. These consist of foam and utilize an airpump. How these work is that the air motion inside the foam cause a current so water enters the foam and exits with the air. Biological filtration is abundant here, however some mechanical filtration and good oxygenation is present. Chemical filtration is not usually associated with this kind of filter, however some carbon-embedded materials do offer some chemical filtration as well. These filters are ideal for small tanks and/or fry raising tanks.

Cons? Mechanical and chemical filtration is weak. There are other filters that can do more out there.

**Fluidized filter:**

These filters are similar to canister filters. However these are setup to create an ideal biological housing. The design is basically a canister filter however the compartment is filled with an inert media and usually has some sort of prefilter floss or sponge.

Cons? These filters don't offer chemical or mechanical filtration. Also the cost of this filter is more than that of something a sponge filter can do.

**Power filter:**

These filters are very common. They come in two styles: Hang on Back (Hob, ho, or hot) and internal. Internal filters are on the inside of the tank which dampens motor vibrations thus are very quiet. Also they you don't have to have anything hanging off the back of the tank. Hob models, the more common of the two work in the same way. Water flows into the unit via an inlet tube. there the water exits out by passing through a cartridge and falls back into the tank. Most cartridges offer all three types of filtration. Some contain a special cartridge solely for biological filtration. Other even allow a fishkeeper to customize the media he or she wants to put in the floss.

Cons? These filters are hard to hide and internal filters take up space in your aquarium. When the cartridge is depleted, most if not all of the biological filtration is removed. Also this kind of filter is not as easy to customize as are canister filters, most filter pads are floss and carbon. When the filter pad has become clogged, water bypasses the cartridge and flows back into the tank, which allows particles to re-enter the tank.

**Reactors:**

Not to be confused with an oxygen, calcium or some other reactor. These are not as common as the other filters. Reactors are much like a fluidized filter, but their media is specific. These house resins or other types of chemical filtration. Benefits are that you can control the specifics of a single type of media. This filter is design for chemical filtration only.

Cons? With the cost of these filters, a canister filter is more likely. There is very little customization if you want to keep it as a reactor only.

**Diatomic filter:**

These filters are also another type of filter not usually seen. The unit consist of a prescreened intake and a chamber for holding media. These can be hob or look much like a canister filter. These filters employ fine media to "polish" aquarium water of any fine particles. The results are a really clear water good in competitions. Also these filters are not too expensive. As you have it, these filters are more of a secondary mechanical filtration as they will clog easy.

Cons? As mentioned before, they clog easy so these should ideally be placed after a primary mechanical filtration. These filters again are hard to customize. They require a special media in



order to be a diatomic filter. Also not many pet stores carry the proper media. Unless you specifically need crystal clear water, they aren't needed.

### **Ultra-Violet (UV) Sterilizer:**

This kind of filter doesn't exactly employ one of the three types of filtration. However it does serve as a kind of filter. These kind of filter utilize a uv-bulb that is harmful to living tissue. As such they are encased in a thick plastic casing where no light escapes. The job of these filters is to kill algae or floating organisms in an aquarium or even pond water. This clarifies aquarium water and helps prevent diseases among fish.

Cons? The bulbs should be replaced often, usually every 6 months, which these bulbs aren't cheap. Also anything that can somehow make its way into the filter like fry will most likely be killed. These are specialized and best serve large aquariums or ponds that have a chronic problem that a uv-sterilizer will cure.

### **Plants:**

Plants as a filter? Yup, it's true. Plants are colorful, they remove nitrates and oxygenate the water. Plants love them for cover or as food. A planted tank really adds character and a whole new personality to a tank. Out of the three filtration, chemical, specifically nitrogen removal is the main benefit. Uncommon, however some tanks may have plants as the sole filtration. Odd as it is this can work out especially if the tank has a low bioload and plant conditions are ideal.

Cons? Well these plants need to have the proper environment. In most cases this means proper lighting which most tanks don't come stock with. The plants themselves require care and if they start to die, they will add to the nitrogen waste instead of removing it. If you don't have luck with plants, then this kind of filtration won't help you.

### **Bio Media:**

This stuff includes resins, carbon, or inert substances. Most of the time you will find these in another filter, however these can be stand alone. For instance, bio-balls in a sump offer biological filtration. Using carbon much like gravel offers chemical filtration. Even putting floss on a pump intake to make a filter. You can use bio-media in just about any way you want. Depending on the type of media you use, these can provide all three kinds of filtration, but usually each kind is made for a specific kind of filtration.

Cons? Replacing bio-media to keep efficiency is a must. Floss will eventually clog or wear over time. Chemical media will saturate overtime. Biological filtrations clog and need to be rinsed or replaced. To effectively use bio-media, though has to be put in on how to utilize each type of bio-media (such as floss before biological media, so it doesn't clog so fast).

### **Protein Skimmer:**

This kind of filter is truly unique. It uses air to pull out nitrogen containing waste from water. This offers chemical filtration that doesn't need to be recharged and oxygenates the water really well. A protein skimmer consist of a long reaction chamber in which water swirls around with air producing bubbles. Above is a collection cup that holds this foam. This foam is composed of dissolved organics that never have the chance of producing nitrates in your tank. Nothing really needs to be replaced.

Cons? Can their be any? Well I did say no filter is perfect. First of all, these filters only work in saltwater tanks. Next to be effective a good model is needed... A good model usually cost starting around \$200. Also these kind of filters have a breaking period, so it takes a while to get started. Another con is the collection cup, these can overflow over time or if the foam gets produced too quickly due to another reason.

Well, did I help you any? Any last points? Ya, I have a couple. As you can see there are pros and cons to all filters out there, however you can minimize the cons. You can employ several filters if you wish. Such as using an ugf with a power filter. The power filter would remove debris so less would be able to be trapped under the ugf. Also bacteria loss when you replace the power filter's cartridge is minimized due to the benefits of an ugf. I'm sure there are other filter types and some that haven't been invented yet. So as time goes on perhaps they will invent the "perfect filter". Personally I like the power filter. I feel it offers enough filtration for most of my needs. However some other average Joe may swear by canister filters only. Point? Go with what you like best and what works best for you.

This article was written by: SerVo

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# What Are Those Bugs And Worms In The Water?

By Chuck Roberts

This is an updated version of an article posted to [Freshwater Aquariums forum](#)

**Have a wierd creature in your water? A bug in the tank? Tiny worms crawling on your aquarium glass? Use this handy guide to help you identify the organism.**

(Smallest to largest.)

- **Free floating green algae:** this is what turns your water green. It looks like green smoke travelling through the water currents. Daphnia and cyclops feed on this. Green algae requires long hours of bright light and extra nitrates to live.

**Danger:** looks bad if you don't want it. Good for feeding daphnia or cyclops or other infusoria.

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- **Cyclops:** you can just barely see these whitish copepods that look like a capital Y, but they dart in the water in jerky motions. Females have 2 egg sacks which make them Y shaped. Males are just a white dot with a tail (tail is hard to see). I've seen a cyclops as large as 2mm. It's a big female always with eggs. They are usually 1mm long.

**Danger:** Some people say they eat smaller daphnia and can crash a daphnia population.

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- **Daphnia:** these are about the same size as a pinhead, or slightly smaller and are not white. They can be yellowish or greenish. They are round and swim slowly through the water, not jerkily like cyclops. About 1mm long.

**Danger:** Harmless. They make excellent fish food.

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- **Baby snails:** newly hatched are a little smaller than pinheads or poppy seeds. They do not swim and only cling to any surface, like glass or plants.

**Danger:** Harmless. But adds more waste then your average fish.

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- **Hydra:** these branched, soft-bodied things are like anemones. But they only have about 5 tentacles. They attach themselves to any material on the bottom, to logs, stocks, or plants. They reproduce by budding a copy of themselves on the side of the "stem". Some are light yellow, some are green and use chlorophyll. They feed by snaring smaller foods in their stinging tentacles. 1-4mm long bodies excluding tentacles.

**Danger:** Potentially troublesome. They eat things like daphnia and cyclops and small fry.

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- **Nematodes:** tiny, thin, HAIRLESS worms which swim by making S shapes back and forth. Not to be confused with mosquito or midge larva (below) which have hairs. Often pink or red colored. 1-5mm long.

**Danger:** Harmless to plants, inverts, fry and fish.

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- **Unknown worm:** tiny, thin, hairless and whitish or yellow. Crawls on side of glass, seems to be searching for food. Might be a type of Nematode.

**Danger:** Harmless. Sometimes present when theres an excess of food in the aquarium.

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- **Tubifex:** These are reddish thin worms which burrow their heads in the substrate and wave their tails in the water trying to get oxygen. The part you see is about 1-3mm. Their eggs could have come from a local pond, or from frozen tubifex. I don't know if their eggs would survive freeze drying.

**Danger:** none. Provide food for some fish.

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- **Planaria:** flat worms, like slugs, white to tan to brownish or gray. They all have an arrow shaped head with 2 eye spots.

**Danger:** Usually harmless, but Planaria will eat fish eggs.

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- **Mosquito larva:** swim by making jerky S shapes, but these need air and float at the top of the water. If disturbed they flee to the bottom of the jar, then later come back up. These are like hairy worms with an insect head. These can be the same size as nematodes and confused with them, but they will get bigger than a nematode. These can be 4mm to 10mm long depending on age.

**Danger:** Harmless to all, but when they hatch into flying adults they can bite you at night.

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- **Midge larva:** look just like mosquito larva but are red because they contain hemoglobin, same stuff as in mammal blood cells.

**Danger:** Harmless. Does not bite after hatching. Adult looks just like mosquito but with red abdomen.

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- **Medium thick wormy thing with black head:** 4-5mm long. Looks a little like a grub with no legs, yellow-white body, black grublike head. It's probably the larva of some type of water beetle.

**Danger:** none.

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- **Snails:** The link below will show you about aquarium apple snails and pond snails (ramshorn (planorbula) and apple-type pond snail (physa)). Some snails will eat your plants, but mainly they prefer algae.

**Danger:** They can potentially damage plants.

See: [http://www.applesnail.net/content/snails\\_various.php](http://www.applesnail.net/content/snails_various.php)

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- **Dragonfly nymphs:** these are medium-fat bodied insect larva which later hatch into dragonflies.

**Danger:** Potentially damaging to small fish or small tadpoles. They will eat anything below 1" in size including fish and fry.

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- **Water scorpion:** these are larger insects which look like a walking stick. They hang around in water plants. Body is about 4" long, with legs they are 7-8" long. Yes, they have really long legs. They can bite you with their piercing mouth parts, be careful.

**Danger:** potentially harmful. Eats small fish (under 1") and other insects in the water.

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- **Water beetles:** generally, water beetles mean the underwater (not surface) swimming beetles which have piercing mouth parts and can grow up to 4" long. They have a dark brown or black shell, their legs stick out very little when viewed from the top. THEY BITE. Also called "toe biters" as swimmers most often encounter them when they are stepped on.

**Danger:** will eat small fish (under 1") and water insects. Can bite people. Handle with care. Handle by using thumb and finger to pinch on the sides of the shell so you will be well away from their mouth.

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#### Links

- [http://www.microscopy-uk.org.uk/pond/x\\_index.html](http://www.microscopy-uk.org.uk/pond/x_index.html) - Microscopic pond life with pics.

- [http://www.hants.gov.uk/sparsholtschoolscentre/ponddatabase/virtual\\_pond\\_dip.htm](http://www.hants.gov.uk/sparsholtschoolscentre/ponddatabase/virtual_pond_dip.htm) - Pond life, macro and micro, with pics.

- <http://www.cnas.smsu.edu/zooplankton/collage.htm> 40+ pics of daphnia and copepods.

# Breeding Tropical Fish For Beginners - Guppies & Swordtails

By Michael Magnum

Breeding tropical fish can be a lot of fun. Try your luck at breeding livebearers such as guppies or swordtails.

Equipment Needed:

Breeder Box or Breeder Net

Breeding Grass

5 or 10 gallon tank for the baby fish or a tank divider that you can use for your main tank.

A pair - 1 female and 1 male

Two of the more popular tropical fish for beginners has to be Guppies and Swordtails. Guppies and Swordtails are livebearers which means that their babies come out swimming. Like most livebearers, there is not much to getting your guppies or swordtails to breed. If you have a male and a female then you will eventually have a pregnant female. The gestation period for livebearers is usually 28 days but can range from 20 to 40 days.

Place the male and female in the same tank together and they will soon mate. You are probably asking, how can I tell when the female is pregnant? When a female guppy is pregnant she will develop a dark triangular shaped gravid spot near her anal vent. This will get larger and darker as the pregnancy progresses. While you are waiting on the female to develop the babies it's time to make sure you are prepared for the delivery. We use plastic breeder boxes and always have without any problems. A breeder box is a small box plastic box about 4 inches long by 3 inches wide and 4 inches deep. There is a removable "V" shaped trap in it which serves to separate the mother from the babies. When the mother fish has babies they fall through the slot in the "V" into the bottom of the box. After the mother is finished having babies, you can remove the "V" trap and the mother so that they babies have more room to grow. Some people have had bad experiences with breeder boxes and now only use a breeder net. It is also a good idea to purchase some real or plastic breeding grass for the top of the aquarium. The breeding grass is just in case the mother gives birth before you have a chance to put her in the breeder box. The young babies instinctively will swim to the top of the aquarium and the breeder grass provides a great hiding place so they won't get eaten by the bigger fish in your tank.

To feed your new arrivals you can use finely crushed flake food. Using your fingers, you can rub the flakes into a fine powder. Some only feed live foods such as baby brine shrimp. Live foods would definitely be the best way to go, but for most this is simply not feasible. Crushed or powdered flake food will suffice. Try to feed the babies 3 very small meals per day. You will invariably feed too much and the excess food will drop to the bottom of the tank or breeder box. To clean a breeder box we like to take a 3 ft. length of aquarium tubing and a small bucket. Use the tubing as a siphon to clean the bottom of the breeder box. Be careful not to siphon any baby fish.

Try to perform 25% water changes weekly for your baby guppies. This will aid in the optimal growth of your baby tropical fish. After a few weeks in the breeder box your new babies will soon outgrow their home and you will need to move them either to a new tank or your main tank with a divider installed. By 8 weeks old your baby fish will most likely be able to return to the main tank without a divider.

About the Author: Mike is an editor at FishLore.com. Designed for beginners, FishLore.com provides tropical fish information, how-to guides, articles, fish profiles, FAQs, forums and more!  
<http://www.FishLore.com>

Source: [www.isnare.com](http://www.isnare.com)

# Aquariums For Beginners

By William Berg

Keeping tropical fish is a fascinating hobby that has been enjoyed for centuries in different parts of the world. The Romans kept live anemones in saltwater jars, but never succeeded in keeping these beautiful creatures alive for any longer period of time in captivity. They were however much more successful with keeping eels in aquariums, and some sources claim that certain types of eels reached an age of up to 60 years when kept by the Romans. In South East Asia, the first fish keepers had their fish in ponds, not in aquariums. The first domesticated species were probably carps and all of today's fancy goldfish types actually hail from a wild carp that can still be found in Asian rivers and streams.

If you want your fish to thrive like the Asian carps instead of quickly vanish like the Roman anemones, it is important that you take the time to learn the basics about fish keeping and aquarium maintenance before you set up your first aquarium. By obtaining the basic information before you go about, you will save yourself a lot of time, money and effort in the long run since you will be able to avoid the common beginner mistakes. One common beginner mistake is for instance to purchase a very small aquarium, thinking that a large one is much more difficult to manage. The truth is however that the mega-sized show aquariums that you can see in your fish store are easier to maintain than your tiny 5 gallon tank. In a small aquarium, there will be a very little amount of water. If a fish dies in a large aquarium, the pollution will be diluted by gallons and gallons of water. If a fish dies in your 5 gallon aquarium, the carcass may very well pollute your entire tank before you even notice the demise and remove the body from the water. I therefore recommend the beginner aquarist to choose at least a 10 gallon aquarium, and a 30 gallon aquarium is ideal. Avoid extraordinary deep aquariums since they are more difficult to clean. A very deep aquarium can also become a problem if you want to introduce plants to your aquarium, since you might have to install extra strong lights that are capable of penetrating the deep water all the way down to the plants at the bottom of the aquarium.

Filling up your aquarium with water and then promptly add all your fish at once is extremely unadvisable since the aquarium is ready to accommodate that many fishes. An aquarium is actually a miniature ecosystem and fish is not the only thing inhabiting it. Your fish will produce plenty of waste products (chiefly fish poop) that will eventually begin to build up in the aquarium. It is naturally not very healthy for fish to swim around in their own feces, but fortunately enough there exists a certain type of bacteria that can convert waste products from fish into compounds that are less unhealthy. Fish poop contains a high level of ammonia, and ammonia is also excreted via the gills of your fish. Ammonia is harmful to fish and also can turn extremely poisonous if your aquarium experience a sudden change in water chemistry that pushes the pH level above 7.5. If you allow populations of suitable bacteria to establish in your aquarium before you introduce all your fish, the bacteria will convert the ammonia into nitrite. Nitrite is also very unhealthy and high levels of nitrite will kill your fish, but fortunately enough there is another type of bacteria that will love to live in your aquarium and that will change the nitrite into a less harmful compound – nitrate. Nitrate is less dangerous than ammonia and nitrite, but high levels of nitrate will be unhealthy for your fish. There are unfortunately no beneficial bacteria to aid you here, and you must instead remove the nitrate by performing regular water changes. Changing 25 percent of the water once a week is a good rule of thumb, but some aquariums require more frequent water changes. When you are trying to establish your new aquarium or if you are experiencing problems with the water quality, smaller and more frequent water changes are advisable.



About the Author: I would like to recommend you to download the free tropical fish ebook you can find on <http://www.aquaticcommunity.com/ebook.html> and read if you are planning to get or recently have gotten an aquarium to help you avoid common beginner mistakes. The ebook is provided for free by Ac tropical fish (<http://www.aquaticcommunity.com>)

Source: [www.isnare.com](http://www.isnare.com)

# Setting Up An Aquarium

By KimmyM

So, you've decided to start an aquarium. First of all I'd like to say Hi, and welcome to the hobby, I hope you find many hours of enjoyment out of your fish.

When Starting a new aquarium, there are some basics you are going to have to purchase. Here, listed below are the basic items that you are going to need to begin your aquarium.

**Tank** – The tank that you choose to get depends greatly on the type of fish that you want to get, because there are issues like over stocking the tank, A general guide for stocking tanks is 1 inch of full grown fish per gallon. So, this means that your going to have to do a bit of research on the fish that you plan to get. However, the stocking ratio is only a generalization, and does not apply to all fish.

**Stand, Hood** – When purchasing a tank, you may want to also buy a stand if you don't have somewhere else to put it, a stand is a good idea because the stand can handle the weight that is going to be coming from the tank, where otherwise furniture such as a table may not be able to handle it. Also, a hood helps in stopping evaporation, but they do tend to be expensive.

**Filter** – There are different kinds of filters on the market today, these include: hang on back, power, under gravel, canister, chemical, organic, biological, mechanical and protein skimmer.



The type that you purchase also depends on the size of your tank, and the fish that you keep in it, if you keep goldfish, I suggest an under ground filter and a mechanical / biological / chemical filter. Luckily, there are filters out there that combine the mechanical, biological and chemical filtering into one unit. If you are starting a fresh water aquarium, you will not need a protein skimmer.

**Light** – If you choose to get a light for your aquarium and plan to grow live plants, you may want to purchase a strong light for optimum plant growth. There are different light strength needs for different plants, so find out which plants you wish to keep and then get the right light for your plants needs.

**Net** – A net should be used for handling fish so not to disturb their slime coat too much.

**Heater** – Also depends what fish you are choosing, if you choose tropical you are going to need a heater, if you plan to keep a community tank with different types of fish, you should check what temperature they are suited to, and keep the tank at a stable temperature.

**Conditioner** – The water that is added to the tank from a tap will have chlorine in it and this is harmful to fish, so you should purchase some water conditioner to take the chlorine out and other harmful chemicals. **Substrate** – The most common of substrates is gravel. If you are going to keep plants that are high maintenance and take nutrients from their roots you should get a substrate that

is nutrient rich.



### Aquarium siphon

Plants – There are three difficulty levels of plants: Low maintenance, medium maintenance and high maintenance. If you are a beginner, get a low maintenance plant and then when you feel you have learnt necessities about plant keeping, you can upgrade to medium maintenance plants and so on.

Gravel Siphon – This is needed to perform 2 week maintenance routine on the tank there are many different types of gravel siphons out there but the best one in my opinion is the one pictured left, very simple, no batteries needed type siphon.



Food – As you may already know, there are literally tons and tons of different fish food out there, you could get lost in a sea of food. There are live, frozen, freeze dried, flake, pellet, cubes, wafers, sticks, etc. These foods vary in nutritional value. If you plan to get bottom feeder fish such as catfish, it's a good idea to get algae wafers as they need that as a supplement in their diet.

Air Stone – Whether you need an air stone is determined by how much the surface is being agitated, surprisingly, the bubbles that the air stone emits has nothing to do with how much oxygen is in the water. If you get a air stone, get a air pump as well to run the stone.



Adornments – If you plan to use adornments in your aquarium, make sure that they are well cleaned (not with soap, as it can leave bad residues).



Driftwood can make a beautiful display

Driftwood – So, you picked up a piece of driftwood when you were walking by a river or a beach and want to use it in your aquarium. This should be fine, if you clean it to get any nasties out that may be hiding in your piece of driftwood. There are many different ways to clean driftwood, I prefer boiling it in a big pot for about 2 and a half hours but there are other methods as well, such as: baking (be extremely careful and watch it because it could catch fire), soaking for a few days, etc.



A container such as this will be extremely handy to organise all your aquarium supplies

Plastic Storage Container – Once you have all of the basic items for your aquarium, there may not be enough room for all of the items, a good idea is to purchase a good size storage container to store most of your items.

I've covered most of the initial processes to starting an aquarium, if you have any further questions about aquariums, join [petfish.nets message boards](http://petfish.nets.message.boards) and someone will be more than happy to answer them :)

# Aquarium Basics

By Frisckey1

There are some basics, everybody should know. Things you will need or should at least consider in starting up a new tank!

1. Tank/hood/light (the larger you can start with the better!)
2. Filter (adequately or oversized for the tank you choose) - the best kinds will have three-part filtration: Mechanical (for catching floating stuff and sucking of foods/wastes), Chemical (carbon for removal of odors and organic compounds) and Biological (biofiltration should be separate from mechanical - meaning there should be a filter pad and an additional sponge or biowheel for the biobugs)
3. Heater (for tropical tanks)
4. Substrates - there are lots of choices here, lighter colors tend wash out the fish's colors, but can still be very pretty. Choose substrates that are inert - meaning they won't alter water chemistry. Stay away from coral gravels, dolomite gravels, aragonite, and live sands and seashells. These are best suited to specific setup ups, like brackish, marine or african cichlids. The thickness of an unplanted tank, should be 1" or less, for plants 2-4" should suffice.
5. Book: The Manual of Fish Health, by Tetra Press. Great book! Lots of info to quench your thirst for knowledge!
6. Test Kits: In order of importance: PH (possibility of hydrogen), ammonia, nitrite, nitrate, GH (general hardness) and KH (carbonate hardness)
7. Knowledge of the Nitrogen Cycle and how it relates to fish tanks. There's answers here, in the FAQ and all over the Internet. Read about it and understand, then read about Fishless Cycling.
8. Gravel vac or Python (appropriately sized for your tank and how far you'll need to go to siphon outdoors if you want)
9. Buckets for water changes, if you choose not to get a python.
10. A broad use water conditioner that conditions for Chlorine, Chloramine, and heavy metals. Avoid ammonia reducing or detoxifying agents.
11. Small quarantine tank w/ sponge filter (this can be a tank, or even a rubbermaid container that you'd store sweaters in!)
12. Foods appropriate for the fish you choose

Many of the above items will come in new tank kits. You can buy the tank/hood, filter, heater together with a sample pack of fish food, and the test kits will often come in multi packs, but you may have to pick up one or two separate. Fish stores will test your water for you for free, usually - so take your time picking up your test kits - don't go breaking the bank or anything.

Set up your tank, let it run for a few days while you scour the fish stores for the fish that you like. Make a list of the ones you like, come home and google (and post here if you want advice) to be sure the fish is suited to your PH, GH and tank size.



Planted Tank "Neon Jungle" © Plecosaurus

If you're planning a planted tank substrate should be layered, with a bottom layer of finer substrates first, like laterite, kitty litter, flourite mixed with a handful of peat moss works really well. Topped with a layer of gravel or larger sand will make a great planting substrate. If you KNOW you want live plants, plan for this prior to setting up the tank...its kinda a pain to re-do everything once its setup and fish are in the tank.

Once you've started your tank, picked your fish and the water has settled, go buy yourself some fish! Remember...if you didn't do fishless cycling, you'll wanna take it slow, 2-3 fish to begin with (unless you have a really large setup) and let the tank cycle.

Remember to acclimate fish to your water...it may not match the stores water! To do this: float the bag of fish for 10 mins in the tank, unopened. Then open bag, and add 1/2 cup of your tank water and let them get used to it for 15 minutes. After 15 minutes add a cup of water, and repeat the 15 minute acclimation. Repeat with another cup of water. After 45 minutes to 1 hour, your fish should be ready for your tank (remember this time frame should be slightly shorter if you had to drive an hour home with your fish!). Net fish and place in tank. NEVER EVER add fish store water to your tank. It may contain diseases and illnesses that you don't want!

Once the cycle is completed (0 ammonia, 0 nitrite and readable nitrates) you can add more (assuming more fit in your tank). Theres a large opinion on cycling methods...read about them all and choose for yourself. All new fish should be quarantined if you were able to pick up a small QT tank mentioned above...this will keep sickly fish store fish, from contaminating your tank.

Do not change any filter media while cycling. If you chose a filter with a sponge or biowheel, when the filter needs cleaning, just remove, rinse in tank water you removed after a water change and replace. Do not rinse anything else.

Avoid ammonia detoxifying agents Avoid PH adjusters, trust me...your PH is likely fine where it is as long as its between 6.0 and 9.0 Don't mix tropicals and coldwater fish Always research fish before buying

#1, 2, 5, 6, 7, 8 and 10 are necessities. Oh, and the fish, of course... #3 - Heaters will depend on the type of fish you choose, and what the room temps in your house are consistently set at. #4 - some folks go bottomless with their tanks, no substrate at all - this is fine. #9 is your option - if you choose a long gravel vac, and the tank's high enough, you can siphon water right out the window into your yard or flower bed or whatever. But you may need buckets to refill your tank afterwards.

Ask lots of questions!

Hope this has helped somebody out there get started!!!! I know much of this info is likely in the all the [FAQs](#) here, but I find that not nearly enough folks navigate there and read them. Good luck.

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