



FEDERATION OF BRITISH AQUATIC SOCIETIES

BULLETIN

Autumn 2010

www.fbas.co.uk



NEWS, VIEWS & ARTICLES
by FISHKEEPERS
for FISHKEEPERS

Tetra

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



BULLETIN

September 2010

Contents

EDITORIAL	4
OUT & ABOUT: AQUAJARDIN SOUTHAMPTON	5
ALLERGIC TO FISH FOODS?	9
ASK US – WONKY WATERFALLS	13
FOOD PRODUCTION	14
CARNIVORES: <i>Pseudacanthicus</i>, <i>Scobiancistrus</i>	19
ANTS IN THE ...?	23
THE FUTURE OF FILTRATION	25
GREEN CORNER – FLOWERING AQUATIC PLANTS	30
KNOW YOUR FISH – <i>Simpsonichthys magnificus</i>	33
A RECIPE FOR ANGELS	34
BREEDING <i>Nothobranchius rosenstocki</i>	39
2010 NEW OR UNFAMILIAR SPECIES	40
PASS THE SALT	42
DREAM FISH?	44
FESTIVAL of FISHKEEPING & FBAS ANNUAL DINNER	48
LOCATION, LOCATION, LOCATION: RIO NEGRO - Part 2	54
ASSEMBLY MENU	59
KEEP ON TOP	60
SHOW DATES	62

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



www.fbas.co.uk

EDITORIAL

Where has the year gone? We hardly got over congratulating ourselves on our fully-packed first two issues when suddenly, like the current English summer, we hit a drought of articles and it's time for the September edition.

Luckily, we're pretty inventive and also have the added bonus of receiving magazines from our Antipodean friends in New Zealand and Australia. We've one or two unusual articles reflecting different aspects of the hobby that you might not have appreciated before.

We're also looking forward to this year's Festival of Fishkeeping where we hope, once again, to have one or two new attractions for you. Personally, I can't wait to see the Residents' Furnished Aquariums alongside the familiar Society entries – will the public vote for the Societies' tanks vary much from those VIP votes for the resident's entries? We shall have to wait and see.

It remains to be seen if Peter Anderson and I can find enough time to furnish some 'bio-topo tanks' so that you can see just what fish and plants actually live together as in their natural homes, before we expose them to all those Mermaids, sunken Treasure Chests and coloured gravel!

Finally, don't forget to let me (and the readers) have your news and views in time for the December issue!

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

OUT & ABOUT:

AQUAJARDIN, Southampton

With Aquajardin supporting this year's Festival of Fishkeeping, it seemed a good idea to make a visit to discuss their practical ideas for the Show and also take a look around their premises at the same time.

This report is brought to you by the combined talents of Bulletin Editor, Malcolm Goss, together with Dick Mills and Peter Anderson.

Of Aquajardin's three outlets – in Newent, Gloucester and Southampton – perhaps the Southampton branch may be considered as HQ. We met up with Samuel Baker who gave us a most comprehensive tour.



The first impression of the premises is its outstanding presentation and simplicity in layout and confidence-inspiring exhibits.



The fish display centre was very well presented and there was no difficulty in reading the very informative labels for the wide range of species on display, which ranged from the popular to the far more 'exotic' both in size and price. Prices started at around £1.99 (with discounts for bulk orders!) up to over £44.00 for some catfish.



Some of the fish on display (clock-wise from top left): *Apistogramma* sp, Electric-Blue Ram, *Nothobranchius rubripinnis*, *Iriatherina werneri*, *Garra flavatra*



Not to be outdone, this main furnished aquarium – the focus of the dry goods area – featured excellent plants, notably the magnificent centrepiece formed of *Pogostemon erectus* (right).



Moving outdoors, a number of well-designed ponds (both formal and informal) were surrounded by water features, pond plants and pond filtration systems.



Inside the store, discussions were going well and we can predict a very attractive Aquajardin presence at this year's Festival of Fishkeeping.



Things that caught the eye on the 'What's New?' front included a miniature over-tank LED lamp that consumed an enormous 1.6 watts of energy, BiOrb's newest large (105 litres) aquatic sphere and two very affordable starter aquariums from Aqua One.



We take this opportunity to thank Aquajardin for their hospitality and time spent with us during our visit. Come and confirm our views of their expertise and knowledge at the Festival.

Aquajardin Southampton can be found at

Arturis Garden Centre, Allington Lane, Fair Oak, Near Eastleigh, Hampshire SO50 7DE

Tel: 023 8069 6970 Email: salesfair oak@aquajardin.co.uk

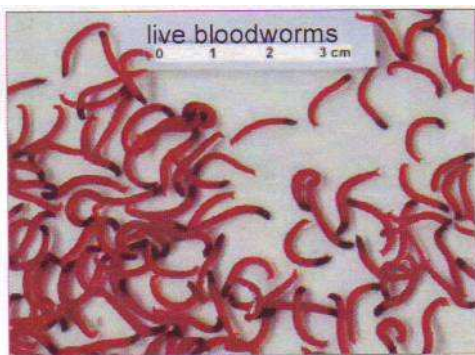


DON'T FORGET, THERE IS A WEBSITE, HOSTED BY Dr DAVID FORD, ESPECIALLY DEDICATED TO THE FESTIVAL OF FISHKEEPING

www.festivaloffishkeeping.co.uk

ALLERGIC TO FISH FOOD?

I received an email from Dominique Hawinkels (KMAC) recently. He said that he had been suffering from severe hay fever but thought this very strange as he did not usually suffer from this. He had very sore, swollen eyes etc. He then realised the symptoms were coinciding with him using frozen and freeze-dried bloodworms. A quick search on the Internet discovered multiple references to bloodworm allergies. Dominique would feed his fish then wipe his face somewhere near his eyes, or get dust in them from the freeze dried container. Within minutes his eyes would itch and start watering. Later they would swell and get gritty.



From my research, it looks like he was lucky. Some have reacted so violently they have gone into anaphylactic shock and almost died! Here are comments from many sources, relating to problems after using bloodworms:

► Last night I was cutting a frozen have them block square portion of bloodworms up with scissors and a half hour later my index finger was swollen up two times its size. Other places I had touched, like my other arm, my neck, etc. were itching like crazy. If the package in the freezer isn't sealed I can't even open the door to the freezer

► The flat packs of them don't bother me, I have used them for a couple years and just hold the bag while I snip off pieces inside with scissors they never come in contact with my skin. This time I had to get the pre-portioned cubes. I split it between my two tanks and had to hold onto it while I sawed off pieces with the scissors. I guess I should just plop the cubes in a shot glass with tank water and let them defrost and then distribute to the tanks.

► I wondered why a few minutes after feeding fish, I had sneezing episodes and constant runny nose, plus some coughing -for an hour after feeding my fish. Finally I isolated freeze-dried bloodworm as the cause.

A real shame as all my fish love this food, and it has great nutrition for them.

I have found the allergy progressively getting worse -originally a slight runny nose, but had a bad reaction this morning, finding my airways constricted and harder to breathe. So, after some research found how serious this can be, I have binned the bloodworms.

► The worst ones are the freeze dried. If I get a whiff of those I'm in trouble. I cannot see at all. The frozen ones are fine as long as I don't touch them.

I have them broken into small pieces in the freezer and when I need some I just use a spoon to scoop out what I need. If I let them thaw on a plate then feed them I am in trouble without even touching them!

► Medical scientists have described an allergen found in bloodworms that may affect fish keepers. The paper, published in the Journal of Investigational Allergology and Clinical Immunology, describes the case of a patient who became ill after feeding bloodworms to his fish. His symptoms, which included a rash, rhinoconjunctivitis (a combination of rhinitis and conjunctivitis), breathlessness and difficulty swallowing, led to doctors trying to determine the cause of the allergic reaction. After investigating a number of other allergens, ranging from mussel, squid, house dust and dust mites to prawns and mosquitoes, the study eventually revealed that the man was allergic to Chironomid midges, and their larvae - bloodworms. The study says that Chironomid allergies are rare and are only seen in those who handle bloodworms used for fish foods.

► I'd been having sneezing fits with runny nose, watering/itching eyes, itchy and scratching chin and neck and wheezing breath when I had often been near my aquarium! Finally noticed that the symptoms started about 5 minutes after feeding my fish freeze-dried blood worms.

► I spent last Saturday night in the emergency room in a state of anaphylaxis. Bloodworms were the culprit and had I done a little research, I never would have risked it. I'd just come home to a new batch of fry and needed to mix up some fry food pronto. My usual method of doing the non-frozen/ fresh fry food is to dump some high-quality flake food, freeze-dried brine shrimp, and freeze-dried bloodworms into a small Ziplock bag and crush the contents into oblivion.

This method makes a nice powdery dry food to supplement the frozen/live baby brine shrimp, egg yolk, etc. I'd never had a problem with this method though in retrospect, I started having some allergy problems about 4.5

years ago when I started breeding/keeping guppies. This is what happened last Saturday:

My husband thoughtfully purchased for me a mortar and pestle to use in grinding up my "dried baby mix." I dumped in the above 3 ingredients and went to town grinding them. Within 30 seconds, an allergic reaction set in that almost killed me!



freeze dried bloodworms

It started with me sneezing about 20 times. Then my eyes immediately swelled shut. After that, my throat began to close and I had trouble breathing. I was getting really scared at this point. My husband kept saying, "Do you want to go to the emergency room?" and I kept saying "no" because I HATE hospitals. Within a couple of minutes, it was so hard to breathe that all I could hear was a whistle

when I tried to inhale and little black spots were appearing in my vision.

At this point I nodded yes to the emergency room question. Hubby did about 70mph on the 3 mile trip to the hospital, running every red light on the way. Breathing was getting even harder and tears were running down my face because I couldn't get enough air. We pulled up at the ER and he dashed inside to get a wheelchair for me. The last thing I remember was thinking "I'm not going to make it" and I got out of the truck and walked inside to the ER where someone put me in a chair and tried to take my BP. The next thing I know, I'm on a stretcher with an oxygen mask and a doctor and nurses are standing over me. There's blood all over my arm, the bed, my blouse, and my shorts where they put an IV in me. I'm breathing pretty good and feeling a bit jittery from the shot of adrenaline they gave me. My oxygen level had hit the twenties by the time they'd given me the shot. My blood pressure had spiked to 212/145 and then started to fall fast. The doc told me that if I hadn't gotten to the ER when I did, I could have died. Just breathing in the dust from dried bloodworms when you feed your fish can cause this sort of thing, even if you've never had such a reaction to anything like this in your life. Me powdering the things in the mortar/pestle seriously compounded that problem.

My advice to anyone who reads this is to NEVER grind up freeze-dried bloodworms if there's a possibility of you inhaling the substance. Keep them in the Ziplock bag if you do it.

I also discovered that the allergy problems I'd been experiencing for the past several years completely went away when I removed the bloodworms from my house. At the very least, wash your hands after handling them - freeze-dried or frozen.

Final Thoughts

So, there you go. Pretty scary huh? Some people seem to be able to use frozen but not the freeze dried but apparently that doesn't last long. Several people also noted that before developing this allergy they had no allergies at all but now suffer from dust allergies and hay fever and they suspect their development to be directly attributed to the initial bloodworm allergy

I am sure the majority of fishkeepers have no trouble with Bloodworms and can handle them with no problems but some may have been reacting mildly, as Dominique did, without realising that Bloodworms may possibly be the culprit.

If you realise, after reading this, that you are one of those who have a problem with Bloodworms, I would be interested to hear from you.

Caryl Simpson Marlborough Aquarium Club

caryl@simtronics.co.nz

References: www.myfishtank.net;
www.aquarist-classifieds.co.uk
www.guppies.com

reprinted with permission and thanks from AQUARIUM WORLD May 2010
Official Journal of the

FEDERATION OF NEW ZEALAND AQUATIC SOCIETIES

ASK US



Q: I have recently moved house and have inherited a pond with a modest waterfall. Sadly, the waterfall doesn't appear to be functioning and, as I'm a complete newcomer to water-gardening, I thought I'd ask for help.

A: Welcome to the wonderful world of water-gardening!
Waterfalls don't exactly fit into the rocket science category and before we refer you to another item on a most unusual cause of waterfall failure elsewhere in this magazine, here are a few pointers to help you get things going.

Water features in the pond – whether they are a fountain, waterfall or cascade – are based on a simple water circulation principle. Water is pumped up from the pond by a submerged pump via necessary pipework to a point where it falls back to the pond again by gravity as a free-falling waterfall or down a preformed channel through a rockery.

Hence there are a few places where things might go wrong.

- Obviously, the electrical supply must be operational (do use a residual current device in the socket).
- Check that the pump's inlet filter (a simple piece of sponge usually) is not clogged up.
- Open up the pump's impeller housing and make sure the impeller is free to rotate.
- Check that the pipework from the pump up to the top of the waterfall is not blocked. Also fountainheads can get clogged with calcium deposits in hard water areas.

If an external filtration system is incorporated (look for a plastic box in the rockery!) also check that its filter media is not clogged up or the exit from the unit is not blocked either.



Good Koi keepers know the importance of food quality to the health of their fish, and avoid the temptation to use cheap, poorly formulated products. However, have you ever wondered what's involved in developing a good quality food, and what areas make the difference between a good and a bad diet?

In this article we explore the key stages of food development and production, to give you a better understanding of what goes into the foods you use.

Research & Development

Most good food manufacturers will have a dedicated research and development (R&D) department, whose job it is to develop and test new diets. Their role is hugely important, as without proper testing it is impossible to know if a diet delivers on its promises and maintains the health of the fish. R&D work may be conducted 'in-house' at the company's own facilities, or contracted out to specialist laboratories and research institutes.

For companies that rely on product quality and continual innovation, R&D is critical to their future survival. R&D work can broadly be divided into two areas. Firstly, they are responsible for testing the company's products against competitor foods. For example, if the objective is to have the lowest waste production of any food on the market, you've got to keep benchmarking yourself against the competition.

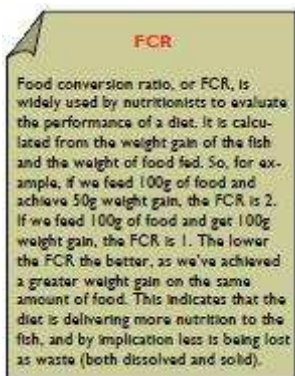
Secondly, they develop new products and test them against existing and competitor foods. New product ideas may come from particular market requirements, or from the acquisition and development of new technology.

New products go through a number of developmental stages before launch, and this varies from one company to another. Experimental diets will be developed based on an agreed concept, and then subjected to some initial tests (e.g. for acceptability).

If approved, a feasibility study will be done to ensure the product is marketable (i.e. can be sold at a realistic price based on the cost of the formulation). Assuming it is feasible, the preferred formula(s) should now go into a longer phase of testing. This will determine whether or not the product delivers the required benefits, and how well it compares to others on the market. It is at this stage that good R&D work becomes critical, to ensure the results are non-biased and can be substantiated.

Ideally this means testing the food under controlled laboratory conditions, with at least three replicates of each diet/fish combination. The goal is to get statistically valid results and for this a considerable amount of time and money is needed.

As a general guide, a 12 week trial period is usually sufficient to gain the results needed and to give a good prediction about how the fish will perform long-term on the diet. Further testing may be done to look at specific performance areas, or if the initial round of tests is unconvincing and further formulation changes are needed.



A number of parameters may be used to judge the performance of the diet, including food conversion ratio (FCR), growth rates, production of dissolved waste (nitrogen and phosphorus), colouration, resistance to disease, activity of the immune system, internal organ health, and blood parameters. The choice will depend on what claims are to be made about the diet, and also its sales potential (as larger selling lines can support greater R&D investment). The importance of R&D to the development of Koi foods cannot be understated, and it is the foundation for the better quality diets on the market.

Manufacturing

Once a new product has been released by the R&D department it, can then move to full-scale production.

The way in which a diet is made has a huge bearing on its quality, and again this is an area where manufacturers can really make a difference. Ingredient quality is the first area of concern.

Like most things in life, you get out what you put in. Good quality ingredients add cost, but go a long way to improving the quality of the end product. Cheap ingredients are often lacking in essential nutrients, are poorly digested, or contain 'anti-nutritional' factors that decrease the availability of the diet to Koi. Careful selection and, if necessary, conditioning of ingredients is therefore vital.

Having secured the right ingredients these then have to be turned into a finished product. There are a number of steps in pellet / stick production, including grinding, mixing, pelleting and drying. All of these can impact on quality, so investment in machinery is important if you want a quality product. For example, finely milled ingredients tend to mix more evenly and create a better pellet.

- Extruded vs Compressed (Steam pelleted) foods

Attribute	Compressed	Extruded
Starch (carbohydrate) digestibility	Low	High
Pellet buoyancy	Sinking	Floating / Sinking
Water stability	Low	High
Durability	Low	High
Nutrient destruction*	Low	Medium
Cost of pelleting	Low	High

From Halver & Hardy, 2002, Fish Nutrition - Third Edition

*Higher nutrient destruction must be countered with higher inclusion levels etc

The pelleting process itself is very important, as there are a number of technologies available. Most modern diets are 'extruded' (often giving them a honeycomb appearance) as opposed to steam pelleted, which makes them more waterstable and digestible. It also means they can be made to float or sink, without needing to add indigestible ingredients to help them float. However, different qualities of extruded products are available depending on the machinery used, and also the skill of the operator. Logically, the better the machinery the better the end result.

Packaging and Distribution

Once off the production line, the food then has to be packaged and distributed.

It is important to protect the food against light, air and moisture to prevent the loss of certain nutrients. This is the job of the packaging into which it will be transferred.

It's a common myth that Koi keepers unnecessarily pay for packaging when buying some foods, but this is very rarely the case.

The packaging is of huge importance to ensuring the shelf life of the food, so that it is of a good quality when eventually used. If packaging is not good quality then it's likely the food won't be either. Following packaging, the product can then be shipped to customers. These may include wholesalers who will then redistribute it, or the retailers where we buy our food from.

Quality Control

A discussion of food production would be incomplete without a mention of quality control. This part is all about consistency of quality (not necessarily the quality of the product for the fish themselves, as this is the job of the R&D department), and it ensures that each batch of food is of the same standard. Again this will vary from one Company to another, however it will often involve subjecting the batch of food to chemical and biological analysis. If it passes it can be released for sale. Samples of each batch are usually retained in case of any complaints, as they allow further analysis to be conducted if necessary.

There are various quality control standards that manufacturers can adhere to, including well-known ones such as ISO 9000.



End

It is clear that there are many areas in which manufacturers can influence food quality via the production process, from R&D through to quality control. It's useful for us to be aware of these, as it helps us to understand why different products can vary so much in terms of their price. Besides which, it can be a surprise to find out how much actually goes into a small handful of good quality Koi pellets!

For more information on Koi food and feeding visit www.Koiexcellence.co.uk

This article is reprinted from

Visit Tetra at www.tetra-fish.com



Wholesale Tropicals

RETAIL SHOPPERS ONLY



You will
be amazed
by our rare
and unusual
fish!

OPENING TIMES

- MON, TUE, WED, FRI 10.30am-6pm
- THURS 10.30am-2pm
- SAT 9.30am-6pm
- SUN 9.30am-1.30pm

On the B bus route - opposite main Post Office.

- OPEN ALL BANK HOLIDAYS 10.30am-2.30pm

NO MAIL ORDER ON DRY GOODS.

FISH DELIVERIES AVAILABLE AT OUR ONLINE
TROPICAL FISH SHOP

www.tropicalfishfinder.com/wholesale/tropicals.asp
or VIEW OUR ENTIRE TROPICAL FISH STOCK AT
www.tropicalfishfinder.co.uk



Visit for the family
service - and ask for
Terry - you may even get
a cup of tea!
We have been in the Top
shops for the last 4 years
- come and see what all
the fuss is about!

We pride ourselves on our competitive
prices and huge range of livestock.
From Turtles to Discus - from Critters
to Chichlids - whatever your are
looking for we can help.

220 Bethnal Green Road, London, E2
Tel: 020 77395356 Fax: 020 77292444

Carnivores: *Pseudacanthicus* & *Scobinancistrus*

by Darren Stevens,
Kapi-Mana Aquarium Club, New Zealand



Leopard cactus plecos

(*Pseudacanthicus* cf. *leopardus* L114,
LDA07) Both © Darren Stevens

Although most Plecos are herbivores or omnivores, there are a few mainly carnivorous Plecos, including two spectacular beauties -the Leopard Cactus Pleco and the Goldie Pleco.

These Plecos grow large and can be aggressive - particularly as adults, and as such are only suitable for large tanks with plenty of cover and line of sight barriers. Feed your carnivorous

Plecos on a varied protein-rich diet, along with a few veggies. I feed mine on carnivore pellets, shrimps, shrimp pellets, fish, frozen mussels, bloodworms, and algae wafers and courgettes.

Pseudacanthicus

Pseudacanthicus means 'false thorns' in reference to the numerous thorn-like spikes that adorn the body, and give rise to the common name of Cactus Pleco. There are five scientifically-described Cactus Plecos and a few awaiting a scientific name.

Cactus Plecos are generally found in deeper water in lowland rivers in north-eastern Brazil, although the odd species is found in the Guyanas. Most species grow to about 25-30cm, although there are notable exceptions such as the *P. hystrix* which grows to at least 80cm.

Many Cactus Plecos have limited ranges and are therefore susceptible to overfishing. For this reason the export of many Brazilian species has been banned by IBAMA, Brazil's environmental protection agency. However the Leopard Cactus Pleco is widespread and approved for export.



The Leopard Cactus Pleco is a large (to 24 cm SL) pale orange-brown Pleco covered with irregular large black spots separated by a thin margin, giving a honeycombed appearance.

The dorsal (top) fin and caudal (tail) fin are covered with varying amounts of orange. There are two very similar forms which may represent separate species or one widespread variable species.

Most Leopard Cactus Plecos in the hobby are apparently Demini Leopard Cactus Plecos (*P. cf. leopardus*, L 114) from the Rio Demini in Brazil. True Leopard Cactus Plecos (*P. leopardus*) come from waterways in the vicinity of the Brazil/Guyana border. They differ slightly in colour, body form, and apparently the number of teeth. Both forms are suited to larger tanks with pH of 5.6 -7.0 and temperatures of 24 -28°C. Both varieties have been bred a few times overseas.

Scobinancistrus

Scobinancistrus are closely related to the wood-eating Panaques, and some researchers consider they should be placed in a *Panaque* sub-group. They have a few (about 6-8) long narrow spoon-shaped teeth on each jaw, while Panaques have several shorter, broader spoon-shaped teeth. Their large 'buck-teeth' are thought to be for eating molluscs (snails and other shellfish), and they are very effective snail eaters in aquariums.

Scobinancistrus are found in clear waterways in north-eastern Brazil (the Rios (rivers) Xingu, Tapajos, Tocantins, Jamanxim, and Cupari), where they are captured by divers with air supplies (sometimes in over 20metres depth). There are two scientifically described *Scobinancistrus* species: the Golden Cloud Pleco, *S. pariolispos* and the Goldie or Sunshine Pleco, *S. aureatus*, and another couple awaiting a scientific name.

Golden Cloud Plecos are black with white spots and are very rare in New Zealand, while Goldie Plecos are regularly imported.



Goldie or Sunshine pleco
(Scobinancistrus aureatus, L014)
 goldie plecos at 9 cm and 15 cm
 ©Darren Stevens

Goldie, or Sunshine, plecos are a large (to 30 cm SL) striking black-bodied pleco covered with fine white spots. In juveniles, the fins, tail, and suckermouth are yellow-orange. As they grow the spots become finer, more numerous, and spread over the fins; and the yellow-orange colour on the fins and tail becomes more yellowish and fades to the tips.

Goldie Plecos are relatively peaceful compared to Cactus Plecos but will hold their own once established. They can be aggressive towards others Goldies, particularly if there is not sufficient space for territories, and may inflict painful injuries with their teeth.

They originate from the Rio Xingu in Brazil, where they live alongside Zebra Plecos (*Hypancistrus zebra*) and Medium-spot Gold Nuggets (*Baryancistrus* sp. L018). They are suited to larger tanks with pH of 5.8-7.2 and temperatures of 25-29°C.

Goldie Plecos have been bred at least once in aquaria, although given their relatively large adult size maintaining a group would be require a very large tank.



Scarlet pleco, L025 © firenzenz



Blue-spotted pleco, L254 © firenzenz



Above and right: Golden Vampire Pleco L172 © Jacob Bates

Other mainly carnivorous Plecos occasionally seen in New Zealand, include the Scarlet Pleco (*Pseudacanthicus* sp. L025), the Blue-spotted Pleco (*Spectracanthicus* sp. L254), the Galaxy or Vampire Pleco (*Leporacanthicus galaxias*, L007, L029), and the Golden Vampire Pleco (*L. heterodon*, L172).

The websites Planet Catfish www.planetcatfish.com, ScotCat www.scotcat.com, and Jonathan Armbruster's Loricariidae website http://www.auburn.edu/academic/science/math/res_area/loricariid/fish_key/lorhome/index.html have excellent information on *Pseudacanthicus* and *Scobinancistrus* and were used extensively in compiling this article.

The following references were also used:

- Seidel, I. (2008). Back to nature guide to L-Catfishes.
Fohrman Aquaristik AB, Sweden. 208 p.
- Evers, H-G.; Seidel, I. (2005). Baensch Catfish Atlas Vo11. Mergus,
Germany. 943 p.

reprinted with permission and thanks from AQUARIUM WORLD May 2010
Official Journal of the

FEDERATION OF NEW ZEALAND AQUATIC SOCIETIES



I was surprised, although in the middle of summer my waterfall stopped.

First I checked the fuse box and the trip was blown, OK, no problem. But after re-setting the trip it kept on blowing. Out with the pond pump, took this to bits, all seemed OK so I put it back into the pond, but the trip still blow out. This seemed serious!

I had a junction box for the electrics in the patio pathway. As I removed this to gain access to the junction box I was greeted by lots of ants, now when I mean lots, I really mean LOTS. They climbed up my arms, everywhere. There was damp earth and lots of ant eggs down in the hole.



I pulled the fuse box out, it was one of those metal types with four inlets for the wiring to go into. I then unscrewed the lid, still fighting the ants and inside where the wiring is joined up with a plastic terminal strip, it was very wet. This caused the shorting out and blew the trip - thus stopping the waterfall.

Now I have fitted a new plastic type box with a waterproof seal so I am hoping it will not happen again.

Eric Haddock

PS. I know I sound fishy, but that's my name.

FLUVAL®



THE WORLD'S MOST ADVANCED AQUARIUM FILTER

FIND OUT MORE AT
www.fluval-g.com

FUTURE OF FILTRATION

Les Hollandais

It's now been more than a year since I first started conducting my own personal trials on the Fluval G3 and G6 canister filters, the latest range of filters from Rolf C Hagen and I must say these superior quality, aquarium filters have more than exceeded my expectations. In development for many years this range has been designed with the objective of producing an advanced filtration system, which combines unparalleled filter performance with simplicity of use.

The Fluval G series is especially defined by an integral self adjusting intelligent microprocessor called a 'Hydrotech Monitor' which is capable of monitoring vital functions such as flow rate, electro-conductivity and water temperature, whilst displaying results and maintenance alerts on a splash proof LCD screen.



Equally as innovative, though is another major feature, the uniquely designed 3-stage filtration process which permits easy access to the mechanical and chemical media housed in separate cartridges in the top of the filter allowing changing and maintaining each cartridge to be quick and mess free.

The clever design of the 3-stage filtration system became immediately apparent when the trial filters were first put into commission. Once the roomy reserve for biological media was filled with the purpose made Fluval G-Nodes, a highly porous ceramic media in two sizes designed to compact together tightly within the bio baskets and slotted in the filter housing, the mechanical and chemical filter cartridges could each be fitted snugly in place. Designed as they are to be easily serviced, each of the filter cartridge compartments come with quick release fittings which, with the aid of a shut off valve, allow each cartridge to be serviced and replaced without turning off the power or the laborious chore of disassembling the whole filter.



Chemical media cartridges are supplied ready loaded with activated charcoal as standard with each filter purchase but replacement cartridges are available charged with phosphate or nitrate remover and tri-ex cartridges are also obtainable as a refillable alternative. Replacement mechanical pre-filer cartridges are also available in standard weave for fresh water aquariums and a finer 75-micron alternative for salt-water or for use as a polishing cartridge for either marine or fresh water aquariums.

As an example of cutting edge technology the Hydrotech monitoring system certainly can't be bettered. This unique intelligent electro-monitoring system displays a series of vital water parameters, continuously in real time, on the LCD panel. Efficient optimal flow of water through the filter is an essential prerequisite of any form of filter but often very difficult to accurately monitor. To indicate a clogged pre-filter cartridge and/or ensure maximum water circulation, the Hydrotech screen permanently highlights the exact flow rate. Should the water flow drop below 30% or if there is no water in the filter, the screen will flash an 'Alert Warning'. A similar warning will flash to indicate when water temperature varies from pre-selected minimum and maximum temperature thresholds. When the 'Alert' warning is on, the screen will show the water temperature value flashing and an alarm screen appears at intervals warning 'Alert, temperature of range'.

Electrical conductivity has been very much neglected in the past as a means of monitoring aquarium water quality but it can be a very useful tool in maintaining a suitable and stable environment for living aquatic organisms. Electro-water conductivity is a measure of the water's ability to 'carry' an electric current and indirectly a measure of dissolved solids and ions occurring in the water. Distilled water, for example, has a very low conductivity value (nearly zero) whilst the more dissolved solids and ions occurring in the water, the more electrical current the water is able to conduct. Electrical conductivity values therefore can provide an important parameter to monitor both fresh and saltwater aquariums as they provide a general but fundamental alert that something is changing inside the aquarium. To understand this better, electro conductivity values can be used in a similar way as a doctor makes use of the body temperature of a person as a starting point in diagnosing an illness. A deviation from the 'normal' range does not point at a specific cause but suggests that some change has occurred which requires further investigation.

Fish are very sensitive to the conductivity value of their environment as it is strictly related to the amount of osmotic pressure exerted on a fish's cellular membranes and they are well adapted to the specific conductivity range of the environment in which they live. This is why it is essential that any fish added to an aquarium is suitable for the aquarium water. Otherwise the fish will need to continuously pump water in or out so that the osmotic pressure is equalized across its cell membranes. The conductivity value of the water in an aquarium should ideally, therefore, be adjusted to the needs of any fish introduced and a constant check needs to be kept to ensure any changes, which may occur, can be investigated using various test kits.

One of the test tanks in my trial was set up as a marine system the other tank-housing Discus. The salinity level required for a marine tank is provided by adding a mix of salts and other solids to pure (RO) fresh water to a specified amount. Usually the correct mix is ascertained by using a hydrometer to measure the density of the water. It's now, however, becoming increasingly common to measure the electric conductivity of the water instead to arrive at the correct salinity level. The conductivity of salt water is measured in millisiemens (mS) and the Fluval G series filters automatically record conductivity on the mS scale without adjustment. The standard salinity mix for marine aquariums should be in the range of 52-54 mS, and during the setting up of the marine test tank, it was easy to arrive at the correct salt water mix using the filters conductivity scale.

Nevertheless, over time certain compounds such as calcium and carbonate became depleted in our marine set up extracted by the living corals in the system to build their calcareous colonies and a regular simple 15% water change using salt mix rectified this. The conductivity scale on the filter showed the depletion of these compounds as a lowering of the scale, which returned to the optimum level following each water change.

Discus are very sensitive to water conditions and the water in their tank was 75% RO water and 25% tap water adjusted down to a pH of 6.0 using Nutrafin pH Adjust down. Carbonates were also added to produce a dGH of 3° and arrive at the recognised most favourable conditions for these demanding subjects. This water mix recorded a conductivity value of 505 on the filter conductivity scale, which is very close the level of 500 recommended by experts and indicated the water conditions were ideal. Regular 20% water changes were important in maintaining this equilibrium and the filters conductivity scale has been invaluable as a constant monitoring tool.



Water conductivity seems to be a definite way forward as a method for at a glance monitoring of aquarium water conditions. The Fluval G filters make full use of this advance method and also allow setting up of maximum and minimum visual alarms. The Hydrotech monitor also provides a rolling line graph, which records the historical daily readings (1 reading every 12 hours) covering up to 48 days of historical data.

This exciting new alternative approach to monitoring aquarium conditions is a valuable tool the Fluval G3 series of filters have to offer and certainly presents a new direction for the future of filtration.

Below is a list of recommended water conductivity for a range of conditions and aquarium subjects.

Fish kept in the appropriate conductivity range are less prone to disease, can exhibit better colours and are more likely to breed. For community aquariums use an average conductivity level for the various species of fish kept.

- To raise conductivity, carefully add dissolved aquarium salt to your aquarium water

- To lower conductivity, perform a partial water change with R/O (Reverse Osmosis) water, available from your local aquatic retailer. Conductivity should be altered gradually to avoid causing fish undue stress

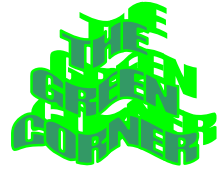
Aquarium Water Conductivity Guideline Chart - For Common Fresh Water Fish Species -		
SCIENTIFIC NAME	COMMON NAME	IDEAL CONDUCTIVITY RANGE
<i>Leucopoma muriei</i>	Black-winged hatchetfish	20-50 µS/cm
<i>Cphaenichthys ophichthys</i>	Chocolate Gourami	
<i>Pterophyllum altum</i>	Deep Angelfish	
<i>Borneria maculata</i>	Dwarf rasbora, Spotted rasbora	
<i>Puntius partazona</i>	Five banded Barb	
<i>Scobinichthys panolopus</i>	Golden cloud pleco	
<i>Parachanna aulicoides</i>	Green neon tetra	
<i>Symphysodon diaca</i>	Red Discus	
<i>Neonaxemus biphen</i>	Red nose tetra	
<i>Neonaxemus trifasciatus</i>	Three-lined parrotfish	
<i>Parachanna aulicoides</i>	Cardinal tetra	50-100 µS/cm
<i>Achromobola macracanthus</i>	Clown Loach	
<i>Cichla labia</i>	Dwarf Gourami	
<i>Pletistia georgiae</i>	False rummynose tetra	
<i>Microgophagus ruficeps</i>	German Blue Ram, Blue Ram	
<i>Symphysodon equifasciatus</i>	Green Discus	
<i>Ingonostoma heteromorphia</i>	Harlequin Rasbora, Red Rasbora	
<i>Corydoras julii</i>	Julii cory	
<i>Otocinclus spp.</i>	Otocinclus Loach	
<i>Inchogaster laevis</i>	Pearl Gourami	
<i>Puntius tetrazona</i>	Tiger Barb	100-200 µS/cm
<i>Pterophyllum scalare</i>	Angelfish	
<i>Gymnocorymbus ternetzi</i>	Blackskirt Tetra, Black Tetra	
<i>Corydoras aeneus</i>	Bronze Cory	
<i>Gymnocheilus symonini</i>	Chinese Algae Eater	
<i>Apatoglanis cacaoides</i>	Cockatoo Dwarf Cichlid	
<i>Arythoparus bicinctus</i>	Glass catfish, Ghostfish	
<i>Parachanna aeneus</i>	Neon tetra	
<i>C. panda</i>	Panda Cory	
<i>Macropodus opercularis</i>	Paradisefish	
<i>C. paleatus</i>	Peppered Corydoras	
<i>Melipotrinia pulcher</i>	Purple Cichlid, Rainbow Krib, Krib	
<i>Hygocentrus nattereri</i>	Red piranha	
<i>Puntius conchonius</i>	Rosy barb	
<i>Betta splendens</i>	Siamese fighting fish	
<i>R. sibirica</i>	Snails	
<i>Hypocentrus pleurocentrus</i>	Suckermouth catfish	200-500 µS/cm
<i>Inchogaster trichopterus</i>	Three-spot gourami	
<i>Danio rerio</i>	Zebrafish	
<i>Pristella maxillaris</i>	X-ray fish	
<i>Thosichthys meaki</i>	Firemouth Cichlid	
<i>Myocorynus asiaticus</i>	Chinese banded shark	
<i>Aechmoechthys nigrofasciatus</i>	Convict Cichlid, Zebra Cichlid	
<i>Cichla nigra</i>	Indian glass fish	
<i>X. variatus</i>	Indian Platy	
<i>Mylodonis spp.</i>	Malawi cichlids	
<i>Melanochromis spp.</i>	Malawi Cichlids	
<i>Maudotropheus spp.</i>	Malawi Cichlids	
<i>Aulonocara spp.</i>	Malawi cichlids	
<i>Xiphophorus maculatus</i>	Platy	
<i>Melanotania spp.</i>	Rainbow Fish	
<i>Cichlasoma sp. "Red Parrot"</i>	Red Parrot	
<i>X. helian</i>	Swordtail	
<i>Tanichthys albonubes</i>	White cloud mountain minnow	> 500 µS/cm
<i>Jordanella floridae</i>	American Flag Fish	
<i>Scotophagus argus</i>	Argusfish	
<i>Achilurus melas</i>	Black Bullhead, Black Catfish	
<i>Morone chrysops</i>	Calabas Rainbow Fish	
<i>Lepomis carpio</i>	Common carp	
<i>Monodactylus argenteus</i>	Finger Fish	
<i>Cyphotilapia frontosa</i>	Frontosa Cichlid	
<i>R. veltiens</i>	Island sailfin mollie	
<i>Gambusia auratus</i>	Goldfish	
<i>Tetraodon lineolatus</i>	Green spotted Puffer, Pufferfish	
<i>Brederia nebulosa</i>	Cuppy	
<i>Gambusia holbrooki</i>	Mosquitofish	
<i>R. latipinna</i>	Sailfin Mollie	
<i>Nectemporologus spp.</i>	Tanganyikan cichlid	
<i>Inopoma spp.</i>	Tanganyikan cichlid	
<i>Julidochromis spp.</i>	Tanganyikan cichlid	

Download this chart at: http://www.fluval-g.com/pdf/Conductivity_Chart.pdf

For more information on all products from Hagen visit www.hagen.com.

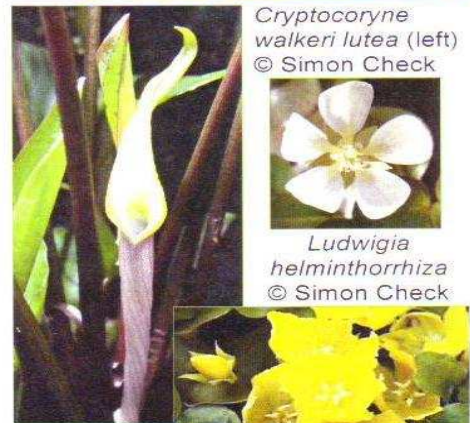


The area for aquatic plant-lovers



Flowering Aquatic Plants

Because of the way most aquariums have lids and lighting on top, many aquarists do not realise that a lot of aquatic plants produce lovely flowers, if grown emerse (in aquaria or some as pot plants). Here are a few examples:





Cardamine lyrata



Ranunculus fluitans
common in the wild



Hydrocharis morsus-ranae
Water poppy (bog plant)



Echinodorus tenellus



Veronica anagallis-aquatica
Water speedwell

© Simon Check



Aponogeton distachyos
© Simon Check



Bacopa monniera (left) & *B. caroliniana* (right) © Simon Check



Cryptocoryne cordata blassi
© Simon Check



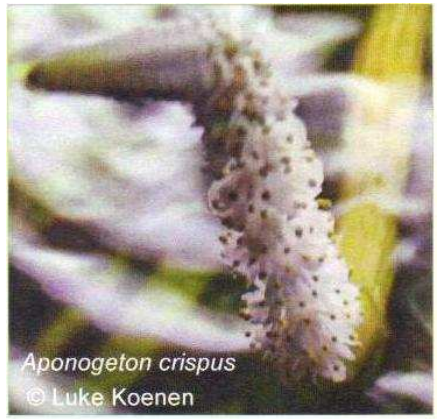
Cryptocoryne beckettii
© Simon Check



Cryptocoryne beckettii
pechii © Simon Check

Other photos on these two pages;

- www.plantgeek.net *Hygrophila*, *Anubias*
- www.mesdeandesign.com *Lysimachia nummularia*
- www.keys.lucidcentral.org *Cardamine lyrata*
- www.uvalde.tamu.edu *Echinodorus tenellus*
- www.aphotoflora.com *Hydrocharis morsus-ranae*



Barclaya longifolia flower resting on lotus leaf. Actual plant shown below



So, as you can see, there are a lot of Lovely flowers to be seen if they are given the chance.

Why not try to grow some yourself? Choose some fish that don't jump out of the aquarium, remove the lid, and try growing some plants so they can rise above the waterline. Or try a fish-free tank and grow them emerge!

Caryl Simpson,
Malborough Aquarium Club, NZ

KNOW YOUR FISH



Scientific name: *Simpsonichthys magnificentus*

Origin: South America

Size: 35/25 mm (male/female)

This brilliantly-coloured fish is a member of Rivulidae family and aquarists will quickly recognise the similarity to other 'Pearlfishes' although these may well retain their older name of *Cynolebias* (as in *Cynolebias bellotti*) or the more recently-discovered (2006) *Austrolebias toba* .

Close relatives to look out for around the Open Shows are *S. stellatus*, *S. punctulatus* and *S. similis*.

These aquatic 'Roses by any other names' species all follow the Family trait of being substrate-spawners, burying their eggs in the leaf litter in their respective streams. In captivity, the egg-laden peat should be removed and kept semi-moist for several weeks before subsequent re-immersion into water triggers hatching.



A RECIPE FOR ANGELS

BY
MIKE KEISER

Originally published in
The Calquarium,
Calgary Aquarium Society,
Volume 39, Number 8

Take one adult male and one adult female Angelfish, place in a medium sized tank filled with aged tap water, add a pinch of salt, a handful of plants, one strip of slate and a variety of frozen and flake foods, bubble gently at 24°C for two to three weeks; and Voila – Angels for everyone!

If your first experiences in spawning Angels (*Pterophyllum .scalare*) were anything like mine, the above information was about all you could squeeze out of any breeder or fish book. As a result, you spent months and countless spawns trying to master the art of fry survival, only to see your little wigglers dying before reaching that all elusive stage -'free swimming' ! For three years now, I've been using a successful technique for spawning and raising Angels, which was developed by experimentation and exchanging ideas with other breeders, that I would like to share in order to make your experience with spawning Angels more enjoyable. It's strange, in that once you have succeeded in raising Angels, the silence is lifted and others are willing to discuss techniques. You are accepted as one of the elite -the successful Angel spawner!

The most important factor in raising Angels is environmental conditions. Although Angelfish will spawn in a wide variety of conditions, it is important

to stabilise them. Unlike what many sources suggest, Angels do not need soft acidic water in order to spawn. Therefore, peat water and R.O. units are not essential. I use aged tap water with no additives or alterations (my city water is alkaline and hard). I tried softening the water and lowering the pH, but found that the water chemistry was not remaining constant, thus stressing the fish. Whatever your water conditions are, less extremes, usually the Angels will adjust. Temperatures between 21°C and 26°C are fine, just keep it constant.

There are two ways of obtaining brood stock: buy a breeding pair, or buy juveniles and raising them to maturity. If you choose the former method, buy your pair from a reputable breeder. Contact the breeder and make arrangements to see the pair in their spawning environment. While there, look for desirable qualities: even finnage; uniform body shape; strong appetites; pronounced, even body pattern and coloration (if buying exotics or specific colour strains); and good health and vigour. Ask to see some offspring and make the same observations.

If you are satisfied, purchase the pair. Although the pair may be expensive and there are no guarantees that they will spawn for you (if environmental conditions are not met), you are getting a fertile, proven pair that should spawn quickly, replacing your investment cost sooner. The latter method involves buying six to eight juveniles with the same desirable qualities as mentioned above, either from a breeder or a reputable fish store, and raising them to maturity, allowing them to form their own pair bonds. Initially, this method is cheaper and you may end up with more than one pair, but there are no guarantees that you will get a stable, fertile pair and you will have to wait six to nine months for sexual maturity to be reached.

Once you have a pair, prepare a 60 or 100 litre tank (smaller tanks are too crowding and larger tanks are a waste of a good fry rearing tank) for them using a combination of aged tap water and seasoned water. Tall tanks are suggested for veil tail varieties. Do not introduce the pair to the tank until the set-up is complete, as changing and adding items may create added stress, possibly resulting in a breakdown of the pair bond. Use sponge filtration (pre-seasoned) for ease of maintenance. Place a 2" x 10" strip of 1/4" slate lengthways at a steep angle in one corner and another piece of slate at the base to keep the slate from sliding down. Place a potted plant (not essential, but it does provide a hiding place) four or five inches in front of the slate. The tank should be located in a quiet area where there is minimal traffic or disturbances.

Once the tank is set up, introduce the pair. Do not add any other fish.

Now that you have a pair settled into their spawning environment, it is time to condition the pair for spawning. A good variety of flake, frozen & live (where available) foods are recommended. Foods high in protein will increase the size, quantity and quality of eggs, but feeding straight protein is not healthy for the fish as they need fibre to prevent stomach rot and aid in proper digestion. A combination of flake in the morning, bloodworms in the afternoon and flake in the evening works well. A couple of evenings a week, about 1 hour after feeding flake, breeders should receive a healthy portion of white worms or bloodworms. Since the fibre in the flake slows the digestive rate, this extra protein in the white and bloodworms is more completely digested and absorbed. Keep in mind that with breeders most excess protein is converted into reproduction; thus bigger and stronger fry! This only works to a certain point. Don't overdo it.

Soon the pair should begin to show interest in the slate strip and the female's spawning tube (ovipositor) will begin to descend. This is the signal for you to prepare for the most important part: artificial hatching and rearing of the fry.

Although there are some pairs that will successfully rear their offspring unassisted, it is very common for domesticated Angels (Angels generations-removed from the wild) to devour their eggs and fry! You will need the following items: one large glass jar; submersible heater (75 Watt); plastic distilled water jug; 40-litre tank; airline tubing; air stone and weight (an air curtain weight works very well), and Methylene Blue and MarOxy. It's most advantageous to have these items ahead of time!

First, set up the 40-litre tank in a easily accessible location as follows: fill with tap water approximately half way and add heater (now you can see where the submersible heater comes in handy). Set temperature to exactly match with the parent's tank temperature. Next, connect airline tubing to the air stone and weight ensuring enough tube length to reach the air supply. Fill the plastic jug full of cold tap water and stand inside tank. Do not put the lid on the jug as the chlorine gases need to escape from the water inside (using cold water and heating it up eliminates the need to add chlorine remover; the chlorine will dissipate in 24 hours). Finally, **WAIT FOR EGGS!**

When spawning occurs, fill the glass jar with the water from the plastic jug and place the jar inside the 40-litre tank. Do not use water from the jug that is more than a couple of days old, as it will be stale.

Timing is important and after a couple of spawns you will be familiar with your pair's spawning ritual and will have no problems co-ordinating hatching set-up with spawning. After being sure that spawning is complete (male is no longer fertilising eggs), remove the eggs from the tank by simply lifting the slate out of the tank and placing it upside down (eggs to the bottom) into the glass jar. Do not worry about keeping the eggs submersed while transferring them from the tank to the jar. They will not dry out in five or ten seconds. Next, add the air stone into the glass jar at the base of the slate so that the air stream flows upward in front of the eggs (beside the eggs will work if the eggs are too close to the end of the slate). Turn the air on until a moderately consistent current is achieved. Add seven drops of Methylene Blue. Don't forget to fill the plastic jug back up full of cold tap water and place it back into the 40-litr tank, as this will be needed for the next day's water changes.

Water changes you say! On eggs? That's right, water changes and lots of them. Although they are not up and swimming about, your precious little eggs are still growing and producing wastes and toxins into their unfiltered jar. Changing from 60% to 75% of water once a day will prevent toxin levels from building up. Do not try to use filtered water or incorporating a filter into the egg jar as the bacteria and fungus in the water will have a heyday (been there, done that!).

Use a piece of airline tubing with a stiff piece of plastic tubing (for ease of control) attached together as a siphoning hose. While siphoning, try to remove as many of the dead (white) eggs as possible. Gently nudging the eggs usually loosens them from the slate and other eggs. It's a good idea to siphon into an ice-cream pail in case you accidentally suck up some good eggs. After removing 60% to 75% of the water (be sure not to drain below egg level), gently pour water from the plastic container into the jar being careful not to disrupt or knock off the eggs (using a coffee filter holder from an automatic coffee machine as a filling funnel works well, just remember to put it back before your wife finds out!). Refill the plastic jug for tomorrow.

The evening of the day the eggs hatch (usually two days after laying) remove the slate before doing the water change. This is done by lifting the slate straight up off the bottom by a few inches and wiggling it vigorously (to knock off the wriggling fry). Once all the fry are off, remove the slate, wash and place it back into the parent's tank for another spawn. This time, after completing the water change, add five drops of MarOxy. Repeat water changes adding MarOxy each time until the fry free swim (5-6 days after hatching).

The day before the fry become free swimming, begin hatching a batch of Brine Shrimp eggs. Although fry can be reared on crushed flake, the advantages of baby brine shrimp are well worth the efforts. The fry will eat quicker (stimulated by the movement and smell), thus becoming stronger and healthier fish. Since Brine Shrimp takes approximately 24 hours to hatch, starting the batch the day before free-swimming will ensure that the shrimp are at their smallest size and are most easily consumed by the fry. Feed the fry once in the jar before moving them into a rearing tank. Be sure to do a water change after feeding to minimise waste and ammonia build-up.

Transferring the fry is simple. Just lift the jar out of the 40liter tank and float it into a 40 to 60-liter rearing tank. This tank should be equipped with a heater and an adequate sponge filter only, as cleanliness and ease of maintenance is of the essence. After floating the jar to adjust temperature, immerse the jar into the tank allowing water to exchange from the jar to the tank. Wait five minutes. Repeat the process three more times. On the last immersion, turn the jar upside down and pour the fry into the tank.

Continue feeding the fry live baby Brine Shrimp three times a day with 30% to 50% water changes daily. Remember, you literally have hundreds of fry in the tank although it doesn't appear so for the first week or two.

The water changes not only remove toxin build-ups, but they also dilute a growth-inhibiting hormone that is produced by the fish. Frequent, high volume water changes fool the fish into believing they are in a much larger tank, as they cannot detect as much hormone, thus greatly increasing growth rates. Eventually there will come a time when splitting or relocating the fry will be required. This should be done when the fry have spread out throughout the tank, occupying all levels. If given enough food, space and water changes, the fry will be ready for sale in eight to twelve weeks.

Whether you are just getting into breeding Angels or are a breeder looking for a new method, give this recipe a try. Although this method is not the only way to spawn Angels, following it will make breeding Angels as simple as placing one adult male and one adult female into a medium size tank and !

Reprinted from SUPERFISH October-December 2009
Journal of the Queensland Cichlid Group Inc www.qcichlid.org



Breeding of the “Killi” *Nothobranchius rosenstocki*

After setting up a small tank (20cm x 15cm x 15cm) for the *rosenstocki* with half the base covered with a peat bowl, the other half was stuffed full of Java Moss.

The fish had a diet of newly-hatched brine shrimp and micro-granulate that was eagerly accepted after a time of adjustment. I intermittently, feed them on Mosquito larvae and Bloodworm as this became available in my water tubs. The water being soft and acidic with a temperature of around 24°C.

The trio proved quite productive, with the male hovering over the peat area most of the time, producing about 40 amber eggs over two weeks. The eggs do not last long in the peat, but I did hatch out 20 good fry over an incubation period of about 12 weeks. The temperature at times exceeded 24°C so may not be a true representation. The fry grew slowly and it was two months before the fish began to mature.

At first I feed baby brine shrimp and continued with microgranulate and occasionally frozen Bloodworm or Beef-heart. Later I lowered the temperature of the spawning tank to 23°C and the fish spawned more productively as much as 90 eggs could be obtained in one week. A significant drop in spawning was observed when the temperature was again raised to 26°C but it is worth noting water changes seem to stimulate breeding.

In the main these fish are shy, and require plenty of plant life in their tank, however would appear at times in the open. In my opinion success with this species rest in closely monitoring the state of development of the eggs coupled with prompt wetting of eyed-up eggs and keep in a temperature on the cooler side. Group spawning with several males may not be a good idea, and young fish are better spawners than old fish.

Tyrone Genade, Killi - News. September 2008 No 516

NEW SPECIES - 2010

Here is the first batch of new/unfamiliar species seen at Shows so far this year.



Austrolebias toba 45mm



40mm *Simpsonichthys punctulatus* 40mm



Crenichthys baileyi 45mm



Simpsonichthys similis 50mm



Oryzias mekongensis (male) 20mm 20mm



Oryzias mekongensis (female) 20mm



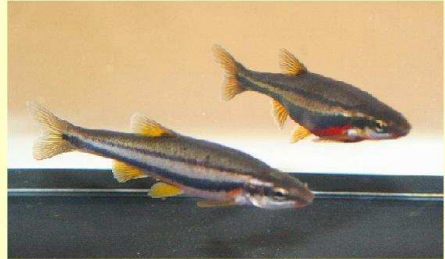
Simpsonichthys fulminatus



Oryzias mekongensis



Acanthorhodeus macropterus



Red Belly Dace



Austrolebias toba



Allomogurda nesolepis



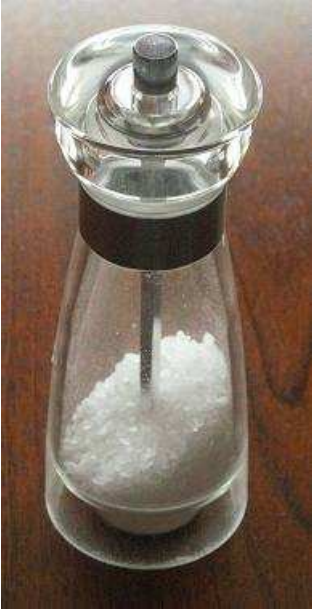
Garra congoensis



Chalinochromis bifrenatus

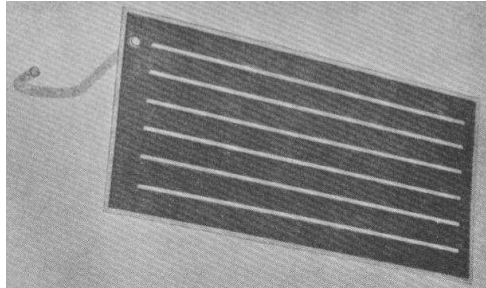
Pass the Salt

Our occasional marine area



**Robert Straughan's
original filter**

R.P. Straughan discovered that undergravel filters worked wonders in the marine aquarium, although he regarded it as a mechanical filter and actually resisted the true explanation of its effectiveness.



The undergravel filter uses the base of the aquarium to draw the water through a layer of gravel, possible coral sand or the like in a marine tank, at least 75mm (3") deep and returned via airlifts or power heads to the water's surface. This offers a very large surface area for the bacteria to settle onto, and acts as an efficient biological filter as long as it is left relatively undisturbed or at least only partially cleaned at any one time.

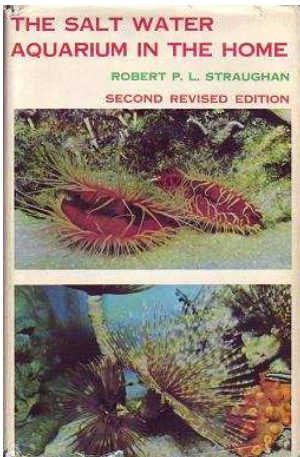
Although an undergravel filter is very effective, particularly if seeded with the right kind of bacteria and fed ammonia from the start, it consumes oxygen and thus competes with the tank inhabitants unless the out flowing water is adequately re-oxygenated. This is usually done by aeration of one kind or another, by returning the filtered water across the surface of the aquarium so as to cause ripples and good water movement, and by adding airstones.

The filter can also be a nuisance since if any problems occur, such as a blockage, you have to reach down into the tank and disturb everything, a particularly undesirable process in a nicely set up aquarium, or if you are keeping fish that are aggressive.

Compared to the rest of the world, British and many European aquarists have never been keen on the undergravel filters in their freshwater aquariums. They tended to put all such filters to one side. They don't see the added advantages that could accrue, and under-gravel filtration is often blamed for poor plant growth.

However external filters can be attended to much easily, but it can be elaborated and made much larger than the undergravel type. It can also be aerating so that aerobic, oxygen consuming bacteria work more efficiently and yet do not deplete the water of oxygen to the same extent.

Further you do not have to use Coral sand or such, although many marine aquarists still do, because it has been thought to have the advantage of adding calcium to the water and correcting the pH. That is a mistaken belief since calcium does not dissolve from coral sand unless it is at less than a neutral pH.



Reference:

Robert P.L. Straughan: The Salt Water Aquarium in the Home (1969 Barnes ISBN: 0498-07476-5)

My Dream Fish



Share your ideal dream fish or aquarium set-up with us

FBAS President, Dick Mills, looks back on what he had hoped would have been a dream fish to cure a problem.



During my experimentation days in keeping marines, my tank suffered in infestation of *Aiptasia*, or Rock/Glass Anemones.

Reading up on possible cures to eradicate this pest I came across several solutions including –

local injections (into them, not me) with various liquids ranging from boiling water, hydrogen peroxide, lemon juice (Jiff or natural) and a proprietary product called Joe's Juice.

Faced with the problem of the Anemones retracting at lightning speed whenever anything came near them, I decided to opt for a more natural cure

.and promptly bought a Copperband Butterfly fish.



It looked great in the aquarium, seemed to attack the Glass Anemones at first – its long ‘beak’ was exactly the right tool for the job - but then it declined and wasted away over a few weeks!

I subsequently found out that other natural predators existed:

The Nudibranch, *Berghia verrucicornis*, eat *Aiptasia* but may starve once they run out of supplies. (I suppose the Cleaner Wrasse *Labroides dimidiatus*, may suffer a similar fate once it has cleaned all the parasites from your fish.)

Hermit Crabs, especially the Red Legged variety, *Clibanarius digueti*, together with the Peppermint Shrimp, *Lysmata wurdemanni* (be sure to get the right species) are other alternatives.

On balance then, not so much a dream fish, more a nightmare.

Fish & Tips

Haynes

Aquarium Manual



The complete step-by-step guide to keeping fish



Jeremy Gay

ILLUSTRATION BY STEVE WILKINSON. PHOTOGRAPHY BY DAVID BAKER



£19.99
Out Now

- Ideal for complete newcomers and seasoned fishkeepers alike.
- Covers everything from choosing which type of fish to keep to decorating the tank, feeding and breeding.
- Tropical, Coldwater and Marine tanks.

www.haynes.co.uk/aquarium
Available from all good bookshops or
ORDER DIRECT on Tel: 01983 442030

See Haynes See How



RIVER REEF

AQUARIUM



Curved glass gives panoramic views of your fish

High output T5 PC Daylight Plus lighting along with Moonlight LED lighting

Comprehensive 3 stage filtration—also room for all 'in tank' equipment

Aquariums available in Black or Silver with Cabinets available in Black, Silver or Beech



INTERPET AQUARIUM TREATMENTS



- Interpet treatments are made using the latest ingredients – blended to give a powerful formula which is safe for the fish
- Easy to self-select product names
- Interpet treatments are made to GMP standards under the VMD (Veterinary Medicines Directorate) Small Animal Exemption Scheme



www.interpet.co.uk



FESTIVAL OF FISHKEEPING UPDATE

Every year, the organisers of the Festival of Fishkeeping do their best to provide something different whilst, at the same time, maintaining all that is best and most popular at this annual aquatic event. So what have they come up with for 2010?

Depending on your own personal point of view, the wonderful or the horrendous are back – reptiles, that is. The opportunity to get up close (again, personal preferences may dictate just how close) and possibly handle such creatures was a very popular attraction a few years back.



Thanks to support from Rolf C Hagen's Exo - Terra group, in association with South Coast Exotics, here's another chance to enter the realm of reptiles, almost a halfway house between true aquatic

and true terrestrial animals. It would be interesting to run a count on the proportion of people who actually conquer their fears over the period of the Festival and come out as fans of their previous fears.

Conservation is again uppermost in our minds these, sadly for the wrong kind of reason, but in the Fishkeeping world things are on the up with lots more fishkeepers breeding their own fish. This is reflected in the popularity of sales of 'home-bred' surplus stocks at Open Shows around the country.

Many exhibitors will be familiar with the competitive 'Shanghai' Classes introduced at last year's event as it provided examples of adult fishes and groups of their offspring. As a reinforcement to these Classes being staged again this year, Peter Anderson and Malcolm Goss – the two aquarists behind the superb decorative Furnished Aquariums seen at the Festival – will be staging a display based around conservation.

Typical biotopically-correct furnished aquariums will show the natural habitats of popular fish together with associated practical breeding set-ups and information of how you can both ensure your fish have the best environment in which to breed whilst in your care and that wild stocks run less risk of becoming depleted.

Conservation is no new subject to the FBAS, or any keen naturalist in today's world. Mostly all the new fish, particularly catfish with all their "L" numbers and many not even described to science, are being discovered due to inroads into the rainforests by either logging and farming. Zoo's used to take on fish breeding programs and conservation became the "in thing", but with the turn of the century and the passing of the millennium, the drive for conservation in some areas has faded. The FBAS through the Bulletin is calling on its members to bring conservation to the front of our hobby.

We may have little control over many aspects of this subject, but with breeding fish for our fellow hobbyist we can save fish from being unnecessarily depleted in their natural habitat. Even what we may feel are common fish can disappear from the world's rivers and lakes.

If you would like to become a conservationist by breeding fish, why not register your name and what you have achieved now, or fill in a Form at the FBAS Conservation Stand at the Festival of Fishkeeping.

With so much to absorb, in and around the Festival during the daytime opening hours, it's no surprise to learn that many people simply want to relax during the evenings and here, too, the organisers try their hardest to satisfy the hundreds of residents that attend the weekend event.

At the time of going to press, the main Hall evening entertainments line up as follows: Friday will feature the 'Big Band' sound with the Saturday highlight being the genuine 'Rockin' Berries' Band.

A slightly more soothing Saturday evening alternative could be found with 'Country & Western' in the separate Hudson's Bar.

Staying over on Sunday night is a popular choice for many Festival residents and the Mill Rythe Entertainment team will be on hand to bring the weekend to a rousing end.

FACTFILE

The 2010 Festival of Fishkeeping will be held over the weekend of 8th-11th October (depending on Booking preference) at

**Mill Rythe Holiday Resort,
Havant Road,
Hayling Island,
Hampshire, PO11 0PB**

www.millrythe.com

For exhibitors: you can find all the necessary Show Schedules on the main FBAS website – www.fbas.co.uk whilst there is complete coverage on the dedicated Festival website at www.festivaloffishkeeping.co.uk

For wouldbe residents and Day Visitors:

Full information and downloadable Booking Forms are available on the previously-mentioned websites or can be obtained by contacting:

Grace Nethersell on 020 8847 3586 or by email at grace@the-nethersells.fsnet.co.uk

For Trade Enquiries:

Please contact **Joe Nethersell** on 020 8847 3586 or by email at joe@the-nethersells.fsnet.co.uk



FESTIVAL OF FISHKEEPING 2009

HOME BRED AND SURPLUS STOCK FISH SALES

Hoping to continue the success of the home-bred and surplus stock fish sales Stand, we are staging a larger version of it again this year.

Due to demand, we are limiting the maximum number of tanks to **three per person**. All tanks are 300mm x 200mm in size, they will be filled with treated fish-safe water, heated, and mechanically filtered (air powered using zeolite and carbon media) and all tanks have cover glasses.

We shall be looking for the owners of the fish for sale to help man the Stand on a rota basis over the weekend. Clive Walker of Mid-Sussex Society has kindly offered to organize this.

CONDITIONS OF ENTRY

Festival organizers will not be responsible for the loss of any fish for whatever reason, owner of the fish to be responsible for their well being at all times.

Maximum of three tanks per owner unless space permits otherwise.

Tank hire is **£5 per tank** payable by cheque at time of entry, cheques payable to FBAS. No commission will be charged.

**Owner of fish for sale must be staying
as a weekend Festival resident**

Tanks will be supplied with heating, mechanical filtration and filled with treated fish-safe water. Heated fish-safe replacement water available.

Owners must bring their own water for fish needing specific conditions.

**Only home-bred and surplus stock can be sold.
Fish only, no dry goods/plant etc to be sold.**

Tanks will be available to receive fish **from 0900 on Friday 8th October.**
All fish must be tanked **by 0900 Saturday 9th October.**

Tanks must be labelled with owner's name, species name, and price.

Owners must supply their own fish net, this net to be left on the cover glass at all times.

BOOKING FORM BELOW MUST BE RECEIVED BY NO LATER THAN TUESDAY 28TH SEPTEMBER 2009, earlier if possible please!!!

Name:.....
Address:.....
.....
.....Post Code
Tel no:.....

Number of tanks required.....
Cheque enclosed for £..... (£5 per tank) payable to FBAS

Species in this tank	Price
Tank 1.
Tank 2.....
Tank 3.....

Send this portion to:

**PAUL CORBETT, THE ORCHARD, RECTORY LANE
GATCOMBE, ISLE OF WIGHT PO30 3EF
Tel. 01983 721246**

TO BE RECEIVED BY NO LATER THAN TUESDAY 28TH SEPTEMBER 2009



You are cordially invited to join Officers and Council Members of the FBAS for a Festive Dinner

The Federation's Annual Dinner will again be held, as before, in

Hudson's Bar
Mill Rythe Holiday Village, Hayling Island

Saturday 11th December 2010

Very special terms are available:

Dinner only: £15.00 per person.

Dinner, accommodation and breakfast: £25.00 per person.

Additional extra nights' accommodation, ie, Friday and/or Sunday including the following morning's breakfast, can be reserved (subject to availability) at a cost of £25.00 per person per night.

TO BOOK

Please send Grace Nethersell the number of persons attending the Dinner (and requiring overnight accommodation) together with cheque (made payable to 'FBAS') for the appropriate amount to:

FBAS DINNER, 8 Acacia Avenue, Brentford, Middlesex TW8 8NR

NOTE: Reservations are offered on a 'First come, first served basis.' In order to guarantee your place please make your bookings as soon as possible. You may also contact Grace directly by telephone 020 8847 3586 or email: grace@the-nethersells.fs.net.co.uk



It was next day we all set of "up river. The water level was high but not as much as when the rainy season gets fully under way. We passed many islands that spread out along the banks of the Rio Negro at this part. I was told that when the river floods later in the year they all disappear under water, the plant life has to grow and seed for new growth in a very short time. When these had long gone the water here was very wide and open. Up ahead I spotted what appeared to be wooden buildings.

Here Canea dropped the canoe over the side, Canea then dropped some seeds into the water and under the surface one could see lots of movement. Although Canea had only paddled a few yards from our boat with the sun shining so strong I could not see into the water. With a quick movement of Canea's arm, he thrust his home-made spear into the water whilst holding on to the end.



Then up came the spear with a Piranha (*Serrasalmus nattereri*) on the end of it, larger than anything I had seen before, even in Zoo aquariums. Canea did this a few more times. He took one of the dead Piranha and opened its mouth, wow, what teeth these fish have, no wonder in a shoal a human body would be turn to bits in minutes!

Justino pointed to the wooden houses ahead, "That's were I live" he said, however I could not understand much of what he said. Tied up at the side of the house that's some two feet above the water on stilts to cope with higher waters in the rainy season was two very large canoes.



I could not see what it was they were carrying a first, but I found out they were full of Brazil Nuts, being collected by Justino's family that would be collected and sold in Manaus. Justino's wife was a very good cook and after cleaning the fish we had caught, would barbecue them with a few herbs and served with the local flour called farinha, that is made from a tree root, it was very delicious.

In the high trees at the back of Justino's home you could see black vultures (*Coragyps atratus*). Something always wants to eat you or bite just at the wrong moment and often in an embarrassing place. For me inside the house was extremely hot, it gets wet and you feel steamed up.

On the shore a little way from Justino's house I spotted a Matamata Turtle (*Chelus fimbriatus*) emerging from the water. It was so ugly but beautiful, almost prehistoric, but their camouflage really is amazing. Canea told me they can grow quite large and give a nasty bite so one must treat them with caution.

Next day we were on our way with plenty of food and supplies with the help Justino's family and their friends. As we progressed it seemed the Rio Negro was becoming increasingly darker. Before the rise of the Andes the Amazon River itself may have been, at least during parts of its geological history, a blackwater river somewhat similar to the Rio Negro as seen today. This is suggested by the fact that most of the Amazon's large western non-Andean tributaries are today blackwater rivers.

These Amazon rivers along with tributaries of the Rio Negro are the natural habitat of many of our aquarium fishes like the Neon Tetra (*Paracheirodon innesi*) and the Cardinal Tetra (*Paracheirodon axelrodi*).

Today the Cardinal Tetra can only be found in the Rio Negro and some of the tributaries, whereas the Neon Tetra lives much further west in the rivers of the Brazilian-Peruvian-Colombian border. But we are now leaving Airao and are heading to Moura, meeting up with the Rio Branco placing us about midway up or down as you may see it along the Rio Negro.

During this trip we will be passing the Rio Jau and Rio Unini, I hope we will be looking for fish at both the entries to these rivers. We are passing forest where some reach down and into the waters edge; we canoed right up to the plant and I was told it was the "acra'a-ac'u plant, the species being *Licania stewardii*. This plant is favoured by Discus as a source of food, the flowers drop into the water and with them terrestrial insects, mainly ants and later on their seed are a perfect symbiose.

The water here being 1.5 metres in depth and after taking a water sample and testing it later was found to be 4.6 Ph at a temperature of 30.3°C. The air temperature at this time was 37°C really hot.

We did not need to lower a net as we could see Discus all around our canoe. Canea put a net into the water and when he pulled out it was full of Discus about 150mm (6") in size, but with a couple that were really large - like plates. I did not want to leave but we had to move on.

Soon we were up to the mouth of the Rio Jan at this part it was quite wide. We lowered the canoe and as we started upstream the water surface appeared to be jumping. As we approached slowly, it was a shoal of Marbled Hatchetfish (*Carnegiella strigata strigata*); it was fascinating, but we paddled on and they were gone. A little further on and Canea put out a trawler type net that opened out like a balloon as we made our way further upstream. There now was more splashing as fish had entered the net, Canea pulled over and we both pulled the net up to the canoe. As well as some small Characins there was a large catch of Pimelodids type catfish, they were silver with back spots, *Calophysus macropterus*, no wonder they were going mad, this catfish I have kept at home and when you went into the fish house it would swim from one end of the tank to the other at high speed and damage itself. I suggested we release them straight away as they were going frantic. As Canea was opening the net for them to go I stopped two other catfish, also Pimelodids type, but these were silver metallic with a blue shine that could be seen in the dappled sunlight by the overhanging trees. This also I had kept at home, I remember purchasing it from Johny Johnson (Catfish John) shop near High Wycombe; at that time we never put a name to it other than Blue Pimelodid.

After getting a good night's sleep next day we were off moving more closer to the Rio Branco. Justino pointed out a large opening to the right, this was the Rio Branco, this was the first time I had seen aquatic plants on the water's edge at any time, and these were a species of *Echinodorus*, but with them growing out of water and growing so large also having large wide leaves, I could not put an exact name to them. Although we had cruised some 200 meters or more when I put a waited string in the water it was quite deep 20 metres or more.

It was just me and Canea that set off in the canoe. We stayed close to the bank and after a while you could see fish, but looking over the top you could not clearly tell what they were, but they were thin and slow moving.

Canea but his net over the side and we waited for the fish to come back again. Canea pulled up the net and this was truly a beautiful sight. The net was full of Discus with dazzling light-blue markings, if that was not exciting enough possible up to 25% of the catch were Angel Fish (*Pterophyll/um scalare*) of a very large size. Heioko Bleher, who knows these black rivers well, states "They are often sold as *P. altum* or Rio Negro Altum" but this naming of these Angel Fish are not correct. Heioko Bleher also states Angel Fish and Discus are often found together within the Rio Negro waters.

Within these few pages, and the time I had in and around these truly remarkable waters, one can only sample what is going on here. I have listed books, and papers so you can read more fully and in depth of this wonderful location.

Fish found in the Rio Negro region, (Brazil):

<i>Aequidens diadema</i>	<i>Hemiodopsis semitaeniatus</i>
<i>Brachychalcinus orbicularis</i>	<i>Heros severus</i>
<i>Brycon melanopterus</i>	<i>Hydrolycus scomberoides</i>
<i>Calophysus macropterus</i>	<i>Leporinus affinis</i>
<i>Camegiella strigata strigata</i>	<i>Mesonauta festivus</i>
<i>Chalceus erythrurus</i>	<i>Metynnis argenteus</i>
<i>Colossoma macropomum</i>	<i>Metynnis luna</i>
<i>Corydoras adolfoi</i>	<i>Myleus schomburgkii</i>
<i>Corydoras burgessi</i>	<i>Osteoglossum sp</i>
<i>Corydoras davidsandsi</i>	<i>Paracheirodon axelrodi</i>
<i>Corydoras imitator</i>	<i>Paracheirodon innesi</i>
<i>Corydoras metae</i>	<i>Phractocephalus hemioliopterus</i>

Corydoras nijsseni
Geophagus daemon
Geophagus jurupari
Geophagus proximus
Goeldiella eques

Platydoras costatus
Pseudauchenipterus nodosus
Pseudoplatystoma fasciatum
Pterophyllum scalare
Symphysodon aequifasciatus
Tetranematichys quadrifilis

Many of the fish caught, are food fish for those that live on the Rio Negro, and so many aquarium fishes we know as aquarists have no interest and so not listed here.

References:

Corydoras
Baensch
Flooded Forest
Rio Negro

Werner/Seub/Dahne Verlag
Hans A. Baensch/ Dr Gero W. Fischer
Michael Goulding
M.Goulding, M. Leal Carvalho,
E.G.Ferreira
Heiko Bleher
Alan Shearer

Bleher's Discus Vol 1
The writings of Alan Shearer



EARLY WARNING ALERT!!!
Remember
Saturday September 4th
it's the
FBAS Assembly Meeting
Rose Community Centre
Brentford, Middlesex TW8 8NT

PRE-ORDERED REFRESHMENTS AVAILABLE -
EMAIL MALCOLM WITH YOUR REQUESTS

SAUSAGE SANDWICH, CHIPS, BEERS,
TEAS, COFFEE etc

malcolmgoss@tiscali.co.uk



AN ASSEMBLY APERITIF?

For those travelling a fair distance to attend the FBAS Assembly on September 4th, there's great news.

No longer will you have to hang out until the tea break for refreshments as our own MASTERCHEF MALCOLM has offered to provide some basic snacks ahead of the meeting.

The limited menu will include the following:

Sausage Sandwich	£1.50	Individual Steak Pie	£1.50
Sausage & Chips	2.50	Individual Steak Pie & Chips	£2.50
		Portion of Chips	£1.00

Small selection of canned beers, lagers, non-alcoholic lagers

Complimentary Teas, Coffee during Assembly Meeting

To assist Malcolm, please order your requirements

in advance of the meeting - by Wednesday 1st September

email: malcolmgoss@tiscali.co.uk



KEEP ON TOP OF YOUR FISHKEEPING

The Bulletin offers some tips
you might care to follow in
the next few weeks

POND

- "Dead Head" Water-lilies and remove old or rotting leaves.
- Remove marginal plants that are in baskets and remove excessive root growth with hacksaw, especially those growing out of their basket.
- Remove any excessive amounts of underwater (fully aquatic) plants as many will die back and rot.
- Remove pond pump and check electric wiring (**switch off first!**) for cracks in outer insulation. New pump may be required if faulty.
- Remove pump from outer casing and clean; clean any pre-pump filter.
- As days get colder possible late October onwards don't feed your fish; they will stop feeding and any uneaten food will rot on the bottom of your pond.
- Be ready to switch off water going through water sprinklers and fountains before ice starts to form in cold weather. Only waterfalls that have a good flow should be left to operate.

FISH HOUSE

- Check your Show fish and what you will be entering when attending the Fish Festival at Hayling Island (8th-10th October)

- Check fish house insulation; with winter coming on, electric bills will rise!
- Make sure your the roof of your Fish House is waterproof, and drains and gutterings are clean for water to run away.
- Check out all aquarium internal heaters are working.
- Set up aquariums for breeding fish when Show season ends to the conditions your breeding stock fish require (Visit the Conservation Stand at Fish Festival)
- Change 20% of all your aquarium waters that require a top up - plus use a de-chlorinator.

COMMUNITY AQUARIA

- Siphon gravel of aquarium to remove debris.
 - Remove dying or decaying plant leaves
 - Check airstones and replace with new ones if output has slowed down.
 - Replace small felt filter in base of air pump to improve performance.
 - Always have a spare diaphragm for your air pump as old ones, while still working, well may stop and a replacement will be necessary.
 - Try feeding with frozen foods available at your local shop.
 - Prune back 'cutting type' plants that grow over the water surface stopping light getting to lower growing plants.
-

Why not let the Bulletin know how your fishkeeping is going?

Have you any ideas or tips to share with your fellow fishkeepers?

Write or e-mail me, the Editor (address on the Editorial page)

Malcolm

SHOW & EVENTS DIARY 2010

(full details can be found on FBAS website www.fbas.co.uk)

FBAS ASSEMBLY

SHEAF VALLEY OPEN SHOW /AUCTION	4 th September
BKA CONVENTION	5 th September
MIDLAND KOI ASSOCIATION CLOSED SHOW	10-12 th September
FSAS AUCTION	11-12 th September
HOUNSLOW & D.A.S. OPEN SHOW	12 th September
CATFISH STUDY GROUP OPEN SHOW & AUCTION	18 th September
T.T.A.A THREE RIVERS SHOW & AUCTION	19 th September
GOLDFISH SOCIETY of GB OPEN SHOW/AUCTION	19 th September
BIRMINGHAM & MIDLAND KOI CLOSED SHOW	25 th September
FAIR CITY A.S. OPEN SHOW & AUCTION	25-26 th September
ROBIN HOOD A.S. AUTUMN AUCTION	26 th September
GT MANCHESTER CICHLID GROUP AUCTION	26 th September

FESTIVAL OF FISHKEEPING

PRESTON & D.A.S. AUCTION	3rd October
SCOTTISH AQUARIST FESTIVAL	9-10 th October
CATFISH STUDY GROUP MEETING	10 th October
KIRKALDY A.S. AUCTION	10 th October
STAMPS AUCTION	17 th October
SHEAF VALLEY A.S.AUCTION	17 th October
WEST LONDON BKA Meeting Weybridge	17 th October
BASINGSTOKE & D.A.S. OPEN SHOW	18 th October
NW CICHLID GROUP Meeting	18 th October
CASTLEFORD A.S. AUCTION	24 th October
GOLDFISH SOCIETY of GB Meeting	24 th October
SCCRS AUCTION	7 th November

FBAS GENERAL ASSEMBLY

FBAS FESTIVALDINNER	17 th November
CATFISH STUDY GROUP CHRISTMAS MEETING	20 th November
HOUNSLOW & D.A.S.CHRISTMAS EVENING	21 st November
	4 th December
	11 th December
	12 th December
	15 th December

**WE'VE MADE SHOW SECRETARIES' JOBS
A LOT EASIER!**

**DOWNLOAD FBAS TROPHY
APPLICATION FORMS**

**UPLOAD YOUR SOCIETY'S
SHOW SCHEDULE!**

