BULLETIN

SPRING 2017

FEDERATION OF BRITISH AQUATIC SOCIETIES
www.fbas.co.uk

COVER PHOTO
Les Pearce

NEWS, VIEWS AND ARTICLES
BY FISHKEEPERS FOR FISHKEEPERS

FEDERATION OF BRITISH AQUATIC SOCIETIES

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QUARTERLY BULLETIN

SPRING 2017

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Edited, published and produced for the FBAS website by Les Pearce

EDITORIAL

Welcome to the Spring 2017 edition of the Bulletin. There are some outstanding items inside - something of interest for everybody.

Dr David Pool concludes his informative three part series of articles on fish health.

Dick Mills gets to grips with a series of questions on setting up a tank and there is the latest news on the new FBAS class for Betta splendens - class 'I'.

Please, please keep the articles and information coming in. Anything that you think may be of interest to fellow fishkeepers is always welcome. You can contact me or send articles using the details below.

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SAD NEWS FROM SOUTHEND, LEIGH & DAS

Hello Everybody,

Craig Banthorpe `phoned today to let us know the sad news that his father Rodger Banthorpe passed away on Friday the 10th of March. Rodger was our Society`s President for a number of years, his wife Diane was our Secretary for a similar time - she passed away four years ago.

Peter Capon
pp Southend, Leigh & District Aquarist Society

IDENTIFYING FISH DISEASE

Dr DAVID POOL

The third and concluding part of Dr David Pool's fascinating and informative series of articles on fish health.

Fish Disease and the Importance of the Immune System

The word parasite causes tremors of concern among many fishkeepers. Fish with parasites are thought to be unhealthy and require treatment immediately, with all of the issues that this can create.

In fact all fish are diseased. They all have bacteria, viruses and possibly much larger parasites in and on them – but most fish look and are perfectly healthy. This is because fish have a very effective immune system, which is able to keep parasite numbers at very low levels and prevent them from debilitating the fish in any way. Exactly the same is true for us. We all have cold viruses, flu viruses and perhaps more serious infections, but for most of us our immune system keeps on top of the disease organisms and ensures that we remain healthy.

Disease problems start to occur for fish when either their immune system isn't working efficiently, or the fish are exposed to a parasite that the immune system doesn't recognize as such.

White Spot (*Ichthyophthirius multifilis*) provides a good

example of this. White Spot can occur in an established aquarium that has had no fish added and no problems for several years. A sudden drop in water temperature following a water change or heater malfunction, or perhaps an over enthusiastic filter clean which has resulted in elevated levels of ammonia or nitrate, can stress the fish and adversely affect the immune system. This leaves the fish less able to control parasite numbers. The White Spot parasite multiplies as normal, but the new spores are not controlled by the immune system and very quickly we see the parasites on the fish, causing irritation, flicking and gasping.

Alternatively a new fish could be added to the aquarium that was 'carrying' White Spot. If the fish was healthy it would only have a very small number of parasites present and would show no signs of the infection. However the White Spot parasite could be 'new' to the other fish in the aquarium and would rapidly spread before their immune systems recognized the problem and responded. Again we would quickly see the parasites on the fish and the resultant irritation, flicking and gasping.

Maintaining a Healthy Immune System.

Ensuring the fish have a healthy immune system is obviously important if we are to prevent disease outbreaks. The immune system can be affected by a wide range of factors within an aquarium or pond including:

Food. Ensuring the fish receive a nutritionally balanced diet is essential. A poor diet will not allow the immune system to work efficiently with the problems that this can cause. Certain ingredients in the food are also able to boost the function of the immune system. Garlic, Beta Glucans from yeast and omega oils are all known to help.

Water Quality. Prolonged exposure to poor water conditions, or a sudden change in water quality can have an impact on the fish's immune system. In the previous article we looked at the signs to look for which suggest a water quality problem. The impact on the immune system is not immediately obvious, but you will very often see disease outbreaks following poor water conditions – in part because the skin and gill tissues of the fish have been damaged by the poor water but also because the fish are weakened and not

able to defend themselves from attack. Opportunistic parasites such as fungi and 'fin rot' bacteria are great examples of parasites that are on the fish all of the time, but suddenly multiply when the fish is weakened.

Stress. Stress can occur due to a wide range of factors, ranging from poor water conditions, and bad handling to bullying by other fish.

Identifying the Parasite

There is a wide range of effective treatments for the parasites that can affect aquarium and pond fish. However it is important to select the right treatment for the parasite that is causing the problems, which, of course, means identifying the parasite correctly. Whilst this may sound daunting, in most cases it is only necessary to identify what 'type' of parasite is affecting the fish in order to select the correct remedy. Fortunately there are some clues which will help to narrow down the possibilities.

In the first article in this series we looked at how to identify an unhealthy fish and provided clues which would direct you to the cause. For diseases there were two options:

Infectious disease – a small number of fish affected initially, but the number increasing from day to day.

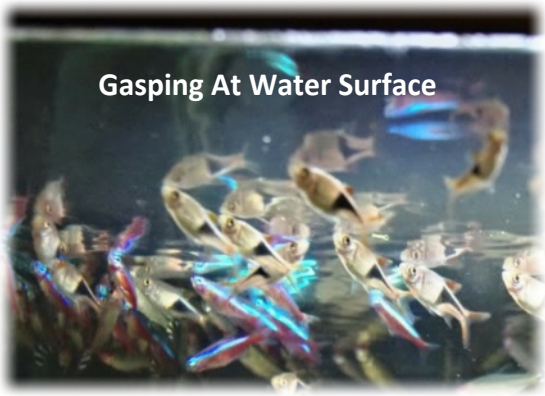
Non infectious disease – 1 or two fish affected, with the number not changing.

Identifying which parasite is responsible can then take 3 stages:

1. Behaviour of the Fish

The behaviour of the fish can give a good indication of what part of the body is being 'attacked' by parasites. It is not always accurate, but can give a good

idea of where to look more closely. Look for unusual behaviour that you haven't seen before with the fish in question. This may be gasping at the water surface, rubbing against underwater objects or sulking in a corner.



As an example, gasping at the water surface indicates that the fish can't get enough oxygen into its body,. Assuming you have ruled out poor water quality, a parasite in or around the gills is the obvious cause. It is possible that gill flukes or White Spot is damaging the gill tissue and preventing it from functioning effectively. However it could also be parasites on the gills, or on the body close to the gills which are irritating the fish causing it to produce excessive mucous, which is in turn making oxygen uptake more difficult. Internal parasites such as *Sanguinicola* can also cause gasping, by taking oxygen from the blood of the fish.

2. Visual Inspection of the Fish.

In many cases the parasites on the skin, fins and gills, or more commonly the fishes reaction to them, is visible to the naked eye. Larger parasites such as leaches, fish lice, black spot and anchor worm are visible on the fish when mature. Many other parasites group together making their identification easy. This includes white spot cysts, fungus, oodinium and bacterial infections. If you look in a good fish health book or put 'aquarium fish diseases' into the search engine on your computer there are many illustrations of these parasites.

A fish's reaction to having raised levels of parasites on the body can include:

Reddening of the skin, due to physical damage of the blood vessels either by the parasite or the fish rubbing to try and remove them

Excess mucus. The fish produces excessive mucus to try and protect its skin from the irritation caused by the parasites. This can be seen on dark areas of

Argulus or Fish Louse - A parasitic Crustacean of the family Argulidae.

the body or against the pupil of the eye as a pale coating.

Open wounds. Sores or ulcers can be a result of a bacterial infection, but can also be a secondary infection that has invaded a wound caused by larger parasites such as leaches or argulus.

3. Microscopic Examination

To identify the smaller parasites correctly it is usually necessary to use microscopy or more advanced laboratory techniques. They need to be conducted by experienced personnel who have the appropriate equipment.

Taking a skin scrape from a living fish (generally larger species) allows you to view the mucous coating of the skin. At higher magnifications it is possible to find skin parasites such as flukes, protozoans and fungi. Great care has to be taken when obtaining a skin scrape to ensure that the fish aren't further harmed.

Microscopes are also invaluable for conducting postmortem investigations on an unhealthy fish and identifying if there are parasites present in sufficient numbers to have killed the fish. Such investigations need to be undertaken immediately after the fish has died. If it is left for more than 30 minutes at tropical water temperatures finding the parasites can be very difficult.

Bacterial and viral infections of a fish cannot be correctly identified using a microscope. Tissue samples or swabs need to be carefully taken and sent to a specialist laboratory for culturing and identification.

Which Treatment?

If you have a look at the range of disease treatments that are commercially available you will notice that most treat a range of parasites – which is the reason that it is not necessary to identify the exact species of parasite. Treatments are available for fungi – which treat the majority of fungal species that grow on fish; or skin protozoan parasites, which will control the many species of *Costia*, *Chilodonella* and *Trichodina* which cause irritation and mucous production when present in large numbers.

Hexamita or 'Hole in the Head' Disease

Pleistophora or 'Neon Tetra' Disease

There are more specific treatments for the harder to control parasites that affect our fish. *Hexamita* (hole in the head disease), Anchor worm and *Pleistophora* (Neon Tetra Disease) are good examples of this.

Treating Fish for Diseases

Effective treatment of a parasite can be greatly improved if you recommend that your customers follow a few simple guidelines:

- Read the instructions – and follow them to the letter. Disease remedies vary in the way that they should be applied to have the best effect without harming the fish.

- Don't over or under dose. Disease treatments kill living organisms and if

added in sufficient quantities, will also kill your fish or other aquarium/pond life. Most disease treatments have a good degree of tolerance, meaning that over dosing slightly will not be too harmful – but 'adding a bit for luck' may have the opposite effect to that which you are hoping. Under-dosing can also be problematic. It will kill the weaker parasites, leaving the strong ones to multiply and, eventually, create a population that is resistant to that particular treatment. This is exactly what is happening with antibiotics and has happened with Warfarin and rats.

- Conduct a partial water change and remove any organic debris that would otherwise absorb some of the treatment.

- Remove chemical filter media such as charcoal which will absorb the disease treatment.

- Turn off lights. Some of the dyes used to treat fish diseases are adversely affected by light. The instructions will advise you if this is necessary.

- Turn off UV and ozone if used. Both can denature treatments making them ineffective. It is very important to leave the filter functioning.

- Carefully feed the fish. Continue feeding the fish during treatment, but make sure they are not overfed. Using live foods can be useful at this time, as the movement can tempt reluctant feeders.

Summary

This short series of articles was intended to provide some guidance on what was wrong with your fish. Whilst it is impossible to cover all scenarios, the information provided will hopefully guide you through the process which should be followed.

FishScience Corydoras Tablets Tested by UK Corydoras Keepers

Fish food experts FishScience, have produced a unique tablet food for Corydoras and other bottom feeding aquarium fish. The tablet food is rich in Insect Meal which helps to recreate the natural insect based diet that these fish would eat in the wild.

'With the help of Ian Fuller from Corydoras World and other Corydoras exerts throughout the UK we have been able to develop a food that is ideal for these fish species' explained Dr David Pool of FishScience. 'We sent food samples to over 50 Cory experts and used their feedback to fine-tune the recipe and format. The end result is a food that is not only nutritionally balanced for Corydoras, but one that they really enjoy."

The use of insect meal in the foods has a number of key benefits. It is what Corydoras and most aquarium fish would eat in the wild. Not surprisingly they have evolved to digest and process this food, which results in great food conversion ratios and less waste. Importantly Insect Meal is cultured on waste fruit and vegetable material, ensuring it is environmentally friendly and sustainable – and reduces the use of Fish meal taken from the sea.

FishScience Corydoras Tablets are available in 2 pack sizes, 50g (RSP £4.75) and 150g (RSP £8.95).

For more information on Corydoras Tablets and the rest of the FishScience range visit www.fishscience.co.uk or follow us on Facebook @FishScience

HOW TO MAKE PLANTS FLOURISH

THE GREEN CORNER

BY GREGORY MORIN Ph.D
(Article from 'SEACHEM')

Reproduced from 'SUPERFISH', official publication of the Queensland Cichlid Group

The sheer number of factors involved in plant growth and health may seem daunting at first, however, if we broadly classify these factors into three categories the task of deciding what is needed becomes more manageable.

These categories are: Substrates, pH/Hardness, and Supplements. Each category builds upon the one before, using the ground-work laid to ensure a flourishing environment at every stage.

Substrates are the "root" and foundation of the system. Starting with a quality gravel (such as Seachem's all natural and mineral rich gravels: Flourite™, Flourite Red™, or Onyx Sand™) lays the foundation for further success. Although a low cost gravel may save money in the short term this will be more than offset by a necessitated increase in use of supplements to make up for the shortcomings of such gravels. If a quality gravel is employed one could actually just add a few fish and have a successful planted aquarium.

A good quality substrate Is essential for healthy plant growth

It likely will not win any awards for growth rates but it will be a good, solid aquarium whose overall simplicity of maintenance will appeal to the beginning hobbyist. At this point there will be a divergence of hobbyists; some will be happy with the aquarium as is and some will desire to take the aquarium to the next level, i.e. faster growth, richer greens, etc.

This next level begins with pH/Hardness (KH and GH) optimisation with buffers and mineral salts. Although these terms are used quite frequently it would be worthwhile to define them here for those new to this hobby. In broad terms, pH is a measure of the acid content of the water (acid meaning Hydronium ion: H3O+); because pH is the negative logarithm of this acid concentration, smaller pH numbers translate into higher acidity levels. KH is a measure of the carbonate (bicarbonate & carbonate) content of the water.

Because carbonates act as pH buffers you will find that KH and pH are intrinsically linked in the planted aquarium (in general KH and pH rise and fall together).

GH is a measure of the calcium and magnesium content (it also encompasses other divalent metal cations, e.g. iron, copper, etc, but these typically contribute less than 1% to total GH) of the water.

Aponogeton crispus *Cryptocoryne wendtii*

In their native environment, *Cryptocoryne* and *Aponogeton* inhabit areas of soft water

For both KH and GH low values correspond to "soft" and high values to "hard. The native environment of some plants (*Cryptocoryne*, *Aponogeton*, etc.) is soft whereas others (*Sagittaria subulata*, *Riccia fluitans*, etc.) are more acclimated to hard water. Husbandry goals will dictate the approach taken to adjusting pH and hardness. If keeping soft water plants and the source water is hard one will need to soften it either by using a RO (Reverse Osmosis) system (such as Seachem's Pinnacle™ or Pinnacle+™ Series) or by purchasing already demineralised / deionised water.

Riccia fluitans

Sagittaria subulata

Sagittaria subulata and *Riccia fluitans* are more acclimated to hard water conditions

Once the water is softened one would then adjust pH, KH (Acid Buffer™ and Alkaline Buffer™ (Liquid or Powder versions)) and GH (Equilibrium™) as needed. If keeping hard water plants then

the task is a bit easier since only minor adjustments to the presumably soft source water would be needed. If the source water is already hard then pH may be the only parameter needing adjustment. For those desiring to maintain soft water plants it is important to note that many soft water plants grow quite well in a hard water environment (*Cryptocoryne*, *Aponogeton*, etc.), thus if the source water is hard it may be worthwhile to first employ the source water to see how they fare. If they do well then demineralisation would not be necessary.

The final category in environmental optimisation is Supplementation. Supplementation encompasses organic nutrients (vitamins, amino acids, carbon, etc.) as well as micro and trace elements (iron, manganese, nickel, cobalt, etc.). Within this category there 13 is also a hierarchy of parameters that ad-dresses progressively more specific and advanced requirements. The best method to determine what a system requires is to start with a few products and use them for a few months. If they have a positive effect then they are essential. If, however, they seem to have no effect, then it is likely that they are not necessary. If unsure, halt a particular product's use and see if there is a negative effect. If a negative effect is seen then the product in question is required by your system.

From our (Seachem) product line we normally recommend one start with Flourish™ and/or Flourish Tabs™.

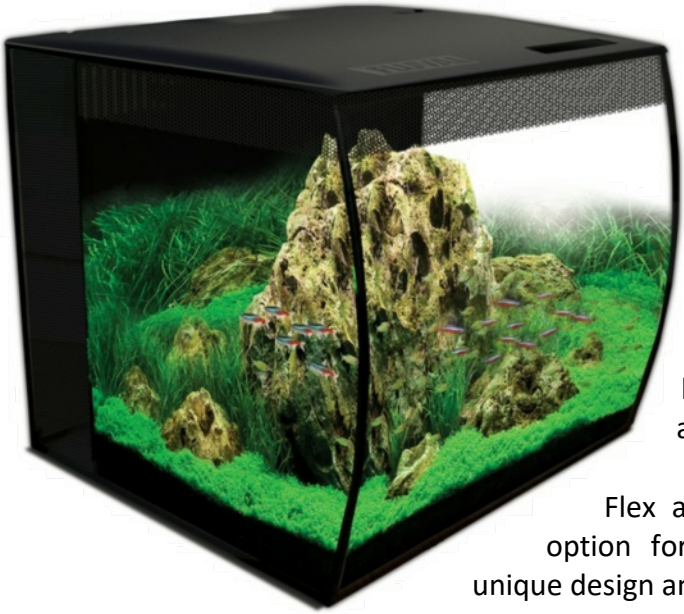
These provide a broad range of micronutrients (vitamins, amino acids) and micro and trace elements (iron, manganese, nickel, cobalt, etc) that will enhance plant health and growth. If the growth rate is substantial the trace elements are often utilized more rapidly than the other components in Flourish™, thus in this case it would be beneficial to also employ Flourish Trace™ along with Flourish™ and/or Flourish Tabs™. Once that foundation is set one can then explore the use of parameter specific supplementation. Because plant nutrient requirements, usage rates and source water can vary drastically we have determined that the ideal approach to

supplementation is to separate each component so that each can be dosed individually as needed. Sometimes these requirements can be determined by testing (MultiTest: Iron™, MultiTest: Phosphate ™, MultiTest: Ni-trite & Nitrate™) and sometimes through simple observation of plant response.

The five main parameters that need direct control are: Nitrogen (Flourish Nitrogen™), Phosphorus (Flourish Phosphorus™), Potassium (Flourish Potassium™), Carbon (Flourish Excel™), and Iron (Flourish Iron™). Nitrogen is a component of proteins and nucleic acids, phosphorus is a component of ATP, NADP, nucleic acids and membrane phospholipids and potassium is an enzyme activator and is involved in charge balance.

Carbon is the backbone of all life and is thus essential for plant growth. Iron is necessary for the formation of chlorophyll and is involved in enzymatic electron transport and other oxidation-reduction processes. Although planted aquariums are often considered to be too difficult for the beginning hobbyist, we believe that planted aquaria are actually ideal for the beginner. With the right substrate the beginner can have a successful aquarium with a minimum of maintenance. As the beginner become more comfortable in the hobby they will feel inclined to experiment a bit and thus build on the solid foundation they have already established.

Introducing Fluval's latest nano aquarium range - Fluval Flex!



The all-new Flex nano aquarium series provides contemporary styling with its distinctive curved front. The tank is equipped with powerful 3-stage filtration and an infrared remote control that allows you to select between several colours and special effects.

Flex aquariums are the perfect option for any fishkeeper with its unique design and fantastic features.

Brilliant Illumination

Fluval Flex comes with a Flex pad remote control which conveniently controls a wide range of colours as well as fun special effects including faded cloud cover and lightning bolts, allowing you to customise your aquatic universe according to your mood!

Multi-Stage Filtration

Flex features a separate rear compartment camouflaged by a honeycomb print to house its multi-stage filtration for optimal water clarity.

Convenient Features

Flex comes compact with several great features including its easy feed large cut out opening for simple feeding. Its multi-directional dual output nozzles mean the tank water flow can be adjusted to depending on your tank setup.

For further information please contact Rolf C. Hagen UK Ltd. on 01977 556622 or visit our website at www.fluvalaquatics.com

KNOW YOUR FISH

Neolamprologus sexfasciatus

Jeff Gant 'Superfish' Jul - Sep 2015

Scientific name: *Neolamprologus sexfasciatus*

Described in 1952 by Trewavas, E. and M. Poll in three new species and two new subspecies of the genus Lamprologus, Cichlid fishes of Lake Tanganyika. Bulletin du Musée Royal d'Historie Naturelle de Belgique v. 28 (no. 50): 1-16.

Meaning of name: Six striped

Synonyms: *Lamprologus sexfasciatus*

Common Names: Six-bar Lamprologus, Gold Sexfasciatus, Six Bar Cichlid.

Colours: There are two colour varieties of *Neolamprologus sexfasciatus*. The most common variety in Australia has a light gold background colour and six black vertical bars which extend three quarters of the way down from the dorsal. The pelvic, anal, tail and dorsal fins are light yellow with a light blue edge. The other common variety has a white background with the pelvic, anal, tail and dorsal fins being totally light blue. The bars go closer to the fish's body.

The rarer Zairian variety resembles the white variety except that it has partly yellow coloured fins. All varieties of *Neolamprologus sexfasciatus* have a light blue stripe under their eye.

Natural Habitat: Lake Tanganyika Africa. The gold variety is from the southern half of the Tanzanian Coast.

Could be confused with: There are a number of similarly shaped vertically striped fish from Lake Tanganyika. *Cyphotilapia frontosa* and *Plecodus straeleni* have slightly different body shapes and colourations. The fish that closely resembles *Neolamprologus sexfasciatus* is *Neolamprologus tretocepalus*. The latter differs by having one less stripe down its body and only comes is a white bodied variety.

Size: M. 15cm F. 10cm **pH:** 8-8:5 **Hardness:** 300ppm **Temp:** 24-26°C

Care: As a Lake Tanganyikan Cichlid it is very intolerant of bad water conditions. Water changes should be small and regular. Adult *sexfasciatus* are best kept in pairs. I have been able to keep two pairs in the same large aquarium. It is 180 x 60 x 60cm in size and contains plenty of hiding spots.

Diet: In nature it is a predator of invertebrates and snails. In the aquarium it will eat high protein flake food, brine shrimp, white shrimp and whitebait.

Specific Disease Problems: While it has no specific disease problems it is as previously mentioned sensitive to imperfect water.

Temperament: while growing up *Neolamprologus sexfasciatus* is reasonably peaceful when grown up it will vigorously defend a territory when a pair bond has formed and spawning occurs.

Sexual Differences: Hard to sex visually. In my pairs the females are smaller and have a fuller body.

Breeding: They are cave spawners that start breeding at about 18 months. The first few spawns may fail before they get it right. Up to 200 off white eggs can by laid. When the eggs hatch and the fry are free-swimming they can be fed newly hatched brine shrimp and microworms.

Availability: Available at Cichlid Specialty Aquarium Stores.

ASK US!

DICK MILLS answers a series of insightful questions on the subject of setting up a first tank.

As might be imagined, The FBAS gets quite a lot of enquiries from worried beginners and frequently their questions can be very vague, with little information for us to work on. However, just recently we had a comprehensive, well-thought out series of questions which was a delight to reply to.

Hi Claire, Thanks for your emailed enquiries. It was a real treat to have such a well-planned, set of intelligent questions rather than 'Why has my Guppy died?' type of thing. If only people would do as much advance research into their chosen subject before taking it up, there would be less disappointments along the way. Let's see if we can set your mind at rest and get you into fishkeeping as soon as possible!

My book lists in USA, cardinal tetras are caught wild then sold. Are they farm/captive breed in U.K.? Or otherwise how do you know how old they are?

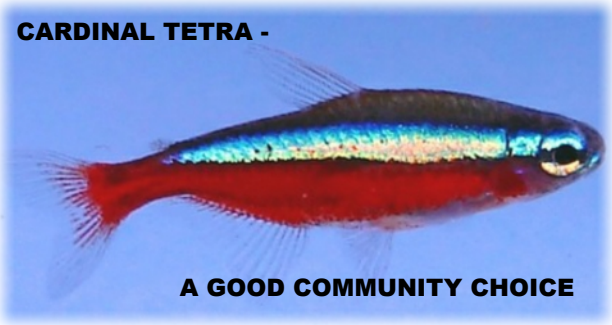
Most fish for the tropical freshwater aquarium are wild caught but a reasonable proportion of the more 'bread and butter' fish such as the popular livebearers - Guppies, Swordtails, Platies and Mollies may be fish-farm bred particularly in South-East Asia around Singapore. Age should not need to be considered, as all fish for sale (from whatever origin) are always juveniles for the simple reason of minimizing transportation costs (more to a bag).

We are quite a hard water area, how can I make fish water softer and slightly more acidic As tetra species need? Do the filtration systems do this job sufficiently?

Again, well done you on your advance research! As a one-time author of aquarium books, I know that every so often fish haven't read them and so don't know what we expect them to do. This is partly due to fishes bred in fish farms do not come from their natural geographical sources as described in the books. Most 'soft water' fishes tolerate (or adapt to) hard water well enough for general upkeep, only requiring 'soft 'water when breeding is planned. You can lessen the hardness of water by dilution with softer water (I use clean rainwater). Rain collected off plastic guttering into a plastic rain butt is usually safe - just check for any oily film on the surface before using, and, of course, warm it up to approximately to the correct temperature before adding to the tank. Filtration can help to maintain water conditions and, with experience, you can incorporate advanced water treatment within the system. By the way, rain water is usually more acidic and softer than tap water.

- Are different types tetras ok together? And can you mix more gentle tetra species with danios or cherry barbs? Or even all three?

Compatibility between species is the key. Obviously eventual adult fish size difference must be considered - don't forget whilst every imported fish could be a one inch juvenile, growth rates can vary enormously and soon one species may simply regard their smaller tankmates as fish food! Most similar-looking species - Cardinal and Neon Tetras, Lemon, Beacon and even Serpae Tetras are all fine together. Likewise, same-sized Barbs and Danios of good tankmates. Together, these



three groups of fish will 'fill' the aquarium's whole swimming space - Danios at the top, Tetras in the middle and Barbs nearer to the bottom. A few Corydoras Catfish to add activity and interest to the substrate area.

- Do I need live snails and other creatures to clean tank naturally? (As well as some manual washing of pump etc)

Personally, I'd say avoid putting snails in the aquarium deliberately. Depending in species, they can be over-prolific (and difficult to get rid of!) and can do a lot of damage to plants. Speaking of plants, if you intend to use live plants, do inspect under the leaves for small blobs of jelly before planting the aquarium. These blobs are actually snail eggs which would otherwise multiply into lots of troublesome snails! Remove them. However, regular maintenance of the filter (regular rinsing of the filter medium etc is recommended as is regular partial water changes (around 10% monthly).

- My minimum tank size would be 30 x 60 x 60cm. If I mixed schools, say for example, of 5 black neons, 5 bleher rummy-nose and 3 bleeding hearts (my possible choice of combo) would tank have to be far bigger?? As that's 13 fish!!

Not an unreasonable choice, if I may so, a nice peaceful, decorative collection. I have slight reservations over the Rummy-noses which some fishkeepers find 'delicate' and the Bleeding Hearts, which tend to be nervous fish and dash about when alarmed, will (should?) grow much larger than

your other Tetras. I would say that around a dozen fish is an ideal number to start with. Allowing for growth, and with good tank management, you will be able to add a few more fish as the aquarium matures (it might be prudent to reach the first dozen fish total in steady stages - three or four at a time) so that the filtration system can adapt to cope with the extra load progressively.

- In fact, are there any top combos you recommend? As my tank will probably be about 25-30 UK GALLON size.

Go for fish that you like and choose from those that your local dealer regularly stocks. This is important as it's only too easy when travelling around to bring back fish which may have been stocked in water conditions different to that in your area. Always ask the dealer what water the fish are used to. After many years of fishkeeping, I still don't have a definitive list of favourites which means I must still find the hobby attractive!

You may find that reading through our 'Codes of Practice' www.fbas.co.uk/CPintro.html may also help with any further queries that may occur to you in the light of my replies.

Finally, if there is an Aquarium Club in your area do consider consulting any of its members for local fishkeeping wisdom - they will have come across (and probably solved) all the problems you can imagine might be coming your way!


RAINWATER SIPHON

1) With the rainwater issue, well how can I ensure it is clean without film, ok if I look and there is film on water, will filter remove it? Or is water with a film unusable? Any % ratio of rainwater to tap water?

Usually, any oily film on the water surface (looks like a rainbow effect) is due to air pollution - living near industry or an airport brings it on. Simply drawing a sheet of absorbent paper (kitchen roll paper or newspaper) across the surface will clear this.

If you siphon water out of the rain butt, wrap the input end of the hosepipe in a lump of sponge material to act as a simple filter to prevent floating debris in the water getting in through.

Fortunately, reducing the water hardness is a simple 'average' thing and no advanced mathematics are require! So, putting together equal parts of tap water and rainwater should result in the final mixture having a new hardness value of around a half of the original tap water, presuming that the rainwater is practically totally soft. But this is speculation and may not be strictly needed until later in your fishkeeping experience so don't get too technically tangled up in things unnecessarily.

2) could I maybe use bottled cheap water from supermarket? Not necessarily mineral water, I mean table water as shops call it

I would advise against this costly method! It's not worth either the money or the effort to carry enough bottles home each time.

3) I have looked at adult sizes of my fish combos. So, when you said about 12 fish a good quantity, but introduce gradually for system to adjust, do you mean I put in 4 fish at a time? Say every couple weeks? If yes, then should the 4 fish be 1 species at a time or say 4 fish of different species? So 1 or 2 of each type? (Although I know species of those small bodies normally like to schools of 4 or more min of their type)

It's the amount of body-mass that's important here, although putting a small number of one species in together is better than adding a solitary fish into an already established shoal of the same species as sometimes pecking-orders and swimming spaces might already have been established by the earlier introduced fish. One trick I found useful when adding new fish is to slightly rearrange the furnishings of the aquarium - move a rock or two, so that it forces every fish to find its own new favourite territory.

4) you state changing water approx 10% monthly, in my books it said 33% water weekly! What is correct? I find in this research, that different experts say different things.

Some fishkeepers are more zealous (or finicky?) than others where water changes are concerned. Some take out every rock every week and scrub them clean and also change most of the water. This is not exactly letting the fish settle down for many reasons - the filter has to re-mature itself, any algae on the rocks (food for some fish) will be lost and so on. In practical terms, it's usual to siphon out a bucketful or two of water from the aquarium (do it from near the bottom so that you remove any detritus on the gravel at the same time) and replace with fresh water. Again, many fishkeepers warm up the replacement water a bit, although many find that their fish are just as happy if cold water is used (most Corydoras catfish take a cold water influx as a trigger to spawn!) After several water changes, you will automatically know - by the margin left at the top of the tank - just how much water to take out to suit your requirement, so a strict bucket count won't be needed. Water changes are necessary as our fish are not kept in flowing waters which flush away any built up elements. Decaying plant matter, uneaten food (most fishkeepers overfeed their fish no matter what they tell you) and of course waste products all 'pollute' the water. Obviously it depends of how many fish you have and how you feed as to how long this pollution takes to build up. I feel that anything from three to six weeks is about how frequently you might need to do it - or feel like doing it!

5) I think I picked my list (5 black neons, 5 bleher rummy-nose and 3 bleeding hearts) as research suggested they all have most close match of temperature, temperament etc. But I take on board what you said about some breeds can be more sensitive etc. The list you have of danios, tetras even catfish, are they compatible? I ask as I not sure my book said. I have go to the book literally lol as I'm new to this so no experience to go on. But I liked sound of this combo you gave.

The majority of available fish are compatible (size for size, of course) otherwise your dealer wouldn't be able to stock them in large numbers in the same tanks - he wants a quiet and convenient life! Most fish are adaptable to variations in water temperature, as long as these occur slowly. When you bring your fish home from the aquatic dealer, it's good practice to float the bag containing them in the aquarium for around 20 minutes to equalise the water temperatures before releasing them into their new home. Similarly (and this is something that all new fishkeepers worry about), if you have a power cut, the aquarium will not suddenly go cold. Even with modest sized aquariums, the water will still take some hours to cool down - even if the central heating goes off too! To retain warmth, wrap the tank in a thick towel or bubble wrap. And, just to make you think, you can go away on holidays: your aquarium, if well-established and running normally can be left to its own devices for a couple of weeks without attention. It's better than asking an inexperienced neighbour to 'look after them' and risk the fish being overfed from that whole tin of fish food you left.

'A FEW CORYDORAS CATFISH CAN ADD ACTIVITY AND INTEREST TO THE SUBASTRATE AREA'

PICTURED HERE ARE *CORYDORAS STERBAI*

A NEW CLASS FOR FIGHTERS

Following on from the announcement in the last issue that Betta splendens would have its own class letter 'I', the following are the guidelines for judging the new 'Pattern' category which will be given to judges. This will be worth a maximum 10 points and will replace the 'Size' category.

BETTA SPLENDENS 'PATTERN' JUDGING GUIDANCE

The following is intended for guidelines only. The final pointing will remain the opinion of the individual judge.

By definition, pattern is related to colour and colour is related to pattern. So, to clarify the position a little, when judging the 'colour' category of the fish, we are looking at the clarity and intensity of the colour or colours in the fish or, if you like, the quality of the colour. When judging pattern, we are more concerned with the way in which the colour or colours are are arranged on the individual fish.

In the past, we have seen *Betta splendens* as a single variety. The choice of colours was essentially limited to red, blue and on occasion, green. The only other colour available was the 'Cambodian' which is a creamy-white bodied fish with red fins. With the exception of the 'Cambodian', the only fish that was acceptable for show standards was a single or self coloured fish - a mixture of red and blue, for instance, was considered to be very inferior.

Things have changed and moved on at an alarming rate and, no doubt, will continue to do so as breeders develop more and more varieties and colour combinations.

Betta splendens are now readily available in an almost limitless number of colours and shades from albino and white to black. There are reds, blues, greens, yellows, orange, lilac, turquoise and all shades of these colours, for example: light blue, steel blue, royal blue, etc. - you name it, you will be able to find it somewhere. In addition, there is clear or no colour, this is usually referred to as 'Cellophane'. Multiple colours have become completely acceptable, even desirable.

Because of this, it is necessary to adopt robust judging methods that can best accommodate new developments as and when they occur.

The colour and pattern of *Betta splendens* can generally be separated into three main groups:

SINGLE OR SELF-COLOURED FISH

As you would assume, fish in this group are limited to a single colour. Points for pattern in this group are allotted to the solidity and evenness of the colour and that it extends completely across the body and out to the extremities of the fins. The more uneven the colour (areas of lighter or darker shade) the more points should be deducted.

TWO-COLOURED FISH

Fish which contain two distinct and contrasting colours. For example, light blue and mid blue should generally be considered as a lower grade self-coloured fish rather than two-coloured - the colours must contrast with each other sufficiently to form a pleasing pattern. Fish of this group can fall into at least three sub-categories:

Bi-Colour:

A bi-coloured fish has a single colour in the body and a separate and contrasting colour in the fins. For example, the 'Cambodian' which has a creamy coloured body and red fins. Any combination of two contrasting colours is acceptable. Points for pattern should be allotted to the solidity of the colours and how well defined the margins are between the two colours. Points should be deducted for the body colour bleeding into the fins and vice-versa.

Banded or Butterfly:

Butterfly is the term usually given to a fish where the fins have banded colours. In a perfect example, the bands should appear on all fins and form an oval shape surrounding the body of the fish. The colour of the bands around the fish should have an obvious contrast with the main colour of the fish. Any combination of contrasting colours is acceptable and it is perfectly acceptable for one or more bands in the fins to be 'clear' or devoid of colour. Pattern points are awarded for

the contrast and crispness of the banding pattern and how evenly and uniformly spread around the fins it is. Points should be deducted for the main colour bleeding into the bands and vice-versa.

Marbled:

As the name suggests, a marbled fish is one where the body and fins have a base colour with a second contrasting colour forming a marbled pattern over it. In the best fish, the marbled pattern should have sharp, crisp and well-defined borders and should form an even and pleasing pattern throughout the body and fins of the fish. Points for pattern should be deducted for unevenness of the marbling across the entire fish, a lack of balance in the intensity of the marbling and for less well-defined borders between the colours.

MULTI-COLOURED FISH

Fish which contain three or more distinct and contrasting colours. As with two-coloured fish, the colours must be distinct and contrasting, for example, three varying shades of blue should generally be considered as a lower grade self-coloured fish rather than multi-coloured - the colours must contrast with each other sufficiently to form a pleasing pattern. Fish of this group tend to fall into sub-categories:

Banded or Butterfly:

As with a two-coloured fish, the term Butterfly is usually applied to a fish where the fins have banded colours. The fins can contain more than one band and it is acceptable for each band to have a different and contrasting colour. It is also acceptable to have more than one band of the same colour. In a perfect example, the bands should appear on all fins and form an oval shape surrounding the body of the fish. The colour of the bands around the fish should have an obvious contrast with the main colour of the fish. Any combination of contrasting colours is acceptable and it is perfectly acceptable for one or more bands in the fins to be 'clear' or devoid of colour. Pattern points are awarded for the contrast and crispness of the banding pattern and how evenly and uniformly spread around the fins it is. Points should be deducted for the colour in any one band bleeding into other bands or into the main body colour of the fish.

Koi or Marbled:

Marbled fish of three or more colours are often referred to as 'Koi' *Bettas*. In exactly the same way as the two-coloured marbled patterns, in the best fish, the marbled pattern should have sharp, crisp and well-defined borders and should form an even and pleasing pattern throughout the body and fins of the fish. It is perfectly acceptable for colour patches to overlap but their borders should still remain sharp and well defined. Points for pattern should be deducted for unevenness of the marbling across the entire fish, a lack of balance in the intensity of the marbling and for less well-defined borders between the colours.

IN CONCLUSION

It should be noted that the above guidelines are by no means complete or comprehensive. Other colour patterns will doubtless continue to be developed and will almost certainly find their way onto the show bench. In these instances, Judges should use their own discretion whilst still applying any relevant part of the above guidelines. In general, any pattern that is 'pleasing to the eye' should be awarded with superior points.

As a warning, several 'made up' names seem to be emerging for various colours and patterns of *Bettas*, names such as 'Mustard Gas' and 'Blue Cambodian'. Very often these names can be invented by breeders and dealers to enhance the sales of their fish. These names can sometimes be a useful guide to aid in the description of a fish and, very often, over the years, they can become permanent and recognised. A fish is not, however, to be considered in any way superior, simply because is has a name where others may not.

AN ISLAND AQUARIUM

LES PEARCE

The Aquarium on Rhodes, or to give it its proper name, the Hydrobiological Station of Rhodes, is definitely worth a visit if you happen to be on the Island. It combines a research station with the public attraction of an aquarium and is operated by the Hellenic Centre for Marine Research.

The first thing you will notice is the remarkable art deco building in which it is housed. This was designed by Italian architect Armando Bernabiti and built by the Italians in 1934-36 during their occupancy of the Dodecanese Islands. It opened as a biological research station in 1937. The Station was handed to the Athens Academy immediately after the liberation of Dodecanese Islands and their reunion with Greece in 1945. It then operated as a peripheral station of the Greek Hydrobiological Institute. In addition to

research, it has operated as a museum and aquarium since 1963. The Ministry of Culture has declared the building as an Historic Heritage Monument. When we went, in February of this year the main entrance was closed off and entrance was gained around the right hand side of the building.

Through the entrance lobby, you gain access to the upper level which is predominantly the Museum area. Here can be found a goodly array of stuffed and otherwise preserved marine life ranging from sharks to shellfish.

Down the stairs and into the basement of the building, the Aquarium itself can be found. Although by today's standards, it is small and has no really massive tanks, that doesn't seem to matter. As you walk through a series of corridors or tunnels that have been thoughtfully fashioned as sea-caves, it is the nearest you can be to 'undersea' without actually getting wet. Even the floor of the tunnels stands out, decorated as it is with a fine mosaic pattern constructed of light and dark pebbles depicting shellfish and other marine creatures.

Around the walls of these caverns are situated some forty tanks of various sizes. Between them, they house a superb collection, predominantly comprising of a large cross section of the local native marine life. As well as a fine selection of local fish, there are plenty of vertebrate and invertebrate species such as sea anemones, urchins, corals, bivalves, lobsters, octopuses, etc. The tanks are well furnished with rockwork, gravel, coral sand, etc. and planted where possible with a selection of marine plants and algae. All of the

tanks are well labelled describing and depicting their contents. Plans are apparently under way for a new 300,000 litre tank to contain a display of *Chondrichthyes* or cartilaginous fishes (sharks and rays).

Given the nature of the Aquarium, it is understandable that it contains exclusively marine fishes which, though attractive and colourful, may be of slightly less interest to the hobbyist. Nevertheless, there is plenty there to make it well worth a visit if you are in the vicinity.

Obituary:

John Snow

We regret to announce the passing of John Snow of the Malta Aquarist Society. John was very instrumental in establishing connections between the FBAS and Malta AS. Several of our Judges have broken into their holidays to visit the Society when on the island, and John reciprocated whenever he was in the UK.

John, who lived in Fgura in the south east of Malta was a valued committee member of the Malta Aquarists Society. He was in charge of the organisation of the monthly table shows for Malta and was very keen to help and encourage the juniors. He was very fond of his *Betta splendens* and, from 2001 to 2003, he won the Siamese Fighter category in Malta for three consecutive years. In 2001 he was invited to give a talk at the Festival of Fishkeeping at Bracklesham Bay and while there, he also won the FBAS Championship class Ea for *Betta splendens* and subsequently went on to gain a place in the Supreme Championship for that year.

We extend our condolences to John's family and all that knew him.

Obituary:

Thomas Gray
28th May 1947
To
1st January 2017

Just after Christmas 2016 we got the bad news that Tom Gray was seriously ill. Then on the 1st of January, we were told he had passed away earlier that day.

Tom was a stalwart of fishkeeping in the North-east for nearly four decades, and a dedicated worker for the TTAA. He was a TTAA Council Member for more than 30 years, the longest severing member of the committee, and its Treasurer for 25 years.

At the February 2016 meeting of the TTAA Council he was awarded a tankard for his long service as Treasurer. Earlier the same year, he was unanimously elected President of the TTAA.

Tom also held another TTAA record as one of the longest serving FBAS tropical and coldwater judges in the area. His passion was coldwater fish, winning many prizes in Class W before starting judging.

He was a long-time member of his local club Throckley AS, until it closed in the late eighties. He moved on to to other clubs in the Gateshead area before starting the Newcastle Coldwater & Pondkeepers AS. with a fellow member of of Gateshead AS. NCPAS held a few successful Open Shows in Gateshead Leisure Centre, not a cheap venue. Then he became a member of Cramlington AS, carrying on with this Club until this year. He retired from work last year, giving him the opportunity to spend a lot more time in America visiting his son.

He was a keen photographer and put his hobby to good use in the USA, sometimes putting a good photo before his safety. He told stories of narrow escapes with a bear and snakes. Tom was a gentleman and a good family man. His funeral was well attended by friends and relatives, and a large contingent from the fishkeeping community. He will be sadly missed!

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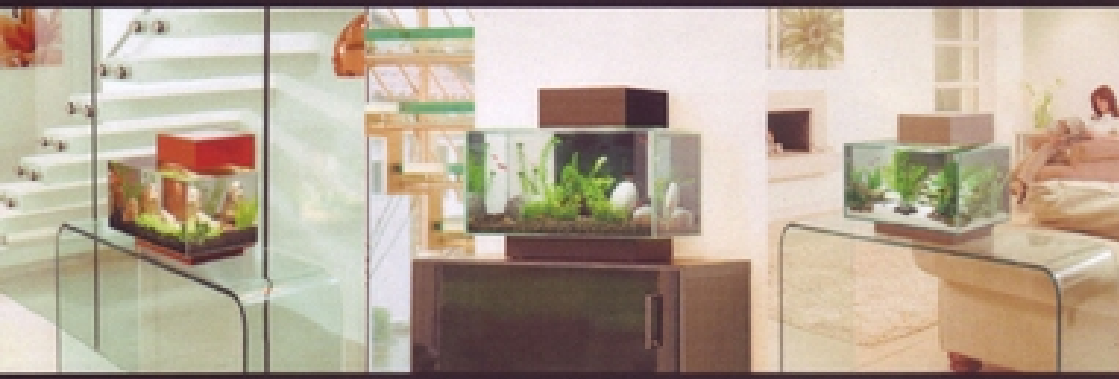

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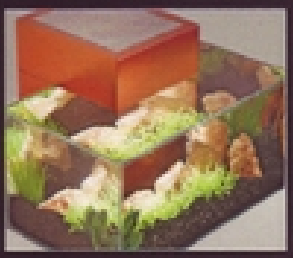

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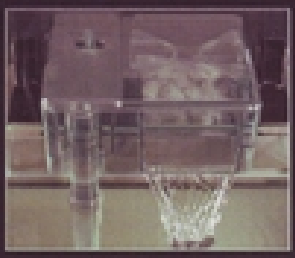

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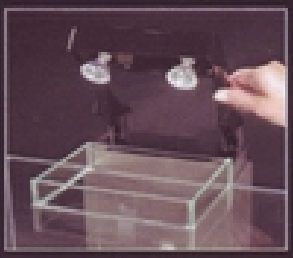

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