Deco Filters and Deco Pond Paint...pg46 The Guppy...pg30

January/February '14 Vol. 5/No. 2

THE FISHKEEPER

For the Aquarist: Freshwater & Marine

The website for the aquarist fishkeeper.co.za

Severums
Heros efaciatus

Balanophyllia Corals Page 26

Cyclops as a Beneficial Food Pg 04

Building a Large Planted Tank!

Fragging Polyps and Mushrooms

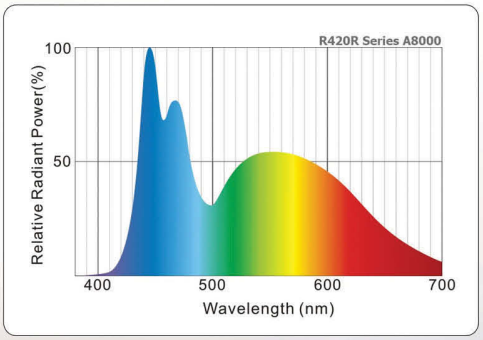
Longnose Hawkfish

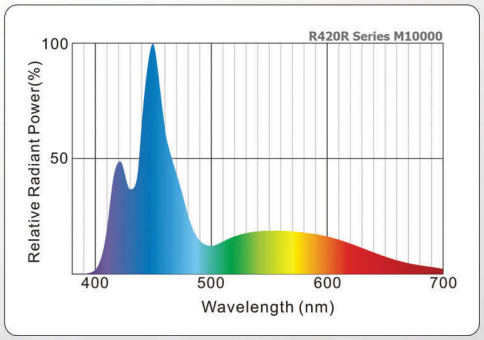
www.thefishkeeper.co.za
RSA R36.65 (incl. VAT)
Other Countries R31.52 (excl. VAT)
9 772304 011006 14001

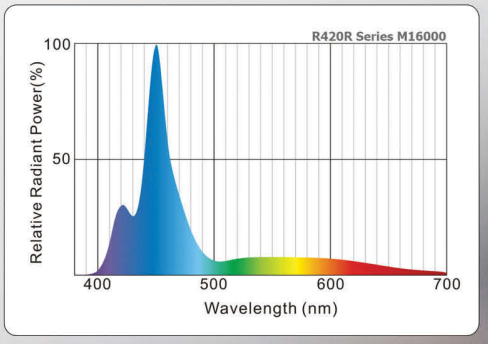
R420R
LED Lighting System

The R420r LED Lighting System redefines the term efficiency, with a temperature controlled cooling system, utilizing highly efficient high intensity LED chips from Cree, drawing 160w of power but can out-perform 400w metal halide fixtures.

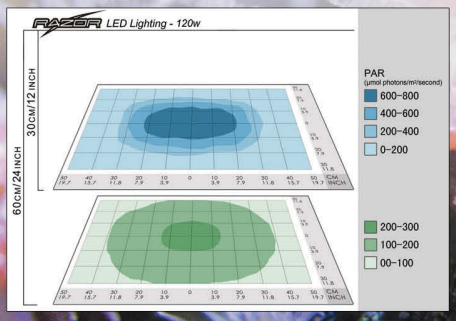
Built with a slim and low profile body, the R420r LED Lighting System is designed to seamlessly merge into your living area with elegance. The R420r also comes with both a pendant mounting kit as well as a tank-top mounting frame, whichever suits you better.

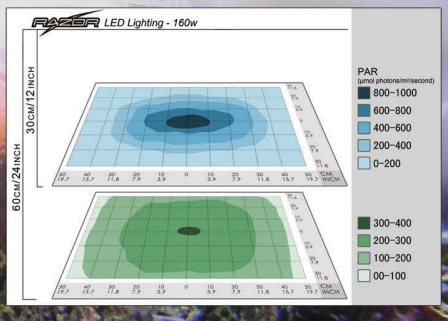






The R420r Lighting System deploys an ingenious aerodynamic design which draws cool air from underneath the fixture, through its body which also serves as a large heat sink, to dissipate heat passively.





Peckoltia
ENTERPRISES
021 555 0649
www.peckoltia.co.za
info@peckoltia.co.za

MODELS RIO 125, 180, 240 AND LIDO 120, 200 AS WELL AS TRIGON 190, NOW IN WHITE!

From now on, JUWEL fish tanks are also available in modern white. Like any JUWEL fish tank, the brand new white models are also fully equipped with filter system, heater and the customised JUWEL High-Lite T5 technology.

All fish tanks can be additionally equipped with JUWEL skimmers and the customised JUWEL marine illumination system and are therefore also ready for salt water usage.

High end materials and perfectly balanced technology ensure a maximum of quality and security. This allows for uncompromised enjoyment of an unprecedented diversity of fishkeeping.

For more information visit www.juwel-aquarium.com

marltons
Your pet's choice

Unit 6-10, Ninian & Lester Industrial Park
33 Richmond Road, Westmead, 3610
Pinetown, South Africa
Customer Care: (+27)31 468 5372
info@marltons.co.za

Trade Enquiries:
Marltons Pet Products
Tel: 031 468 5372/5/6
www.marltons.co.za

THE FISHKEEPER
For the Aquarist: Freshwater & Marine

Contents

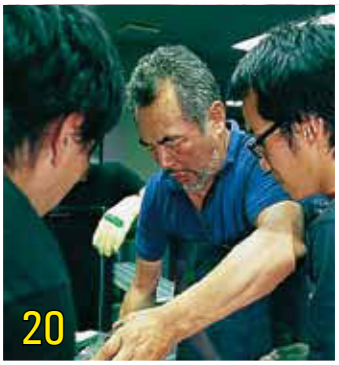
Africa's only magazine for marine and freshwater aquarium hobbyists.

January/February Vol 5 / No 2 / 2014

features

regulars

Editorial



2014 has begun and we are looking forward to the year ahead! We would like to wish all our readers all the best for the New Year: we hope it is a successful and prosperous year for you. We would also like to say thank you again for all the support shown throughout 2013 and we look forward to your continued support through 2014!

As last month's feature article was on a marine species, in this issue we have a freshwater feature article, which is on the beautiful and big Severum, *Heros efaciatus*. Severums are very easy and nice to keep for newcomers to keeping New World Cichlids. They are a hardy and robust fish with lots of character. One must just be careful as Severums are usually sold as a small fish of around 5cm at your fish shop. This often misleads people into buying these giants-to-be. They can also grow deep in size like the discus do, so therefore a large tank is needed. A large tank of 200 litres minimum is recommended with 280 litres being ideal for 1-2 specimens, so bear this in mind when thinking of acquiring one of these beauties for your aquarium.

Jake Adams from reefbuilders.com has once again provided us with a great article. In this article Jake covers the *Balanophyllia* group of corals, which range from the tropics to the polar seas. Although these might not be so common they are becoming more available and with *Balanophyllia* it is now possible to set up a non-photosynthetic coral reef aquarium with corals that more closely approximate what reef caves and abyssal reefs look like. *Balanophyllia* are hardy, affordable and with their growing availability the reef hobby can look forward to increasing popularity of these unique corals!

For those of our readers that prefer to read their magazines on their tablets or computers, don't forget that we have an app available for all digital platforms, which allows you to purchase The Fishkeeper magazine and its back issues. We find that there are some readers that enjoy receiving their magazine in digital format while others still prefer to have a hardcopy in their hands - it is just a personal preference and we offer both choices! For those of you who are struggling to find the magazine make sure to have a look at the list of pet shops and CNA stores that stock the magazine in South Africa on our website www.thefishkeeper.co.za. If you still do not have store near you then your next best option is to subscribe and have the magazine delivered directly to you! To subscribe you can also have a look online or you can call us on 031 763 4054 and we can arrange your subscription over the phone or you can email us on editor@thefishkeeper.co.za.

Happy reading and happy fishkeeping!

The Editor

DEADLINES

Issue	Colour Adverts
March/April 2014	20 January 2014
May/June 2014	20 March 2014
July/August 2014	20 May 2014

The Fishkeeper
volume 5 | number 2
january/february 2014

Managing Editor **Rolf Dennison**
Design Layout **Rolf Dennison & Michelle Malan**
Advertisments **Michelle Malan**
Subscriptions **Tracey du Plooy**
Electronic Origination & Printing **Colour Planet (Pty) Ltd**

The editors welcome articles and photographs, which will be considered for publication on their merit. Payment is offered for articles and photos that are published.

Disclaimer: The Editors and Publishers of Dennison Publishing do not accept any liability whatsoever with regard to any statement, fact, advertisement or recommendation made in this magazine and do not necessarily agree with the viewpoints expressed by contributors to The Fishkeeper.

Dennison Publishing cc

Physical Address: 79 Niagara Drive, Waterfall, Kwa-Zulu Natal, South Africa
Postal Address: P.O. Box 32, Link Hills, 3652, Kwa-Zulu Natal, South Africa
Tel: 031 763 4054
Fax: 031 763 3811

Editor: editor@thefishkeeper.co.za
Adverts: adverts@dennisonpublishing.co.za
Accts: accounts@dennisonpublishing.co.za
Sales: sales@dennisonpublishing.co.za

Bank Details: Dennison Publishing, The Standard Bank of S.A. Ltd, Hillcrest Branch 045726, Acc no. 062 557 971

Subscribe now!
Subscribe online at www.thefishkeeper.co.za. You can also subscribe by filling in the subscription form in your Fishkeeper magazine and sending it to us at the above postal address. Your Fishkeeper will be delivered to you for just R195 for 6 issues including postage
Please contact us if you have any enquiries

Cover Photo:
Severum
Heros efaciatus

Copepods (Cyclops sp.) have been a favourite fish feed for decades

The animal got its name from the striking red single eye spot on the head segment

Female cyclops carry two clusters of eggs, called "ovisacs"

The first tiny larva, called "nauplius", hatches out of the ovisac

The gelatinous substance (for protection of the eggs) is beginning to dissolve

ARTICLE:
By Roland Schreiber

Cyclops as Beneficial Food

Cyclops is a genus of tiny freshwater crustaceans (copepods) characterized by a single eye spot on the head segment. You can see them with your eyes but they don`t get much bigger than 2mm. The twin egg-sacs (called "ovisacs"), when present, are the main distinguishing feature of females of the order Cyclopoidea (e.g. the *Cyclops* sp.).

Last year I was able to photograph some of these interesting animals. During the photo session I monitored some common but quite extraordinary and rare behaviour patterns: the birth of a small copepod! An event hardly visible with your eyes. After I took a few pictures I became curious about these little fellows and asked myself if copepods really are an appropriate fish feed?

Beneficial fish feed or dangerous for our fishes?

There are a lot of copepod species found everywhere in the most distant corners of the planet. On account of their biodiversity they are even called "insects of the seas". You find them from the smallest puddle to a giant ocean, even at a deep of about 15.000 feet.

Copepods are omnivorous and indiscriminate feeders. They will eat generally other plankton organism like bacteria, protozoans and tiny insect larva - even other copepods.

Some aquarists monitored copepoda attacking small aquarium fishes. The older aquarium literature refers to countless accounts of copepods depleting complete stocks of juvenile fishes. Even adult fish have been weakened by bite wounds and died later (Stiller, 1925 and Wöll, 1925). Some of these previous reports put an end to your desire to catch live feed for your aquarium fishes. Schulze (1913) reported "Die *Cyclops* mussten wohl recht ausgehungert gewesen sein, denn an manchen der Fischchen sassen vier bis fünf auf einmal" (translation: "The copepods must have been very hungry because some of the fishes were attacked by 4 or 5 of them ..") and "Die übrigen waren inzwischen schon getötet oder doch dermassen zugerichtet, dass sie in kurzer Zeit an den erlittenen Verletzungen zugrunde gingen" (translation: "The rest [of the fishes] have been murdered meanwhile or hurt and died shortly thereafter as a result of the bites"). Even commercial fish-farmers fear the small copepods as dangerous pests. A heavy pest infestation at skin and gills leads to reduced growth and further weakening of the farmed animals.

Many aquarists try to prevent the threat of adult copepods by feeding only thoroughly sieved live food (only the tiny larva, called "nauplius") from small ponds and lakes. That way it is possible to reliably eliminate potential sources of danger. But this doesn't always work. Unfortunately our fish are not able to catch the last living copepod in our planted and well decorated aquarium. Copepods nauplii reach their sexual maturity after about 14 days – and in a tropical aquarium it doesn`t takes so long.

Despite their small size our tiny crustaceans

may be sick and infect other aquarium inhabitants or act as an intermediate host for pests (e.g. tapeworms). For this reason aquarists are in dispute over the pros and cons of live food for decades. But it isn`t so bad. There is good reason to believe that feeding of cyclops is rational and sensible and a valuable contribution to a balanced nutrition. I admit, *Cladocera* (water fleas) and *Copepoda* (copepods) are low in calories and therefore inappropriate as healthy and balanced wholefood diet, at least if fed exclusively. But their overall well-balanced mixture of fibre, essential fatty acids, protein and minerals including trace elements is an indispensable part of the daily nutrition of fish. In addition, copepods contain a huge content of highly effective nutrients that favour the digestion process of fish, especially the sufficient carotenoids are highly interesting for professional fish breeders. These fat-soluble substances may accumulate in animal tissue. The red colouration of salmon is one clear example of this effect. Regular feeding with these highly enriched copepods causes a better colouring (especially the red and yellow colours). A lot of professional *Apistogramma*-breeders trust in this phenomenon.

Brachionus and brine shrimp nauplii (*Artemia salina*) are often used during the rearing period from fry to juveniles. The disadvantage is that these food animals include hardly any Omega-3 fatty acids, which are extremely important during this growth period. Copepoda do store enough of this ingredient and are for this reason of higher quality. The growth of the juveniles is clearly stimulated and the self-healing capabilities will be stimulated. Apart from that the readiness to spawn is clearly improved in adult animals by the regular feeding with copepods. A further positive side effect is that even a carnivore fish gets a small portion of vegetable plankton (phytoplankton) by the eating of copepoda and other plankton filter-feeders.

One further advantage: Whereas the well-known members of *Cladocera* (water fleas) are often expected to be avoided by fishes because of their hard shell, *Cyclops* has exceptional performance. The soft-shelled animals are, unlike water fleas, available throughout the year. They supplement the menu of aquarium fish, important at a time when other live food, for example mosquito larva, is scarcely available.

Culturing copepods

The reproduction rate of copepods is mind-blowing. The tiny crustaceans, under ideal

A large part of the nauplii already hatched

The ovisacs are clearly visible separating from the caudal furca

The newly hatched nauplii are looking for proximity to the mother

With each nauplius hatching the ovisacs dissolve more and more

The gelatinous substance is now dissolving nearly complete

The caudal furca of the female is now virginal and clear

A new life cycle starts: newly hatched nauplii (each less than a half millimeter long!)

Copepoda nauplii are a premium starter food for most of the juvenile fishes/larvae, such as *Microctenopoma fasciolatum* (above) and *Barbus fasciolatus* (below)

environmental and feeding conditions, multiply explosively, often in early spring or late autumn. At these times big pink clouds of these tiny animals float in ponds and lakes.

Francè (1910) reported " … daß Cyklops in einem Jahr 4.400 Millionen Nachkommen hat" (translation: " ... that copepoda may have up to 4.400 million descendants in a single year"). This ensures an above-average yield, especially as regards culturing of these crustaceans.

Sensitive fish species need living food of appropriate size, in particular in the first days and weeks of life. Many aquarists are familiar with the unwritten rule during the maturing stages: feed size = eye diameter of the fish. For certain smaller species (e.g. *characins* or barbs) newly hatched brine shrimp nauplii (*Artemia salina*) are too big for their embryos. After 7 to 10 days at the earliest they are able to swallow this food almost unchewed. In the meantime copepoda nauplii are a popular "starter-feed". The cyclops nauplius will eat and grow, going through 12 stages before it becomes an adult copepod. In the first period after hatching the crustaceans are very tiny, often no longer than 0,06mm to 0,1mm, being significantly smaller than the well-known *Artemia nauplius.* The entire life cycle can last anywhere from 1 week to 6 months, depending on the environmental conditions (e.g. temperature).

Only under strong magnification the extremely tiny crustaceans are visible.

With each stage of development the copepod gains legs, other body parts, and size. And now the threatening mouthparts (for use of dissection of food) grow fast; this is extremely dangerous for our tropical fish.

Besides the ideal size, optimal feed for juveniles must satisfy two further requirements: First of all it must offer a high nutritional value. Secondly, it has to be available at the very moment the juveniles absorb their first nutrition. Aquarium keepers have been able to hatch the well-known Artemia salina nauplia for decades; this is not difficult these days. Depending on the right storage the tiny hard-shelled eggs are durable and can be incubated, with little experience, precisely for the newly hatched fish fry. With copepoda there will be some problems: their professional breeding requires a large expert knowledge base. Some of the copepods are known for their ability to produce resting eggs that can survive dehydration and low temperatures even for decades. The normal practice, like in Artemia, to produce these eggs for commercial use is barely possible. Its benefits and the associated costs are out of all proportions. So we have no choice but to bring *Cyclops* nauplii to a mass culture. A highly efficient mass production delivering permanently enough nauplii is therefore extremely important. A lot of marine aquarists focusing on breeding fishes notice very soon that the main problem is rather the rearing of the fry with the very smallest live food than the spawning of the animals. In order to come close to the desired nauplii it's absolutely essential to obtain a suitable aquaculture of copepoda. This supports a large number of homogenous species and the breeder is able to satisfy their individual requirements as regards water composition or food. Such aquacultures can be purchased without problems through associations, publication ads or in the internet. It's quite easy to keep harpacticoid copepods (e.g. *Tisbe o. Tigriopus*) because of their low demand regarding nutrition and water quality. Their main food are bacteria, detritus and other tiny plankton organisms. The use of other species of cyclopoid copepods (e.g. *Paracyclop*s and *Oithona*) or calanoid copepods (e.g. *Paracalanus* and *Calanus*) is more difficult because of their food claims. Furthermore these species are often hosts for parasites, including tapeworms and flukes, which later end up inside our fish. In addition, large pet shops offer special nutrient solutions (algae, plankton). This way you will approach a regular crop of high-quality live food. Incorrectly fed or starved nauplii are nearly useless as sufficient food.

Suitable sieves makes it possible for you to gain the daily hatching copepods in different size (20 to 1000 µ). Althought this sounds simple, a greater know-how is required in order to keep and rear copepoda. Therefore for hobby aquarium keepers only small amounts of nauplii are attainable.

Conclusion

Live food, especially copepods, have a long tradition in the aquarium hobby. Tropical fishes reared by live food are more agile, colourful and often easier to breed than those fed by dried food. It is documented that in some tropical fish the maturation of the gonads is caused mainly by nutrition with living food. In other words, they are simply not able to spawn without a daily dish of water fleas or their relatives.

MICRO PELLETS

OMEGA ONE
Natural Seafood Formula

Excite Their Appetite With Fresh Seafood

At 0.5mm this is our smallest pellet size yet! Specially formulated to attract small-mouthed and juvenile fish, Omega One Micro Pellets are loaded with whole, fresh seafood from sustainable Alaskan fisheries. These all-natural diets are minimally processed to ensure that critical fats and proteins are delivered to your fish in their complete, natural form. Deliciously concentrated and extremely palatable, Omega One Micro Pellets are guaranteed to excite their appetite.

MADE IN THE USA

Imported by Peckoltia Enterprises. For trade enquiries please contact Henk Hugo on henkhugo@peckoltia.co.za or 021 555 0649

The Longnose Hawkfish
(Oxycirrhites typus)

The Longnose Hawkfish has to be one of the most popular species of Hawkfish in the aquarium hobby today. They really make an excellent addition to the aquarium and are very interesting and entertaining to watch. Their distinctive shape, bright colouring and markings, and the fact that they are intelligent and disease resistant also makes them a very popular addition to any reef aquarium. They get their common name from the way they catch their prey by waiting silently on the reef and when a suitable victim is spotted they quickly strike out and seize their prey item, much like a hawk. Believe it or not, the Longnose Hawkfish were once not so common and were expensive but in more recent years, to the delight of many aquarists, they have become readily available and affordable.

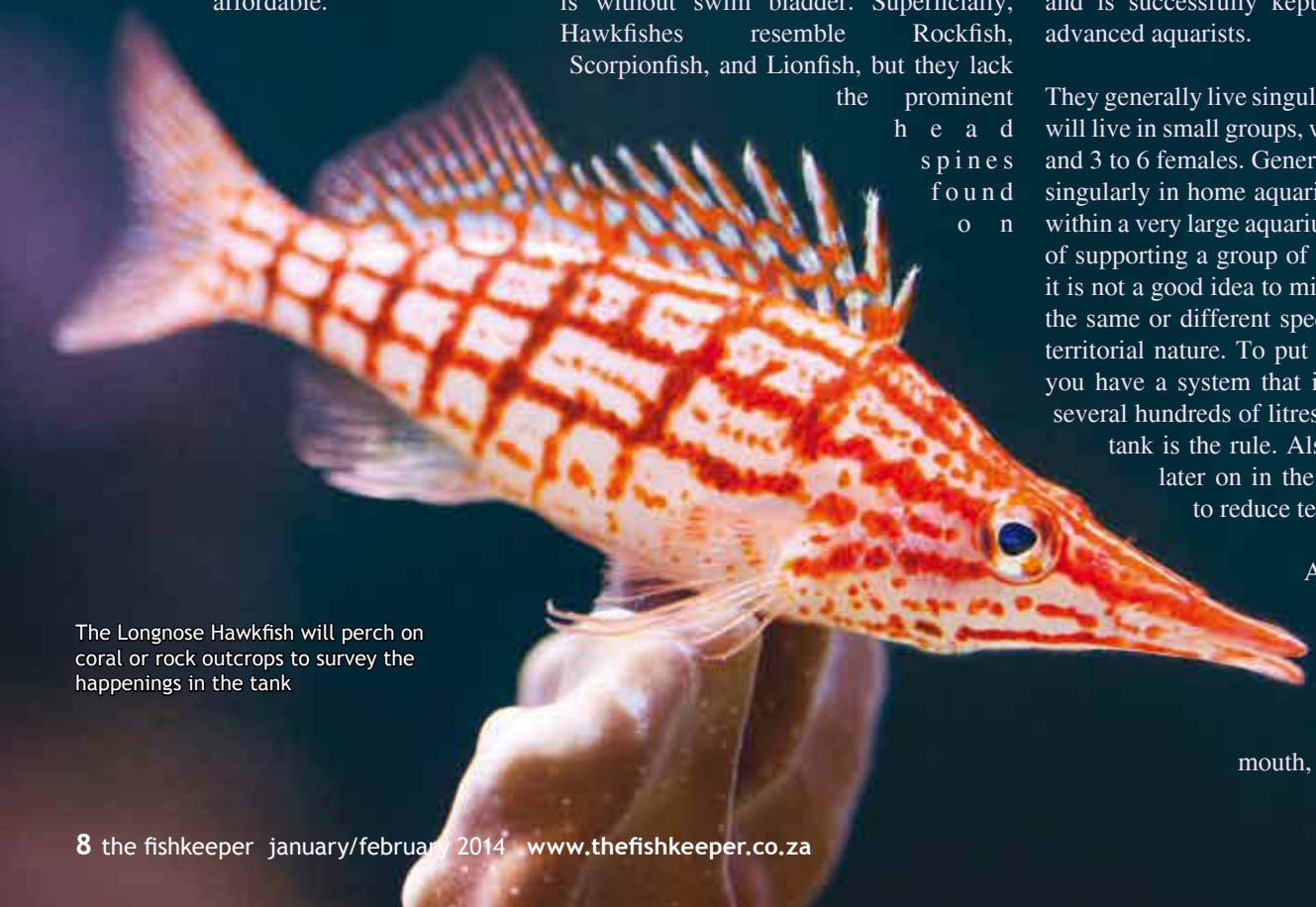
They are found throughout the western Pacific, including the Philippines, Japan and the Great Barrier Reef, where they are found mainly in shallow reefs but have also been known as deep as 30 meters and more. They spend their time hanging out on live rock outcrops and corals, where they look for food items.

Longnose Hawkfish have long cylindrical bodies that reach about 12cm in length, with a distinctive pointed nose and mouth. Their bodies have a red and white hatched pattern that extends throughout the entire body. Like other hawkfish, the Longnose Hawkfish uses its pectoral fins to "sit" on rock ledges, almost as if resting on a pair of arms. Just like other members of the family Cirrhitidae, the Longnose Hawkfish is without swim bladder. Superficially, Hawkfishes resemble Rockfish, Scorpionfish, and Lionfish, but they lack the prominent head spines found on members of the Scorpionfish family. Hawkfishes have a continuous, 10-spine dorsal fin that includes both hard and soft dorsal rays, some of which often have cirri (which look like small pom-poms) at their tips. The pectoral fins are distinctive with elongated, unbranched lower rays. Their tail fins are truncate (squared off).

A feature unique to this fish is the movements that it makes around the aquarium, often resting on coral or rock outcrops watching the happenings around them. They are also considered to have a lot of personality and are very inquisitive of their surroundings. Longnose Hawkfish are a very hardy fish species that will get along well with other community fish species in both the reef or fish-only marine aquarium and is successfully kept by beginner to advanced aquarists.

They generally live singularly in the wild or will live in small groups, with a single male and 3 to 6 females. Generally they are kept singularly in home aquariums, unless kept within a very large aquarium that is capable of supporting a group of them. In general, it is not a good idea to mix Hawkfishes (of the same or different species) due to their territorial nature. To put it bluntly, unless you have a system that is huge - at least several hundreds of litres - one Hawk to a tank is the rule. Also, try and add it later on in the stocking line-up to reduce territorial tension.

As far as Hawkfish species go, the Longnose Hawkfish, with its much smaller mouth, is probably the



The Longnose Hawkfish will perch on coral or rock outcrops to survey the happenings in the tank

best candidate for reef tanks, though it can and will eat small crustaceans and worms. In fact, small moulting hermit crabs and feather duster worms have been consumed in captivity by the Longnose Hawkfish.

Some good tankmate choices include Dwarf Angels (as long as they're not too small), Dottybacks, most Damselfishes, larger Gobies and Blennies, midsized Wrasses, and any motile invertebrates that are not mouth-sized crustaceans and worms. To reiterate, Hawkfish should be the last specimens added to a tank due to their territorial nature. They will not harm other fish, corals or most invertebrates (exceptions being very small shrimps). They are known for their bursts of speed when swimming and have been known to shoot upwards toward the surface of the water, thus the aquarium should be fully covered to prevent them from jumping out.

In the aquarium, the Longnose Hawkfish is known to be a happy eater. They are carnivores and will require a diet with plenty of live, frozen or flaked meaty foods. They will readily consume live foods like mysid and brine shrimp; as well as copepods, plankton and small shrimps. Meaty fresh, frozen and flake foods will make up the majority of their diet, supplemented with live foods and small invertebrates that it will find living within the live rock in the aquarium.

Breeding

The Longnose Hawkfish is known to lay demersal eggs (eggs that sink to the bottom) (Randall, 1981). Takeshita (1975) describes a courtship dance that occurred in the early evenings with a pair in captivity. He describes males as being smaller and more colourful, with black margins on the pelvic and caudal fins. All Hawkfish that have been studied are protogynous, synchronous hermaphrodites - they start life as females and eventually turn into males. Some species of Hawkfish form harems, but Longnoses remain in monogamous pairs.

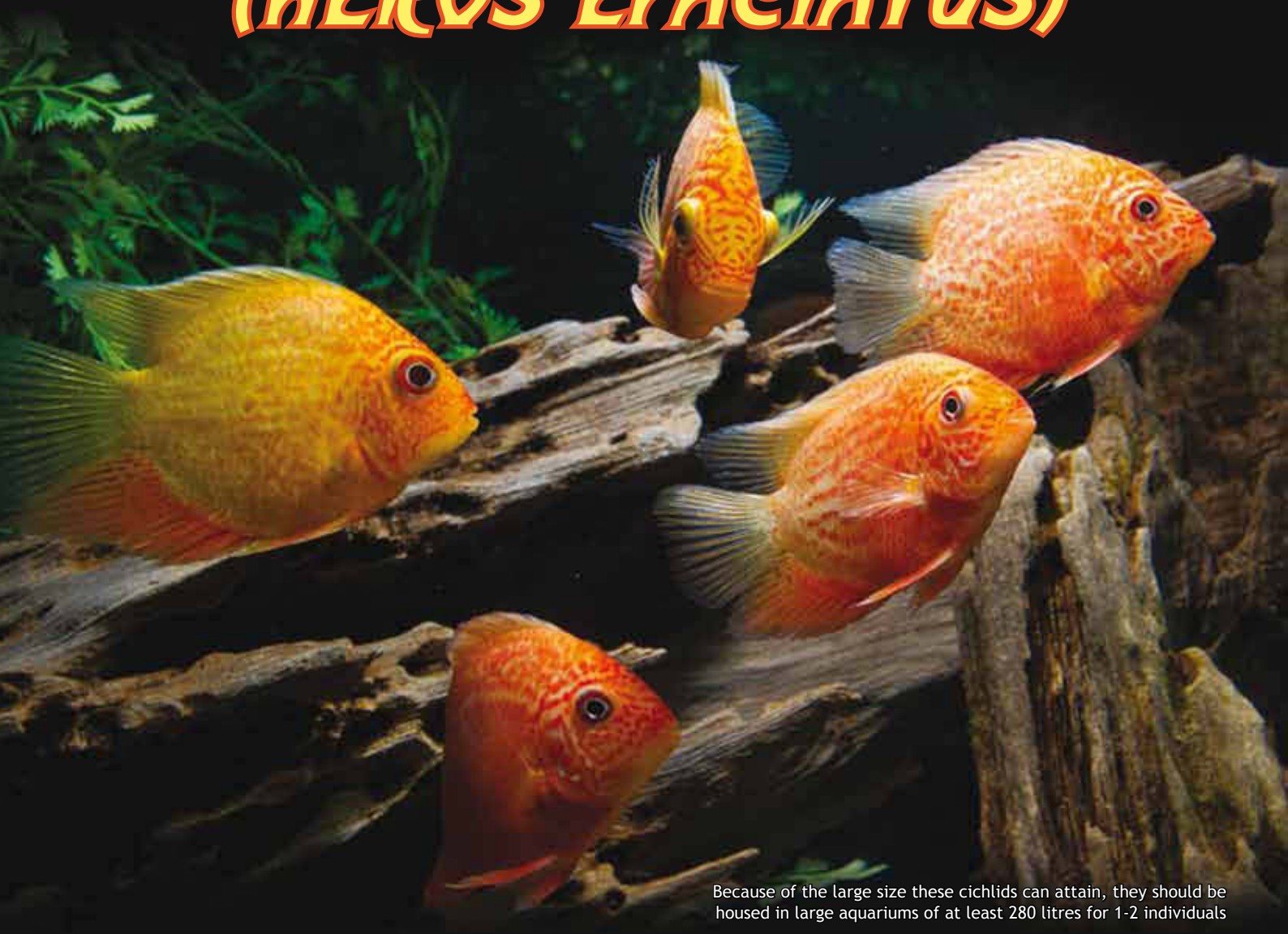
In captivity, pairs have formed and spawned (laying demersal eggs), but as of this writing, the young have not been raised to maturity. If you're interested in trying to spawn them, it is advised to introduce two animals of about the same size simultaneously and then watch them for overly antagonistic behaviour.

Overall the Longnose Hawkfish is a great addition to any reef aquarium. As mentioned it is a good idea to add it towards the end of your stocking list, but in my opinion they have never been very aggressive but rather more inquisitive. Out of all my fish in my reef I have to admit the Longnose Hawkfish draws the most attention from visitors, as they watch it swim from rock to coral and perch in a comfortable spot and remain still whilst moving their eyes around, scoping out the rest of the reefs inhabitants!

The Longnose Hawkfish is a great aquarium specimen to observe, but they should be housed no more than one to a tank due to their aggressive nature. They are well-suited to reef tanks, as they do not damage corals.

ARTICLE:
By Rolf Dennison

SEVERUMS
(HEROS EFACIATUS)



Because of the large size these cichlids can attain, they should be housed in large aquariums of at least 280 litres for 1-2 individuals

A beautiful large cichlid species, the Severum is a wonderful addition to any large peaceful tank. Hailing from the northern Brazil Basin and Guyana, the Severum Cichlid can be found in deeper, calmer waters. Surroundings include submerged trees, other vegetation including floating plants, and rocky outcrops. In the aquarium hobby it is better recognised by its mutations such as the 'gold' form which is an albino mutation (recessive) of the wild-type Severum, which is an olive green colour.

The wild-type colouration of the male and the female are basically the same, but the female is usually paler and lacks the pattern on the head. The general colour in the wild form is variable but usually a brownish to greenish colour with some having a brassy colour. On the sides can be seen eight or nine traverse bars; these bars are more pronounced on the young and by the time they reach maturity only the last one is still really visible, it ties together a large pale-edged black spot on the soft rayed part of the dorsal fin with a like spot on the anal fin. Also on the sides each scale seems to be marked with a brown-red dot, giving the fish a beautiful sheen. The head of the males has a pattern of red, brown and blue-green markings. The iris is a distinctive red. The caudal fin is yellow-

green to grey-green and sometimes there is a band across the base of the fin. The ventral and dorsal fins are dark in colour and lighten to an olive green colour in the soft areas.

Severums in the aquarium trade are often mislabelled as Heros severus, but are almost always Heros efasciatus, usually a mix of regional specimens such as Sp. Belem or hybrids with Heros Notatus, Heros Appendiculatus or Heros sp. Rotkeil, very rarely if at all with Heros severus, as Severus have very different breeding behaviours.

AQUARIUM CARE

The Severum is usually sold as a small fish around 5cm at your fish shop. This often misleads people into buying these giants-to-be. They can also grow large in size like the discus do, so therefore a large tank is needed of a minimum 200 litres is recommended, with 280 litres being ideal for 1-2 specimens. There must be places of refuge in the aquarium. These can be rock caves, large pieces of driftwood or even inverted flowerpots. Severums, like most large species of Cichlids, will dig up the substrate material, so it is best to have the plants in pots or securely fastened to the substrate. Be aware that Severums will eat your live plants, so well placed plastic plants are a better alternative. Environmentally, these fish prefer lots of rocky hideouts and caves. When conditions are good this fish can grow to over 25cm and live for 10 years or more.

WATER CHEMISTRY

Severums aren't too picky when it comes to pH, they will mind sudden changes, but these are easily avoided with regular tank maintenance. The Severum prefers soft, acidic water; pH of 6-7 and hardness around 4 - 12 dH, but they can flourish in most other conditions as well. They prefer temperatures in the 23-28°C range and, as with all cichlids, good filtration is a must as this fish is a messy eater.

TANK MATES

Severums are usually peaceful but, keep this in mind, as we have previously mentioned they can get quite large. So therefore you could get a large range of tank mates for them.

Large Tetras (Such as the Black Widow etc), Large Danios (Giant Danios), Rainbow Fish, Hatchet Fish, etc, although when selecting these fish make sure they're at or near their maximum size and get a large school (6-10). Fish such as Rasboras are small but fast, and since the Severum is a slow swimmer, these should be fine.

Other cichlids that could possibly be kept with Severums include: Convicts, Blue Acara, Oscar, Chocolate Cichlid, Festivums etc (these fish are not to be kept with fish with large open mouths as they are the smallest of the bunch). But beware, these fish should not be kept in pairs as they will breed and get territorial and cause havoc in the tank. Also remember that when keeping an Oscar with a Severum, the tank must be around 400 litres minimum. Pleco catfish, Open Mouthed Catfish (Syno's etc). Please ensure that if you are going to get Tetras, Barbs and Danios, don't get the semi aggressive cichlids as the tetras will get nipped at. The more cichlids, the more terror for the Tetras, so tetras and other cichlids equals one big no-no!

FEEDING

Severums are omnivorous, although they love plants and vegetation so plants in the tank can be a problem as they will eat them. Feed them foods like cucumber, lettuce and crushed peas; they also take flakes, pellets and live, frozen and freeze dried food.

BREEDING

Breeding is very hard in the home aquarium for people just starting out and it takes a few years before mating even begins. It's very difficult to get a pair, so when buying Severums and planning on breeding, buy a group of 4 –6 and let them pair up by themselves. Eggs are laid on a flat rock, so if you're planning on breeding them, put slate in. The parents take excellent care of the fry, but in most cases the fry won't even make it past wriggler stage. But if they do, once the fry are free swimming, you can separate them if you want and feed them baby brine shrimp and crushed up flakes.

Good water conditions are needed and they get highly aggressive when breeding, and as they are a typical open breeder they will also dig up your plants. It is definitely best to remove them and put them in their own tank when they're ready to breed. The substrate should be a coarse sand or gravel and be dark in colour. The only plants should be the floating type. You should provide plenty of hiding places, like large half flower pots or some ceramic piping. The initial pairing off can be time consuming as they seem to be very selective in their partners. You will probably have to try several combinations before a suitable

Severums require large tankmates to match their size

The 'gold' form, which is an albino mutation of the olive green wild-type Severum, is well-known in the aquarium trade

pair is formed. Once a pair is formed they will breed readily and practice intense brood protection on the fry for an extended period of time. The broods are quite large and it's not uncommon to have 1000 eggs or more in each spawn. Maintain good water quality and a temperature of at least 22°C at all times.

NAMES, ORIGIN AND COLOUR MORPHS

Severums come in many different colour morphs and the most common ones seen today are the Green and Gold. There are also other very nice looking colour morphs which are great to see, and having a mix of these in an aquarium can make an amazing display that is hard to take your eyes off. These colour varieties are: Gold (Albino), Turquoise, White and the "Super Red", which is a colour variant of the Gold.

In conclusion, Severums are very easy and nice to keep for newcomers in the world of the New World Cichlids. They are a hardy and robust fish with lots of character. However, it does require a fairly large aquarium and the usual neotropical cichlid requirements of good biological filtration and good general husbandry techniques. Decor is not generally important, but the fish can be shy without some hiding places to retreat to, and care should be taken to ensure any rocks included in the aquarium do not harden the water too much as the fish originates from soft acidic water. Overall a great addition to any large aquarium!

Severums are good parents, but very often the fry don't make it past the wriggler stage

These are open breeders and should have a separate tank when they are ready to breed

SUBSTRATE SYSTEM

The present substrate system was developed for Nature Aquarium for the purpose of growing beneficial microorganisms in the substrate to encourage the healthy growth of the roots of aquatic plants. The concept of natural ecosystem is utilized in the Nature Aquarium substrate, which is based on the mutual relationship of soil environment, microorganisms, aquatic plants and fish.

Aqua soil-Amazonia

Power Sand

ADA
aqua design amano

THE PLANTED TANK: Official Distributors of Aqua Design Amano Products
Contact info@theplantedtank.co.za for more information, or call 083 742 1954

ARTICLE:
By Moolis Moolman
PetStopSA

Fragging Polyps and Mushrooms

Zoanthidae encompasses a whole group of polyp corals. These include corals like *Protopalythoa*, *Zoanthus*, *Palythoa*, *Acrozoanthus* and *Isaurus*. The genus I am going to start with is *Zoanthus*, otherwise known as button polyps, as they are the best coral for a beginner to start with!

Button polyps are one of the most forgiving and hardy corals I have ever fragged. But before I start my discussion on them I urge you to please read the previous article written in The Fishkeeper on polyps and remember the following: they do have a toxin that when ingested or taken up into the blood stream via an open wound can be extremely uncomfortable and might even be lethal! Definitely not something I want to experience or want you to experience, so please clean all your tools and throw the paper towels away and the normal towels in the washing machine immediately. Before you start fragging a button polyp you must cover your mouth, hands and eyes.

I have found that the easiest way to frag button polyps is by working on the rock or substrate base, as this never wants to break where you want it to and then you end up with a frag that is cut to pieces. After cutting the base rock you start cutting the button polyp colony along the lines created by the cut/broken base rock. You can go as far as cutting them into single polyps but in my experience colonies of at least 10 polyps fare much better and you are able to confidently predict the future growth. With single polyps they sometimes seem to take a long time to recuperate and form new polyps.

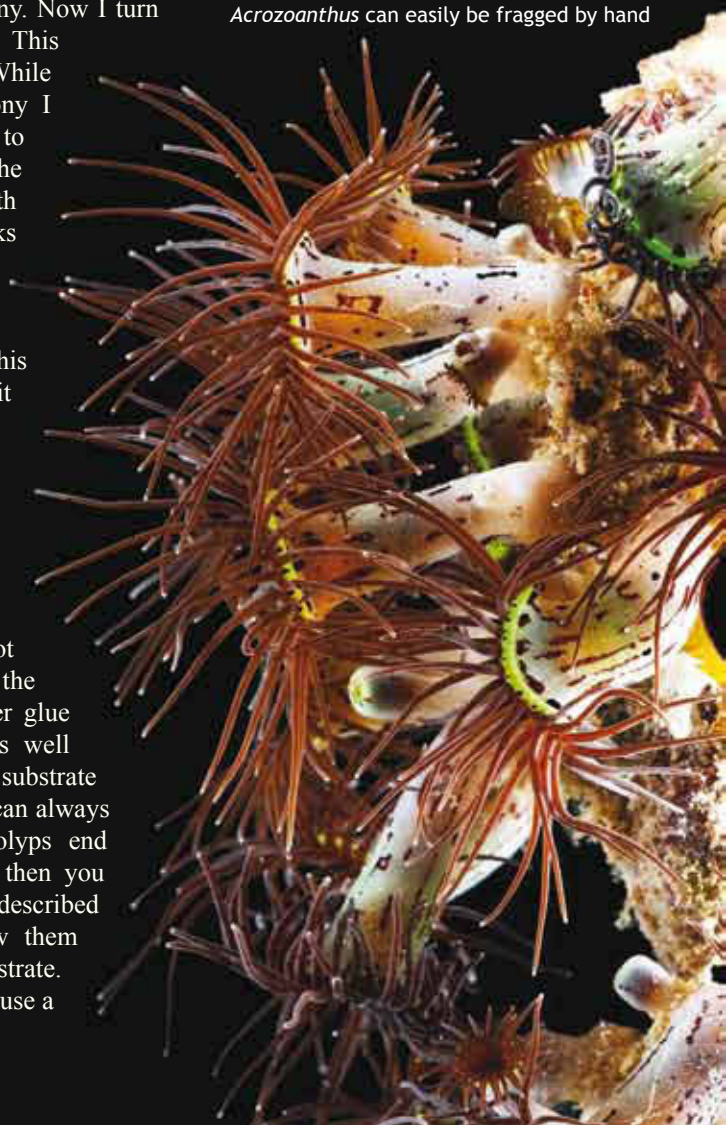
My first step is to turn the polyp rock upside down and remove enough pieces from the base rock to make it thin enough to handle easily. Thereafter I use a Dremel to cut into the base rock from the bottom, forming squares while always ensuring that I do not cut right through and also that there are sufficient polyps on the other side to start a healthy colony. Now I turn the coral upright again. This is where the fun starts! While looking at the polyp colony I use a wide flat screwdriver to break the base rock along the lines I have been cutting with the Dremel. As the cracks appear on the surface I use a clean blade to cut / split the polyp colony along the same lines. I use this method to ensure that I limit the damage to clean cuts and do not tear through the polyps.

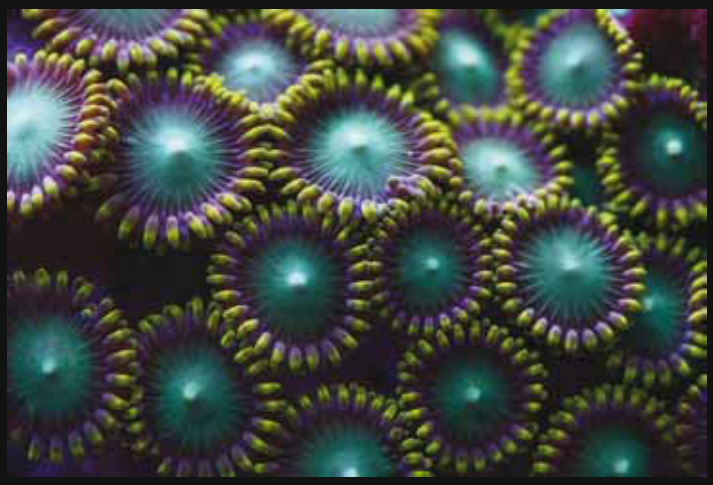
Now you might need to attach this newly cut / broken frag to a new substrate. If you have got substrate attached to the polyps it is easy, use super glue and even coral putty does well as long as there are some substrate left to attach to. But there can always be a "mistake" where polyps end up without any substrate, then you can use the net technique described for Sarcophytons to allow them to attach to new substrate. Alternatively you can even use a needle and thread to attach them. As long as they cannot move and the aquarium's water quality is good, and if your iodine levels are within the 0.04 to 0.06 range and there is current and light, they will quickly grow onto the new substrate.

Protopalythoa and *Palythoa* are commonly called Large Button Polyps. A little more care should be taken when you frag these polyps, as they are sometimes more susceptible to infection and therefore they are just short of bullet proof. But I found that if you just work hygienically they are as tough as Smaller Button Polyps. With them I recommend you cut where there are natural gaps between the polyps even if this means that there are too many left together. Rather be safe than sorry.

Some species of *Palythoa* like *Palythoa caesia*, *Palythoa caribaeorum* and *Palythoa tuberculosa* that form a thick solid base with polyps are called Sea Mat Polyps. These are a totally different story to the other polyps. Sea Mat Polyps tend to

Acrozoanthus can easily be fragged by hand





Zoanthus or Button Polyps are among the easier corals to frag, as they are hardy and forgiving

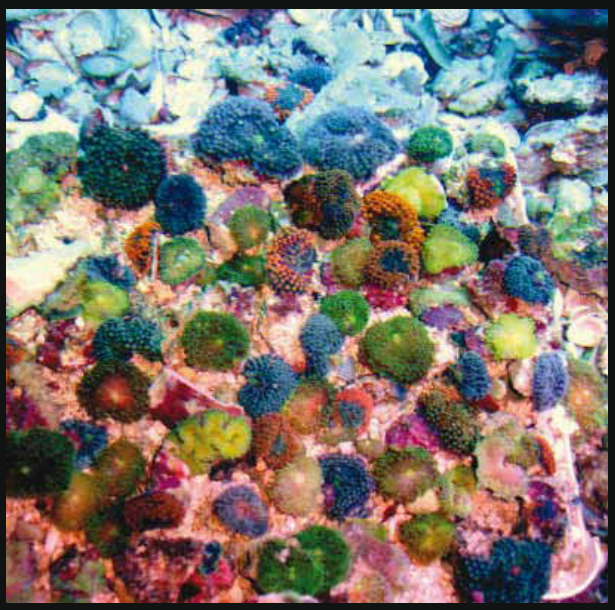
suffer from any damage to its base, where they tend to leach out their fluids before the colony can heal itself and therefore will wither away and die. Fragging Sea Mat Polyps is not an easy or likely option and I have not successfully done this up to now.

Isaurus polyps; commonly known as Snake Polyps, Warty Sea Mat, Lumpy Polyps or Stick Polyps. These corals are slow growers, much slower than the button types. Due to this slow growth fragging should only be done once the colony is well established and then not into colonies that are too small.

Acrozoanthus, called Stick or Tree Polyps, are the easiest. Because they are attached to thin stalks of dead gorgonians and other similar thin skeletons, they can easily be fragged by hand. This cannot lead to any problems nor do they need any further special attention except healthy feedings of good quality coral food in a medium current.

Placing of the polyp frags are not as important as with other corals, but the following are good guidelines to follow:

- Always attempt to place them the same height or just below the level the parent colony was taken from.
- Ensure that the current is not so strong



When fragging *Ricordea florida*, wait until a new mouth appears before cutting, so that each frag has a complete mouth

as to blow them around but strong enough to remove any debris from in-between and around the polyps.

- Remember polyps tend to grow towards the light and will naturally form more polyps higher up than lower, this will lead to a strong upward growth in the future and will affect other corals placed higher than themselves in the future.

Mushrooms, on the other hand, tend to distribute their colonies downwards and should therefore be placed with this in mind. Mushrooms are the next step up from the near-indestructible polyps and are also a good coral for beginners to frag. Mushrooms can be divided into 3 categories: those that are easy, those that are a bit more difficult, and then those that sound easy but tend to give hobbyists nightmares.

- The 1st category consists of *Discosoma* sp.
- The 2nd category consists of *Ricordea florida*, *Amplexidiscus* sp and *Rhodactis* sp.
- The 3rd category consists of *Ricordea yuma*.

In general, if you are patient and are willing to wait a while mushrooms will naturally reproduce and spread throughout your aquarium, but for the impatient there is good news. The basic strategy for fragging mushrooms, one that I have used with great success, is to slice them right through to the substrate and then leave them on the substrate. Then I wait for them to develop 2 separate mushrooms. After this I split the substrate to separate them and then attach a new piece of substrate to a suitable place. This procedure enables the frag to become a mother colony. In doing this I always have a healthy colony for next time I intend to frag them.

The 1st category of mushrooms is so tough that you can actually go overboard when fragging them. They will grow from even a piece of the outside edge. I have successfully split a single mushroom of this category up into 8 separate pieces with a 100% success rate and even went so far as to remove the head of a mushroom and cutting this into smaller pieces. All of these methods worked for me but I know of customers that attempted it, after seeing me doing it, and have failed. So do take baby steps when you start and rather get a feeling of what is happening before you go too far.

A few tips I can give you is to always ensure your aquarium's parameters are spot on and the mushrooms you intend to frag are healthy. Furthermore, work with

Category 2 corals such as the *Amplexidiscus* species should be cut into no more than four pieces

hooked on pets

Pet Stop

PET STOP JUNCTION - SPECIALISTS IN BIRDS, REPTILES, TROPICAL FISH & MARINES

PET STOP SA - SPECIALISTS IN MARINES, TROPICAL & REPTILES

WITH THE BUYING POWER OF 2 SHOPS WE CAN NOW STOCK AN EVEN GREATER VARIETY AT BARGAIN PRICES!

CUSTOM BUILT AQUARIUMS AND INSTALLED TO YOUR SPECIFICATIONS

PET STOP SA
Shop no 15/16/17
Rietfontein Pavilion Centre
c/o Jacobs & 15th Ave, Rietfontein, Pta.
012 329 8965
moolis@petstopsa.co.za

PET STOP JUNCTION
Wonderboom junction centre, shop 71
Lavender road, Annlin-west/Sinoville,
Pretoria North
012 753 2093
charlene@petstopsa.co.za

Rhodactis species corals also belong in the 2nd category of mushroom corals and are more difficult to frag

clean tools and ensure that you do not touch the frags with your bare hands.

Category 2 is a bit of a different story. With them I suggest that you always ensure that you have a piece of the mouth on every frag and I do not cut them into more than 4 pieces. With *Ricordea florida* I recommend that you wait till a new mouth appears before splitting the mushroom, ensuring that each frag has a complete mouth on it after fragging. I found that by waiting for a new mouth to appear on a *Ricordea florida* you will be sure that the mushroom is strong enough to withstand the stress of fragging.

Category 3 consists of *Ricordea yuma* and is a massive point of contention with reefers and even experts. First of all we need to understand that in South Africa a lot of them are direct imports and were in the ocean a few weeks/months ago. So before you even think of fragging *Ricordea yuma*, understand that you need to acclimatise them for at least a 6 month period. This might sound far-fetched but if you take into account that they come from deep water in nature (those in shallow water have been harvested years ago) and our systems mimic shallow water reefs, you will understand. So only after proper acclimatisation (a subject for the future) can you begin to think of fragging *Ricordea yuma*. In my personal opinion these mushrooms should not be fragged but rather enticed to "bud" naturally. If you want to frag them though, you need to ensure that you start with a healthy specimen and you should preferably separate the specimen into its own aquarium weeks before you frag them. When I come to fragging a *Ricordea yuma* there are only 2 methods that worked for me. The 1st method I use is to cut them in place into two, right through the centre of the mouth, then I leave them and let nature take its course. Normally they split in two and I end up with two healthy *Ricordea yuma*s, but I found that they sometimes heal by growing back together again. The 2nd method that I use, but do not prefer, is to physically split the *Ricordea yuma* into two pieces but also take it a step further and split the substrate as well. So I end up with 2 totally separated mushrooms. The reason I do not like this is that you leave the cutting edge totally exposed to infection.

This range of articles was not intended to teach you everything you need to know regarding the fragging of corals. My recommendation is that you use this article range as basis and invest in a good book (or two) on the subject and use this in conjunction with these articles to ensure that you do not kill your prized coral by ignorance. This said, if you understand these instructions and follow them you should have a good chance of succeeding.

Due to this article range I have been asked to give demonstrations to various reefers. If you want to attend one of these demonstrations feel free to send an email to moolis@petstopsa.co.za for more information.

Ricordea yuma needs at least 6 months of acclimatisation before fragging is even cosidered, and it then requires great care

Expand Your Fishkeeping Knowledge With These Great Books!

ALL BOOKS AND DVDS CAN BE VIEWED IN DETAIL ON www.thefishkeeper.co.za

Freshwater Books	COST
Encyclopedia of Aquarium Plants	R495
Trophy Discus: The art of selecting, grooming, and showing discus	R595
Goldfish	R165
Cichlids	R165
Bettas	R165
Aquarium Plants	R165
Livebearers	R205
Freshwater Aquariums	R205
Lake Tanganyika Cichlids	R165
Lake Malawi Cichlids	R165
Discus Fish	R165
Garden Ponds	R205
The Perfect Aquarium: The Complete Guide to Setting Up and Maintaining an Aquarium	R345
Fancy Goldfish	R720
The Tropical Aquarium	R265
500 Freshwater Aquarium Fish	R450
Ecology of the Planted Aquarium	R480
Cichlids: The Pictorial Guide, Volume 2	R795

Books on Koi	COST
Koi - A complete pet owners manual	R165
Manual of Koi Health: How to Create a Healthy Environment for Your Koi and How to Treat Any Sickness That May Afflict Them	R349
Koi Handbook	R349

Marine Books	COST
The Nano-Reef Handbook	R299
What Invertebrates?	R220
The Conscientious Marine Aquarist	R685
Seahorses	R165
The Marine Aquarium	R255
Corals	R165
Water Chemistry for the Marine Aquarium	R165
The Saltwater Aquarium Handbook	R210
The Marine Reef Aquarium	R365
Advanced Marine Aquariums	R745
Aquarium Corals	R750
The Reef Aquarium	R265
The Reef Aquarium,Science, Art and Technology, Volume Three	R1099
The 101 Best Marine Invertebrates	R295
Giant Clams in the Sea and the Aquarium	R625

How to Order

Call us on 031 7634054 and we can process your order over the phone. Send us a Fax to 031 7633811. Email us on sales@dennisonpublishing.co.za or you can order online on our secure website www.thefishkeeper.co.za

All prices include VAT, postage and insurance (for mail order in South Africa only)
Please fax or email proof of payment with order to Dennison Publishing, See banking and address details on page 3 of every issue

ARTICLE:
By Takashi Amano
of Aqua Design Amano

BUILDING A LARGE PLANTED TANK

Here is a large nature aquarium display that we made - W240 × D60 × H60 (cm)

Since the commencement of the International Aquatic Plants Layout Contest, the Nature Aquarium style and hobby is now known around the world more than ever before. There are now many opportunities to see nature aquarium layouts and experience their healing effect and large displays are attracting much attention from the public. Nature aquariums are particularly effective and appreciated in hospitals, offices and other public facilities. In a social climate in which the importance of the environment is becoming more and more important, the nature aquarium is helping to spread the vital message of environmental responsibility, and showing people the beauty and vitality of the natural world.

This panoramic aquascape uses dynamically assembled aquarium driftwood in a 240cm wide aquarium. The layout was made with ferns in the mid-ground, grasses and Eleocharis Vivipara in the background corners of the aquarium. This created a clear space in the centre of the aquarium. This aquarium will be easy to maintain over a long period of time and the layout of the background is an important point in achieving this. The plants in the aquarium must be regularly maintained to ensure that the overall balance of the layout is retained. I am using whitish sand in the foreground with aqua soil behind it. The use of the sand will prevent the aqua soil from flowing into the foreground. In a large aquarium like this one, it is necessary to bear in mind the long term maintenance of the layout.

DATA

- W240 × D60 × H60 tank (cm) (1 NAG-150W Green light ×, NA light lamp 36W × 2) / Grand Solar I lit lighting 10 hours a day × 4 group
- Super Jet Filter ES-2400 filtration group (Baiorio L) × 2
- Amazonia, Forest Sand - / - swing bottom floor Aqua Soil, Power Sand L, Enterobacter 100, super clear, for Penakku W / aquarium, Penakku P, Tourmaline BC
- Buraiti K additive, Greenbrier ROYALTY STEP2
- CO2 / Parengurasu Beetle 50 diam., with CO2 Beetle Counter 2 × 3 drops per second branch (using the tower 20)
- Off indicates that night time AIR / 14 hours (using NA Control Timer)
- 1/3 once a week / 1 water changes
- 6.8 TH: 20mg/l 25°C pH water / water quality

Plants:

- Renan Arte Terra Rirakina Alternanthera reineckii "Lilacina"
- A geek yellow Ammania latifolia
- Rudou~ijia Cuban Ludwigia inclinata var. Verticillata
- Needle Leaf Ludwigia arcuata Rudou~ijia
- Large leaf hygromycin Hygrophila stricta
- Rotara Injika Rotala indica-
- Ceylon Rotara Rotala sp.
- Rotara Green Rotala rotundifolia (green)
- Rotara-Makurandora Green Rotala macrandra sp.
- Ereokarisu-Bibipara Eleocharis vivipara
- Borubitisu Bolbitis heudelotii
- Narrow-leaf Mikurosoramu Microsorum sp.
- Anubiasu Nana Anubias barteri var. Nana
- Tropica Cryptocoryne wendtii "Tropica"
- Hybrid Kuriputokorine Cryptocoryne sp.
- Fantinalis antipyretica
- Grosso stigma Glossostigma elatinoides

Fish species:

- Cardinal tetra-Paracheirodon axelrodi
- Black Neon Tetra Hyphessobrycon herbertaxelrodi
- Red phantom tetra Megalamphodus sweglesi
- Otoshinkurusu Otocinclus sp.
- Yamato Numaebi Caridina japonica

Truly revolutionary LED Lighting.
It makes for bright, beautiful, and healthy aquatic plants.

NEW! LED Lighiting System for aquatic plants
Aquasky series Now on sale

AQUASKY

AQUASKY is an LED lighting system developed specifically for planted aquariums. It achieved the best-in-class brightness for aquarium LED lighting by adopting high-luminosity white LEDs and arranging them in an optimal layout for enhanced light distribution. AQUASKY made it possible to use LED lamps to grow aquatic plants, which had been considered difficult.

AQUASKY 451
Le modèle simple pour les aquariums de 45 cm de largeur.

AQUASKY 601
Le modèle simple pratique pour les aquariums de 60 cm de largeur.

AQUASKY 602
Le modèle double pour les aquariums plantés de 60 cm de largeur.

THE PLANTED TANK: Official Distributors of Aqua Design Amano Products
Contact info@theplantedtank.co.za for more information, or call 083 742 1954

ADA
aqua design amano

http://www.adana.co.jp/en/

aqua design amano co.,ltd. 8554-1 Urushiyama, Nishikan-ku, Niigata, 953-0054 Japan

The Reality of Making a 240cm Aquarium Layout!

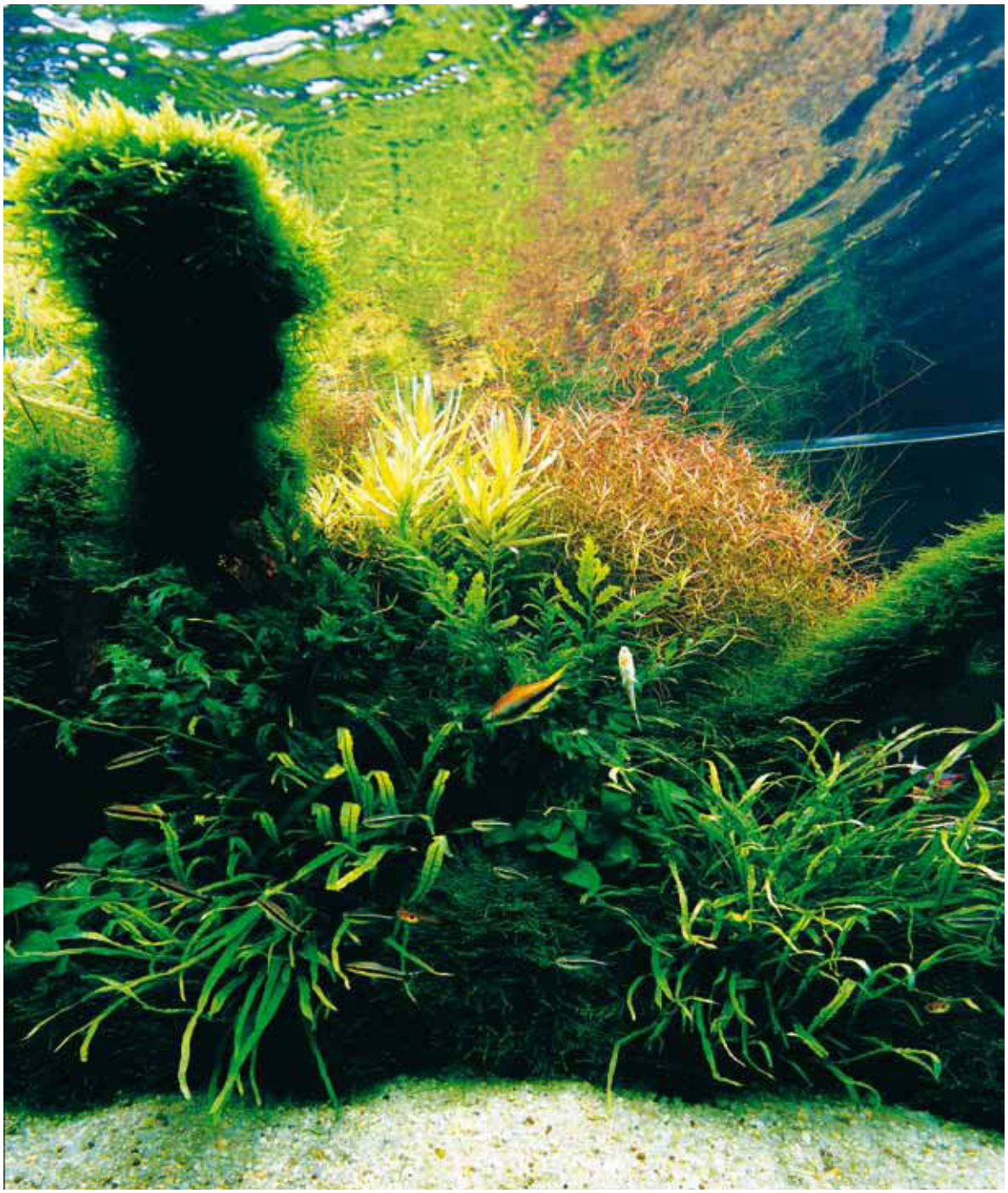
Here we will introduce how ADA set up a large Nature Aquarium, from installing the aquarium to making the layout and planting the aquarium.

For a rimless, braceless aquarium this large, the glass must be quite thick – the glass for this aquarium (240x60x60cm) is 19mm thick so transportation becomes a problem because the awuitium is so heavy! This aquarium needed eight adults to move it, and the use of some very handy 'sucker' equipment that allowed the aquarium to be carried much more easily. Aquariums are obviously very fragile and it is important to be very careful when moving them to avoid damaging them, so it is always a tense time, particularly for the person in charge of the installation! The aquarium is then positioned and checked to ensure that it is horizontal, which is particularly important with large aquariums where they are more likely to need slightly adjusting to ensure that they are horizontal.

Next, the substrate layer is put into the aquarium: sand and aqua soil make up the substrate layer of this aquarium because Mr Amano wants to use Branco sand in the foreground area to create some brightness in the layout. Creating the substrate layer may seem very simple but if it is not done correctly it will affect the plants in the aquarium so it is important to use a good substrate system and to use it correctly.

Amano arrived at the scene, and in the true fighting spirit, looked straight at the driftwood that the staff had prepared in advance; immediately checking its size and shape. Amano then checked all the angles of the driftwood, the direction of the rbanches and how they looked together. Lots of fine adjustments were made before Mr Amano was happy with the overall layout of the driftwood. Basically, the driftwood layout should follow the golden ratio, so that any focal points should be positioned at position that is roughly 2/3 into the tank.

Once the layout is completed, the plants are put in as quickly as possible and a good rhythm is attained by giving good directions to the team staff. To create a space in the middle part Kuriputokorine has been planted on both sides and arranged as colorful grass stalks with Glossostigma to act as a bridge. Stem plant layouts can often be quite dark, so the bright sand in this layout keeps the layout bright so it looks good in an office setting. Eleocharis Vivipara was also planted in the background.



Suckers are attached to the side of the aquarium to make it easier to move. These are an indispensible piece of equipment.

Arriving at the scene, the tank is finally brought into the drawing room with celebrations from those responsible for the site.

The Grand Solar I and wood cabinet that were set up the day before, ready with a Garden Mat.

When you place an aquarium on the wood cabinet, careful attention must be paid because it is so easy to hit the corner.

It is important to check that the aquarium is horizontal.

Aqua Soil and Power Sand L with cosmetic sand in front of it.

Forest Sand Branco was prepared and laid in the aquarium.

The line was smoothed with a ruler.

The thickness of the substrate layer is very important. Two people make the final check.

Instructed by Amano, sand has been arranged in the aquarium. It is a beautiful finish.

Lighting fixtures have been suspended next to the layout to make it easier to conduct.

While adjusting the balance of each branch angle, direction, etc., you will choose and form the skeleton of the layout.

The driftwood is arranged in accordance with the golden ratio.

Preparing foam plates makes it much easier to work, and to plant. Tweezers are used to plant neatly and easily.

It is important to prevent the aquatic plants from drying out when they are being planted.

In order to keep up with speed of Mr Amano, the staff prepare the plants quickly and seriously.

The colourful stem plants continue to be planted in order. The plants are planted very densely.

When the planting is complete, Mr Amano Checks the balance of the whole layout and gives a talk to the staff about the layout.

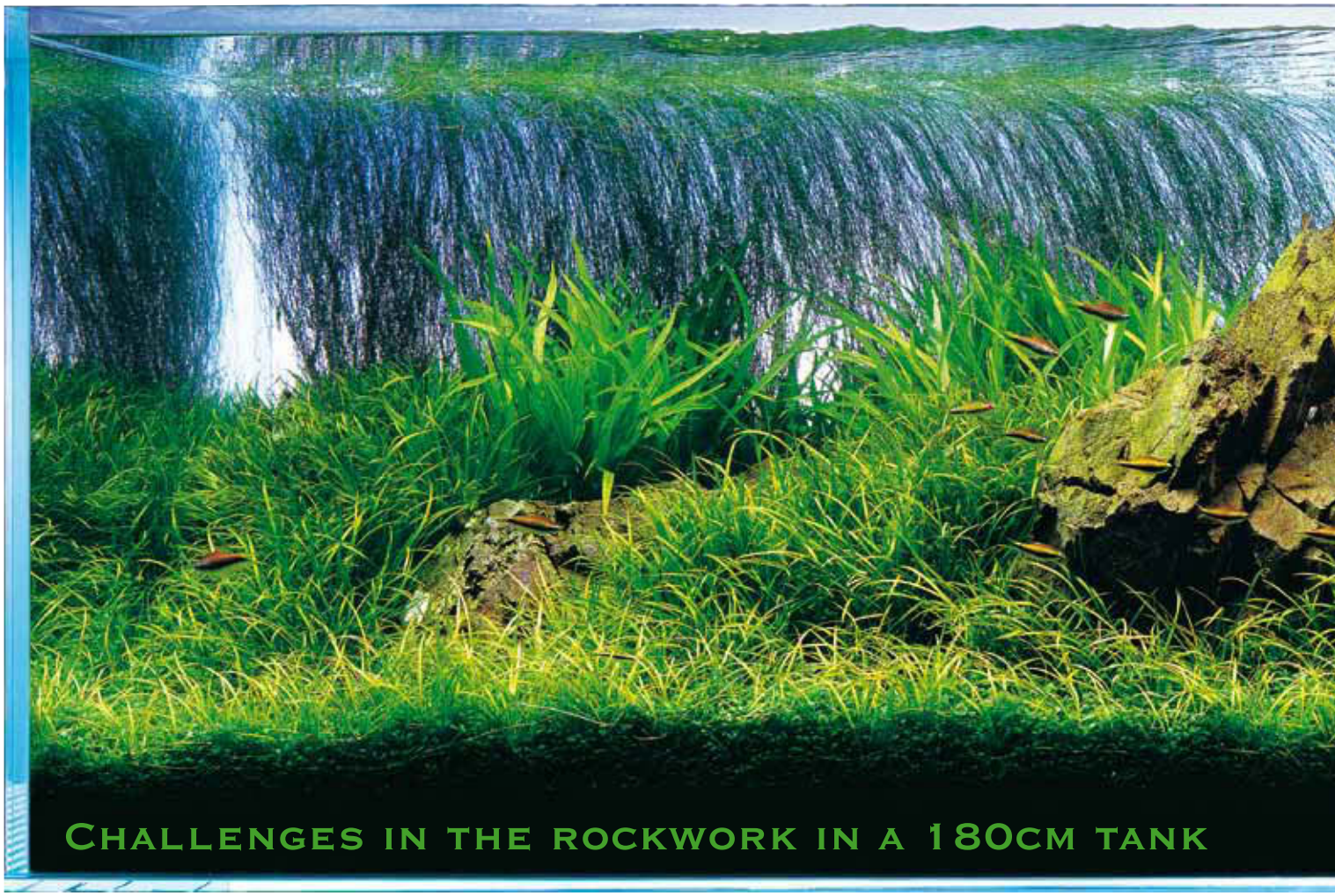
The aquarium is gradually filled with water. You can feel the ambience of the layout already, even at this stage. The first impression after planting is important.

Stones are placed around the gaps in the lower parts of the driftwood and, eventually, plants are arranged around the stones.

The Wood Cabinet is installed with an ADA CO2 Tower and two ADA Super Jet Filter ES-2400.

One week after the set up, because we are using filter medium that has already been matured in another tank in advance, there is no occurrence of ammonia.

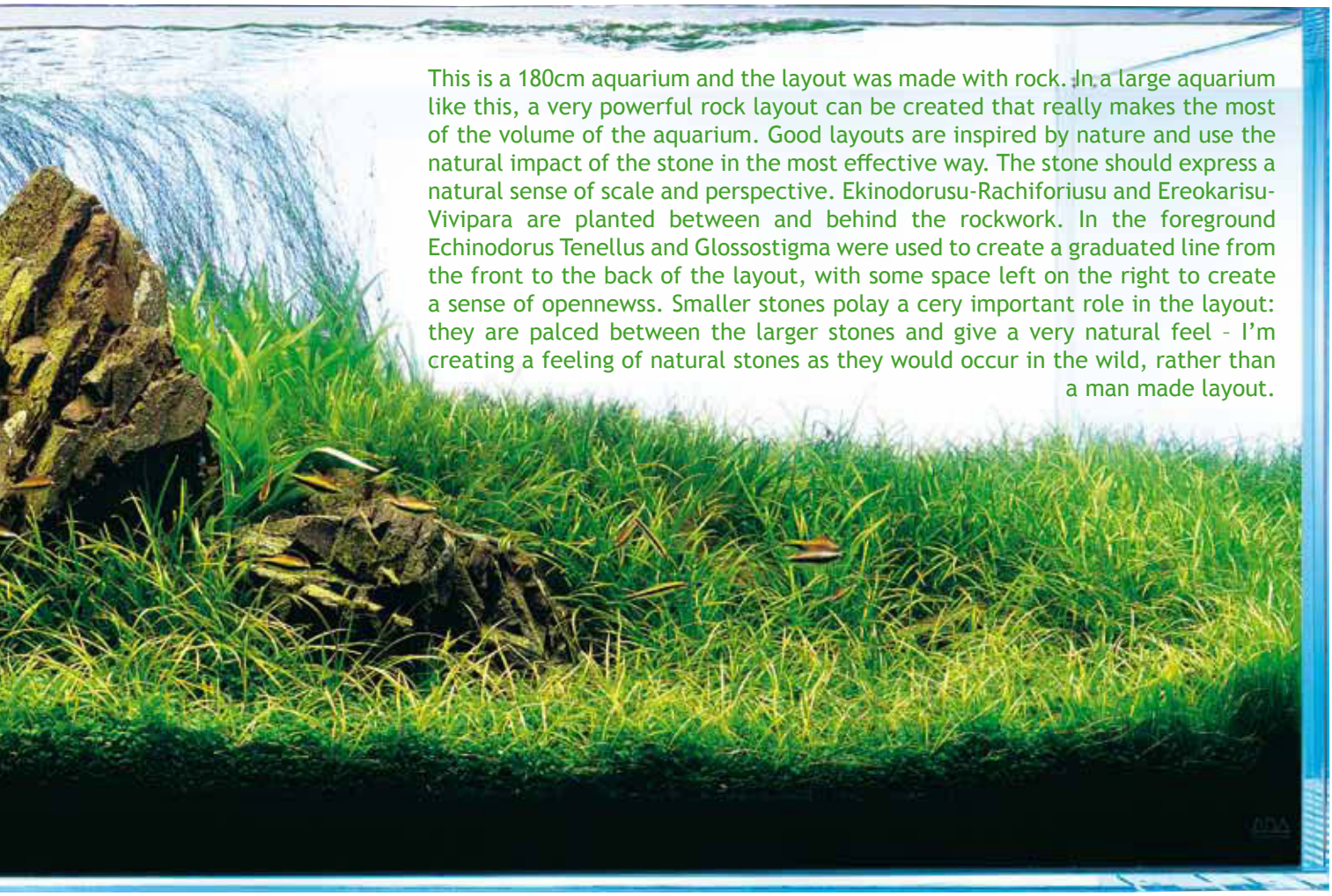
It was the owners request that two weeks after the set-up, some Cardinal Tetra are added, although it is a little early. The number of fish will be gradually increased.



Challenges in the rockwork in a 180cm tank

Aquariums up to a maximum size of around 180cm are commercially available and they provide an opportunity to create truly unique rockwork and Nature Aquarium layouts. The stunning rockwork in this aquarium makes it perhaps the ultimate layout for the public. Rockwork of this class and size is very rare: the parent stone in this layout weighs around 40-50kg, and needed three people to position it! Because the parent stone is the most important stone the positioning of it must be done very thoughtfully and carefully: the position of this stone will set the overall feel of the layout. The parent stone is carefully positioned and adjusted until the angle and direction is just right. Each stone must be placed in a way that creates a careful balance between the parent stone and the other stones of the layout. When this layout was being created the workplace was more like a construction sight and the atmosphere was quite tense at times, especially when Mr Amano was doing the very delicate and precarious stonework! Thankfully, Mr Amano's experience makes this task much easier and quicker. When the plants are added to the layout, they make the stones appear less dramatic and soften the overall appearance of the aquascaping. When choosing plants, it is important to bear in mind how they grow and what they will be like when they reach maturity, and to base your layout on the final appearance of the plants, as this will make it much easier to maintain.

The first plant used was Echinodorus Tenellus and this was planted near the stones, which helped to create a natural sense of continuity. The second plant is Eleocharis Vivipara and this was planted in the background, but a gap was left to the right hand side of the aquarium to create a sense of openness and space and to balance the impact of the parent stone. Once all the planting is completed it is important to assess the overall balance, and to add or remove any plants or stones that may be necessary to perfect the overall impact of the layout: this is where the experience of practice makes a huge difference.



This is a 180cm aquarium and the layout was made with rock. In a large aquarium like this, a very powerful rock layout can be created that really makes the most of the volume of the aquarium. Good layouts are inspired by nature and use the natural impact of the stone in the most effective way. The stone should express a natural sense of scale and perspective. Ekinodorusu-Rachiforiusu and Ereokarisu-Vivipara are planted between and behind the rockwork. In the foreground Echinodorus Tenellus and Glossostigma were used to create a graduated line from the front to the back of the layout, with some space left on the right to create a sense of opennewss. Smaller stones polay a cery important role in the layout: they are palced between the larger stones and give a very natural feel – I'm creating a feeling of natural stones as they would occur in the wild, rather than a man made layout.

DATA

- Cube Garden aquarium W180 × D60 × H60 (cm)
- Lit 10 hours a day group (NAG-150W Green) × 3 / Solar Lighting I
- Super Jet Filter ES-2400 filtration (Baiorio L, NA Carbon)
- Bottom floor Aqua Soil - Amazonia, Power Sand L, Enterobacter 100, super clear, for Penakku W / aquarium, Penakku P, Tourmaline BC
- Buraiti K additive, Greenbrier ROYALTY STEP2
- CO2 / Parengurasu Beetle 50φ, with four drops per second CO2 Beetle Counter (using Tower 20)
- Off time 14:00 night aeration by AIR / Lily Pipe P-6
- 1/3 once a week / 1 water changes
- 6.6 TH:: 20mg / ℓ 25°C pH water / water quality

Plants:

- Ereokarisu-Bibipara Eleocharis vivipara
- Ekinodorusu-Rachiforiusu Echinodorus latifolius
- Ekinodorusu-Tenerusu Echinodorus tenellus
- Grosso stigma Glossostigma elatinoides

Fish species:

- Emperor Tetra Nematobrycon palmeri
- Crossocheilus siamensis Siamese Flying Fox
- Otoshinkurusu Otocinclus sp.
- Yamato Numaebi Caridina japonica

Just after planting: the strong impression of the stone becomes softened later as the plants grown in properly

ARTICLE:
By Jake Adams

Balanophyllia Corals

The genus *Balanophyllia* is a group of corals which ranges from the tropics to the polar seas. There are about 60 living species of *Balanophyllia*, with an additional 30 extinct species known only from the fossil record. *Balanophyllia* are all exclusively azooxanthellate, meaning they have no symbiotic algae, and because of their slow growth they are not considered to be reef building corals. Since *Balanophyllia* do not require light to survive, in shallow water they are most commonly found in caves and the underside of overhangs, but they also occur at abyssal depths of over 3280 feet (1000m). Until recently, *Balanophyllia* were not available to aquarists but with the allowance of coral exports from Australia, at least two species of *Balanophyllia* have started showing up in the aquarium trade.

The typical appearance of *Balanophyllia* species is a cup-shaped corallite supported by a stalk of variable length. The size of *Balanophyllia* corallites is usually less than 1cm in diameter, but some species may develop corallites over 2.5cm wide. Smaller *Balanophyllia* tend to have circular corallites but the larger the corallite, the more it tends to become elongated, oval shaped and sometimes figure 8 shaped in its outline. The stalk may be conical to subcylindrical and it is usually fastened to the reef or rock structure by a well-developed base. Depending on the species, the profile of the corallite and stalk may be straight or triangular with a 'pedicel' as the oldest, narrowest part of the stalk right above the base. The tissue on the stalk may extend down past the pedicel but in cases where there is an abundance of biofouling organisms, the stalk may be only partly covered with tissue. In some habitats the stalk and base may be obscured by a thick layer of encrusting organisms such as sponges, sea squirts or bryozoans. *Balanophyllia* are able to prevent being completely overgrown by reef life because their tentacles are covered with vessicles that are laden with powerful stinging cells.

Unlike *Dendrophyllia* species, *Balanophyllia* show a diurnal cycle of polyp extension similar to *Tubastrea*. During the day the polyps of *Balanophyllia* will be mostly retracted except for maybe a few tentacles partially extended from the

corallite edge. The degree to which *Balanophyllia* extend their polyps will depend largely on the intensity of lighting to which they are exposed. When seen with their polyps withdrawn, *Balanophyllia* appear as small pink, orange or red cups with thin ridges around the edge

Above and Overleaf:
A large *B. bairdiana* polyp at night time with its tentacles extended to their maximum

The beautiful red and white striped oral disc of a high quality *B. bairdiana*

A view of *Balanophyllia* with the polyp fully retracted, showing the recessed calyce which is the origin of the name "cup coral"

of the corallite. During the night or when living in a dark habitat, *Balanophyllia* will show their full beauty when the polyps become fully extended. The extended *Balanophyllia* polyps are most colorful in the center, often with a brightly coloured mouth and with clear tentacles that are covered with small bright spots which are bundles of spirocysts (sticky cells) and nematocysts (stinging cells). The gorgeous tentacles of an average sized *Balanophyllia* may extend 2.5cm in every direction from the corallite, forming a sticky, stinging hemisphere of tentacles.

In species that live in calm or deepwater habitats, the length of the stalk may reach over three times the diameter of the corallite. If the species lives in a habitat that experiences more scouring water motion, the stalk may only reach half the length of the corallite diameter. The species of *Balanophyllia* are all solitary and most are found attached to a rocky substrate. The only exceptions are some of the deep sea species living at extreme depths which occur as free-living, unattached polyps partially buried in soft sediment. *Balanophyllia* are not capable of budding under normal conditions so therefore they are not capable of forming true coral colonies composed of clonemate polyps. This might be confusing to some readers who have seen *Balanophyllia* "colonies" but this genus is solitary by definition. The so-called colonies of *Balanophyllia* are either very dense aggregations of fused individuals or they are a species of *Dendrophyllia*.

The single confidently identified species of *Balanophyllia* being imported from Australia is *B. bairdiana*. The large fleshy *B. bairdiana* is variable in appearance and widespread in the Indo Pacific region from the waters of northern Australia to the Philippines. *B. bairdiana* has corallites up to 3cm long with a tall stalk which tapers down to a noticeable pedicel, the narrowest part of the stalk nearest to the base. Most of the Aussie specimens of *B. bairdiana* have been red or orange but this species is also found in various shades of brown, green and pink. In most cases the *B. bairdiana* being imported occur either as a single corallite or as a few closely growing corallites, but these are usually well differentiated and easily recognizable as unrelated polyps. The second 'species' of *Balanophyllia* making the rounds in the aquarium trade appears to be a colony but as mentioned before, by definition *Balanophyllia* is non-colonial. The *Balanophyllia* clusters are being imported as *B. bairdiana* but their specific identity has not been confirmed with any degree of certainty. *Balanophyllia* are brooding corals which release fully formed coral larvae that all look for the same indicators of where to settle. There is a possibility that these *Balanophyllia* clusters are actually formed when a group of planula all settle in close proximity to each other and fuse into what appears to be a colony with wholly connected tissue on the stalk. Although some of the Australian *Balanophyllia* appear to be colonies, if these are truly *Balanophyllia* then they would have to be formed from dense aggregations of individual polyps which have fused together.

The captive care requirements for *Balanophyllia* are as easy as it gets for stony corals. Although *Balanophyllia* require no light, they still require some modest water flow for basic respiration. *Balanophyllia* will certainly extend their tentacles to the maximum when placed in a dim tank with laminar flow of a moderate speed. *Balanophyllia* should be fed small to medium sized meaty food offerings such as brine shrimp, mysis shrimp or arcti-pods but smaller specimens may need to take cyclope-eeze or similar sized pieces of food until they grow larger. *Balanophyllia* may be able to survive with feedings as little as every two weeks but for noticeable growth they should be fed once a week or more. The growth of the polyp may not be noticeable but a well fed *Balanophyllia* will be able to grow tissue and cover the stalk. Also, since *Balanophyllia* typically occur in deeper cooler water, it is best to

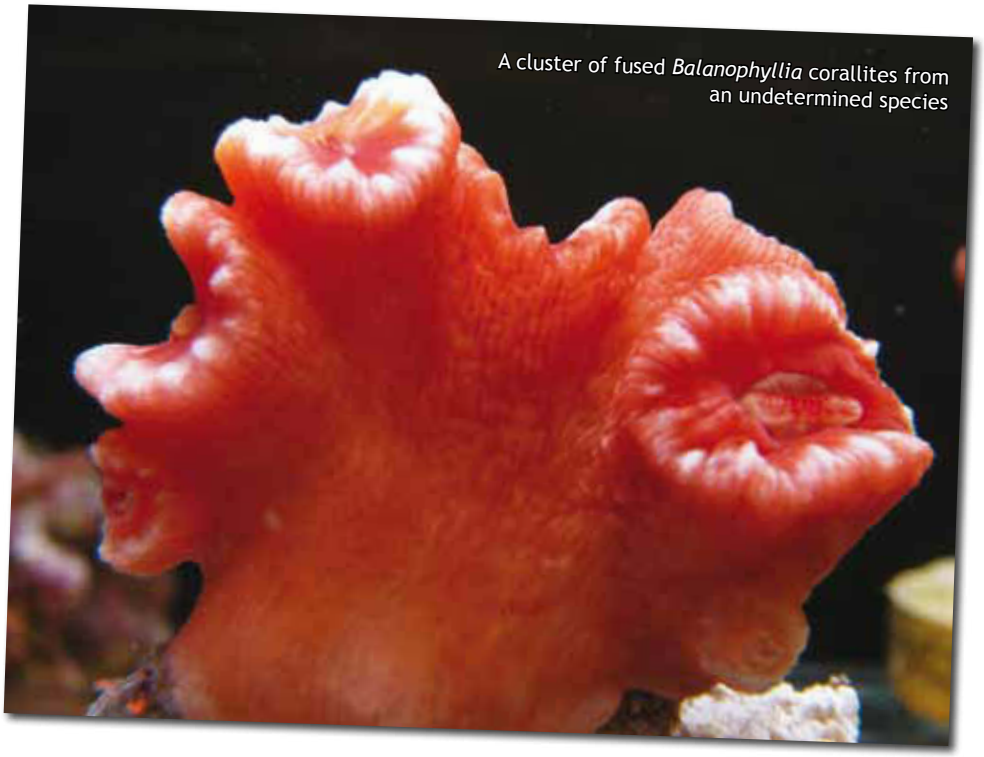
A close up of *Balanophyllia* showing the spirocyst and nematocyst laden tentacles

keep them at lower temperatures than some warm water reefs; a temperature range between 22° and 25°C is ideal.

The availability of azooxanthellate scleractinia has been dominated by colonial species such as *Tubastrea* and *Dendrophyllia* but the majority of non-photosynthetic stony coral species consist of medium to large solitary corals. With the recent imports of *Balanophyllia* it is now possible to set up a non-photosynthetic coral reef aquarium with corals that more closely approximate what reef caves and abyssal reefs look like. *Balanophyllia* are hardy, affordable and with their growing availability the reef hobby can look forward to increasing popularity of the unique *Balanophyllia* corals.

References

- *Hellberg, M.E and M.S. Taylor. 2002. Genetic analysis of sexual reproduction in the dendrophylliid coral Balanophyllia elegans. Marine Biology 141: 629-637*
- *Bruno, John F. and Jon D. Witman. 1996. Defense mechanisms of scleractinian cup corals against overgrowth by colonial invertebrates. Journal of Experimental Marine Biology and Ecology. 207: 229-241*



A cluster of fused *Balanophyllia* corallites from an undetermined species

ARTICLE:
Courtesy of Tetra

The Guppy

Perhaps one of the favourite fish among tropical aquarium keepers, the guppy is just as popular today as it was in the early days of tropical fishkeeping. Named after Robert John Lechmere Guppy, who first introduced the fish to the British Museum in the 1860's, the fish's scientific name was *Lebistes reticulatus* until 1963 when it was changed to *Poecilia reticulata*.

The Guppy belongs to a family of fishes known as the *Poecilidae*; it shares many unique features with other family members such as the equally popular Molly, Swordtail and Platy. Probably the most familiar of these family resemblances is these fish's mode of reproduction. They are known as a viviparous fish as they give birth to live young, rather than producing eggs (oviparous), which must be fertilised by the male fish in the water. Some fish scientists argue that the Guppy should be termed ovoviviparous, as the fry get

Male guppies (above) have longer and more colourful fins than the females (below)

The guppy breeds easily and prolifically under good conditions

much of their nourishment from their yolk sacs when they are inside their mother, a truly viviparous fish would be nourished by the mother before birth.

Guppies originate from Northern regions of South America and surrounding islands such as Barbados, Trinidad and Tobago. The wild fish there bear little resemblance to the myriad of colourful forms we see in aquarium shops today. Just like the domestic dog, the species has been bred into many different shapes, colours and sizes by artificial selection. Most dogs (and most guppies), look utterly different to their wild ancestors.

Aquarium keeping of these fishes could not be easier. When considering the aquarium care of any fish, we must first examine its environmental requirements; in other words, what sort of water conditions would the fish like to be kept in. As fishkeepers, if we ensure we constantly meet these environmental requirements, our fish will be happy, healthy and disease free. They will be able to channel their energy into growing, looking good and ultimately - breeding! Fail to meet the environmental requirements and the fish have to adapt their behaviour and physiology to these demanding conditions. This adaptation

The ease with which this fish can be kept makes it an excellent beginner's specimen

comes at the cost of a suppressed immune system, reduced vigour and channels resources away from breeding.

The guppy's environmental requirements are not demanding. They require roughly pH neutral water (between 6.5 and 8.5), medium general water hardness (5 - 15 °dH) and a temperature of roughly 24°C. As with all fish species, ammonia and nitrite levels must be maintained at zero permanently through adequate biological filtration and nitrate levels should be under 100 mg/L. Standard aquarium maintenance procedures should keep the water conditions within the preferences of the fish. As with any aquarium regular water testing to ensure the water quality is safe for the fish is crucial.

Guppies are surface feeding fish; they have small mouths which are positioned at the top of their heads. In the wild these fish cruise the water surface looking for stranded insects, seeds and other dainties that fall to the water. By swimming at the surface they can intercept food before it falls down into the depths where countless other hungry fishes swim. The cost of surface swimming is that the fish are clearly visible to predators both from the air and from the water below.

In the aquarium Guppies thrive on a quality flake food, the fragments of flake remain on the surface longer than a pellet or granular diet. Specialist guppy foods are available which have a smaller particle size and float for longer, ideal for tiny guppy mouths.

As described above Guppies are live bearing fishes and a happy population of males and females in an aquarium will very soon start producing babies. The problem is not so much getting them to breed but making them stop. (The guppy used to be known as the millions fish!).

If guppy fry are to be reared in an aquarium they will need a refuge to hide from their parents and other fish in the tank that would happily eat them. A bunch of fine leaved plants such as Cabomba, (either real or plastic), makes a fine retreat for the babies, otherwise transplant the fry to a separate tank. Fry should be fed on newly hatched brine shrimps in the first week after birth before being maintained on a suitable high protein powder food until they are large enough to take flake food.

In summary, the Guppy is probably the most popular tropical aquarium fish, it has a long history in the hobby and its hardy nature and ease of breeding make it an excellent beginner's fish.

Guppies are available in a wide variety of different colours

It was believed at tone time that *Linckia laevigata* and *Linckia multifora* (below) were two separate species, but it has since been discovered that they are in fact the same species

Linkia Sea Stars

Linckia Sea Stars are the iconic "starfish" we all picture living on a reef ecosystem. What is firstly so great about them is their brilliant colours; they can range from red to blue and even purple. Many people come across these aquarium invertebrates in pet stores and many marine aquarists always want to have one in their aquarium as they are visually very appealing and everyone visiting generally knows what a starfish is and will recognise one as soon as they see it. Many people also associate this invertebrate with the ocean. In this article we will refer to these invertebrates as Sea Stars as this name is more correct for me since they are not a fish of any sort. The problem we are faced with is that many people know very little about the captive care of these Sea Stars. They see them in their local fish store they buy them impulsively, only to find in a few days, weeks or months that their Sea Star has sadly died. In this article we will take a

The Blue Linkia can reach sizes of 30cm across or more, and therefore requires a large tank of 200 litres or more

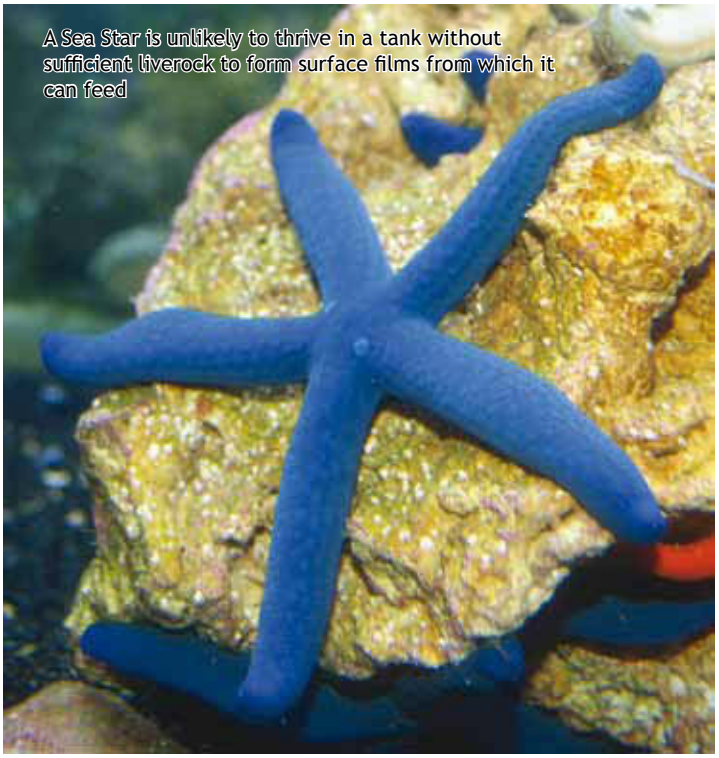
look at the different subspecies and their general care requirements so that we can get a better understanding of these beautiful invertebrates and we can make the decision whether they will be suited to our reef aquarium.

As mentioned, there is still very little known about these seas stars, not only about their care in aquariums but also about their natural history. In fact it seems there is even a lot of confusion when it comes to differentiating between the species! The most commonly imported Linkia Sea Star is *Linckia laevigata*. It was thought that *L. laevigata* (the blue Linckia) and *L. multifora* (the red Linckia) were different species, but it turns out that apparently they are the same species! It has been proven that *L. columbiae* and *L. bouvieri* are separate species, but *L. guildingi* consists of two different "cryptic" species (non-interbreeding species that look so similar that they can not always be told apart by eye).

So as you can see it can be tricky to determine exactly which species of Linkia Sea Star you might have. The mysterious ways of this invertebrate don't end there, as there is very little known about their biology and what they actually eat! Based on evidence from aquariums, *L. laevigata* is generally thought to be primarily an opportunistic scavenger, perhaps being even saprophytic (preferring to consume dead items as they begin to decay). It has also been seen feeding on algae and microbial films as a non-selective surface grazer. These reports are still not proven and are really only observations of what the animals seem to be sitting on and look like they might be eating - anecdotal reports of the diet and feeding preferences, but no real evidence that the animals really ingest and gain nutritional benefits from the stuff we think that they are eating in the aquarium.

In general, there is no need to worry about a species of Linckia being compatible with other reef tank inhabitants, because these animals are not aggressive and the stars themselves are chemically defended from many fish predators (they possess chemical defence compounds called saponins). These saponins are a highly effective way of discouraging potential predators. In fact, Linckia has a complex assortment of these defensive chemicals, some of which it shares with the highly distasteful Crown of Thorns starfish (*Acanthaster planci*), the famous sea star that eats reef corals. Despite these defenses, however, they are not safe with all fish that are commonly maintained in aquaria. For example, the dog-faced puffer (*Arothron nigropunctatus*) is a common


The underside of a Linkia Sea Star


A Sea Star is unlikely to thrive in a tank without sufficient liverock to form surface films from which it can feed

predator of sea stars in captivity, and even if well-fed, these fish may make a snack out of any starfish added to their tank.

So, after reading all that, you decide that you can provide for the requirements of the star, and want to get one, there are a few considerations before buying one. First, make sure that the star is active, firm to the touch and without any discolored patches across the body. There is considerable color variation in *L. laevigata*, sometimes making difficult to recognize discoloured patches from mottled colours on some animals. If you are reasonably confident about the identity of the star, check to see if the animal is at least partially hidden from intense illumination and actively crawls about (although they are often not really active during the day, it should at least move every night). These animals are largely nocturnal, and should be actively searching for food when the lights are dimmed or off in the aquarium. If the star is lying inactive under intense lighting, I would wait until you see one that is behaving in a more natural way before buying it.

Again, just in case you didn't take me seriously the first time, the single biggest problem with Linckia sea stars, even more so than other echinoderms, is that they require proper acclimation and tend to ship poorly. Their delicate nature makes it all the more important to start with a healthy specimen if you decide to introduce one of these animals to your reef tank. Therefore, it is exceptionally important to acclimate this animal carefully (of course, all animals should be acclimated carefully, but it seems to be just that much more important to the survival of these stars). If you can find a healthy star, you should make every effort to bring it home quickly (long periods of time in a bag seem particularly hard for them to handle as well), and then acclimate it to your tank water slowly to minimize the stress on the animal as it is transplanted into your aquarium. This is also a case where it turns out to be important to check the water conditions of the supplier from which you are getting the animal. If your local shop maintains a salinity that is much lower than your own tank (natural seawater is roughly 1.025 SG at 26.5°C), then acclimation will be more difficult and survival of the star becomes more of a gamble. If your aquarium is more than a couple of parts per thousand (ppt) different from that of your supplier, then you are more likely to have problems introducing one of these stars to your tank. One of the options if you have a quarantine tank, is to set it up with the conditions of the water in the pet shop and slowly acclimate the star to the conditions at which you maintain your reef tank before transferring it.

Now let's look at a few things to consider about your aquarium to see if you are ready to maintain one of these Linckia stars. They appear to get most of their nutrition from surface films, and are known for actively rejecting attempts to feed them, they are unlikely to do well in a tank that is recently set up (usually around 6 months), or one in which there is not enough live rock for them to continually find new surface films from which to graze. Therefore, they are not really recommended for reef tanks smaller than about 200 litres or so for the long-term. Although small stars may do well in smaller tanks for some time, they will eventually require more space. The problem is that in such small tanks, even if the star is successfully acclimated, a reasonably-sized sea star will not have enough well-aged rock surface to continue to find food for extended periods of time. Another important consideration for tanks smaller than about 200 litres is that *Linckia laevigata* can get quite large (30 cm or more across) and the amount of food they require will increase with their size -- obviously, the amount of established live rock in your tank will have to be quite large to support a grazing star which is about a 30cm in diameter!!

I hope this article gives you a better understanding of these beautiful invertebrates and I am sure most of us are quite surprised to hear how little we actually know about these Sea Stars. So just keep in mind that your tank needs to be over 200 litres, needs to be well established (at least over 6 months), you need to have sufficient amounts of live rock and when choosing a specimen make sure it has been well established from the import and that you acclimate it slowly, carefully and correctly when introducing it into your reef system!

AQUA·PLUS

HEALTH FOOD FOR FISH

Tropical and Goldfish Flakes or Bits

Provides full nutrition for all tropical or goldfish, the flakes are suited for surface feeding, while the bits are slow sinking to allow mid-water feeding.

Bottom Feeder

Scientifically formulated to be fast sinking. Provides complete nutrition. The feed is highly digestible and will enhance the colour of all bottom feeders.

For more information please contact Avi-Products. Tel: 031 766 0016
email: info@aviproducts.co.za | www.aviproducts.co.za

Representatives from 15 Countries Worldwide Talk about the Future of the Planted Aquarium

INTERNATIONAL AQUATIC PLANTS SUMMIT 2013

The “International Aquatic Plants Summit 2013” was held on October 2, 2013 at the ADA Headquarters in Nilgata, Japan. What was talked about at this summit?

Photo : Yusuke Homma

CROATIA

ZELJKO BLAGOVIC

KOREA

HAN WON PYO

INDIA

ADIP SAJJAN RAJ

VIETNAM

TRAN THI LE GIANG

SINGAPORE

EK THIO

HUNGARY

VICTOR LANTOS

GERMANY

JÖRG BUHLMANN

THAILAND

THANA THANAPALIN

MALAYSIA

LC CHAN

MONGOLIA

OTGONBAATAR ALTANGADAS

The first "International Aquatic Plants Summit" was held at the ADA Headquarters which was newly built in 1995. Eighteen years from then, the second "International Aquatic Plants Summit 2013" was held at the same venue this year. The previous round of the Summit, at which 15 aquatic plants specialists from 8 countries gathered, led to the launch of the International Aquatic Plants Layout Contest, which has been carried through up to now (most of the previous IAPLC judges were the participants of the first International Aquatic Plants Summit). On top of an increasing number of persons and countries participated in IAPLC since its launch, the growing popularity of planted aquarium was also witnessed by the presentations made by the representatives from 15 countries across the globe. Currently, Nature Aquarium is the mainstream of planted aquarium in the world. It is because Nature Aquarium is not merely a style of planted aquarium but it is a profound layout incorporating the concept of natural aquascape and ecosystem. During the Summit, the presentations on each country's planted aquarium scene made us feel a further flourishing of planted aquariums and also a sign of emerging new types of Nature Aquarium that evolved in the respective countries.

TAIWAN

HUANG YU-FA

U.S.A.

STEVEN LO

NORWAY

KENNETH TEMPEL

CHINA

DIAO JIANGANG

JAPAN

TAKASHI AMANO

ADA Leading the World Aquatic Plants Industry

A photography session was held with the representatives from 15 countries worldwide after the signing ceremony.

The role of Nature Aquarium, to connect the human to the nature.

Nature Aquarium proposed by ADA has been recognized as a sophisticated art that is enjoyed as a hobby and gives comfort and consolation to our lives. It is now widely installed in various places in our society including public facilities, offices, hotels, shopping malls and clinics. Nature Aquarium is also getting a lot of attention in the field of environmental education with its feature as a great environmental model where the environment inside the aquarium is maintained by ecosystem just like in the nature, i.e., fishes and microorganisms live on oxygen produced through aquatic plants' photosynthesis and aquatic plants absorb nitrogen compounds produced by these living beings. Being a miniature of the Earth, Nature Aquarium will have wider social roles in various fields as the environmental consciousness including global warming issue grows on a global basis. The second International Aquatic Plants Summit was closed with a signing ceremony following the presentation from each country's representative, pledging to make efforts to disseminate Nature Aquarium, improve the ambient environment so that more people can enjoy Nature Aquarium around the world and establish Nature Aquarium as a cultural, artistic and environmental model.

A: Mr. Jorg Buhlmann, the Managing Director of ADA Deutschland (representative of Germany) on hand at the signing ceremony. He also announced the opening of this International Aquatic Plants Summit.
B: A commemorative plate was handed out to the representative of each country. This is Ms. Tran Thi Le Giang from Aqua Product & Technology (representative of Vietnam). She made a great contribution to the current popularity of planted aquarium in Vietnam.
C: The plaque signed by the representatives from 15 countries across the globe

THE FISHKEEPER

2013 ARTICLE INDEX

As the new year of 2014 begins, it is time to look back at all the great issues of 2013! We have had some really great articles over the last year and have had a lot of positive feedback with regards to them. As always we try our best to cover all aspects of this great hobby, making sure that each issue has an article that appeals to each individual reader. We only publish the best articles as our article writers, both local and international, share their experiences, ideas, and maintenance tips with you.

The Fishkeeper is a proudly South African magazine, which you can be proud to own. Back issues are a great reference for anyone, as you can later refer back to articles in order to refresh your mind and make sure about certain things that you may forget over time. You may also find you are taking on a new species in your aquarium and in your back issues you have articles relating to that species that can provide you with valuable information.

The Fishkeeper is a reliable source of information that has come from experienced keepers and breeders in the aquarium hobby in South Africa and the rest of the world. We all know how some of the information on the internet can often be unreliable, which can be risky for the owners and their aquariums, so make sure that even if you're doing some browsing on the internet that you also double check articles in The Fishkeeper, as they come from first hand experience. The more research you do and the more reading you do on the better success you will have with your livestock and aquariums.

If there are any issues you have missed or any back issues you are looking for, please give us a call on 031 763 4054 or email us on sales@dennisonpublishing.co.za or go to our website www.thefishkeeper.co.za where you can order back issues online.

Thank you for your support!

JANUARY/FEBRUARY 2013

Volume 4, Number 2

- The Jewel Cichlid: Care & Reproduction
- The Copperband Butterflyfish
- Choosing fish for your planted tank
- Bristlenose Catfish
- Fragging GSPs
- Marine System Profile: Helga de Klerk
- The Realities of Reefkeeping
- To-do list for Koi keepers
- 2012 Article Index

MARCH/APRIL 2013

Volume 4, Number 3

- Fire Shrimps
- The Clown Loach
- Common Mistakes to Avoid in Reefkeeping
- The Nature Aquarium
- Reefkeeping: Unravelling the Systems Build
- Lake Malawi Cichlid Tanks
- Marine System Profile: Armand de Swardt
- Health and Nutrition for Koi

MAY/JUNE 2013

Volume 4, Number 4

- Red-Lined Torpedo Barbs
- Marine Filtration Systems
- CO2 Fertilization
- Leather Corals: Care & Fragging
- The Layout of the Nature Aquarium
- The Blind Cave Tetra
- Marine System Profile: Roy Pepper
- Quarantining Koi

JULY/AUGUST 2013

Volume 4, Number 5

- Dragonets: Mandarin Fish & Scooters
- Endler's Livebearers
- Catfish of the Synodontis Genus
- Pedunculated Grasses in the Nature Aquarium
- Nano Reef Aquariums
- Keeping SPS Corals: Part 2
- Marine System Profile: Marius Meyer
- Popular Koi Products

SEPTEMBER/OCTOBER 2013

Volume 4, Number 6

- Betta Species
- Designer Clowns
- Water Quality and Health
- Finding Inspiration
- Zoanthids
- Coral Propagation
- Marine System Profile: Geoffrey McDonald
- Project Piaba: A Sustainable Fisheries Initiative
- Green Water in Koi Ponds

NOVEMBER/DECEMBER 2013

Volume 5, Number 1

- Banggai Cardinals
- Black Ghost Knifefish
- Fragging your Prized Soft Corals
- Perspective Rockwork
- The Cichlids
- Maculosus Angelfish
- Koi: The Good, the Bad and the Ugly Parts of Spring and Summer
- Project Piaba: Part 2
- Marine System Profile: Pierre Stander

SUBSCRIBE NOW!

Get The Fishkeeper delivered to you and don't miss a single issue!

Just R195 for a full year!

6 issues of informative articles and handy hints and tips to help you get the most out of your aquarium hobby.

Contact us on:
Tel: 031 763 4054
Email: info@thefishkeeper.co.za
Fax: 031 763 3811

Payments can be made to:
DENNISON PUBLISHING
Standard Bank
Hillcrest Branch
Acc.: 062 557 971
Branch: 04 57 26

with Bacterial Additives

Establish a healthy population of beneficial bacteria that will effectively breakdown Ammonia into Nitrite and then to Nitrate.

Imported by Peckoltia Enterprises. For trade enquiries please contact Henk Hugo on henkhugo@peckoltia.co.za or 021 555 0649

SUBSCRIBE TO THE FISHKEEPER AND STAND A CHANCE TO WIN!

R500 MARINE HAMPER OF MICROBE-LIFT AND OMEGA ONE Natural Protein Formula PRODUCTS!

OR A **R500** FRESHWATER HAMPER OF MICROBE-LIFT AND OMEGA ONE Natural Protein Formula PRODUCTS!

SPONSORED BY

Peckoltia ENTERPRISES

How to Enter..

1. Subscribe to The Fishkeeper magazine
2. Go to facebook and like Peckoltia Enterprises's page! https://www.facebook.com/PeckoltiaEnterprises

By doing this you will automatically be entered into a lucky draw and the winners will be announced at the end of February 2014!

CONGRATULATIONS TO THE WINNER OF LAST MONTH'S DRAW:

Sebert Kleyn of Pretoria

YOU WILL BE RECEIVING A FRESHWATER HAMPER VALUED AT R500 COURTESY OF **PECKOLTIA ENTERPRISES!**

For more information contact us on 031 7634054 or info@dennisonpublishing.co.za

ARTICLE:
By Angela Beckx

Deco Filters and Deco Pond Paint for Koi Ponds

Having a koi pond in your garden adds a special sparkle to your home. Koi have various meanings and symbols to many people. They represent friendship, love, good fortune, and are associated with perseverance in adversity and strength of purpose.

Deco Filters

If you want to build a koi pond in a small space in your garden or you have an existing koi pond that you are struggling to keep clean and clear as it has no filter, then look at getting a Deco filter to help you. Often I come across green dirty ponds as the filters available did not match the owner's aesthetic sense and so were dismissed. Good water quality is essential to having a successful koi pond and in order to achieve good water chemistry a filter is needed.

Deco Pot filters are filters that look like garden pots and can be added to your pond to give an aesthetically pleasing look as well as filtering the water for you. The Deco Pot filter range is available in round and square shaped pots and can filter from small ponds of 1000L up to bigger ponds of around 6000L in size.

The Deco filters have mechanical filtration media in the top of them which traps the solids out of the water. The mechanical function is to make sure the dirt or solids are removed from the pond and trapped into the mechanical media inside the Deco pots. This media can then be taken

out when it is clogged with solid particles and cleaned with dechlorinated water. The biological filtration media then sits under the mechanical media and specific bacteria cultured in the filter breaks down toxic waste products into less harmful substances. Once the water has flowed through the mechanical and biological media it is returned via the outlet pipe that falls into the pond.

Pond Paint

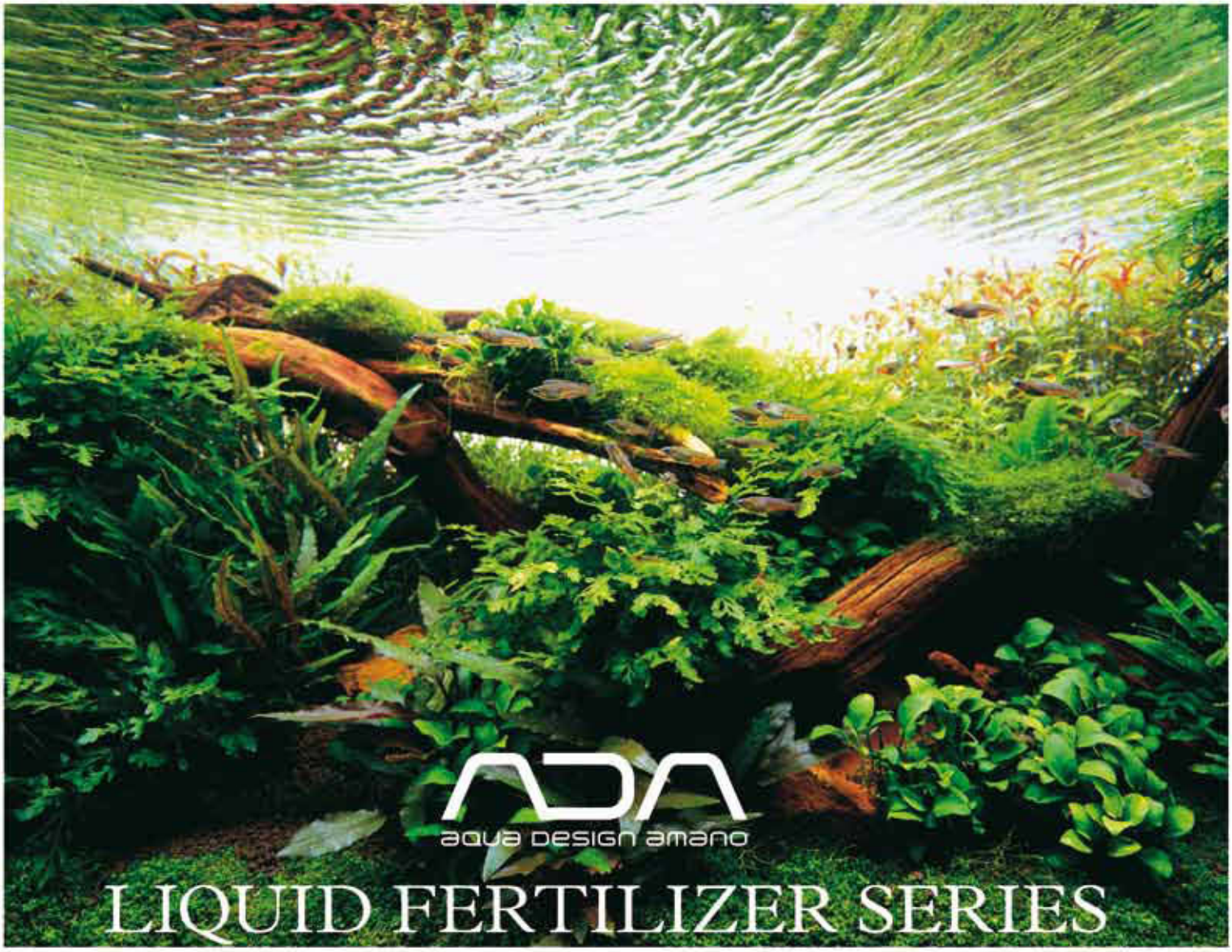
Once you have decided to build a koi pond you need to look into how you are going to waterproof the pond. Hydro Dekor is a decorative pond sealant that is affordable and easy to use. It is available in multiple colours and is great to use on koi ponds, rock ponds and water features and it is fish friendly. It can be painted on concrete, cementitious and masonry structures. Some of the popular colours used on rock art ponds are Kalahari, Sand stone and brown, to name a few. On koi ponds I would recommend the best to use is Charcoal as it makes the koi show up and hides the algae that will grow naturally on the pond sides.

If you want to build a rock art waterfall, then the rock colours can be used on the waterfall and streams leading into the main koi pond, which should be charcoal sealed. Hydro Dekor sealer is able to seal, crack fill, coat and decorate your koi pond without having to plaster or paint it with anything else first. The product is pre-blended and you will use a brush to apply it in two coats with 12 hours of drying time in-between and then you can fill it and dechlorinate the tap water and add a few fish to your pond.

If you have an existing water feature or pond with a visible crack in it, there is a product available called Hydro stop, which is a cementious powder combined with acceleration chemicals that produces an instant-setting repair compound to stop flowing water within 1-2 minutes. You can use it in a dry powder form or mold it into putty and fill the cracks.

With these two Deco pond products available for koi keepers your ponds can be clean, clear, leak proof and aesthetically pleasing to the eye.

Advertiser's Index



NATURE AQUARIUM FERTILIZER SYSTEM

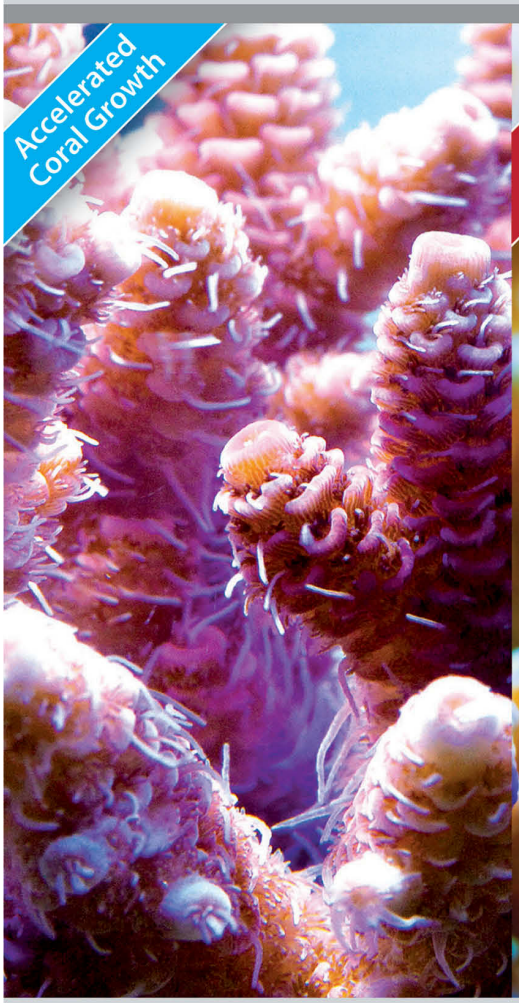
To Grow Healthier and Prettier Aquatic Plants

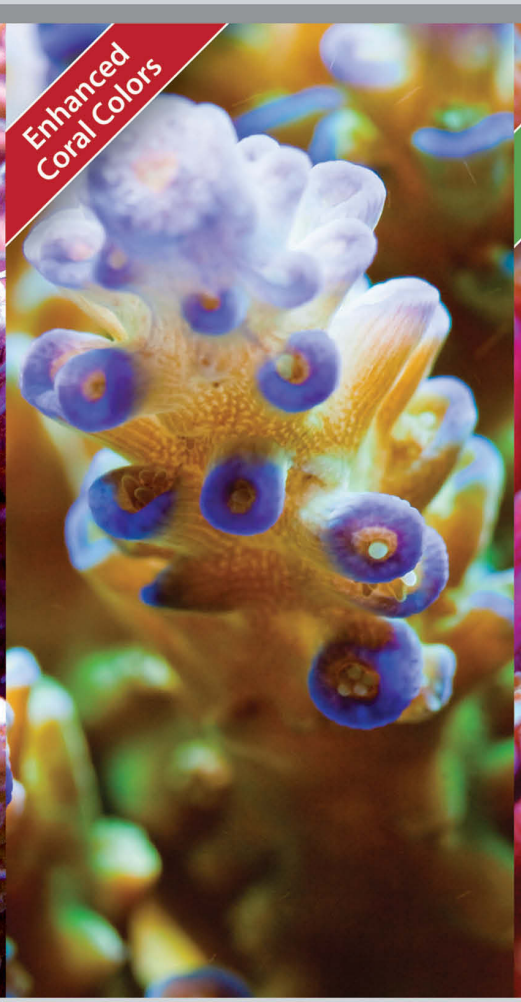
The growth of aquatic plants and the requirements for nutrients change with time in an aquarium environment. It is ideal to supplement nutrients based on the current condition of the aquarium without causing an excess or shortage. ADA Liquid Fertilizer Series is designed for making efficient supplement of nutrients to meet the requirements of all your aquatic plants.

http://www.adana.co.jp/en

THE PLANTED TANK: Official Distributors of Aqua Design Amano Products
Contact info@theplantedtank.co.za for more information, or call 083 742 1954

The Reef Care Program





The Reef Foundation Program

Provides biologically balanced levels of the foundation elements (Calcium, Carbonates and Magnesium) that ensures the optimal water conditions for a sustainable, vibrant coral reef.

The Reef Coloration Program

Provide the essential minor and trace elements that are part of the coral skeleton and soft tissue and are specifically important for SPS corals to display their natural pigments.

The Algae Management Program

Controlled nitrate & phosphate reduction that prevents nuisance algae and provides the fine control of Zooxanthellae populations that significantly affect coral growth rates and coloration.

Get with the program!

Over the past five years Red Sea's team has been researching the physiological demands of corals in an artificial reef environment. The results of this research have been quite remarkable, culminating in the development of our groundbreaking Reef Care Program or RCP which empowers you to take control of your reef aquarium

- **Understand** the relationships among the many biological processes taking place in your aquarium and how they are all interrelated.
- **Achieve** the optimum values for all water parameters in different types of aquariums, especially your own particular aquarium
- **Benefit** from a concise, comprehensive and coherent range of products which enable you to achieve and maintain these optimal parameters.

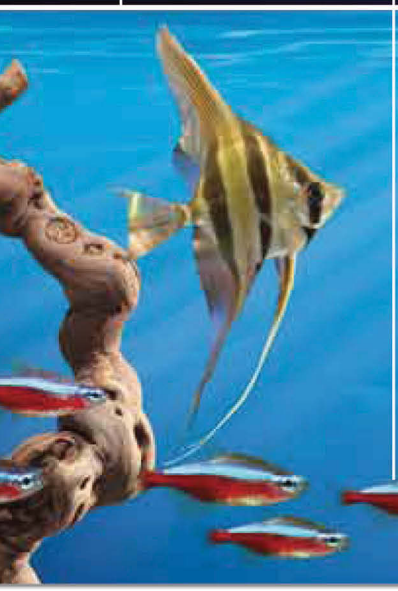
For Trade Enquiries Contact
Marltons Pets and Products
on 0861 PETMAN (0861 738 626) or
info@marltons.co.za | www.marltons.co.za

marltons
Your pet's choice

Red Sea
www.redseafish.com

Created by experts to bring out the best in your fish

Superior to flakes	Excellent fish condition	Two formulas in one	Better water quality	Fish prefer Crisps!



The health and condition of your fish directly depends on the diet you choose for them. That's why Tetra's industry-leading research laboratories developed TetraPro Crisps, to overcome the drawbacks of flake foods. Produced at a lower temperature, and using a completely different production process, TetraPro offers better nutrition for unrivalled health and condition. It also results in less waste production, for improved water quality and clarity. The two-colour process used to make TetraPro also allows the introduction of two formulas into one food, for concentrated benefits on top of a complete, balanced diet. What's more, fish prefer Crisps to flakes, meaning they get a diet they love, as well as one that keeps them in great shape.

For more information: www.tetra.net