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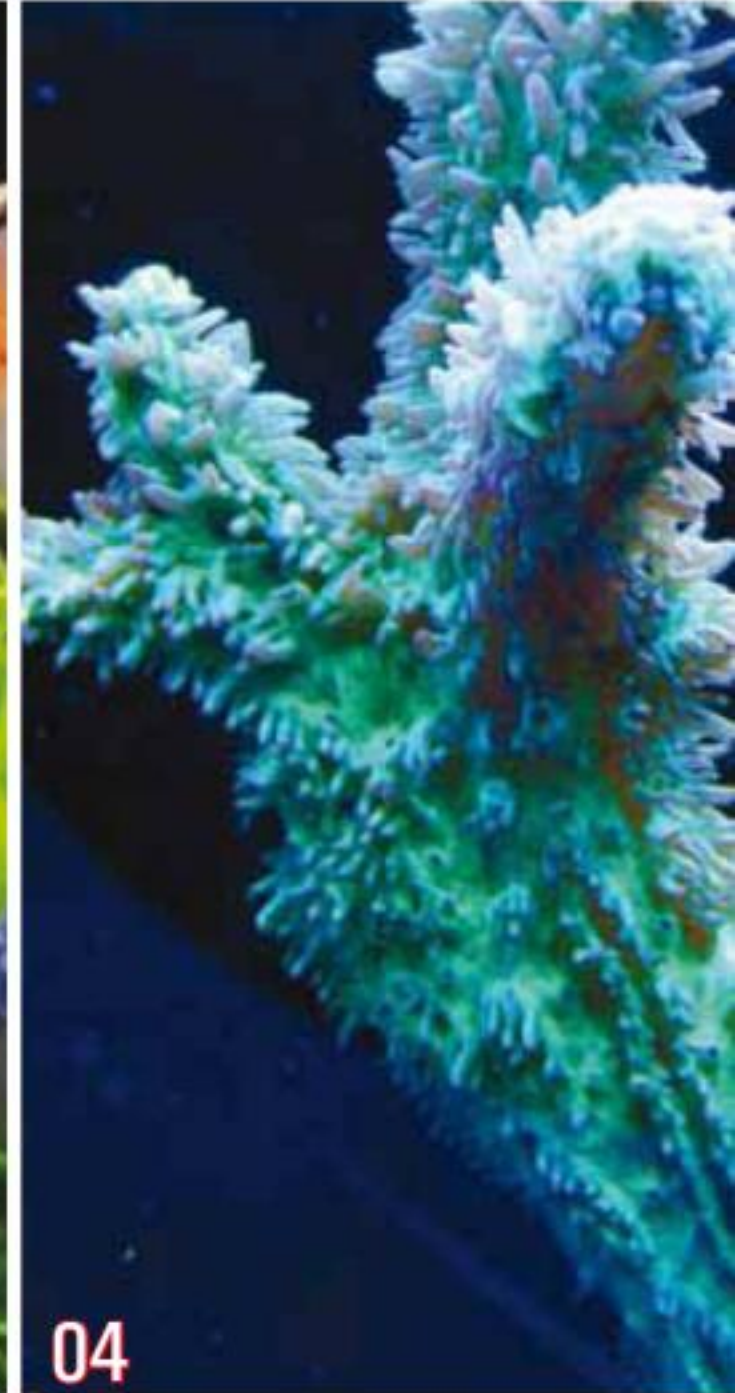
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Cover Photo:
Squareblock Anthias
Pseudanthias pleurotaenia
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A few of our customers have been asking about the syndrome known as dropsy, so we thought we would discuss it in this issue.

Dropsy typically shows up for no apparent reason, and despite the best of care, claims the life of its victim. The term “dropsy” refers to a condition characterized by abdominal swelling that causes the scales in the affected area to stand on end, giving the tropical fish a pinecone-like appearance, particularly when viewed from above. Dropsy is not a specific disease but rather a symptom of a deteriorated health condition.

The visible swelling is the result of a tropical fish not being able to regulate the amount of fluid in a part of its body, typically the abdomen, and specifically, most often the visceral cavity that houses a number of organs such as the stomach, intestines, gall bladder and kidney. The failure to regulate fluids is a symptom - so there is usually some other disease involved that starts the process.

The causes of dropsy are seemingly anything and everything. Although many people tend to think of tropical fish diseases as being caused by specific “bugs” (pathogens) that they then have to get rid of, sometimes the cause is less obvious. In many cases, environmental parameters are at fault. In new setups, water parameter issues, such as elevated ammonia or nitrite levels before the nitrogen cycle is complete, can be the problem, whereas in older setups it could be chronically low pH, due to lack of maintenance. Dropsy can also be brought on by the stress of aggressive tankmates and seems to affect older tropical fish more than younger ones of the same species (in the same living conditions).



The general consensus seems to imply that if caught in the earliest stages, dropsy can be effectively treated with anti-bacterial medications and/or salt baths. So, how do you catch it in those early stages? In most cases, the fish in question will stop eating fish food, typically a day or two before the swelling starts. It may also hang back at feeding times, and generally stop associating with other fish in the fish aquarium a day or two before that. So, there is often time - but you have to be a keen observer to see the changes in behaviour. The very minute that you observe any change in the behaviour of your tropical fish, consider what the cause might be. If the main causes of dropsy are environmental, in theory it should be relatively easy to prevent. Properly research your intended tropical fish purchases to make sure that you can provide the appropriate environment or that the species in question will do well in your aquarium, given its current environmental conditions. Things to consider include the right water parameters (such as pH, temperature, ammonia, nitrite and nitrate), tankmate compatibility, diet requirements and other needs, such as cover and habitat.

Aside from buying the right species for your aquarium, carefully consider your maintenance schedule for the fish aquarium. Maintaining good environmental conditions requires regular water changes, filter maintenance and siphoning of the substrate. These are all important components of a pro-active disease prevention plan. Add to that a varied diet and compatible tankmates, and you should never have to deal with dropsy.

Happy reading, and happy fishkeeping!

The Editor

DEADLINES

Issue
September/October 2016
November/December 2016
January/February 2016

Colour Adverts
25 July 2016
25 September 2016
25 November 2016

The Hydnohpora Coral, also commonly known as the Horn Coral, has an attractive growth pattern along with a very bright lime green colour (or even yellow depending on light intensity). The Hydnohpora Coral is a great choice for your reef aquarium if you have the room to keep it away from your other corals. This coral's sting is seriously strong!

Within the genus Hydnohpora, there are at least six described species, including *H. pilosa*, *H. rigida*, *H. grandis*, *H. bonsai*, *H. exesa*, and *H. microconos*. Belonging to the family Merulinidae, corals from the genus Hydnohpora, like all Marulinids, are indigenous to the Indo-Pacific.

The divers in Fiji call this species chicken feet and it comes in a variety of colours from this brilliant fluorescent green to yellow and even a bluish hue. This is a fast growing coral and one of the easiest to frag. As a result, wild collection is very sustainable. In addition to anecdotal evidence that populations of coral from the genus Hynophora are thriving, WSI, like most importers, keeps collection of each regulated species of coral within quotas established by the Convention on International Trade in Endangered Species (CITES).

Hydnohpora corals are fantastic aquarium corals. They are relatively hardy, and their silky green fluorescence ensures they will

get noticed in any reef tank. While not as touchy as other so-called SPS corals, Hynophora species do generally require relatively high intermittent flow, and strong lighting. The branching growth forms of the Horn Corals are often more fragile than other branching SPS corals. They are often found slightly deeper than Acropora where they are not exposed to as much wave action. Although Hynophora species do host symbiotic algae from which they derive much of their nutritional needs, the animal appreciates supplemental feedings of foods formulated for SPS corals. As in any reef system, the filtration must be robust enough to keep up with both the bioload produced by fishes and the feeding regimen.



Hydnohpora Corals

This is a fast growing coral and one of the easiest to frag



The Hydnohora has similar features to the common SPS corals with horns sprouting out all over its body. The growth patterns on this coral are something very different and unique from other corals which makes it a very interesting coral to own. On top of the growth patterns, when the coral is kept in the correct conditions, the polyps will fully extend. These polyps are just as unique looking as the growth patterns. In the case of the Hydnohora coral which I am showing in this article, the polyps are a bright pink which is neat on its own, but the Hydnohora polyps “balloon” out of the coral and can make the coral

appear almost totally pink.

Placement of the Hydnohora coral should be in the upper level of your tank for high light intensity and in an area of very high water flow. The closer you can get your coral to the light without bleaching it you will notice the colour gets brighter and brighter. My frag was taken from a colony sitting very high in a tank near a 400 watt 20k bulb and the coral was a very bright yellow. Currently, my frag has just been moved into a display tank from a frag tank so it did lose the yellow and reverted to green because I had it placed half way down

the tank under T5's, but it's still a very pretty coral even if it never regains the yellow.

Hydnohora Corals are a photosynthetic coral and do not need to be directly fed. The coral produces its food from the lights in your tank. The polyps will occasionally catch food in your tank but its main source of food is through photosynthesis. Feeding this coral directly is not needed; I have tried but never with any success so I don't even try anymore. I now treat this coral like any other SPS except I make sure to not let it touch any of my other corals.

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The growth patterns on this coral are something very different and unique from other corals which makes it a very interesting coral to own

After acquiring your Horn Coral try your best to place it into a quarantine tank. After a few weeks without any problems with the coral, you can move it into your display tank. Water conditions should be maintained at around 23-26°C, dKH 8-12, pH 8.1-8.4, sg 1.023 – 1.025.

Overall the Horned Coral is often labelled as very aggressive; it will kill most other corals that come in close proximity with it. It is important to provide plenty of room between itself and other corals. The Hydnohpora Horn Coral is not the easiest coral to maintain, but if given the proper conditions, it will do well in the

reef aquarium. It will require a high light level combined with a medium water movement. For continued good health, it will also require the addition of calcium, strontium, and other trace elements to the water.



This coral has an attractive growth pattern along with a very bright lime green colour or yellow depending on light intensity

The Hydrophora polyps "balloon" out of the coral and can make the coral appear almost totally pink



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Many keepers report growing their colony of Cherry Shrimp from 10 to 50 or 100 in just a few months

FRESHWATER SHRIMP - KEEPING FOR BEGINNERS

Editor's Note: *Freshwater Shrimp are a controversial species - although they are legal to keep and trade, it is not legal to import these species. This state of affairs is currently under review thanks to the efforts of members of the Tropical Aquarium forum, who raised enough signatures on petition to change the status of these invertebrates on the South African market. At time of press the final decision is still pending, but their effort should be applauded throughout the hobby. With their new availability, we decided to publish an article detailing their care in an aquarium.*

Freshwater shrimp can be an amazing addition to any tank. They add variety and something unique. The popularity of shrimp-keeping has grown exponentially in the last 10 years with many interesting species and varieties available. Shrimp-keeping can be a bit intimidating as their care and habitat needs can be a bit more demanding than your average fish. If done correctly though, they will add some flair to your tank and become welcome additions to your aquarium family.

I started with shrimp a few years ago with Ghost Shrimp, which are easily found at most pet stores. After doing a lot of research, having some ups and downs, and learning things the hard way, I have found a lot of different information that I think will help the beginner with their shrimp care. I am by no means an expert shrimp-keeper. The methods and suggestions I have below are just that, suggestions. They are not necessarily the only the way to do things

or the best way to do things. They are some things that have worked for me and tips that have been shared with me via other shrimp-keepers.

I have done a lot of research on the topic and hope to pass on a little bit of my knowledge to any new or experienced shrimp-keeper. With that, I highly suggest for everyone to do their own research and reading on the topic as there is a wealth of information on the internet pertaining to aquatic shrimp. Forums, like Fishlore.com, are a great starting point. Other sites I highly recommend are planetinverts.com and shrimpnow.com. Both have a lot more shrimp specific information that is very valuable when getting started. Along with research, finding a good place to buy your supplies can help save you a lot of money which in the end will help you have better shrimp.

BEGINNER SHRIMP TO START WITH

For beginners in the shrimp-keeping world I highly recommend 2 main species of shrimp, Ghost Shrimp and Red Cherry Shrimp. These are the 2 that I will focus on in this article. There are many other shrimp but they tend to be a bit trickier to keep as well as a lot more expensive to purchase.

Ghost shrimp are the common name given to a few different species that are sold mainly as feeder shrimp in most pet stores. They are mostly clear, looking somewhat ghost-like.

They are great scavengers eating leftover food, detritus, some algae, and even waste from other inhabitants of the tank. They grow up to 5cm in size and can live with a variety of tank inhabitants. The most common variety come from many parts of the U.S. and grow and breed in fresh waterways like marshy areas with abundant plant life and available food sources.

Red Cherry Shrimp are a smaller "dwarf shrimp" that has been bred over many years to be a brighter colour red. They grow to approximately 3.75cm, with the males be smaller at 2.5cm maximum. The wild version of these shrimp (*Neocaridina Heteropoda*) vary from clear to a brownish tint and are native to different areas of Asia. The Red Cherry variety is believed to be first developed in Taiwan and was bred over a number of generations to be more and more red. The wild version has also been bred into a few other colours such as Yellow shrimp, Pumpkin shrimp, Blue shrimp, Chocolate shrimp and Rili shrimp (half coloured and half clear). The females are much brighter coloured with the males being more translucent. Red Cherry shrimp come in a variety of grades defined by their colouration.

- 1) Common/regular Cherry Shrimp – clear to slightly pinkish with some small red dots
- 2) Taiwan/sakura Cherry Shrimp – females are much darker/brighter coloured red with



Painted Fire Red Shrimp



Common/regular Cherry Shrimp

shouldn't have to mess with this stuff to keep Ghost shrimp or Cherry shrimp.

These shrimp will occasionally shed their exoskeleton as they grow, this is called moulting. You will see a small shell lying on the tank bottom that looks empty and clear to white coloured. Some think it is a dead shrimp at first but after close inspection you will realize it is just their moult. You can leave this old moult in the water as they will feed on it to help replace the needed minerals for future shell growth. After they moult they will hide for a day or so as they would be vulnerable to being eaten or hurt without their protective exoskeleton. Moulting is a good sign, meaning that your shrimp are healthy and growing. This occasionally is triggered after water changes, with many attributing it to the new water in the tank, similar to a rain downpour in the wild.

HABITAT

Now that we have the water conditions taken care of, we need to make sure their habitat is

ideal. These shrimp can live in just about any sized tank providing that it has adequate filtration. A good general rule is 1 Ghost Shrimp per 2 gallons of water and up to 5 Cherry Shrimp per gallon of water. Ghost Shrimp can be a bit territorial so they may spar with other Ghost Shrimp if too many are kept in a small space. Cherry Shrimp are very communal and don't really fight that much. The 2 shrimp can be kept together but smaller Cherry Shrimp may get picked on by the Ghost Shrimp and baby Cherry Shrimp will possibly get eaten. Cherry Shrimp do best in a species only tank.

Shrimp also love plants. Natural live plants are a great way to help clean and oxygenate the water. They provide hiding spots and a great spot for shrimp to forage. Great beginner plants that are super easy to care for and that shrimp love include Java Moss, Hornwort, Java Fern, Anacharis, just to name a few. Java Moss and Hornwort are very ideal as they help protect the baby shrimp and the shrimp love to clean off all the little leaves all day long.

Any substrate will work for these shrimp. You will see shrimp specific substrates that are very expensive but are more designed for higher end expensive shrimp. Any gravel or sand substrate will work fine for these shrimp.

Many aquarists want to keep shrimp with fish together. This can be done but caution is advised. Ghost Shrimp have been known to nip at slower moving, long finned fish. They also will catch and eat baby shrimp. Any fish big enough to fit a shrimp in their mouth will happily eat shrimp. Ghost shrimp, being a bit larger, can do well with some smaller fish like tetras, guppies, danios, and barbs. Adult cherry shrimp will also do ok with these same fish, but their babies will disappear quickly as snacks for the fish. The only 100% confirmed shrimp safe fish is the otocinclus, a small sucker mouthed fish that eats algae off the walls of your tanks and plants. Many aquarists will say they have kept shrimp with this fish or that fish, and they may be right. But many others will say that same fish ate all their shrimp. So there is a mixed debate on the subject. My advice would be to keep Cherry Shrimp by themselves and Ghost Shrimp will be ok with smaller fish like tetras and guppies.

EQUIPMENT

Along with the ideal habitat is getting the equipment needed to keep that habitat healthy for the shrimp.

Most important is your filter. Shrimp need clean water. A filter that overturns your water 5-10 times per hour is recommended. Canisters are great but can be a bit more expensive. Hang on Back (HOB) filters are very cost efficient and do a great job as well. Many shrimp keepers use sponge filters. These sponge filters are great and work well, but are best suited for shrimp only tanks. An added benefit of the sponge filter is the aeration provided since it is run by an air pump. If you plan on having any fish, a HOB or canister would be preferred as they do a much better job of mechanical filtration. When using a HOB or canister you also need to get a sponge pre-filter for the intake to help keep the smaller shrimp and babies from getting sucked into the intake. Fluval makes one sold at most pets stores or you can make one out of a larger size aquarium sponge. Anything that will help cover up the intake so babies don't get sucked in. I personally like running 2 methods of filtration, using a HOB filter and a sponge filter. Some say this is overkill, but I like having a back-up plan if one breaks somehow and I think over-filtration really helps to keep the water clean.

A heater is needed if your house ever dips below the 20°C range in the winter. If you keep your house at 21°C or above at all times, then a heater would not be needed. On the other end, you may want to invest in a small desk fan for your tank if it ever gets above 27°C in your house. A small fan blowing across the surface of the water will help lower the temperature 5 degrees or so, which can be very helpful in the summer.

Lighting is not super important to shrimp. However, if you keep live plants in the tank (which is highly recommended), a good plant friendly light is very important. Something in the 6500k colour range to help support the plant photosynthesis. For the beginner plants I listed above you don't need any super bright light. The normal hood/light fixture that comes with most tanks will suffice just fine, as long as the bulb is in the 6500k range. If you needed some supplemental lighting, a good cheap method is to use a desk lamp with a screw-in CFL bulb. The light can be pointed where you keep your plants and CFL bulbs are very cheap and easy to find in the 6500k range. I have also seen people use the clip-on "shop lights" with the metal reflectors. These are sold at most home improvement stores.



Planted tanks work well for shrimps

Some of the most important equipment needed for shrimp keeping is a good water test kit. Tests needed include pH, ammonia, nitrite, nitrate, GH, and KH. If you think you may have a problem with copper or you accidentally dosed with a medication containing copper, than a copper test kit as well. Test

strips, while cheap, are not very accurate. The liquid test kits do a better job and assure your water is at safe levels. Be sure to follow all the directions very thoroughly as some require a lot of shaking or time waiting to read results. Also check expiration dates to make sure your tests are "fresh".

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DIET

Ghost Shrimp will happily scavenge the bottom of your tank for any leftover food or waste they can get. They will occasionally eat some algae too. They happily eat most types of fish flakes or pellets as well as algae wafers. You can also find some shrimp specific food that would be of nutritious benefit as well. Red Cherry Shrimp feed primarily on the bio-film that grows on plants and all surfaces of your tank. This bio-film is composed of microscopic organisms and algae that supplies most of their nutrition needs. They will also eat shrimp specific pellets and/or algae wafers. Be careful not to feed too much protein, though, as this can lead to them growing faster than their shell growth will keep up. Many people also supplement with organic veggies that have been blanched or steamed. Preferred veggies include zucchini, spinach, carrots, pumpkin, and squash. Zucchini and spinach are ideal as they are a good source of calcium which helps their shell development and moulting.

BREEDING

Many shrimp keepers will soon find their female shrimp with eggs under the bellies (also called being "berried" as it looks like little berries). Shrimp are prolific breeders and the females stay berried most of the time. Ghost Shrimp are from the lower order of shrimp and breed babies into a larval form. Cherry Shrimp are from the higher order and their babies are born as miniature versions of adults. As Ghost Shrimp babies are larval they are very hard to care for, needing specific food and other care needs. This leads to rarely

seeing the babies survive to adulthood without a specific setup ready to go for breeding. Cherry Shrimp, on the other hand, are very easy to breed, as they can eat the same food as the adults and have the same care. The main thing you need is just to have a male and female and they usually take care of the rest. Many keepers report growing their colony of Cherry Shrimp from 10 to 50 or 100 in just a few months. The eggs are usually carried underneath the female's belly for about 3 weeks and will hatch into the water as tiny versions of the adults, often too small to see with the naked eye. Java Moss is highly recommended for baby Cherry Shrimp, as they like to hide and it provides food for them to forage on. If you plan on breeding either of these shrimp, further research is suggested.

DISEASE AND TREATMENT

I don't want to go too much into diseases and treatment as it would make this article a lot longer than it needs to be. I mainly wanted to touch on the fact that shrimp are invertebrates and have different needs than fish. Many medications and treatments that are used on fish tanks cannot be used with shrimp. The main culprit is medication which contains copper. These include algaecides, antibiotics, and snail removal meds. These will all kill shrimp very quickly as inverts cannot tolerate copper in the water at all. Below is a list of shrimp safe medications and their uses. Please research any medication before it is used. Be sure you know what you are treating for and you know that all your tank inhabitants will be ok with the medication. Some meds that are

ok for shrimp may hurt snails. Research is always your best friend when dealing with disease and tank treatment. Here is the list of water treatments and medications, I have used all of these on Ghost and Cherry Shrimp and they also will not harm your beneficial bacteria in your filter/tank:

- 1) Seachem Prime – water conditioner that removes chlorine, chloramine, and detoxifies ammonia and heavy metals
- 2) Pimafix – mild treatment and/or preventative for fungal infections. Can be combined with Melafix for improved efficacy
- 3) Melafix – mild treatment and/or preventative for bacterial infections. Can be combined with Pimafix for improved efficacy
- 4) Kordon ICH Attack/Rid Fungus – These are 2 products which are the same just sold under 2 different names. It is a natural based treatment for Ich and or fungus
- 5) Seachem Paraguard – treatment for parasites and bacterial infections
- 6) Hikari Prazipro (praziquantel) – treatment for gill Flukes, tapeworms and other parasites found in fish and occasionally shrimp
- 7) Indian Almond leaves – these are leaves from the Indian Almond tree. They are a great natural source of anti-bacterial agents. Shrimp will also eat them as they breakdown in the tank. They are sold on eBay as well as other sources. They are thrown in the tank and will tint the water a little bit as they release tannins into the water.
- 8) Alder cones – these are small pine cones from alder trees that are used much like Indian Almond leaves. They also have some anti-bacterial qualities.

SUMMARY

As I stated earlier, do some reading, research your shrimp, plan things out ahead of time. Rushing into things is a sure fire way to fail in this hobby. With some planning and research though, these shrimp can add a fun new inhabitant into your tanks and make for a more well-rounded ecosystem. Post questions on the forums. I hope this article has helped you and steered you in right direction. Shrimp can be very cool and don't have to be relegated to only shrimp cocktails and shrimp scampi.

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Squareblock Anthias

(Pseudanthias pleurotaenia)



Anthias are a family of beautiful and brightly coloured marine fish, but few Anthias can compete with the unbelievable colouring of an adult male Squareblock Anthias (*Pseudanthias pleurotaenia*). When kept in the correct conditions and fed the right diet these Squareblock Anthias will glow like a neon sign in your marine aquarium. This species is also quite a lot larger than the other Anthias species, which makes them appealing. While all the anthias can be a bit challenging to keep long-term, the Squareblock Anthias is one of the easier species to maintain. The key is food. You

“When kept in the correct conditions and fed the right diet these Squareblock Anthias will glow like a neon sign in your marine aquarium”

have to add meaty foods (finely shaved seafood, frozen Cyclops, fish eggs and carnivore foods) at least three times a day. If you do not feed the active Squareblock Anthias enough food, it will become more and more emaciated and will eventually perish.

The Squareblock Anthias is found from Samoa to Indonesia, where it typically resides on fore reef slopes and reef drop-offs. *Pseudanthias pleurotaenia* is particularly abundant in areas subjected to stiff current, which serves to transport life-giving food (zooplankton). The anthias swims above

The male Squareblock Anthias has orange and magenta colours with a brilliant pink square on each flank



the reef and snags the tiny prey items out of the water column. The Squareblock Anthias tends to prefer moderate depths — usually deeper than 90 feet. The Squareblock Anthias is usually found in smaller, looser shoals than some of its kin.

The male Squareblock Anthias has orange and magenta colours with a brilliant pink square on each flank. This marking serves to signal females and rival males in its natural habitat. At the depths the Squareblock Anthias is usually found, the square glows, making the male Pseudanthias pleurotaenia even more conspicuous. The female Squareblock Anthias are yellow, and their scales are edged in orange and violet-edged yellow lines that run from the eye to the origin of the tail. The Squareblock Anthias is very similar to Shen's anthias (*Pseudanthias sheni*), which is rarely seen in the trade due its very limited distribution (it is only known from Rowely Shoals, Northwestern Australia). The Squareblock Anthias reaches a size of about 20cm.

Aquarium Conditions

Many of the Anthias that live at greater depths lose their bright colours with time in captivity. It has been suggested that this occurs because of dietary deficiencies. There is no doubt that a lack of certain pigments in the anthias diet may contribute to colour loss, but it also may be a function of being kept under unnaturally bright lighting. The intense lighting often found over reef aquariums, for example, may actually cause anthias fish to fade. The best way to maintain colour intensity is to keep anthias in a moderately lit aquarium (e.g. a deepwater reef aquarium) and to feed a varied diet high in colour-enhancing pigments. An aquarium of 55-gallons is sufficient for a solitary squareblock anthias, but a much larger aquarium will be required to keep a shoal of this fish. Keep the Squareblock Anthias at a pH of 8.1 to 8.4, specific gravity of 1.019 to 1.025 and a water temperature of 24.5 to 27.5°C.

Strong water flow and good protein



The female Squareblock Anthias are yellow, and their scales are edged in orange and violet-edged yellow lines that run from the eye to the origin of the tail

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Many of the Anthias that live at greater depths lose their bright colours with time in captivity



The stocking ratio should be highly skewed toward juveniles and/or females - about 1 male for every four to six females or juveniles

skimming will help keep your Pseudanthias pleurotaenia in top condition. An aquarium cover of some sort will also prevent the Squareblock Anthias from leaping to its death.

If you are going to attempt to keep a small shoal of these Anthias, your chances of success will increase if the composition of the group consists principally of juvenile and female individuals. You should add only one male to the aquarium, unless the tank is large enough to accommodate more. Even then, the ratio should be highly skewed toward juveniles and/or females (a good rule of thumb would be one male to every four to six females/juveniles). Fortunately, the majority of anthias species are sexual dichromatic (that is, males and females differ in colour).

The size of the aquarium can also greatly impact your success in keeping anthias shoals. The general rule is that the larger the tank, the greater your chances of success in keeping a group of anthias. In a large tank, more submissive members of a shoal may be able to avoid more dominant conspecifics. In a smaller tank, it will be hard for weaker fish to avoid bullies. If you ever see photos of the European tanks, those tanks that are

loaded with anthias are usually huge (in some cases, thousands of gallons).

Another trick that can increase your chances of success in keeping an anthias shoal is regularly utilized by freshwater aquarists that keep African cichlids. With this technique, you attempt to crowd your aquarium with females/juveniles (at least six to eight individuals in the shoal). By placing that many fish in the tank, you may be able to spread aggressive interactions out so that rather than one or two subordinate fish being the recipients of all the abuse, aggression is distributed around the captive population. If you decide to try this procedure it is important to introduce all the shoal members at the same time. This technique does have some drawbacks. For example, loading your tank with anthias will limit the number of other fish species you can have. It might also put an excessive load on your biological filter and increase the chances of a disease/parasite epidemic. Occasionally, if there is a great disparity in the sex ratio a dominant female may change sex.

Feeding can also reduce the likelihood of aggressive interactions between shoal members. If food is limited, fish tend to

be more antagonistic toward conspecifics. While this is especially true for territorial reef fishes, a scarcity of nutrients can also lead to more quarreling in gregarious species like anthias and chromis. Feed your anthias at least three times a day.

Feeding

The diet of Squarespot Anthias is consistent with other members of the Anthias group - zooplankton and floating filamentous algae. In the aquarium, it should be fed a varied diet of mysid shrimp, vitamin-enriched brine shrimp, frozen preparations and other meaty items for zooplankton feeders. They prefer to be fed small quantities, several times daily.

Breeding

The Squareblock Anthias is not likely to spawn in your home aquarium. The Squareblock Anthias is a protogynous hermaphrodite, meaning males result from female sex change.

Overall the Squareblock Anthias is, in my opinion, one of the most impressive species of Anthias. These fish will without a doubt stand out in a marine reef aquarium and are a must have.



Few Anthias can compete with the unbelievable colouring of an adult male Squareblock Anthias



The Squareblock Anthias is found from Samoa to Indonesia, where it typically resides on fore reef slopes and reef drop-offs

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A STREAM IN SOUTH AFRICA WHERE BOLBITIS AND ANUBIAS GROW NATURALLY

Envisioning such a native environment of plants while recreating a fish habitat is a real joy of the Nature Aquarium. Fish usually show us their natural body colors and behaviour only in the aquarium in which the fish and plants coexist in prosperity. It is also very meaningful to have interest in habitat and natural environments through the Nature Aquarium hobby. In this issue, we introduce the West African fields as well as Nature Aquarium layouts inspired by them.

CREATING A HABITAT FOR FISH: WEST AFRICA

A GLIMPSE INTO NATURAL HABITATS OF AQUATIC PLANTS

The photographs on this page captured the hidden places where Pygmy tribe showed Takashi Amano during his photo expedition in 1997. In a nameless stream at low water level in dry season, rocks and driftwood are exposed in places and fully covered by Bolbitis and Anubias. The Bolbitis pulled out of the clear water holds small stones by its roots. This is exactly what is expressed in Nature Aquarium and tells us that the techniques for Nature Aquarium are in line with the order of nature. The sight of these aquatic plants grown on stones and driftwood is exactly what we can find in Nature Aquarium. It gives a lot of inspirations on creation of aquascape layouts.



Bolbitis and Anubias are species unique to Africa and particularly West Africa is known as the main field for these plants. The sight of these aquatic plants grown on stones and driftwood is exactly what we can find in Nature Aquarium. It gives a lot of inspirations on creation of aquascape layouts.

ANUBIAS AND FERNS

Mossy fallen trees with Anubias and ferns truly depicts the world of Nature Aquarium. The sentiment of Wabi-sabi can be felt in a foreign land outside Japan.



ANUBIAS SPECIES

This is Anubias with undulate leaf margins. Many of attractive Anubias species grow in the fields of West Africa.



A LAYOUT EXPRESSING A WEST AFRICAN FIELD

Since the inception of the International Aquatic Plants Layout Contest, the planted aquarium has been enjoyed all around the world. With this move, the recognition and technical level of planted aquarium was significantly improved as compared to before. While it is good for hobbyists to have higher layout skills and techniques, it is certainly a fact that more layouts nowadays focus too much on impactful expressions, such as layout in the motif of terrestrial landscape and bizarre composition. Besides, they are often found to be far deviated from the concept of “recreation of fish habitat environment”. It is up to the individual hobbyists on what kind of layout they create and enjoy. However, even if a diorama-like layout is elaborate and impactful, they are not fully acceptable from the viewpoint of long-term maintenance and appreciation.

The layout introduced in this issue was created only by using Bolbitis coupled with Brycinus longipinnis to invoke an image of West African waters. Brycinus longipinnis is very active and require a wide open swimming space. Bolbitis and Fontinalis antipyretica add a profound atmosphere to the layout as they grow over time. The aquascape that is slowly and naturally formed is pleasant to the eyes and makes us feel calm and relaxed. It is also fun to create and maintain a layout while envisioning scenery of a tropical region which we seldom have a chance to see with our own eyes. It must be one of the richness offered by the Nature Aquarium hobby.

DATA

Tank: Cube Garden W180×D60×H60 (cm)

Lighting system: Solar I (NAG-150W-Green) × 4; lighting for 10 hours a day

Filter system: Super Jet Filter ES-2400 (Bio Rio L, NA Carbon)

Substrate: Aqua Soil-Amazonia, La Plata Sand, Bacter 100, Clear Super, Tourmaline BC

CO₂: Pollen Glass Beetle 50Ø, 6 bubbles per second with CO₂ Beetle Counter (CO₂ Tower used)

Air: Aeration with Lily Pipe P-6 for 14 hours while lighting is OFF at night

Additives: Brighty K, Green Brighty STEP2

Water change: 1/3 water change once a week

Water quality: Water temperature 25°C, pH:6.8, TH:20mg/l

Aquatic plants:

Bolbitis heudelotii
Fontinalis antipyretica

Fish species:

Brycinus longipinnis
Crossocheilus siamensis
Otocinclus sp.
Caridina japonica



Brycinus longipinnis matches thriving Bolbitis

COMBINATION OF AQUATIC PLANTS AND FISH FROM THE SAME GEOGRAPHICAL AREA

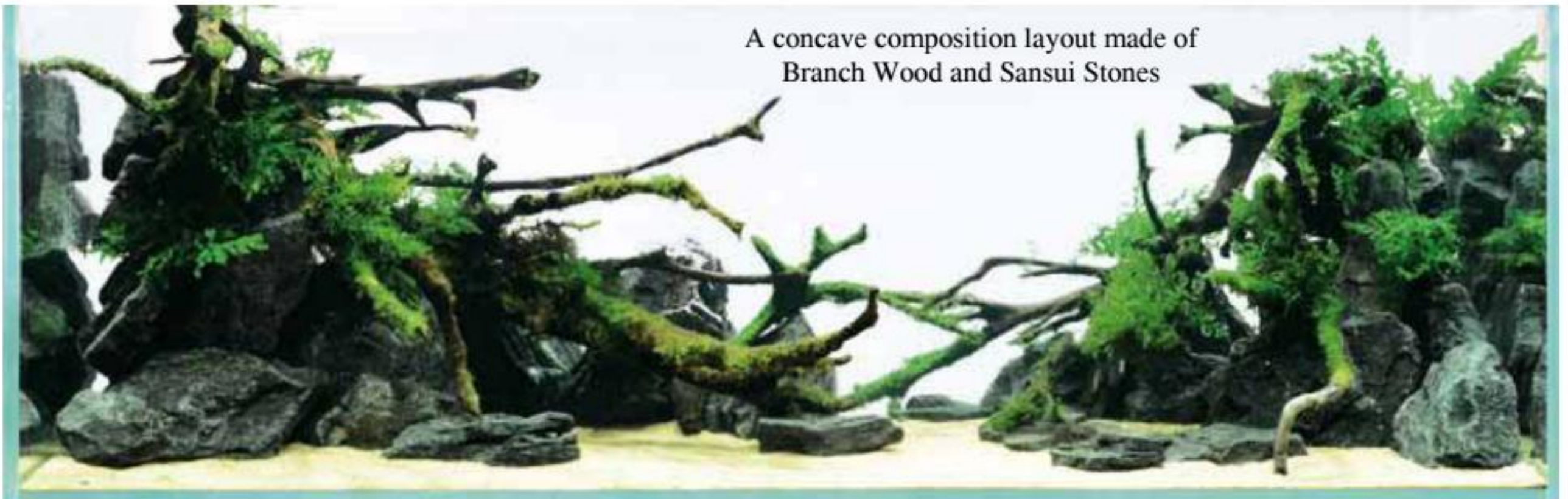
This is a layout using a combination of Bolbitis and Brycinus longipinnis, both of which originated from West Africa. Branch Wood on which Bolbitis had grown expresses the aquatic environment in South Africa together with Sansui stones and La Plata sand. It is a relatively simple layout but produces rich natural feel by the effective arrangement of Bolbitis and Fontinalis antipyretica. Moreover, this layout has a nice contrast in shadow and light by making the substrate from cosmetic sand having a bright color in contrast to the dark shadow casted by the driftwood and blackish Sansui stone.



This Branch Wood on which Bolbitis and Fontinalis antipyretica had grown was used in another layout before. It was re-used for this layout.



The point of enhancing the natural feel of the layout is to make driftwood portions both with and without moss.



A concave composition layout made of Branch Wood and Sansui Stones



Place the branch tip on a flat Sansui Stone to support the Branch Wood. A subtly fine balance is the key to the driftwood arrangement of this layout.



Put some flat Sansui Stones to add a good accent to the layout.



A composition made of finely-balanced Branch Wood



Branch Wood featuring slim, long branches is suitable for making a complicated-looking composition. In this layout, several pieces of Branch Wood are arranged and fixed in a fine balance by using Sansui stones. Sansui stones are suitable for holding Branch Wood in place according to the creator's image, as some Sansui Stones are large enough to stand on while some are flat to lay on the substrate. This Branch Wood composition stood out more by spreading bright cosmetic sand on the substrate.



A pathway to the soul of creation.
Takashi Amano works and photo book

Origin of Creation

TAKASHI AMANO

Biography



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In August 2015, Takashi Amano departed this world and was sadly missed. The photo book that he had been working on to the end was published, and now available in English. Inside the book are Amano's creative works and personal narratives selected by himself from the perspective of an aquascaper and photographer – a biography getting to his origin of creation. Along with autobiographic essays, the photo book presents not only Takashi Amano's representative photos of landscapes and aquascapes, but also a series of his unpublished works.

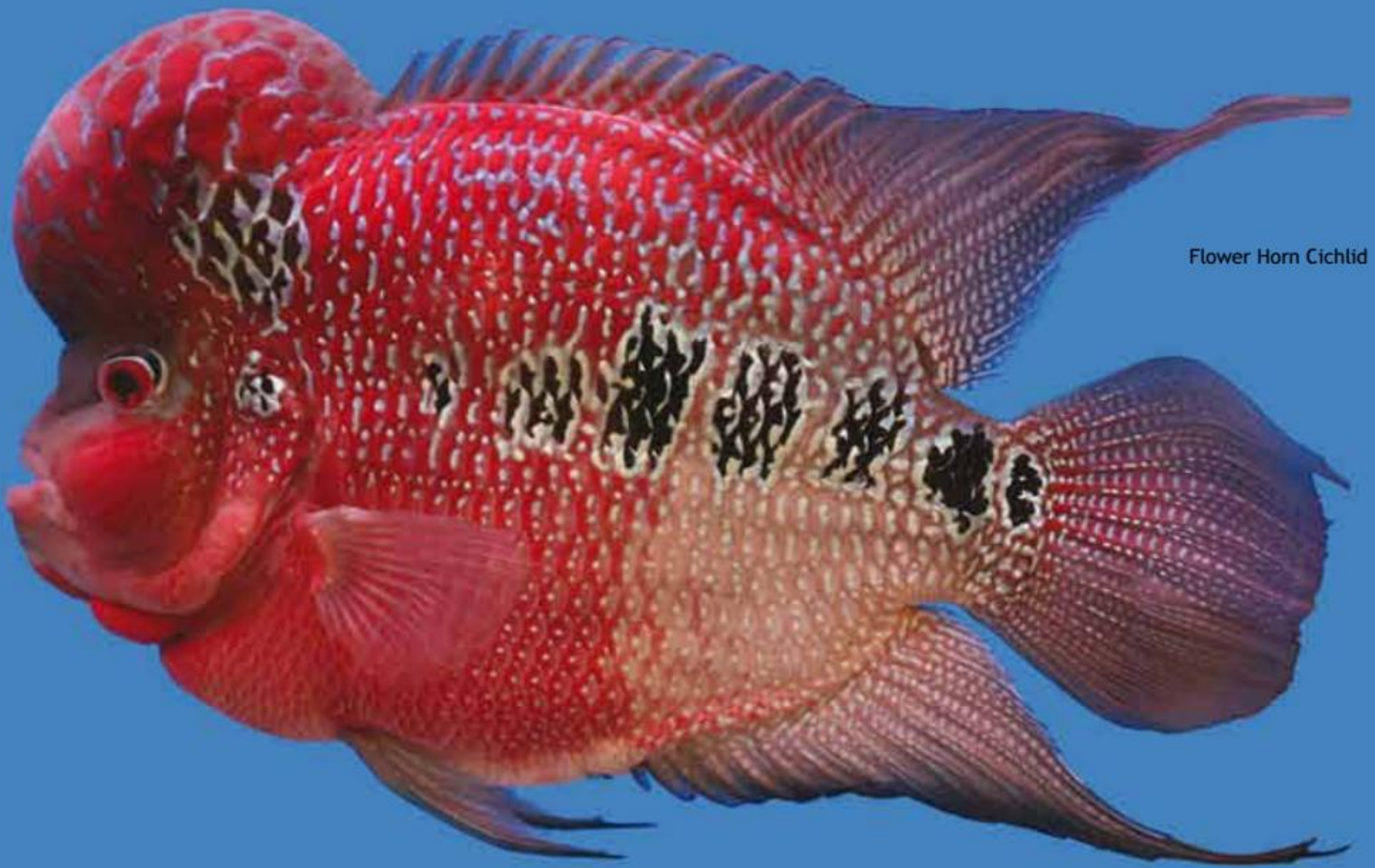
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Hybridisation and Manipulation in Aquarium Fish



Flower Horn Cichlid

This week I received a cichlid from a client that I was unable to identify and while I was doing research I was confronted with the question, is this a true species or a hybrid? This was difficult to answer as there are variations within species and new species to take into account as well. Luckily this was not a hybrid but a beautiful full silver (achieved with selective breeding) Silver cichlid – *Vieja argentea*.

So before we delve into the world of hybrids

we need to identify - what is a hybrid? This is when 2 different species are crossbred. We all know parrotfish and I still have to meet a new hobbyist that does not like them for their shape and or colours. But when you tell them it is a hybrid suddenly this fish might not be so attractive. Did you know that a lot of your other day to day species carry hybrid genes in them? This includes goldfish (obvious you might say), guppies, mollies, platies, swords, danios and even Discus are suspected of carrying hybrid genes.

But what is the problem with hybrids? I am a believer in that creation is already extremely beautiful and practical, therefore we cannot make it better, but we can enhance certain characteristics that would not develop in nature for our own viewing pleasure. Now hybridisation is not the norm in nature and if it did happen often, we would end up with a very limited variety of species very soon. But this is not so straight forward if you really start to look deeper. Aren't we already doing an unnatural thing by just keeping and

breeding them in our aquariums? Are we not breeding out instincts or natural selection that was essential for their survival in nature? Therefore ethics is a massive can of worms and my opinion is to breed the strains as you like them but do not even think of releasing them back into nature and never ever cross breed species at all.

So if ethics is not your issue, what else can be an issue? Did you ever think of the future consequences of the parent species? Here there are contamination, loss of species, extinction and more to consider. Contamination of genetics is normally the beginning of the end, if not for this specific species but perhaps for another as the natural balance is disturbed and something or someone else must suffer for it. Loss of species is a real threat in cases of hybridisation as it could lead to a stronger competition or even worse, it can lead to a weaker gene pool that ultimately lead to extinction. Catfish are a great example: catfish hybrids are known to grow faster, up to twice their normal growth. So outcompeting is an issue, but did you see those YouTube videos of the appetite of some of these hybrids? What would they do to any environment if given a chance?

Why does hybridisation sometimes happen in our aquariums and not in nature? The most obvious answer here are that the two species does not occur naturally together, but if they do occur naturally together, why hybridise in aquariums? Due to the changed environment from nature

(Right, top to bottom) Platies, danios, and goldfish are all regularly hybridized.





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Red tailed catfish hybrids grow to very large sizes

to aquariums, we initiate a whole new selection program. Specimens that would not have survived in nature, survive in aquariums, while specimens that would have thrived in nature do not last in aquariums because they cannot adapt. So we end up with a different strain that is more aquarium resilient and does not share their natural parents' behaviour. Now we make it even worse, we add them in a small environment with aquarium mates of the opposite sex but none of these are their own species. The end result is "natural" hybrids. But this is not natural at all, it is still man made.

I am not saying do not buy them, as there is still loads to cover on this topic like scientific research and "cutting edge aquarium fish development" but due to space I decided to give you some thoughts on this topic and get you thinking. I am personally not a big fan but that is only my personal opinion and you need to decide

for yourself.

Just to colour in your perspective, let's have a look at some hybrids you can see in your local aquarium shop.

Parrot fish. There is a reported hybrid between a Midas cichlid (*Amphilophus citrinellus*) and the Synspilum (*Paraneetroplus synspilus*). Some of those patterns on them are injected colours and others might be artificially totally coloured. Hybrids normally cannot reproduce but a large percentage of these can.

Flower horn cichlids. Those magnificent head growths are not natural but are due to the reported cross breeding of Trimac cichlid (*Cichlasoma trimaculatum*) and Midas cichlid (*Amphilophus citrinellus*). But there are even mentions of Red terror (*Cichlasoma festae*) and Red Head Cichlid (*Paraneetroplus synspilus*).

Red Texas cichlids. This is still relatively rare in SA and might not be legal to import because Texas cichlids (*Herichthys cyanoguttatus*) and Red devils (*Amphilophus labiatus*) are the reported parents.

Catfish hybrids. The most regularly available are the Red tailed Catfish (*Phractocephalus hemioliopus*) X Tiger shovelnose catfish (*Pseudoplatys tomatigrinum*). This is definitely a case where 1 + 1 = 3 and not 2!! Their growth is phenomenal and their adult size exceeds 4ft. Not a fish you want to introduce to your aquarium, not even with large cichlids.

The next related topic is colour injected fish.

Till next time – HOOKED ON PETS greetings from all of us here @ Pet Stop group.

Red Texas Cichlid



Vieja argentea



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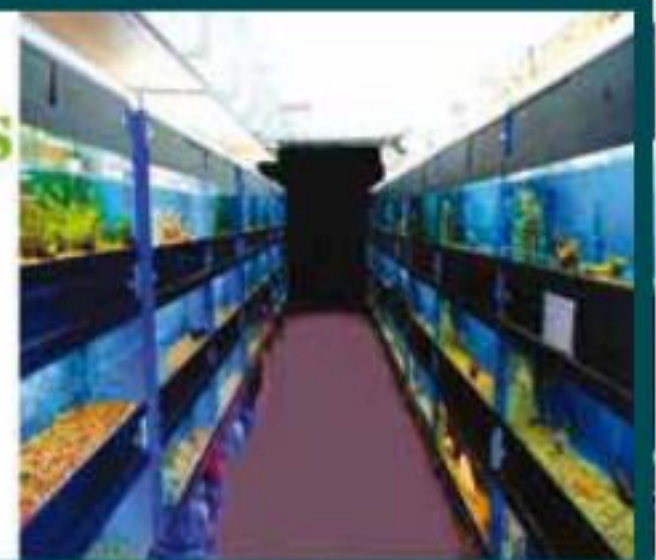


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THE CARE, FEEDING AND BREEDING OF BOESEMANI RAINBOWFISH



number to aim for. You will also notice an improvement in the male's colours when kept in larger groups – which in and of itself is an excellent reason to establish a large shoal of these fish.

It is also highly recommended that any tank containing Boesemani Rainbowfish should be heavily planted with an open area for swimming. A heavily planted tank not only brings out their impressive colours even more, but will closely mimic

their natural habitat which may reduce their levels of stress.

Boesemani Rainbows are not an overly messy fish, but will benefit from the pristine water that a high quality filter provides. It is usually good practice to slightly over filter their aquariums, and a HOB (hang on back) filter usually makes the best choice for a Boesemani Rainbowfish tank.

FEEDING

Boesemani's Rainbowfish are omnivores in the wild and are known to eat algae, small crustaceans and aquatic insects. This diet should be recreated as closely as possible in the home aquarium, and this can be done though feeding them a high quality flake food, along with frozen foods and live foods.

Since most people purchase this fish for its legendary colours, you may want to

The Boeseman's Rainbowfish (*Melanotaenia boesemani*), also known as Boesemani Rainbowfish, is a small tropical fish known for its stunning colouration. It has a very limited range in Indonesia, and is only found in three lakes and their surrounding tributaries.

In the wild they primarily inhabit the shallow waters of lakes with dense vegetation. They can also be found in the streams and rivers that feed into the lakes, and the vast differences in water chemistry

helps to contribute to this species' ability to thrive in many different water types in the home aquarium.

Boesemani Rainbowfish stay relatively small in the home aquarium, and a well-cared for male will usually top out at around 10cm in length. Females are somewhat smaller, and will grow to just slightly over 8cm in length. Most will only live between five to eight years in the home aquarium, though there are reports of some living as long as 12 years.

HOUSING

Boeseman's Rainbowfish are an active and peaceful fish, and should be kept in an aquarium where they are provided with enough room to swim. The minimum size aquarium for them is 110 litres and they only truly come into their own when kept in spacious aquariums with large numbers of other rainbows.

They tend to be very shy when kept on their own, and need to be kept in groups of at least six, though eight is really a better

“BOESEMAN'S RAINBOWFISH ARE AN ACTIVE AND PEACEFUL FISH, AND SHOULD BE KEPT IN AN AQUARIUM WHERE THEY ARE PROVIDED WITH ENOUGH ROOM TO SWIM”



The Boeseman's Rainbowfish is known for its stunning colouration

consider feeding them a regular diet of frozen or live foods. This has been shown to improve the colours of the males, and also results in happier, healthier fish.

When choosing live or frozen foods, there are numerous choices that will be hungrily accepted by Boesemani Rainbows. Some of the best live foods are daphnia, mosquito larvae (illegal to culture in many areas), blackworms, bloodworms and brine shrimp. Their tastes in frozen foods

are similar, and they can be fed frozen bloodworms, blackworms, daphnia and brine shrimp.

BREEDING

Breeding Boesemani Rainbows is relatively easy, especially given the fact that they tend to not eat their fry. Like many other egg scatterers, the males and females should be moved into separate tanks while they are conditioned prior to breeding.

The males should be easy to identify, and will normally exhibit much brighter colouration than the females, and will also be much larger. The females will be smaller, with a duller colouration and will generally have a narrower body – though they will plump up with eggs.

Once the males and females have been removed to separate tanks, they should be fed a steady diet of live and frozen foods



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A regular diet of frozen or live foods has been shown to improve the colours of the males



The Boeseman's Rainbowfish needs to be kept in groups of at least six, though eight is really a better number to aim for



Breeding Boesemani Rainbows is relatively easy, especially given the fact that they tend to not eat their fry





It is highly recommended that any tank containing Boesemani Rainbowfish should be heavily planted



Boesemani Rainbowfish stay relatively small in the home aquarium, and a well-cared for male will usually top out at around 10cm in length

for at least a week. At this point, choose the best fish from each tank, and place them in a fully cycled breeding tank. The water in the tank should be hard water with a pH of at least 7. It should also be heavily planted with densely growing plants, like Water Sprite or Java Moss.

The male and female will spend the next few days spawning frantically, and this occurs on and off for several days. Once the eggs have been deposited in the aquarium, it's usually best to remove the parents, since it tends to be easier to raise fry on their own. Plus, while the parents generally ignore the fry, they will sometimes choose to eat them.

The fry will hatch in a bit over one week (usually 7-10 days), and they need to feed on infusoria when they are freshly hatched. They can then be moved to live foods like baby brine shrimp, or any commercial foods that won't immediately sink.

This uniquely-patterned species is one of the most popular Rainbowfish in the hobby and can be found swimming in most dealers' tanks. However, virtually all these fish are mass-produced on fish farms in the Far East and Eastern Europe. *M. boesmani* is actually quite rare in nature, and is on the IUCN red list of endangered species. Unfortunately, this is one species on which the aquarium trade has had a massively

detrimental effect, with an estimated one million fish per year being collected to provide breeding stock for the trade.

If you want to buy some of these Rainbows, don't look for the fish in the pictures! Adult specimens are rarely seen, and it's the much drabber juvenile fish that are almost always offered for sale. However, exercise some patience (even on a good diet, full colour development can take over 12 months), and you will be rewarded with what is surely one of the most stunning tropical freshwater species available in the hobby.



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Future of our Aquarium Trade?

A few months ago I decided to begin a Pet Shop franchise, but before we start the hard work of setting up all the systems and procedures I needed to thoroughly investigate into the viability of starting a pet shop franchise. This took me onto roads I had never travelled and roads I thought I knew, only to find out how different it really is. One of these roads was the question – what is the future of our pet trade?

Now this sounds like a something that I should be able to answer with my eyes closed and that was how this journey started, but man was I in for a surprise! First of all, the person I discussed this in detail with was obviously my ActionCoach, then we moved on to other mentors already in franchising and even franchise specialists and all of them delved deeper and deeper into finer details, but this one single question is the topic of this article. Where will the aquarium trade be in

the future?

So where do I (Moolis Moolman) see the aquarium 40 to 50 years in the future? To see into the future they say looking into the past is a must, well let's look at that. The first recorded aquarium built was in 1832 by a French marine biologist, the first saltwater aquarium was built in 1838, and the first stony coral aquarium was maintained in 1846 for an incredible 3 years! This all without the benefit of any of today's technology and mostly even without electricity, as France and England only used electricity from 1881!

After World War 1 electricity opened the door to a whole new and easier world; in my library there is an article written by a hobbyist ranting and raving about how easy his hobby became and all the new opportunities that opened up. Another milestone was shipping aquarium fish faster and easier and plastic

bags opened up that world in the 1950's. In the 1960's silicone and tar sealants enabled hobbyists to build and maintain all glass aquariums. Since then heater-thermostat combos, powerheads, air pumps, T8 + T5 + MH and today LED lighting have become household names. The same happened with food, additives and test kits, to name but a few. Then the 2000's happened and it exploded: there is not a single month going by that a supplier does not chat with me regarding a new invention, an improved product, or a new technology all of these promising to make it even easier. Making keeping up with the times a full time job.

So if that all happened since the 1960's, what will happen in the next 40 to 50 years?

I for one wish I had a crystal ball, but a few things I can only dream about is like Star Wars, totally science fiction. Just yesterday I saw a video of fish being flash frozen into

a solid state, then to be brought back to life! So here go my dreams in my limited vision of our future aquarium world.

First is a very real dream I dream regularly, an aquarium that you only buy once. Only once because the glass has been replaced with a force field allowing me to work in the aquarium from any side of the aquarium but the water, fish and inverts stay inside. This same force field will hold up the aquarium, eliminating the need for a stand and enable the owner to change the size of the aquarium to suit his needs at that moment. Shapes will also be as diverse as the imagination of their owners, as this force field could be adjusted into any shape without the need for a new replacement.

What if I could sit anywhere in the world and test, adjust and do anything in my aquarium while I can actually see the act and the results as it happen? Well some of this is already a reality, like certain parameters and remote monitoring etc. But the full package that is autonomous and will make decisions and act on them, will be a reality in the future. Leaving the owner with only one question to answer. What can I add into my aquarium? A filter that could fit in one hand that does

everything and with everything I mean literally, old aquarium water enter one side and perfect new and totally cleaned water that was adjusted to your biotopes needs exit on the other side. Eliminating the need for water changes and enhancing coral or any other organism's life to the maximum possible. This filter will actually simulate seasons as well thus enhancing breeding and natural behaviour in all the inhabitants of your aquarium.

Talking about corals. Corals will be all aqua cultured as growth, health and colours will be 10 times better than any wild picked specimen you can think of. Imagine the most beautiful corals in your aquarium growing faster than any natural coral can. On top of that their colours are so spectacular that no picture taken in 2016 could even match it.

Tropical aquarium fish came a long way over this period as well; when I started out in the 80's aqua cultured freshwater species were limited to only a few species and Discus was the ultimate exotic to breed. Today I daily order from lists that include 100's of species, some of them so new that they do not even have a scientific name yet. 50 Years from now aquariums would represent a

specific biotope and ALL the species in this aquarium will naturally spawn as if they are still in their original biotope.

Lighting jumped a massive bridge with the invention of LEDs - 50 years from now an energy field will produce lighting that fits the needs of the aquarium 100%. This will include a simulated lunar cycle, the 4 seasons and even the effect of the weather of the selected biotope option. This will not be limited to the actual light but will also include the gravitational and barometric effects that are associated with it all.

50 years from now stating you are a hobbyist will be something to be proud of and even Green Peace will love you for it, because the hobby contributed massively to keep the aquatic species from extinction. A lot of the species that were endangered or even extinct in the wild, was successfully reintroduced thanks to the hobby's efforts and today they are thriving again.

But I am looking forward to the future in my lifetime and honestly hope that 40 to 50 is an over estimation and 20 years is more realistic, so that I can experience it myself.



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WATER CHANGES



Even in a pristine aquarium, water changes are necessary

One of the most important aspects of successful fish keeping is good aquarium maintenance, including routine water changes.

Why?

If your aquarium looks beautiful and the water is crystal clear, everything is wonderful... right? Unfortunately not.

- In an established aquarium, bacteria convert ammonia (produced mainly by decaying food and fish waste) to nitrite, and nitrite to nitrate (NO₃). Nitrate is the end result of the Nitrogen Cycle, and while it is the least toxic form of nitrogen it does build up over time – to potentially dangerous levels if left unchecked. Changing a portion of the aquarium water on a regular basis is the easiest way to reduce it.
- The build-up of nitrates (nitric acid) can reduce the alkalinity of your water, potentially resulting in a pH drop.
- Phosphates, pheromones and other

chemicals can build up between water changes.

- Minerals and trace elements are depleted over time, which can result in a GH drop.
- Poor water quality can lead to infection on a wounded fish.
- Poor water quality puts stress on fish, which is often the root cause of fungus and parasite problems.
- It has been said that dirty water holds less oxygen, although I do not have any scientific data to back this statement up. Without question, water changes supply clean oxygenated water to your fish – and that's a good thing!

How Much, How Often?

There is no standard answer to the question of how much water to exchange, or how often. It depends on several factors, including the size of your tank, number of fish, feeding schedule and filtration system. Testing for nitrates is the

most effective way to measure your water quality. As you begin to establish your maintenance schedule, perform a nitrate test before and after each water change, as well as once in between. As stated previously, NO₃ builds up slowly and your goal is to keep it as low as possible; at the very least it should be less than 40ppm at all times. Once you determine a schedule that works for you, testing can be done less frequently to confirm your routine is adequate.

As a general guideline, you could start with a 20-30% water change once a week. Some people prefer to do a larger change less frequently, such as 40-50% every two weeks. I believe the latter is less desirable since the water chemistry changes more dramatically at once, putting more stress on the fish. Alternately, if your bio-load (ratio of fish to water volume) is low and you don't overfeed, you may be able to do a smaller water change less frequently and still maintain good water quality.

Keep in mind as you determine the volume of water you intend to change, that a 100-gallon aquarium does not necessarily hold 100 gallons of water with substrate, rocks and equipment in the tank as well.

PROCEDURE

1. If you wish to vacuum the gravel at the same time (a very good idea), remove any rocks or other decorations you want to vacuum under (be careful there aren't any fish hiding in the nooks and crannies!) Many people opt to do this on a rotating schedule; Week 1 water change only, Week 2 water change and gravel vacuum, etc. If you have an undergravel filter system you will likely have to vacuum more frequently to keep nitrates at bay.
2. If you have excessive algae growth on any decorations and wish to remove it, you can soak them in a weak solution of chlorine bleach and water (1 or 2 tablespoons bleach per gallon of water will suffice). Since some of your beneficial bacteria lives on the surface of these decorations it's not advisable to do this too frequently, or at the same time you replace filter media. Also keep in mind that the green algae is highly nutritious and many fish (including Mbuna and Plecostomus) will feed on it.
3. If you want to scrape algae off the glass this is a good time to do it. Use a non-scratching brush or sponge used only for your aquarium, and be certain it does not have any detergents or other cleaning agents imbedded in it by the manufacturer.
4. Pre-measure your water conditioners (buffers, dechlorinator, ammonia neutralizer, etc.) for the amount of water you intend to change. You can do this in a bucket or other clean container used only for aquarium maintenance.
5. Unplug aquarium lights, filters and heaters. Some people advise doing this before working in the tank to avoid the possibility of electrical shock if, for example, the heater were accidentally smashed. I prefer to at least leave the filters running to pick up some of the muck stirred up in Steps 1 through 3.
6. Start the water siphoning. You can measure the volume removed by collecting it in a pre-marked container

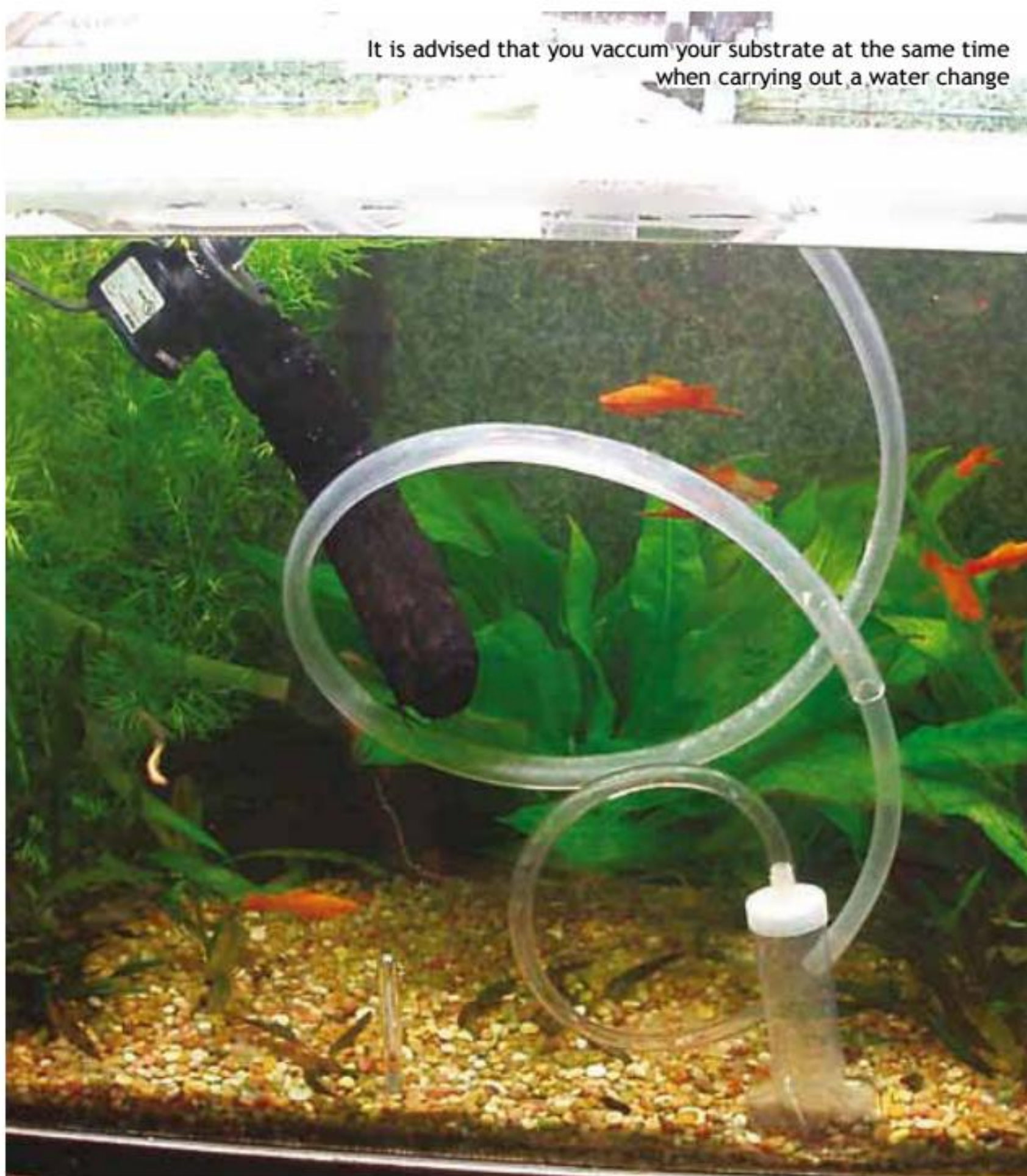
(large bucket or plastic trash can) OR by pre-measuring and marking an indicator on the tank to which you consistently bring the water level down. If you use the second method, you may still wish to collect some of the tank water in a container so that you can rinse filter media in it. (The chlorine in tap water as well as a fluctuation in temperature can destroy beneficial bacteria.)

- o For gravel substrate, a Python® type hose is ideal. Simply plunge it into the gravel and slowly pull it out. Debris is sucked up with the water, while the gravel falls back to the bottom. It is a common fallacy that vacuuming too thoroughly will remove beneficial bacteria. In truth, bacteria adhere to all the surfaces in your tank including the glass, substrate, rocks, plants and filter media. It is not in the muck you remove from the gravel.
- o For sand substrate, move your siphon hose or Python® in a

circular motion just above the surface to pick up debris without sucking up the sand. You could also use a second tool (such as a PVC pipe or your other hand) to disturb the sand just before passing over it with your hose.

7. Once you have removed the desired amount of water, replace your rocks and other decorations. If you cleaned them in a bleach solution you must rinse thoroughly, until you can no longer detect the smell of bleach. After that, you can submerge them in fresh water with a dose of dechlorinator as an additional precaution.
8. Now you can begin refilling.
 - o If you are using water straight from the tap, allow it to run for at least 5 minutes to reduce the concentration of copper and heavy metals from household plumbing. You can use this time to adjust the temperature as close as possible to that of your aquarium. A thermometer first

It is advised that you vacuum your substrate at the same time when carrying out a water change





If you have excessive algae growth on any decorations and wish to remove it, you can soak them in a weak solution of chlorine bleach and water

placed in the tank then taken to the water source is very helpful. There are claims that warm or hot water from your tap should not be used since it tends to have a higher concentration of copper and heavy metals. With the use of a product such as NovAqua® this becomes a moot point, and matching the temperature of your

tank eliminates the possibility of shocking your fish with a temperature change. Personally, I have used this method for nearly 10 years without incident – as have many other aquarists. Begin by adding water to the container in which you pre-measured the conditioners (if any). If this is a small receptacle or bucket, you

can dump that into your tank after all the additives have dissolved completely, and add the remainder of the water directly from the tap to the tank.

- o Alternately, you can pre-fill a large container with water a day or two ahead of time and avoid using a dechlorinator, since chlorine



You can measure the volume removed by collecting it in a pre-marked container like a large bucket

naturally dissipates when exposed to open air. You may still need to use a product to neutralize ammonia and chloramines. If your room temperature differs more than 1 degree from that of your aquarium, you should place a heater in the container as well. Obviously, you can also add your water conditioners to this container, then simply pour or siphon the entire contents into your aquarium.

9. Restore power to your filters, heaters and lights.

10. Record your activity in a maintenance log.

DEALING WITH HIGH NITRATES

There are a number of factors that contribute to an ongoing nitrate problem in your aquarium. Consider the following:

- The heavier the bio-load, the more aggressive your maintenance schedule will need to be.
- The more you feed, the more nitrates will be produced: more food in... more waste out.
- Some tap and well water is high in nitrates, negating the effects of water changes. If your water supply tests high for NO₃, you may need to consider a reverse osmosis filter.
- Undergravel filters can make nitrate control more challenging. Organic matter is drawn deep into the substrate where it is difficult to remove completely. If you struggle with high nitrates and keep African cichlids (many of which enjoy excavating), you might consider a different type of filter.
- Live plants utilize nitrate like fertilizer and can help keep NO₃ levels down.
- Activated carbon absorbs a minute amount of ammonia, nitrite and nitrate.
- Products such as Nitrazorb® specifically target nitrates and are more effective than activated carbon.

Remember that nothing can take the place of routine water changes to keep your water clean and your fish healthy.



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TIP TO REMEMBER:

Water quality ultimately determines the health of your fish. Ensure that your fish are not overstocked and that the biological filtration system is working efficiently. This will aid in keeping your fish healthy and disease-free.

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ARTICLE:

By Angela Beckx of Koi@Jungle

Transporting and Moving Koi Fish

Having to transport and move koi from one location to another or even from one country to another can be a very daunting process. Koi need medical oxygen and water to survive and providing those essential components makes koi moving a stressful exercise.

It is koi show time in many parts of our country and below I will give you a list of equipment you need to make transporting your koi a little less stressful for yourself and your precious koi fish.

Equipment that you will need to transport your koi:

1. Koi bags
2. Elastic bands
3. Cardboard boxes to place the koi into once they are in their clear koi bags.
4. Oxygen cylinder that you will need to hire to inflate the bag with medical oxygen.
5. Extra bags encase of an emergency of a bag leaking.
6. Koi net and a sock net for catching the koi.

Koi are their own worst enemy during transportation, as they are able to pollute their water in a very short space of time. When they are transported there is only a small amount of water in the bag and if you have not starved them for 5 to 7 days before you move them they will pollute the bag with extra ammonia excretions and solid wastes. Please remember to stop feeding a few days before you transport koi.

Simple steps for transporting koi

Step 1

Make sure you have purchased all of the relevant equipment you will need and place it next to the pond. (Fish bags, nets, elastic bands, oxygen cylinder, and cardboard boxes).

Use two koi bags and place one inside the other - this is called double bagging - and fill up the bag with pond water approximately 20% of the bag's volume. Once you have made up enough bags and you have rolled down the necks of the bags and placed them in their own box you can

begin to catch your koi.

Step 2

The hard part is now you have to try and catch your koi. If you have an odd shaped pond with lots of rocks and plant life, be careful not to fall into your pond while trying to catch your koi. Make sure you have a stiff pole attached to a large wide headed koi net. Do not use swimming pool nets, as they will injure the koi, as they are too small and can pull out scales, remove fish mucus from the body, and cause various injuries to your koi. Take care and do not chase your koi around the pond. Rather guide them slowly into a corner with slow movements with the net. Do not approach them from behind as they may get a fright and leap out from the net and land outside the pond and hurt themselves. Once you have caught your koi bring it to the edge of the pond and gently remove it using a sock net and release it into the koi bag. Sock nets are soft nets that have an opening on either side that allows for easy remove of the koi from the koi net into the koi bag.

Step 3

Inflating and sealing the bag with your koi in it is the next step to be done. Make sure the water volume in the bag is not more than 30% and that is when it is placed on its side. Make sure the water covers the gills of the koi. The remaining 70% is to be filled with oxygen and then tied with a thick elastic band and placed into the cardboard boxes for support and protection of the bag. If you are transporting koi on a very hot day then you must get ice packs wrapped in newspaper and place them inside the koi boxes. Drive slowly and carefully to your destination.

Step 4

This step is where you will need to acclimatize your koi into their new pond. The water in their bags will be a different pH and temperature and you will need to acclimatize them correctly into their new water environment. Unload each bag from the car and float them on the surface of the pond for 20 minutes. After this you can untie each bag and roll down the necks and slowly add some of the new pond water to the bags. As you add some new pond water to the bags you must remove some of the old water out of the bag to reduce the amount of ammonia that may be present in the bags. By adding fresh water you will slowly increase the pH in the bags to a similar pH of the pond.

Step 5

You have transported your koi into their new pond or koi show vat and they seem to be healthy and happy in their new environment. You will need to test your ammonia levels and keep a close watch on them for a few days.



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