

# The Optimum Tropical Aquarium

Most Aquarists desire an *Optimum Aquarium* setup, one that closely resembles the fishes natural environment. By providing the biological and chemical balances found in the wild we can recreate a natural system in our home aquarium. To achieve this we need to provide,

- *Water with abundant electrolyte salts* (i.e. Well conditioned tap water)
- *Strong water movement, high oxygen levels and low levels of waste* (i.e. Good Filtration and bacteria populations)
- *High levels of trace elements essential for plant growth and good light* (i.e. Plant Food and full spectrum lighting)

What follows is a step by step guide to selecting, setting up and maintaining your *Optimum Aquarium*. The products and methods described are exactly the same as the way we manage our displays. Our approach is Pro-active, meaning we stay ahead of any possible problems by using the best products to condition tap water, enhance filtration and feed fish and plants well. This is always better than having to react to problems after they occur.

## Selecting and Positioning your Tank

When selecting your aquarium always try to choose a tank with the largest possible surface area. *Pet City* has Brisbane's largest selection of quality stands, cabinets and hoods available finished in Raw Pine, Varnished Pine, Painted and Stained Colonial. Remember after you have paid for all your bits and pieces, a slightly larger tank will not have cost you much extra and will allow you to keep your fish in a less stressed environment. This is especially true of the smaller range of aquariums. Make sure you always have a glass cover to stop your fish jumping out. Coolite foam at least 10mm thick under your tank is essential. This is to ensure that the coolite takes out any irregularities on the surface onto which you place your aquarium. If you desire a backing scene on the back of the aquarium it is best positioned now and taped onto the back of the aquarium with masking tape. Position your aquarium to avoid direct sunlight hitting it for too long as this can cause excessive algae problems.

## Choosing Gravel / Rocks / Logs / Ornaments

The gravel you choose will have great bearing on how well your aquarium runs. We advise a fine blended gravel of which we have several varieties. *River Sand* is the best for planted tanks like our *Optimum Aquarium*, though the *Red* and *Coffs Harbour* blends are also excellent. Too coarse a gravel size allows uneaten food and waste to accumulate in the pockets between pebbles away from water flow that would break it down.

## Setting Up

The best way to clean your gravel is in small quantities in the yard. Three or four rinses in a bucket should be sufficient. Place the cleaned gravel directly into your tank to a depth of about 50mm at the front to about 70mm at the back along with a little water. For best results in a planted tank, try some substrate fertilizer like *Seachem Flourite* under the gravel. If you have undergravel filtration (not our preferred choice) add enough water to cover the plates before adding gravel.

At this point, I like to add rocks and position them. Try to triangulate your decorations to create an amphitheatre where the fish can congregate. Try to slope your gravel slightly towards the rear and sides using rocks and logs to create tiers and depth. It's a good idea when doing this to think where you intend to plant your plants. When you have the major decorations in place, add a little water, then syphon this dirty water out again into your bucket. If you intend to use air operated filtration, you should connect all your airlines, T-pieces, valves etc now. Next fill your tank. Avoid disturbing the gravel by using plastic bags or newspaper onto which you can direct the water flow.

## Preparing your Tap Water

*Consider: Water with abundant electrolyte salts*

Next we must treat our tap water to remove harmful chlorine and ammonia that will both kill fish. There are several products that will remove both, but the best value is *Pet City's AQUA START A*. Add AQUA START A at the rate of 5 ml / 20 litres to instantly make your water safe for your fishes and plants. Be careful, basic chlorine neutralizer products will only break the Chloramine bond, remove the chlorine but leave dangerous ammonia.

To recreate our natural stream system, it is also necessary to replace electrolytes like sodium, magnesium and potassium missing in tap water. *Pet City's AQUA START B* is a unique product which not only contains these essential aquarium salts but importantly also uses a deioniser to remove heavy metals like Alum (aluminium sulphate) which is added by the Water Board. The electrolytic (aquarium) salts are essential to your fishes well being. They not only provide an anti-bacterial effect, but help fishes produce body slime to protect themselves from infection and create an essential osmotic barrier so they do not dehydrate. AQUA START B should be added at the rate of 1 teaspoon (5 g) / 10 litres of water. Dissolve before adding to your aquarium.

You cannot give your fish a better start than with *AQUA START A* and *AQUA START B*. There are many products we can use to produce specific water conditions but these should all be used after conditioning you tap water with A and B. Ask staff to help you identify these products. Only use AQUA START A and B in proportion to the volume of water being exchanged. To calculate water volume; Length (cm) x Width (cm) x Height (cm) divided by 1000 = Volume (litres).

## Filtration

*Consider : Strong Water Movement , High Oxygen Levels and Low levels of Waste*

Remember, to recreate our natural system , we need to provide strong water movement, high oxygen levels and low levels of nitrogenous waste. This is best provided by a motorised filter, as air operated filters dissipate CO<sup>2</sup> which is essential for plants. All oxygen enters your aquarium through the water surface. Constant displacement of this surface layer by the filter stream provides plenty of oxygen.

All good filters provide ample filter media surface areas for the colonisation of aerobic (oxygen breathing) denitrifying bacteria which break down fishes waste. The greater the volume of the filter and the greater the flow rate, the bigger the population of bacteria which keeps your tank clean. This is biological filtration. All good filters should also provide foam and progressively finer mechanical filtration. Chemical filtration is also important. In the *Optimum Aquarium* we like to always use *Ammonia Remover* (Zeolite) as a safeguard, while we prefer not to use carbon as it will remove some of the trace elements necessary for plants. Remember to rinse any loose dust particles out before adding to your filter. *GEO-LIQUID* is a good substitute for carbon and highly recommended in the *Optimum Aquarium* for it's multiple benefits.

## Filter Types

- External canister filters like the *EHEIM* and *FLUVAL* are the best of all filters. They offer the highest flow rates through the largest volume of media and can be concealed from view. Both these brands have a simple priming system and excellent taps to isolate water in the tubing while the filter is cleaned.
- Hang on styles like the *AQUACLEAR* and *AQUA ONE* are also very good. They possibly provide the best value if your budget does not permit an external canister. To prime, simply fill the filter box with water and turn on. Water is pumped through the filter and gravity flows back into your tank. Sometimes you may need us to cut topglass to suit.
- Internal motorised filters like the *EHEIM* and *FLUVAL* are popular for smaller tanks or as a secondary filter for extra circulation in a large tank. Internals usually do not interfere with top glass or hoods.
- Air operated filtration is still often recommended for very small tanks and bowls. It is the cheapest option but less effective as the flow rates are slower and the bubbling is detrimental to plants. We highly recommend air bubbling in unplanted tanks though like Goldfish or Cichlid tanks. Be sure to use a Check Valve (non return valve) so that water cannot flow back into your pump if your power goes off. When using T-pieces to divide your air flow use an inline valve for end device, as air will always flow to the ending of least resistance.

### *Biological Filter Supplementation*

The best way to get crystal clear water is to pro-actively provide bacteria cultures as biological filter supplements. In our opinion *WASTE CONTROL* and *CYCLE* used in conjunction with one another are the best way to enhance your filtration and stay ahead of the game.

These bacteria cultures help convert all organic wastes (fish poo, plant detritus and uneaten food) to ammonia then further to nitrite and finally to nitrate. To establish your tanks bacteria cultures can take several weeks but is accelerated greatly by adding supplements. You still need to be careful not to overstock your new aquarium during this run in period.

Although nitrate is relatively harmless, the levels will accumulate and become dangerous if regular partial water changes are not performed to dilute nitrates. pH is also pulled dangerously lower by organic waste accumulation. Therefore, no matter how good your filtration is, you still must water change regularly. We recommend a 1/3 to 1/2 water change fortnightly to keep pH close to neutral and nitrates low. The best tool to assist you with this is a Gravel Syphon which allows you to remove the dirtiest water from around the gravel and replace it with clean, treated tap water. We recommend you test pH and nitrate weekly to ensure your water change maintenance is sufficient to maintain this balance. pH can be maintained using *pH UP*, but the only easy way to remove nitrate is by water changing.

**\*An important tip** when cleaning filters and water changing; Rinse your filter media in your old aquarium water rather than under the tap as the chlorine in tap water will kill off the precious filter bacteria living in the foam and other media. If you follow these procedures you should never have to completely break your tank down to clean it out.

### *Heating*

If you want to keep tropical fish you will need to heat them. A good guide is approximately 1 watt of heating per litre of water. A higher wattage heater than necessary is often a good choice though because they can be used on larger aquariums. Position your heater in a back corner at a 45 degree angle so that heat does not rise directly onto the thermostat. Make sure that there is good water movement around the heater. Set the thermostat to around 26 C and turn it on. Feel around the heater to ensure that the element is heating at least initially. We believe it necessary to also install a thermometer to check the heater. The stick on types are the best in our opinion as the suction cup type soon do not stick and require replacement.

### *Plants are Integral*

*Consider: High levels of Trace Elements essential for Plant growth and Good Lighting*

Plants are a beautiful and integral part of the *Optimum Aquarium*. They provide oxygen to the aquatic system via photosynthesis. They also take in organic nitrogen as ammonium (thus limiting nitrate production) and release natural antibiotics, and provide stress relief to fishes. We have a large variety of aquatic plants available from stemmed plants which should be used along the back and sides of the aquarium to central rhizomed plants like swords and crypts which are best used as a central display piece or along the front.

To provide the important trace elements like Iron essential to plant growth we must add plant nutrients to the system. There are several plant fertilisers on the market. For people starting out with plants, the single dose *PLANT FOOD* is the easiest to use. For those looking for better performance *BASIC GRO* should be added after water changes followed by daily additions of *DAILY GRO*. These two (Basic and Daily) must be used in conjunction or your plants will suffer. Tablet style plant foods are best used to supplement the root feeding of certain plants. Supplements placed under the gravel like *Seachem Flourite* give excellent results.

Iron Test Kits will allow you to monitor the plant food concentrations in your aquarium. Phosphate removers like *Phosguard* are an excellent additive to your filtration as it helps eliminate algae. Do not use PH Down in planted tanks as this phosphate buffer will create an algae nightmare. Remember also that we must reduce or eliminate air bubbling or we shall have no CO2 available for photosynthesis. Supplemental CO2 systems provide the ultimate plant growth by balancing all variables. We also advise not using carbon if you are feeding with plant foods, but rather a combination of more *Ammonia Remover* (zeolite) and *GEO-LIQUID*.

## *Lighting*

Lighting is essential because plants are an integral part of the *Optimum Aquarium* and will not grow without sufficient light. To grow your plants well, fluorescent lighting at about 2 watts per 5 litres of water is a good guide. Ideally 8-10 hours of light per day is sufficient for well planted tanks. To achieve this we find it better to illuminate your tank from afternoon until bed time when people can more easily enjoy their tanks. Lighting left on all day will undoubtedly cause excessive algae problems. For best results with plants we recommend high intensity full spectrum white lighting. *Arcadia* tubes are the best, but should be used in conjunction with complimentary budget alternatives like *Aquastars* or *Power Glos*. We sell a number of lighting fixtures from Singles, Doubles and Remote Ballast Fluorescents to Metal Halides for large planted aquariums. All fluorescent light fixtures are sold without fluoro tubes.

## *Selecting and Adding Fishes*

Let your system run for several days so that all your plants stand up nice and straight and your water clears before adding fish. This will also allow multiplication of bacteria.

Many customers ask "how many fish can I have?" A good rule of thumb is "Length of tank = Length of fish in the tank". For example, if you have a 90cm (36 inch) tank then you can have 30 x 3cm fish or 10 x 9cm fish. We suggest you put up to about  $\frac{1}{3}$  of the load of the tank in initially. Gradually add about another  $\frac{1}{3}$  of the load over the next few weeks and the last  $\frac{1}{3}$  over the next couple of months. This will allow time for the biosystem to cycle before the full load of the tank is reached.

Try to select compatible fish of similar size. It is always a good idea to select several types of fishes that will swim in different areas of your tank, like a few bottom feeders, schools of mid water swimmers and others that will swim around the surface. Try and balance your distribution of colour for greatest impact also. Remember don't overcrowd your fish. This is a common problem, so please consider that less happy fish is always better than lots of sad ones.

## *Feeding your Fishes*

Remember that you must be careful not to overfeed your fishes.

If your fish are eating small amounts regularly that is not overfeeding. Feed 2-3 times daily but only small amounts that your fish will consume in a few minutes. This few minutes should include what the fish miss at the surface and later locate around the tank. We recommend one feed of a top quality commercially prepared food like Tetra or NutraMax in the mornings when you are generally more rushed, and at least one feed of a frozen or live food in the evenings when you can better enjoy watching your fish. You will definitely take your fish to new level of colour, vitality and health by feeding regularly with frozen and live foods. We have a huge range of frozen and live foods available at a small cost. We feel that once new hobbyists have mastered the management of their water quality then quality feeding is the area they need to work on to advance their hobby.

## *The Best Advice*

There are lots of ways of achieving good results in your aquarium, but the principles are always the same. What we recommend is exactly what we do in our own display tanks, so we hope this guide will help you set up your own *Optimum Aquarium*. One that recreates your fishes natural environment. The biological balances are the key and we know that by using the best blend of equipment and products along with the right advice and service from our *Pet City* staff you can have a beautiful and problem free aquarium. For any further information contact us at *Pet City*.

For the best aquarium in town - *Talk to the Experts.*  
We are open 7days.