



FEDERATION OF BRITISH AQUATIC SOCIETIES

# BULLETIN

[www.fbas.co.uk](http://www.fbas.co.uk)

summer 2014



**NEWS, VIEWS & ARTICLES**

**BY FISHKEEPERS**

**FOR FISHKEEPERS**



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Excellent fish condition

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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.



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*Opinions expressed in any article remain those of the author  
and are not necessarily endorsed by this publication*



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## EDITORIAL

We're generally not one to feature alarmist pictures on our covers but I thought this issue deserved something different, especially at this time of year when aquatic plants (especially those in outdoor ponds) come into their own.

Thanks to an article in the Ilford's Society's excellent Newsletter, we're able to draw your attention to a bit of legislation that became law in April (too late for the last issue!)

Fishkeepers are well aware of 'conservation issues, but pondkeepers may have missed out on the fact that certain aquatic plants whilst well-suited for our ponds will prove to be an environmental threat if allowed to spread into our native waterways. Keep your eyes open for these plant species and do your bit to keep our own waterborne species safe.

On a much more personal note, I am pulling rank as editor to pinch a little space to thank all those aquatic friends who wished Gloria and myself well on the occasion of our recent Golden Wedding Anniversary. We really appreciated your kind thoughts.

**Malcolm Goss,**  
**25 The Gowers, Chestnut Lane, Amersham,**  
**Buckinghamshire HP6 6ER**  
tel: 01494 722786 e-mail: [malcolmgoss@tiscali.co.uk](mailto:malcolmgoss@tiscali.co.uk)

# FLUVAL SEA LED STRIP LIGHTING ON TRIAL

**BY LES HOLLIDAY**

Aquarium lighting, especially with regard to marine reef aquariums, is more than just a device to provide an aesthetically pleasing look but must also simulate a light field similar to that which exists on a natural coral reef. This is necessary because many reef building corals and other forms of invertebrates kept in reef aquariums are termed photosynthetic, relying as they do upon symbiotic, light-requiring algae in their tissues for nutrition and as an aid to growth. Correct lighting, naturally, therefore is a very important supporting system for these kinds of reef organisms which depend upon light of the correct intensity and quality to exist.

Until quite recently the lighting standard for reef aquariums was based upon a mix of metal halide and fluorescent tubes which can deliver high intensity light of the correct spectrum. Successful as this arrangement is, it is not without disadvantages. Running costs are considerable due to high power consumption and short lamp life and heat emissions often lead to additional costs for fans and other forms of cooling.

The recent introduction of L.E.D. lighting systems, for aquarium use, came as a very welcome development as many of the disadvantages, such as expensive operating costs and need for additional cooling, became easy to overcome.

Fluval Sea Reef Performance L. E.D. strip lighting is the latest most promising new introduction using L.E.D. technology and is becoming very appealing to the reef aquarist.

Each Fluval L.E.D. strip light offers efficiencies of up to 45 lumens per watt which is in excess of 33% more illumination, for example, than is produced by the highest intensity fluorescent light sources. Lamp life is estimated to be up to 50000hrs (equivalent to x6 standard fluorescent lighting) with no significant deterioration in spectral quality and less than 20% reduction in light output. Cool running in operation is ensured due to minimal heat transfer, an integral feature of the low voltage design.



For almost two years I have been conducting trials with test sample Fluval Sea 35w strips as an initial appraisal of their fitness for purpose and in side by side comparison with other equivalent products. The most informative phase of the trial has involved using a fully established 240ltr reef tank, formerly lit by metal halide and marine-glo fluorescent tubes, 3 x 2, 150w metal halide plus x 2, 30w fluorescent, substituted for the trial by x 4, 35w, Fluval Sea 35w L.E.D. strips.

My initial observation was the significant increase in lighting between the two the Fluval Sea strips recording a 40% increase in lighting systems with illumination over the metal halide/fluorescent former lighting system.

The well-designed extendable mountings on each Fluval lighting strip were also found to be of excellent design allowing each lighting strip to fit neatly over the aquarium glazing bars and the 120° light dispersion feature of each of the strips ensured the full surface of the aquarium was covered and the lighting uniform.

The uniform and even coverage of the light/colour dispersion of the Fluval Sea strips and the pleasing rendition of the colours of the invertebrates and fishes were also superior to the poorer standard of lighting achieved with the former lighting arrangement. The even uniform light distribution incorporating full spectrum coverage and key spectral reinforcement also provided a balanced colour temperature combination for optimal coral photosynthetic activity as was amply confirmed as the trial continued.

A further major benefit of using the Fluval Sea strips, was their economic use of power, which can be linked to resulting cool running, allowing stable temperatures to be maintained in the aquarium plus ongoing economies possible from not requiring space for, or the costs of, tank cooling.

Other areas of the general design and build quality of the Fluval Sea strips are also to be commended. Constructed using extruded aluminium with high heat transfer co-efficient each strip is expertly engineered. The full gasket sealing and moisture barriers protect internal parts against water and humidity and allow the strips to be mounted close to the water surface for maximum efficiency. A skilfully designed

3-way light control allows an off switch plus a day setting to provide full 25000K, powerful day lighting whilst a night setting gives low level actinic light. The Fluval Sea strips were amazingly easy to install, simple to use and completely trouble free during the whole trial.

The final question remaining, however, is how well did the light sensitive invertebrate test subjects react to the Fluval Sea form of lighting, in the immediate and over the long term, which of course was the main purpose of the trial. A great deal of research and development was involved in meeting the optimal photosynthetic requirements necessary to support coral growth and colour. 6 unique L.E.D. band widths are employed in each strip including essential actinic blue wave lengths for full spectrum coverage and key spectral reinforcement to provide a balanced combination for optimal coral photosynthetic activity, growth and viewing.



The colour temperature of the lighting at 25000k proved to be the complete multi-spectrum lighting solution required and the light sensitive invertebrate test subjects reacted favourably from the very commencement of the trial combined with an immediate improvement in viewing resulting from the greater light intensity and better rendition of colours

Further into the trial the main observation was of an increase level of growth and vigour which has continued to the current time. Results from observations of the different phyla in the tested range of invertebrates were equally spectacular. Soft corals, for example, responded very well, with obvious signs of improvement in health and coloration. Larger branching forms, such as *Sarcophytions* and *Sinularias*, displayed rapid growth with some changes in form, the *Sarcophytions* reaching upwards more to the surface whilst the *Sinularias* displayed horizontally. Although not the most aggressive of colonisers, these invertebrate forms have developed growths away from the substrate to expose more of their branching habit to the light source. The intense bright yellow tentacles of the *Pachyclavularia* have also developed in size and number and several large colonies have developed on top of the rockwork. When earlier lit by the combination of metal halides and fluorescent lighting the size of these colonies were much restrained showing signs of dieback and algae colonisation. The new lighting regime appears to have completely reversed this deterioration.



Various forms of SPS hard corals have been introduced into the test aquarium and these have thrived albeit with strong competition from the more vigorous and aggressive soft coral and colonial anemone test subjects. *Acroporas*, *Hydrothorus* and *Hydnophoras* seem to cope the best but did take a little longer to acclimatise. A single specimen LPS coral (*Trachyphyllia* species) was also included in the trial and proved to be very successful making lots of growth and displaying its large polyps spectacularly.

The single most striking development has been the population explosion of colonial Anemones which has occurred with various species of *Dicosoma*, *Palythoa* and *Parazoanthus* all thriving and healthy. Virtually all areas of the tank including the walls and substrate have or are being rampantly colonised.

The Fluval LE.D. spectral combination certainly produces a multi-spectrum effect close to natural light which can be confirmed by the way that it promotes and supports strong light requiring invertebrate and coral growth and colour. Similar comments apply to the brilliance of the fish coloration and the accurate rendition of the colours of the fish allows the viewer to gain a true appreciation of how colourful natural reefs are, due to the rich hues of reef fish.



My conclusion is that the Fluval Sea L.E.D. spectral combination featuring the 6 L.E.D. band widths with an overall colour temperature of 25000K is one of the best mix of L.E.Ds on the market and meets the optimal photosynthetic requirements of light requiring reef organisms and the best conditions for accurate viewing of fishes.

The Fluval SEA LED lighting range is available in 3 strip lengths for aquariums from 60-145cm, plus a nano unit for smaller tanks. Similar LED units are also available for freshwater planted tanks, under the name Fluval Aqualife and Plant.

For full details visit [www.fluvalaquatics.com](http://www.fluvalaquatics.com).

**NEWS**

**NEWS**

**NEWS**

**CLASSIFIED ADVERTISEMENTS**

The Bulletin is now taking Fully Aquatic Classified Advertisements

**MARCH EDITION 2013 ONWARDS**

Entries accepted only within the two weeks prior to the next Bulletin publishing date (coincidental with FBAS Assembly meetings), i.e. the first weekend in March, June, September and December.

Entries will be **FREE** to members of affiliated FBAS Societies only.

All other advertisements priced at £5.00 per line and paid in advance.

Advertisements accepted at the Editor's discretion, whose decision will be final.

*The idea is to help members who have unwanted fish for sale, surplus, breeding stock or adult fish needing re-homing.*

*Along with live fish, aquatic items may be advertised but care should be taken with both live fish and aquatic items as the FBAS and Bulletin staff cannot accept take any responsibility for their condition.*

*It is hoped that both sellers and purchasers act in the true spirit of our hobby within their transactions.*

# Ask Us

Q. A friend told me I have to clean out my pond from time to time, however I have nothing large enough to put the fish in whilst I do this. The pond in general looks so good at the moment I am afraid of upsetting it all including the plants as well as the fish.

A. I can understand your concerned and for the fish that are used to their surroundings it can be very stressful for them.



Why not use a Laguna Pond Vacuum Kit, it uses the power of your existing water supply to dislodge and remove all types of pond dirt and debris. You can attach it to your standard hose pipe connection and includes a re-usable mesh waste collection bag and you don't even get your feet wet.

Of course, you should also keep an eye on any filter return flows, including cascades and fountains, and if these slow down then it's time to check out filter media that may be clogged or the foam pre-filter on the pump itself.

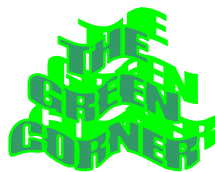


However pleased you are with your pond, it is good practice to understand what you are seeing. For instance those magnificent marginal may look impressive but should high winds come along, their foliage acts as a galleon's sails and your plants could soon look more like the Mary Rose!

Also rampant aquatic growth, particularly with submerged plants can cause an oxygen loss during those summer thundery nights. Keep you pruning knife handy.

*Laguna Team of Experts*

The area for  
aquatic plant-lovers



INTERNATIONAL WATERLILY AND WATER GARDENING SOCIETY  
(IWGS)

ANNOUNCES

**2014 COLLECTOR'S AQUATIC PLANT OF THE YEAR**



***NYMPHAEA* 'RUBY STAR'**

Greenville, Virginia –

The International Waterlily and Water Gardening Society announces *Nymphaea* 'Ruby Star' as the 2014 Collector's Aquatic Plant of the Year. This hardy waterlily was a standout at the 2010 IWGS New Waterlily Competition for the high number of ruby-colored blooms it produced all summer on compact plants. 'Ruby Star' was hybridized by Tony Moore of Moore Waterlilies.

The International Waterlily and Water Gardening Society is proud to feature *Nymphaea* 'Ruby Star' as this year's Collector's Aquatic Plant of the Year. This is an exclusive arrangement which means the IWGS will be the only source in the United States for the limited supplies of N. 'Ruby Star' in 2014.



The Collector's Aquatic Plant of the Year program provides a limited opportunity to purchase new and/or rare aquatic plants prior to widespread distribution while also serving as a fundraiser for the Society.

The sale price for 'Ruby Star' will be \$75.95, which will include shipping and handling fees within the continental United States. Shipment dates will be April 14th, May 12th, and June 6th. More information and ordering options can be found on the IWGS website at <http://www.iwgs.org>

CONTACT: Tamara Kilbane, Executive Administrator  
International Waterlily and Water Garden Society  
[info@iwgs.org](mailto:info@iwgs.org); [tamara.kilbane@botanicgardens.org](mailto:tamara.kilbane@botanicgardens.org)

The International Waterlily & Water Gardening Society (IWGS) is a non-profit organization of multi-national membership dedicated to the furtherance of all aspects of water gardens and their associated plants. The IWGS supports and promotes education, research, and conservation in these areas and serves as the official registrar of Nymphaeaceae and Nelumbonaceae.

# Bob Rumney

## Dunstable & District A.S.

Bob started keeping fish in 1955 with an old white sink containing Goldfish.

Shortly after this, a workmate gave up the fishkeeping hobby and Bob acquired his old tank plus a few other odds and ends. This slowly led to more tanks and by 1959 he had 12 tanks situated in various rooms around the house containing a selection of tropical and coldwater fish. Some of the fish Bob kept in the early days were Guppies, Platies, Dwarf Gouramis, Orange Chromides and Siamese Fighters.

Bob told me once that he had fond memories of his many Sunday visits to Hendon Aquatics on the Green Line underground for a return fare of 2/- (10p).

In around 1971, Bob eventually converted his shed into a space-heated fish house and ended up with 48 tanks. The tanks varied in size from small 12 x 8 x 8 inch to a 48 x 15 x 15 inch that was used for storing water.

Fish of most types were kept and bred, many of which were entered in to the different Shows. Bob won his first cup in 1971 and also took a Best in Show at Boreham Wood. Bob then started entering his fish in a number of Open Shows at the Alexander Palace and Royal Horticulture Hall events when his 4 x 4 inch jars were transported on the back of his motorcycle.

Over the years, Bob has been a member of numerous clubs. In 1957, he joined the St Albans & District AS who used to meet in the Town Hall. In 1966, Bob joined the newly formed Mid-Herts Club and remained a member until about 1986 when the Club folded. Bob has also been a member of the Fancy Guppy Association, and was Chairman of Boreham Wood & District for a while.

Bob has also been a member of the Hemel Hempstead AS, the British Aquatic Study Society, the British Cichlid Association, the Anabantid Association of G.B, the British Killifish Association and, finally, in 1999 he joined Dunstable and District A.S.

He will be sadly missed.



# FIREMOUTH CICHLID

## *Thorichthys meeki*

Most aquarists, whilst keeping many species of fish either tropical or coldwater tend to specialise in one particular group of fish. When I first started I enjoyed keeping as my types, Labyrinth Fish, mainly Gouramies. But, as time went by, I changed to large Cichlids, from South America such as Brown Acara, Blue Acara, Angel Fish, Oscars and Jack Dempsey. Angel Fish Convict Cichlid and an Electric Blue Jack Dempsey I have in my Fish-house today. In fact a Convict Cichlid won me my first ever Table Show at the old Ealing Fish Club and I went on to say "*Cichlasoma nigrofasciatum*" correctly, my first scientific name I remember, but sadly I have not made much progress since!

All these fish were very common in the aquatic shops but, with so many new and more existing fish in our shops today, there is no demand for these species. As well as being aggressive to each other they would attack any other fish you were trying to keep with them, and if that was not enough they would move all your gravel around the aquarium and dislodge any plants you were trying to grow as well!

All these fish could grow to 150mm some even larger, but a smaller Cichlid growing to 100mm or so is the Firemouth (*Thorichthys meeki*) a deep bodied fish with a dorsal colouring of browns and greys with many tinges of blue, often seen in the finnage. Of course, the striking feature is that it has a very red belly and mouth area. When in breeding condition this colouration is most vivid.

Unlike many of the Cichlids I kept that came deep into the South American continent the Firemouth is found in the southern areas of Mexico and Guatemala. Being smaller in size it will be at home in a 3 foot aquaria and as 6 fishes grow on to be adult fish you may well see a couple that wish to pair off, often chasing the rest around the tank.

I feed them on frozen blood worm twice a week and make the rest of the week up with both flake and cichlid pellet food. Water conditions are not critical and a temperature of 78°F will be fine, with some light filtration.

They breed either by the female laying her eggs on a large flat stone or they will blow away the gravel to create a clear view of the glass at the bottom of their tank. The male follows the female fertilising the eggs, with both parents fanning the eggs which hatch in 2 to 4 days.



Once the fry are ready to swim the parents begin to lead them as a shoal. During this brooding period that takes a maximum of 4 to 5 weeks the parents seem not to take any food themselves.

Unfortunately of all the Cichlids, whatever species, the first time they spawn does not seem to work out with any young being raised, however it may be due to becoming more experienced parents subsequent spawning are successful.

There are many manufacturers producing growth food that I have found excellent and with Firemouths feeding is no problem.

Just one word of warning - never, at any time during when the eggs are laid or the young fry become free-swimming, do not enter the tank with a net or any other implement or the parents may well eat either the eggs or the young.

Malcolm Goss

photo: Van den Nieuwenhuizen





The colouration and patterns of the fish that we keep in our aquaria and ponds are in many cases, the things that attract people into the hobby of fishkeeping.

For enthusiasts who show fish, these two factors are also very important in determining the quality and therefore the value of any particular fish.

## *FishScience's David Pool takes a look at what makes and influences our fishes' colours*

Yet our understanding of fish and particularly koi colouration is still a relatively inexact science, with the known scientific facts clouded by theories and old wives tales. In the following paragraphs I would like to have a look at the colouration of fish and help to explain some of the changes you may observe in your own fish.

### **What makes colour**

The colouration of a fish is produced by three colour pigments which are largely contained within cells called Chromatophores.

The 3 pigments are Erythrin (**Red**), Melanin (Black), and Xanthin (**Yellow**) each of which occurs in different chromatophores. Complementing the colour pigments are irridocytes, which are best described as tiny reflective spheres within the skin.

All of the colours we see in freshwater fish are a mixture of these components. For example orange is a combination of red and yellow chromatophores, brown is a mixture of black and yellow and red is just the red chromatophores. If there are no chromatophores the fish will appear white due to the presence of the irridocytes or the background colour of the skin and muscle will show through.



The position of the iridocytes within the skin of the fish will influence its reflective properties. Iridocytes on the surface of the scales will have a silvery appearance such as that found on **Tinfoil Barbs** or **Hatchetfish**. If the iridocytes are in the lower layers of the skin the fish have a matt white colour.

In certain cases the iridocytes can combine with the chromatophores to produce reflective colours. Iridocytes combined with chromatophores containing Erythrin , for example, will result in a shiny gold appearance.



Blue is an unusual colour in fish in that it is a result of black pigment deep in the skin, with iridocytes in the middle layers of the skin. The iridocytes interfere with the light to give a blue colour.

### **Density of colour**

The chromatophores may be positioned on the surface of the skin (above the scales), immediately under the scales or deeper in the skin. If the chromatophores are very dense the colour will also appear dense, with the chromatophores on the surface of the skin blocking those below.

Of interest to Koi keepers is that the position and density of the chromatophores affects the stability of the colour. The colouration and pattern of Koi is known to change significantly as the fish grows, with colour 'patches' appearing and or disappearing as the fish ages. The chromatophores on the surface of the skin tend to be less stable due to them being more easily removed (by rubbing against underwater objects) or spreading as the fish ages and grows. Those deep in the skin are more stable and less likely to break up. The ideal for a Koi is to have dense colour pigments in all layers of the skin as this results in both dense and stable colouration.

## Where does the colour come from?

In general, fish cannot make their own colour pigment therefore they have to consume it in their diet. In the wild these pigments would originate from eating **algae, shrimps, snails** etc. In the confines of an aquarium or pond there is not enough algae or other natural supplies of pigment, so it has to be included in the food that you provide. As with all foods it is important that the colour enhancing food given is of high quality to ensure that the pigments are in a form that the fish can absorb into its body.

If foods containing colour enhancers are not given, the chromatophores may not be filled with pigment and the fish may look pale or poorly-coloured.

When the chromatophores are filled with pigment, any excess will circulate through the body before being passed out in the faeces. Koi keepers will be familiar with this – when strongly colour-enhancing foods are fed over a prolonged period of time the white colouration of the skin can start to turn pink. If the colour enhancing foods are stopped the white colour will return after a few days.

The colour-enhancing ingredients in fish food can be either natural or artificial, but all are a source of the pigments mentioned previously. Natural ingredients which are rich in colour pigments that can be utilised by our fish include krill, spinach, spirulina algae and carrot. It is worth looking for these ingredients in your fish food if you wish to optimize their colouration.

## Aging



Each fish is born with a fixed number of chromatophores, with this number remaining relatively constant throughout its life. As the fish ages and grows, these chromatophores have to cover a larger area of skin and therefore with some fish, there is a tendency for the colour to become paler (due to the chromatophores becoming less dense) or to fragment. Koi again provide a good example of this. Some young fish appear stunning with intense colouration on their bodies. As they grow bigger this colouration fades and may disappear. Buying young Koi from a 'high quality bloodline' usually means you are buying fish which are likely to have more dense chromatophores, resulting in more stable colouration as they grow.

In some koi varieties (eg Showa and Sanke) it is common for the colour patterns to change considerably, with surface colouration fragmenting, revealing a deeper, different colour.

Both Koi and Goldfish tend to become paler as they age. This is a sign of the chromatophores both spreading over the body surface which reveals the paler colour underneath, as well as the cells holding less pigment. In many ways it is the equivalent of our hair turning grey.

## Changing colour

A chromatophore is a very branched cell with finger like projections, within which the colour pigment can be moved. Two extremes are a. for the pigment to spread throughout the chromatophore, in which case the cell is the colour of the pigment ; and b. for the pigment to be concentrated into one area within the cell, which results in the background colour showing through (usually pale or dark). The distribution of this pigment is affected by a number of things.

- **The nervous system and hormonal system.** In some fish species there is evidence that they can control the distribution of pigment in the chromatophores, allowing them to change their colour for camouflage or display, for example.
- **Water quality.** Different conditions can have a marked impact on the distribution of colour pigment. Raised levels of pollutants such as ammonia, nitrite and chlorine tend to cause the pigment to concentrate, resulting in the fish becoming paler or darker. The pH and hardness of the water can also have an impact. Black pigment in koi and possibly other fish tends to spread in harder water, making them appear a more intense black colour.
- **Background colour.** Fish tend to adjust their colour intentionally or unintentionally, in order to be less conspicuous against the background. The flatfish species that live around the British coast are a great example of this, with many adjusting their colour to mimic the substrate. Aquarists who show their fish recognize this and will, where possible, avoid having 'colourful' fish in a pale container. Showing the fish against a black background and with dark coloured gravel ensures they look at their optimum.
- **Treatments.** When added to a pond or aquarium, many medications will result in a noticeable change in the colour of a fish. Adding salt is a good example and, for freshwater fish that can tolerate it, will result in the colouration fading.



- **Algae.** Koi and Goldfish which have lived in an algae rich green pond for some time are usually intensely coloured due in part to the lower light conditions and partly to the impact the algae have on the water.

- **Temperature.** Coldwater fish are usually at their best colourwise in the autumn and winter when the cold temperature causes the pigment in a chromatophore to spread throughout the cell. In the middle of summer when temperatures are (hopefully) hot, the reverse occurs and the fish appear less intensely coloured.

The subject of fish colouration is a fascinating one.

The genetics of any fish plays perhaps the major role in what colour the fish will appear, but there are other variable factors which can have an influence – and which we can adjust. Hopefully this article will have given you some insight into why your fish are the colour that they are – and why that colour can change in some instances.

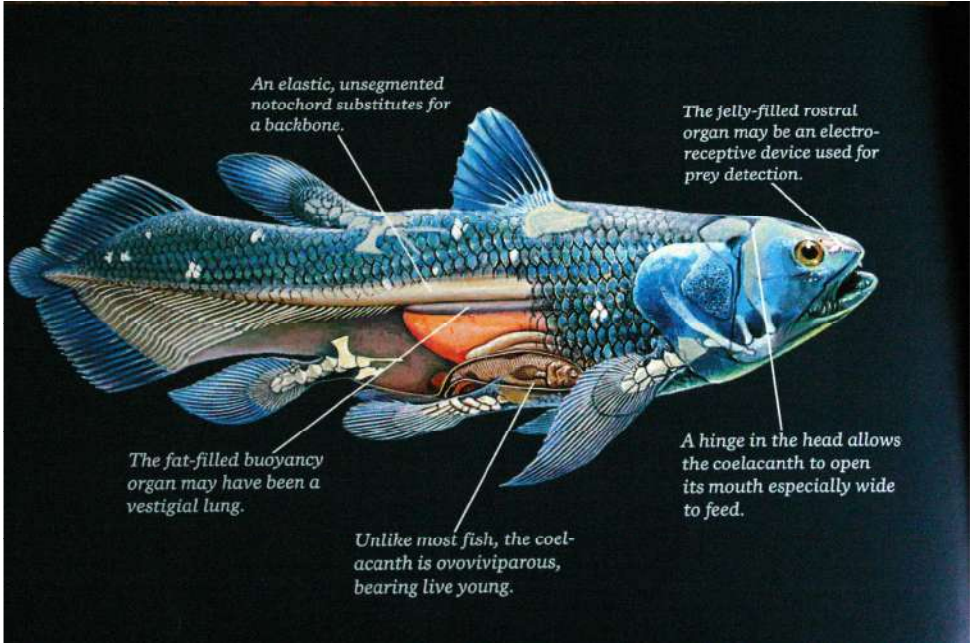
For full information on FishScience Fish Foods please visit:

[www.fishscience.co.uk](http://www.fishscience.co.uk)



# COELACANTHS

## The Fish that time Forgot



Within a past edition of the Bulletin I wrote an article on the Coelacanth, but just recently I came across this updated article by Hans Frickle in an edition of the National Geographic journal.

A "living fossil" over 6 metres in length drifts across the floor of the Indian Ocean off the Comoro Islands at a depth of 168 meters (550ft).

Fossil remains of Coelacanth fish have been identified in deposits dating back nearly 400 million years. No specimen had ever been seen within the last 60 million years. Naturally this led leading scientist to believe that the Coelacanth had become extinct around that time.

Then in 1938 a South African fishing trawler brought a specimen up in its nets, and the hunt for a live coelacanth was on.

In 1987, using a two-man submersible, Hans became the first to find and photograph these bizarre creatures in their natural habitat.

The Comoros Islands are within the Indian Ocean between Madagascar and the east side of South Africa. After 22 dives just off the coast of Comoros the first Coelacanth was seen. It had been 48 years since that first specimen was caught, now it had been seen once again, a live fish that was thought to be extinct some 60 million years ago.

Legendary naturalist Majorie Courtenay-Latimer spotted the first Coelacanth in a trawler's catch at the South African port of East London in December 1938, the fish was mounted and displayed in the East London Museum.

We know from dissected specimens that coelacanths have what is called a rostral organ in their skulls a feature similar to one that Sharks use to detect weak electric fields given off by their prey.



At the time, electric tests on two of the six we saw at the sea bed suggest that the headstands in our photographs are in some way related to electric fields. Coelacanths swim strangely anyway, sometimes backwards as well as belly up.



Hans spent eight hours in all observing Coelacanths underwater, six hours with a single fish. These were found in one two-kilometre stretch off the west coast of Grande Comore, however they may well be others in deep-water areas equally rich in specimens. A question that needed answering was can these fish walk on their lobed fins?



Though Hans observed individuals resting with their fins braced against the sea bed they were never seen walking. For every myth we dispelled, however, I am certain there are a dozen fascinating discoveries to be made. In short, we have just begun to know the Coelacanth.

Hans Fricke



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# *aquatic* Brazil

## Part One

You may have missed out on a ticket to see the World Cup but this article is taking you on a trip through the flooded forest of Brazil starting in Manaus on the central area along the Amazon River.



Whilst within the harbour a young man asked “How do I get to the Rio Negro?” I replied “Go down to the water’s edge, turn right and take the first turn on the right.” “Really?” he said, “how will I know it from all the other turn offs to the right?” I said “You will know when you are there by the dark waters that are noticeable for some 50 miles, where the Negro meets the Amazon.” With a flick of an eyelid, he was gone, lost in the crowds that were rejoining their tourist ships that stop here almost daily.

Once down to the harbour I joined a small crew on a fish collecting trip, it was clear they were locals but the captain did speak a little English. There seemed to be large bags everywhere and, when I asked, it was drinking water. Drinking water can be in short supply even here, in this the most water-rich place on earth. I did not have any idea of what I would be eating or even when I was going to return.

The length of the Rio Negro, from the Amazon River to its headwaters on the high Guiana Shield, via the Rio Branco and Rio Uraricoera is at least 1, 700km. Once moving up stream you cannot miss how dark the water is. Michael Goulding described the Negro as “Rich life in poor Water.”

As it turned out I could make the Captain understand me pretty well and when I described *Corydoras adolfi* he knew the fish well, however it is found in an tributary to the north of Sao Gabriel, Rio Tiguie that is many miles away, but we will get there he said. We had passed many islands both to the left and right made up of sand banks with tall palms (*Leopoldiana pulchra*) reaching almost to the water’s edge.

The Captain said that to the left we were near to the tributaries of the Rio Jau and Rio Unini in both we will find small catfish. Further up the Negro to the right is the Rio Branco the only white water river running directly into the Rio Negro and we will catch Discus there. I asked could we pull into the two small tributaries first. "Yes" he said and we will tie up for the night. I was told we have now entered the Jau national Park (JNP).



Next day three of us took our small outboard motor boat and started entering the Rio Jau, it started quite wide but within a couple of hundred metres the banks closed in mainly from overgrown vegetation. Now it was time to use a paddle to make any headway.

I was told these shrubs bear wild figs and, when over-ripe and fall into the water encouraging Heckel Discus who like to feed on them. However after trawling with our nets we never caught one fish.

After re-boarding our main boat we made our way up stream and entered the Rio Unini. Here waiting on the bank a small group of natives with a large square plastic container, the Captain said they seem to know when we are coming and I give them money for the fish. Along with others we will be collecting, we can then sell them to an exporter in Manaus to pay our wages.



In the box were 35 Heckel Discus, these are very distinctive being mainly blue over all the body, but what makes this Discus stand out from others is it has bright blue colouration over the area of its head.



We netted an area some 300 meters up stream and came across *Corydoras burgessi* - about 50 in one catch! A very similar Cory to *Corydoras bicolor* however it has a much longer snout and *C. burgessi* is very much rounded.

We then pulled out of the Rio Unini and made for the Rio Branco, this taking us to the middle and upper Rio Negro. I was told this is the only white tributary that enters the Negro and is totally within the Amazon Basin. With a low pH and high content of humic acids in the Negro, add a flocculation of fine silt. All this injected at the mouth of the Rio Branco along with rocky outcroppings making the Negro described as "slightly contaminated distilled water".

We netted a large area of the mouth of the Branco and came up with *S discus* a quantity with blue colouration and one blue-headed as found in the Rio Unini, all caught within the black waters. Once further upstream I had a go with a hand net and came up to my delight two puffer fish (*Colomesus asellus*) however my excitement was soon squashed by our Captain who told me they are plentiful in these waters!

Ref: Heiko Bleher *Bleher's Discus voll* Leal Carvalho *Rio Negro*  
E.C. Ferreira               "  
M. Goulding  
Werner Seub *Corydoras*  
Dahne Verlag               "  
Tom Sterling *The Amazon*

# YOU'RE BANNED!



**Water Fern (*Azolla filiculoides*)**

**Parrot's Feather  
(*Myriophyllum aquaticum*)**



**Australian Swamp  
Stonecrop  
(New Zealand  
Pygmyweed)  
(*Crassula helmsii*)**

**Floating Pennywort  
(*Hydrocotyle  
ranunculoides*)**

**Water Primrose  
(*Ludwigia  
grandiflora*)**

A little late but just to remind members that these pond plants are now banned. A sales ban on some aquatic pond plants came into full force in April which will stop the trade in these five invasive species.

The ban means all retailers in England must stop selling these plants or face a fine of up to £5,000 and/or up to six months in prison. Retailers have had a year to adjust to the ban. These plants have been identified by DEFRA as posing a significant risk when they escape into our native waterways.

Apparently Water Hyacinths have come under fire in recent House of Commons' evidence sessions by the Environmental Audit Committee. This group of MPs is examining invasive species in the UK and other pond plants - including Water Hyacinth and *Lagarosiphon* are coming under increased scrutiny.

# WATCH OUT! HYGROPHILA'S ABOUT!

Our President, Dick Mills, found out that plants can be just as big a nuisance inside our tanks too!



*Hygrophila's* a wonderful space-filling plant easily propagated by simply re-rooting cuttings or, if you're the real lazy type, just let a single leaf float on the surface until a root is thrown out, if you can't be bothered to lift a pair of scissors. However, it needs to be watched as it can get very rampant.

Its 'woody' stems reinforces the fact that it's a plant which is just as happy to flourish above the water as below where it will produce 'hairy' leaves and a purple flower if given the chance.

I had been more than happy with its floating bright green leaves at the top of my cube-shaped Juwel tank but couldn't understand why the back of the tank was so dim, until I lifted the rear flap of the tank and had to peel back the plant growth from all over the rear T5 tube to let its light penetrate the tank below!



The London Pet Show is an ideal opportunity for everyone to see what's the latest in the world of pets and, of course, the Federation is keen that fishkeeping gets fair exposure in this annual 'shop-window.'

Thanks to Rolf C Hagen we are able to talk directly to the fish hobbyist and spend a little more time with visitors than otherwise would be practicable on a 'product exposure' display. The Federation team was ably led by Chairman, Joe Nethersell, and included members of Hounslow & District A.S.



Playing a big part in attracting visitors, a magnificent pond and associated patio area not only presented an outdoor aquatic experience but also provided the public a welcome chance to take the weight off their tired feet!

Hagen's new look presentation was simply stunning, with various aspects of fishkeeping – from coldwater to marine, and junior tanks to built-in aquascapes all playing their part.



All tastes and interests catered for. Thankfully, no one asked us how to get their Guppies that size!



Both the marine and *Betta* aquarium displays proved popular.



Up close and personal with the reptiles.

Oh, yes, there were fishes too .....





A talking point here, was the inclusion of Silver Birch branches as tank decoration.

All in all, if nobody new took up fishkeeping as a result of this superb exhibition then we'd all better take up knitting instead!

# Gone Fishing?

Many aquarists travel to faraway places these days but, whether you are in the Far East, Africa or South America (even Mexico has many fishes of interest), travelling overland to reach lakes and rivers can be quite tricky.

One thing is for certain, you have to be physically fit. It's not the same as running the London Marathon where you have a good idea of what you are going to face. Conditions in flooded forests or on a river bank can be quite different.



While you won't be too happy to meet a Black Caiman, at least you will see it, even if it's the last thing you see. Spiders are different thing altogether, and a Toad in the Hole in the jungle is not quite what mother used to make.

A much safer method is to take a trip to the local market and you will see exactly what local fish are in the local rivers or lakes.



Take a couple of pictures to show your mates back home, down at the pub, or your Fish Club, and tell them "look what I caught". The only danger you will be in, is if you leave the price tag on!

## The Happy Traveller

Photos: Black Caiman Michael Freeman  
Toad Dr. E. S. Ross  
Market Fish Peter Woodward



# Laguna

Beautifully simple water gardening

## Water Gardener's Calendar

Here's a "month -by -month" of tips to make sure your water garden keeps in good condition during the next three months. We thank the team at Rolf C. Hagen for their help and tips that, with the aid of Laguna Water features and products, will not only make your pond more easier to maintain but look fantastic.

### JUNE

Now is time to check your pond pump, filter and UV equipment.



Look out for serious algae problems now that the water temperatures are high and the sun shining on your pond for most of the day. Green water and Blanketweed occurs in most ponds (it has already started in mine and it's only April) and can persist throughout the summer if you don't take control.



A UV steriliseR can effectively clear green water. It also has some control over filamentous (string) algae by killing the spores and floating material.

UV systems should be checked regularly, but not only changing the UV light lamp, but removing the quartz glass sleeve that surrounds the lamp.

This must be done most carefully as the tube is easy to break; it can be a good idea to buy a replacement at the same time you buy the UV lamp; if you do not break it when cleaning, you will have it in stock for the next time!



Water treatments are also an alternative. Laguna Clear Fast is an approved algicide which clears green water by clumping the microscopic algae together so they sink to the bottom of the pond and are drawn into the filter. Algicides are used as spot treatments or, for a more sustainable treatment, use Laguna Phos X that eliminates phosphate, nitrite and nitrate, so starving algae of nutrients all summer and so helping you remove any traces of Blanketweed.



Many aquatic outlets will sell you small bundles of Barley Straw, these will break up in time and if not cleared will look messy in your pond. Using Laguna Barley Straw Pellets, which use an enzymic action, will clear your pond naturally and without any mess.

Constant topping up of water, due to evaporation during hot summer days can build up unsafe chemicals, not only Chlorine and chloramine but also nutrients such as nitrates and phosphates. Laguna Water Test Kits are so helpful in checking the exact condition of your pond water.



Fish will actively feed any time during summer days, and tempt you to throw in a bit more food whenever they see you. However, remember that what goes in one end comes out the other and this can over-work your filter and cause frothing around where water returns from the filter or waterfall.

## JULY

As the summer days pass, clean the filters and check the pond pump for signs of slowing down – slow water flows indicate dirt in one or both pump and filter. This is a messy job, and wearing pond or surgical gloves is a must to protect your hands and arms, more so if you have any cuts in your skin.



After cleaning the filter medium (sponges etc.) dose these with Laguna Bio Booster, this will help quickly restore a biological balance, thus allowing your filter to do its job naturally and quickly.

With the pump it just needs a quick rinse with the jet from a hose pipe and all will be well.

Both marginal and fully submerged aquatic plants grow very fast, so these must be kept under control or their eventual removal from the pond will need the help of a JCB! On the other hand, you may have plants that are making no progress, but a quick dose with Laguna Plant Grow will overcome any problems that inhibit ongoing growth.

Care must be taken if you use any fertilisers within your garden that may drift or even get washed into your pond by sudden heavy rain showers. High nutrient conditions can be reduced by changing up to 20% of your ponds water. Acidity / alkaline levels can also be corrected using Laguna pH Adjuster-up and pH adjuster-down.

Remember fish are opportunistic feeders - they don't know when more food is available so will never stop eating as long as you keep feeding them. One sees to many fat and bloated fish in ponds at this time of the year. In the summer many insects that swim both on the water surface or within your pond water get eaten by your fish.

## AUGUST

Keep your pond water topped up at this time of the year. It can go down quickly due to hot weather and evaporation is high with both fountains and waterfalls running. Marginal plants will need cutting back a little if their growth gets too tall. Also cut off dead flower heads to help new flower buds to open. Cut away any dead Water-lily leaves and also flower heads. If you have far too many lily leaves you could also cut some of these out as well, letting sun light get to the crown of your plant and encourage new flowers to thrive.

Floating plants such as Duckweed and *Azolla* grow rampant and in no time quickly cover the hole of the water's surface, these need netting out at least once a week to keep it under control.

During very hot sunny days the oxygen levels become very low, so not only have your waterfall running and fountain working, but make sure they are clean and running at their best. Rampant plant growth also poses a threat at night-time, when the plants actually take oxygen from the water rather than producing it as they do in daylight. This accounts for all those dead (suffocated) fish found floating in the mornings, especially after thundery weather.

Also this is not the time of year to get tempted into buying more fish as an overcrowded pond soon brings lots of problems in hot weather.

If you are going on holiday, don't leave the neighbours with that tub of fish food, as they are more likely to over-feed your fish more than you are. If you are concerned about hot weather while you are away, purchase a small air pump and with the electrics safe from any rain have it running till you get home. You will be surprised how good your fish will look when you return by just leaving them to themselves!

"Have a good time".

***Thanks to Rolf © Hagen and Laguna Products***

## FISH CONDITIONING



Consider for a moment your fish in the same category as your car. Are they in show-room condition or are they well past their sell-by date? Are they non-starters for a trade-in or are they vintage jewels and priceless family heirlooms?

Their condition depends on nothing more than you - and how you treat them. Maybe we should continue the motoring analogy and carry out an MOT tank test on them to assess their 'tank-worthiness'.

Naturally when you first see your fish in the dealer's tanks you put them through a selection process: are they compatible for your present (or intended) collection? Are they healthy? Can you afford them? If they pass this initial scrutiny and end up in your aquarium at home then their future wellbeing depends entirely on your actions.

Fish are three basic requirements - **space, food and good water management**. Provide them with these and most of your troubles will be minimised right from the start.



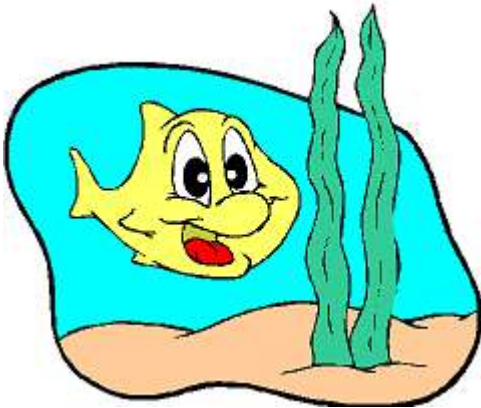
Space is important for several reasons. It contributes both to the fish's health directly and also indirectly to its sense of security: space provides both swimming room and hiding places thus allowing the fish to develop its natural characteristics; a shoaling species will find much more happiness in amongst its fellow fishes whilst the shyer (or nocturnal) fish can hide away whenever it needs to escape the daily hustle and bustle of the community tank.

Newcomers to the hobby are often surprised by the fact that the more hiding places they provide for the fish usually means they see more of the fish than they did previously!

Having a large volume of water also helps the fishkeeper too, by maintaining optimum conditions for longer periods as against the 'forever water-changing' regime required of the smaller tank. Any lengthening of the period between 'aquarist-hands-in' actions mean less potential stress time for the fish.

Obviously a continuous supply of food is essential for fish if they are to grow, thrive and show off their expected colours and natural behaviour. Fortunately, there is a wealth of nutritious fish foods available to suit literally all tastes, so no fish should ever go hungry! However, it is important not only to provide the food which each species requires but also in the correct presentation mode. Give a fish the right food in the wrong form (or at the wrong time) and it will never benefit from the food, however nutritious. Surface feeders need floating foods, bottom-dwellers need fast sinking foods and nocturnal species want food at different times of day (whoops, surely that should that be 'night'?) to daylight fishes.

Underslung mouthed and long-nosed species have different methods of gathering foods so make sure you cater for each type of fish correctly. If you're enamoured with fish needing live foods then it's important to maintain the supply lines by keeping any cultures up to date.



We've touched briefly on tank furnishings to provide sanctuaries and a sense of well-being for the fish but you should also bear in mind whether any of furnishings themselves might be detrimental to the fish either directly or indirectly.

Rockwork is an ideal way to create dramatic underwater scenery but any materials used should be safe. Wonderful 'rockscapes' can be made with slate as it's an easy material to work with but, sometimes, because it

can be split so easily it can result in very jagged edges. Such edges can cause damage to fins and/or scales - just think of a fish trying to alleviate an 'itch', rubbing against a slate would cause more trouble than the fish had hoped for! (Incidentally, 'safe' rock also infers that it is inert and won't dissolve out any substances to adversely affect water conditions.)

Similarly, another underwater threat can be aquarium plants. Trying clearing out some mature Water Soldiers from a pond without hand protection and you'll wonder how any spawning Goldfish came through the experience literally unscathed.

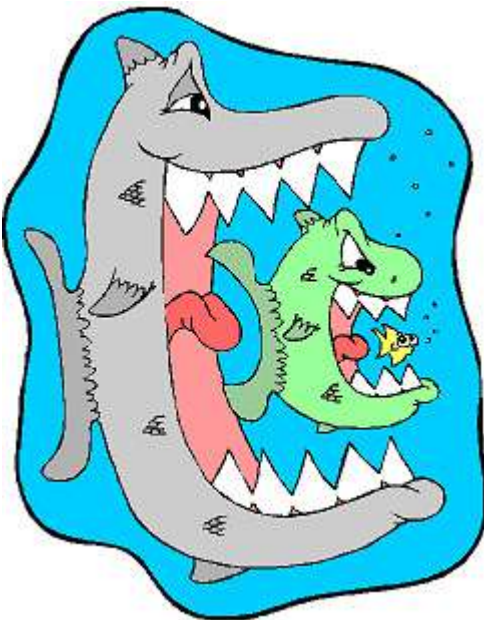


In-tank equipment can also provide a hazard. Catfish are notorious for resting up during the day - and guess where the stupid things like to do it? That's right, they perch on the heater! Thankfully, most modern 'system aquariums' have their associated hardware tucked away in internal compartments (or better still, externally in a cabinet underneath the tank). The moral is clear, keep any 'dangerous' equipment separated from the fish as much as possible.

Of course, the major contribution to fish health, and by inference, to the fish's external appearance and behaviour is water quality. Let the optimum conditions slip a bit and the fish immediately becomes subject to stress which, in turn, opens the door to the contraction of disease and all the repercussions. It would be nice to think that every hobbyist had a duplicate tank on constant standby as a hospital tank which replicated the best conditions of the main tank wouldn't it?

Most hobbyists now respect the importance of water quality and regular water changes, the use of test kits and the discipline to do the work means that any required set of water conditions can be maintained without too much bother. Learn to observe your fish for 'stress' signals - fading colours, clamped fins, unnatural behaviour, lack of interest and you can usually be sure that something's wrong with their environment - and that means the water.

So, you've done all the right things and yet your fish look untidy and ill at ease. Compatibility (or not) could be the root of their problems.

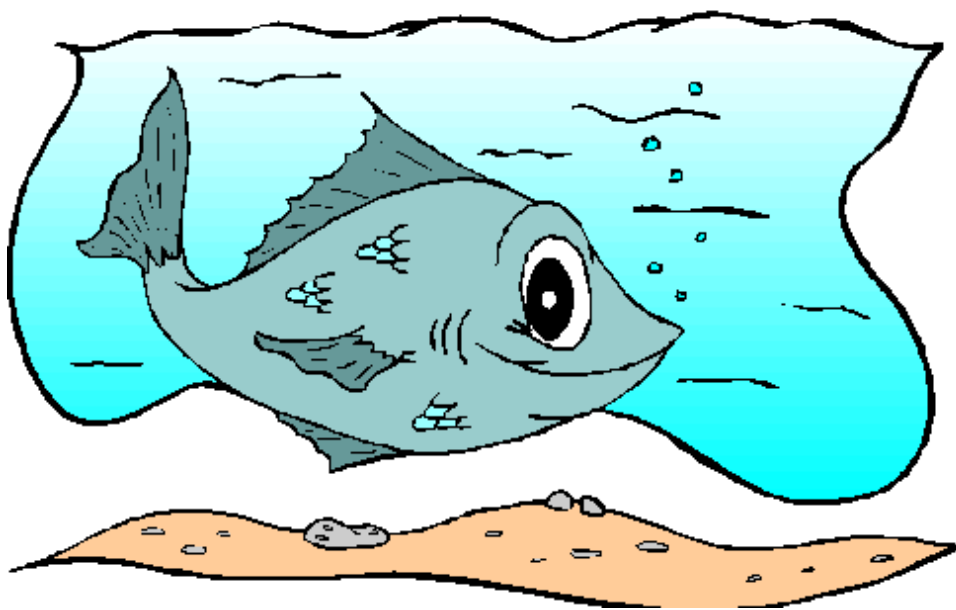


A favourite 'fault' is split fins. In itself not especially life-threatening but it could be another open door to disease. This physical damage may have unsuspected causes.

Bullying by other, larger fish is often the case; slow-moving, long-finned fish are often targeted by more boisterous fish - the fins of Gouramies and Angels might be attractive to Barbs or Dwarf Cichlids. Conversely, a shoal of fish may show up split fins due to numerous males all showing off or threatening each other as they compete for a female's favours. Just think of broad-tailed Guppies constantly bragging about their good looks and you'll get the picture.

Attacks often occur at night when the victim species is resting. Many a *Corydoras* has lost finnage overnight to a predatory ----- Tetra. Speaking of *Corydoras*, the main cause for complaint about this species' 'condition' is generally directed at its loss of barbels around the mouth. Again, this may not be the fish's fault (or of any other for that matter); wrong choice of substrate is usually to blame. If the substrate is not of a 'soft' composition then the fish's digging action in search of food will result in the barbels being literally worn away by the sharp gravel. Again, barbel damage can also be caused by bacteria in the substrate; keep the substrate raked over to prevent caking up and anaerobic areas occurring.

Finally, a brief word on what most readers thought this 'conditioning' article was really going to be about! A fish in condition is often taken to mean one that is ripe for breeding. In fact, if you take the whole contents of this article to heart, that's what your fish will probably end up like anyway, so we've arrived at the right conclusion perhaps by an alternative route.



Conditioning fish for breeding simply means giving them the best of everything for a period of time before you put the two previously-separated sexes together for spawning. Apart from the benefits of space, food and good water conditions, hobbyists also work on the 'absence makes the heart grow fonder principle' so that when the two sexes are reunited there is simply no way that they won't spawn. Oh yeah? Maybe they haven't read this article!



## **Festival of Fishkeeping 4<sup>th</sup> & 5<sup>th</sup> October 2014**

**Hounslow Urban Farm,  
Faggs Road,  
Feltham,  
Middlesex TW14 OLZ  
([www.hounslowurbanfarm.co.uk](http://www.hounslowurbanfarm.co.uk))**

### **Festival Updates - March 2014**

As is the Federation's policy, each new Festival simply has to be different from the previous one with new attractions wherever possible. This year, it is the exhibitors who may 'Spot the Difference' more easily than the casual visitor.

A theme for this year will feature three distinct displays for **Livebearers**, **Bettas** and **Killifish**. These displays will be on show for the whole two days of the Festival and exhibitors will be asked if they wish to sell their exhibits at the end of the Show.

The Festival Open Show to be held on the Saturday will, therefore, lack Classes **N o-t, O, P, Q, R, S, T** and **X o-t, Ea** and **F**, but still feature the main basic Classes and the traditional 'splits' in **Characins** and **Cichlids**.

The two Nano and Society Furnished Aquarium Competitions will be featured as in previous Festivals.

**The Family Pet Day**, details of which you may have read earlier in this issue, will also be a new feature at the Festival.

Finally, it is recommended that Exhibitors and visitors to the weekend again use the **Travelodge, Sunbury, Hanworth Road, Sunbury On Thames, Middlesex TW16 5DA**

To obtain reservations, bookings **MUST BE MADE ONLINE** via the Travelodge website – [www.travelodge.co.uk](http://www.travelodge.co.uk)



## Instant success for FishScience pond foods

The FishScience range of foods were launched in April and proved to be an instant success with pond owners and, more importantly, their fish.

‘The unique recipe and small stick size is eagerly accepted by all pond fish’ explained Dr David Pool of FishScience. ‘When developing the range we were looking for a high quality food that the fish liked and which provided them with a nutritionally balanced diet’.

The 3 foods that are currently available are:



FishScience  
Everyday Food



FishScience  
Variety Pond Food



FishScience  
Pond Flakes

The Everyday and Variety Pond food are manufactured in a special short stick format which softens quickly and is also small enough to be consumed by any fish over 8cm in length. The food sticks are made to a special recipe developed by Dr Pool and in common with the rest of the FishScience products, the foods contain natural colour enhancers and ingredients to boost the immune system of the fish – ensuring they remain as colourful and healthy as possible.

The FishScience Pond flakes are a high quality flaked food which provides a complete balanced diet for all smaller pond fish – and again it contains the natural colour enhancers and immune stimulants.

The Everyday and Variety Pond Foods are available in 225g, 1250g and 2500g re-sealable bags, with prices starting at just £3.85 for the smallest bag of Everyday Fish Food. FishScience Pond Flakes are available in 100g and 200g drums costing £5.45 and £8.45.

Details of the stores stocking FishScience foods is available on the web site [www.fishscience.co.uk](http://www.fishscience.co.uk)

# EVENTS DIARY 2014

(full details can be found on FBAS website [www.fbas.co.uk](http://www.fbas.co.uk) )

Gt MANCHESTER CICHLID GROUP Auction		01/06/14
PORTSMOUTH A.S. Open Show	(H, U)	01/06/14
STAMPS Open Show & Auction	(Ba, T)	01/06/14
FBAS ASSEMBLY		07/06/14
BRACKNELL A.S. Open Show	(P, Cb) <b>M</b>	08/06/14
YAAS Open Show		15/06/14
HOUNSLOW & D.A.S. Open Show	(Da, Q) <b>C</b>	21/06/14
OASIS Auction		22/06/14
CORBYS & D.A.S. Open Show	(Dc, O s-y) <b>E</b>	29/06/14
SCCRS Open Show		06/07/14
CASTLEFORD A.S. Catfish & Loach Show		13/07/14
PORT TALBOT A.S. Open Show	(Ca, Mc) <b>H</b>	17/07/14
N.E.YORKSHIRE GROUP, BKA Open Show		20/07/14
SOUTHERN COUNTIES CICHLID GROUP Convention/Auction		20/07/14
TTAA Fish Only Auction		27/07/14
LEICESTER A.S. Open Show & Auction	(D, V) <b>G</b>	03/08/14
ASAS Open Show	(Db, J) <b>T</b>	10/08/14
FRIENDS OF YORKSHIRE A.S. Open Show & Auction		10/08/14
PERTH A.S. Open Show & Auction		10/08/14
THREE COUNTIES Open Show		17/08/14
CASTLEFORD A.S. Night Auction		20/08/14
NORTH EAST FISH FORUM Auction		24/08/14
FBAS ASSEMBLY		06/09/14
THREE-RIVERS Championship Show & Auction	(B, L) <b>Ba</b>	07/09/14
FSAS Auction		14/09/14
WEST LONDON BKA Auction		21/09/14
Gt MANCHESTER CICHLID GROUP Auction		28/09/14
FESTIVAL OF FISHKEEPING Hounslow Urban Farm	(Ha, K) <b>W</b>	04/10/14
DERWENTSIDE Auction		12/10/14
SAF		19/10/14
STAMPS Auction		26/10/14
BRADFORD A.S. Open Show & Auction		10/11/14
A of A / SCCRS Auction		16/11/14
CASTLEFORD A.S. Night Auction		19/11/14
OASIS Auction		23/11/14
FBAS ASSEMBLY		06/12/14

**SOUTHERN COUNTIES CICHLID GROUP**  
in association with the  
**BRITISH CICHLID ASSOCIATION**



**SPRING CONVENTION 2014**  
**Sunday 20th July at**

The Scout Hall, next to St Peter's Church,  
St Peter's Road, West Molesey, Surrey KT8 2QE  
10am to 5pm

**Speaker: Dr Martin Genner**

& Auction of Cichlids  
and related items.

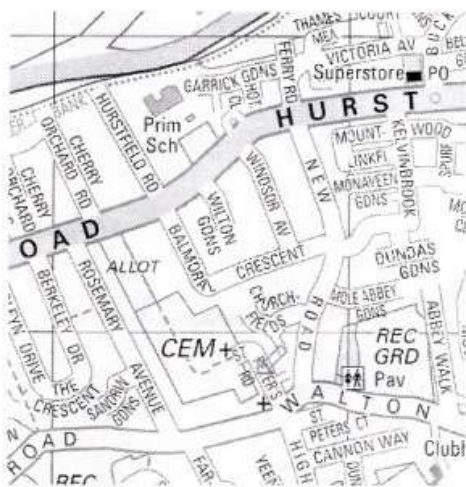
Entrance Fee:

BCA members £3.50

Non-members £5.50

Refreshments and  
Light Meals will be  
available.

Auction Lots can be  
delivered from 9am.



For further event information and **TO BOOK LOTS** please contact:

[publicity@britishcichlid.org.uk](mailto:publicity@britishcichlid.org.uk) or call 07427 844857

Lots need to be submitted by 11th July 2014

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