



FEDERATION OF BRITISH AQUATIC SOCIETIES

BULLETIN

Summer 2010

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June 2010

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*Opinions expressed in any article remain those of the author
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EDITORIAL

As I've been travelling around in search of aquatic centres to bring to your attention, I've been struck by a most curious paradox.

A trip to the local garden centre (or even DIY stores) now seems to be the normal Sunday afternoon outing for the family. They all seem to be bursting at the seams with interested customers, willing to part with their money.

I've had many an interesting chat with people in aquatic centres, but these chats always stop dead when I try to get people interested in joining the local Club. If I could get only a small percentage of people I talk to into going along, I think the membership of all Clubs would soon be on the rise. What am I doing wrong – and why won't people believe you when you tell them what great places Fish Clubs are?

Anyway, for all you 'sit-at homes,' here's another issue of our Bulletin for you to read and download at your leisure. As long as we've got you still interested in fishkeeping, then maybe we're doing something right somewhere!

Look at the Show dates at the back of this issue and see if you can't make a slight diversion into a local Fish Show on the way home from your next Sunday outing – to wherever it may have been.

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In February, news flashed around the World that the largest Aquarium in the World had sprung a leak and visitors were running for their lives! So David (seen here saying hello to a Dubai Lionfish) went to investigate.

The Dubai Mall Aquarium

Dubai is a fascinating place – very hot and dry, yet green with grass and trees as the sand is fed with dripping water from a mesh of aqua-pipes. Skyscrapers make it look like New York but many are half-built as work stopped with the credit crunch. No graffiti, no litter, no lager louts, all is spotless and everyone polite.

In the business area is the amazing Burj Dubai (Burj is Arabic for Tower, the locals call it Burj Khalifa), the tallest building in the World at 828 metres or 2,717 feet (more than half a mile high) and in front is the largest Mall in the World, the Dubai Mall. With over 1,200 stores in 12 million square feet, it contains both an aquarium and a zoo (an aquatic one). It should be no surprise to find the aquarium is the World's largest too.

Dubai Aquariums

The UAE (United Arab Emirates) on the Persian Gulf has seven Emirates, one of which is Dubai and like the others, oil-rich. Once part of the British Empire, they speak Arabic and English.

Mostly desert, the population have a natural preoccupation with water which is available, ex desalination plants, in copious amounts.



Many of the hotels have aquariums, from a small Goldfish Tank in the Metropolitan Dubai to the giant Seawater Tank in the Atlantis (full title, the Royal Towers of Atlantis on The Palms) with 65,000 marine animals. Another famous

hotel is the Burj Al Arab – the Sailboat shaped hotel featured in all the Dubai adverts. The only 7 Star Hotel in the World, it has an aquarium on each floor of the rising staircase and I did try to get in to photograph this but security stopped me (and I could not afford a £1000 a night suite).

The aquarium that sprung that leak is the World's largest – the Dubai Aquarium in the middle of the Dubai Mall. It is 51 metres by 20 metres and 11 metres deep (167 feet x 66 feet x 36 feet deep) and holds 10 million litres of seawater (2 million, 200 thousand gallons).



It holds the 2010 Guinness Book of Records for the largest Acrylic Sheet (the front glass) ever made: 32.88 meters wide and 8.3 metres high (108 feet wide by 27 feet deep) and is 75mm thick (almost 3 inches).

The technology to produce this sheet was developed by the owners 'Ocean Australia Group' and is at the limit of current techniques, so it is unlikely to be exceeded for some years to come.

But it was not the Acrylic Sheet that failed – it was the Silicone Sealer that bound one of the back panels in place. A faulty batch that did not cure correctly was just one and a half feet below the surface and sprung a small leak at 1pm on Thursday 25 February 2010.

The seawater jetted out under pressure and started to flood the Mall, with customer panic. At this time all the aquarium staff and technicians were on duty and so they stopped the leak within an hour. The draining pumps were opened to lower the seawater level below the leak. Fresh Silicone Sealer was used to seal the hole and this was inspected and approved some days later by the Dubai Authorities, and then the Aquarium topped up again. When the leak happened the Health & Safety programme meant the Aquarium had to be closed and the Mall evacuated, hence the panic and a World-wide news item.

Take a Boat Ride

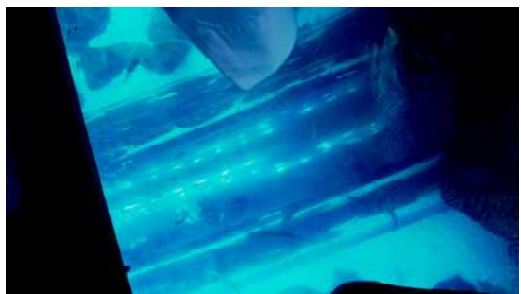


Like most things in Dubai, it is not cheap to visit the Aquarium. Viewing from the Mall is free but to walk through the Tunnel (48 metres/158 feet/52 yards long) within the Aquarium costs 25 Dirhams (about £5) or

you can take a glass-bottom boat ride on the Aquarium and visit the 'Underwater Zoo' on the floor above the Aquarium for 50 Dirhams (£10).

The glass-bottom boat ride allows you to look down on the 33,000 marine animals, 140 species, in the Aquarium. Also to see the heads of the tourists walking through the Acrylic tunnel many metres below!

This trip also reveals the partitioned area where new fish are quarantined and trained to accept hand-feeding.



A diver enters the Aquarium every hour or so to hand-feed the fish with appropriate food of a size suitable for each species. This prevents the normal feeding habit of big fish eating smaller fish, so peace reigns....

With prior booking you can also 'dive with the Sharks' (Sand Sharks) and watch special displays such as Free Diving (no breathing apparatus using Apnea – suspension of normal breathing – for deep diving).

Maintenance of water quality is by pressurised sand filters with pumps that deliver 450,000 litres per hour (which is about 5 Olympic-sized swimming pools) and turns over the whole tank every 85 minutes.

The seawater is natural, delivered by tankers from the Gulf, evaporation topped by that desalinated water. Protein skimmers add a low level of Ozone. All this tends to give micro-bubbles that would cloud the water so a degassing chamber is installed before the return jets sited over the main tank.

The Aquatic Zoo



Called in Arabic 'The Underwater Zoo' this unit is two floors up above the Aquarium.

Divided into 'environments' the displays are walk-through Rainforest, Rocky Shore and Living Ocean exhibits.

Beautifully clean and brightly-lit, each unit has attractive low level acrylic tanks stocked with appropriate fish.





The forests or corals or aquatic plants are all artificial but look absolutely real. Posters explain in Arabic and English the species on display and their habits and habitats. Species include everything from Angelfish to Piranha, Silver Dollars to Arowana, even Otters, Penguins and Seals.



The laboratory for treatment and quarantine etc. is visible behind glass walls, the area also having a glass floor below which is the Dubai Aquarium.

It is from the Underwater Zoo that you take the glass-bottom boat ride on that Aquarium.

The Mall has a fantastic Aquarium and beautiful Aquazoo and it is a must for any aquarist who can afford the trip. I am so glad it was a minor leak - Silicone Sealer that fails usually unzips the whole length of a seam! That would have been catastrophic for the Mall visitors, but death for thousands of fish and probably would have signalled the end of giant aquarium building world-wide.



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From Gouramis to Bettas



Soon, after being introduced to our hobby, we find it not long before we keep some Gouramis. Later we are often captivated by the beauty of the Siamese Fighting Fish (*Betta splendens*).

However the Gouramis and the *Betta splendens* are just a few of the many diverse and interesting species that make up the group of fishes known as Anabantoids, or Labyrinthfish, as they are often known.

A group of fishes from various regions of the Far East are Bettas like the *Betta stigmosa* from Malaysia, being relatively new to the hobby.

This species was previously known as “Terengganu” and got its scientific name from the Latin *stigmus*, which means full of marks, in reference to the patterned operculum and pattern on its caudal, dorsal and anal fins.

Betta gladiator similar in body shape to *stigmosa* and found in Borneo, Sabah, and the Maliau basin. Easy to see the Latin name *gladiator* comes from the meaning warrior or fighter and is an aggressive species.

When I kept them they fought all the time and needed to be kept separated to prevent them killing each other!

A far more easier going Betta is *Betta lehi* - looking more like a female fighter *Betta splendens* with a pale shade of blue - collected from southwest of Kuching between Bau and Lundu from the lower Kapuas basin, Kalimantan Bart. They live in the swamp forest with acid water swamps in the forest. Its typical locality, Sungai Stuum Muda, has fast flowing water with a pH 6.8.

Other species of fish also found in its natural habitat with *Betta lehi* are, *Rasbora sarawakensis*, *R. sumatrana*, *Puntius banksi*, *P. kuchingensis*, *Hampala macrolepidota*, *Homaloptera tweediei*, *Nemacheilus saravacensis*, *Acanthopsoides robertsi*, *Pseudogobiopsis siamensis*, and *Nandus nebulosus*.

This may be giving the aquarist ideas of a community of fish all requiring similar conditions. The largest of this species being found was 6.8mm standard length. There are many species of Bettas so why not look out for them in your aquatic shop, they will reward you not only in their looks but the challenge of owning them.

Other Bettas :	<i>B. cracens</i>	Sumatra, Jambi.
	<i>B. raji</i>	Sumatra, Jambi.
	<i>B. pallifina</i>	Borneo, Kalimantan, Tengah.
	<i>B. stiktos</i>	Cambodia, Mekong drainage.
	<i>B. bellica</i>	Sumatra, Utara.
	<i>B. ocellata</i>	Borneo, Sabah.
	<i>B. teuniata</i>	Borneo, Sarawak.

Stefan van der Voort. Labyrinth newsletter No 140.

Out & About: SOLESBRIDGE WATER GARDENS



Just off Junction 18 of the M25 on the Hertfordshire borders in Chorleywood you can find a water gardener's paradise.

Solesbridge Mill Watergardens is set in a beautiful gardens and fields, with the River Chess running through its grounds.

Solely trading in everything you require for the water garden, whether you are just starting, or looking for that something extra to go round your existing pond.

Not only have they got one of the largest selection of pond pumps in the South of England - and all the equipment to go with them - they have many displays of finished ponds.



These ponds have been installed by local landscapers who purchase all their needs from Solesbridge Mill and are on hand to advise you on building complete ponds, waterfalls, installing filters or pond maintenance.

If you like Marginal Plants the variety here will mean you are bound to find what you are looking for to take home.



If, like me, you are a Waterlily anorak there are endless varieties to choose from including miniature species to the exotic, bordering on to the tropical.

Young fish are away available from a couple of inches to six inches, but stocks are at there best from Spring onwards.

A feature of this retailer is its staff - Jane, Nicola and Tony; staff that can always advise and it is sure easy to ask them what may be the daftest question and get a complete, respectful answer in easy-to-understand language.





If you put your name down on their e-mailing list you will be notified of special events like their "Open Evenings" where every one can sip a glass of wine, have coffee with home-made cake and get 10% discount - can't be bad!



Lastly, if you visit within the next 3 months (June, July and August), remember to show them this page of the Bulletin and you will receive 10% discount every time you purchase that little extra for your pond.

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No ID? No Sale!



It was reported in the Daily Mail, 31st March this year, that a 66 year old pet shop owner had unwittingly sold a Goldfish to a 14 year old boy.

The pet shop owner Joan Higgins was breaking a new animal welfare law that bans the sale of pets to under-16s that are not with an adult.

This grandmother was fined £1,000, and placed under curfew - and ordered to wear an electronic tag for two months. Mrs Higgins' son, as part owner, was also fined £1,000 and ordered to carry out 120 hours of unpaid work within the community.

Her local MP criticised the magistrates for giving out punishment normally handed out to violent thugs to Mrs Higgins, who has run the pet shop for 28 years. It was reported that the pet shop in Sale, Greater Manchester was selling animals to children.

The Council sent a 14 year old schoolboy to carry out a test purchase and Mr Higgins sold him the Goldfish without questioning his age or providing any information about the care of the fish.

Defending the Goldfish case, Iain Veitch, said "The evidence presented for this conviction clearly demonstrates that it is irresponsible to sell animals to those who are not old enough to look after them regardless of looks. The goldfish, which would have cost between £1.75 and £3.00 was adopted by an animal welfare officer and is in good health.

Jaya Narain *Daily Mail*.

The FBAS/Bulletin will give out information free on "Purchasing and looking after your Goldfish" e-mail : malcolmgoss@tiscali.co.uk

ASK US



I have got a small pond and I would like to get some fish or animals to help keep it clean. I have already got pond snails and I have even tried a Mussel! Can you tell me what pond life would help me?

Louise.

Keeping a pond clean can be a problem but introducing extra pond life is not the best way to do it. Snails will eat the pond plants and fish eggs and generally make more trouble than any cleaning up. A Mussel is also an unreliable method as it is often difficult to make sure it is still alive, and the last thing you want in a pond is a dead anything, as it will pollute the pond as its remains decompose.

Usually, a pond will find its own 'balance' after a few months or so. The aquatic plants, once established, will help keep the water clean, but make sure these are planted in pots and not in soil on the pond base. If you have any soil (or even gravel) on the pond base the fish will be constantly stirring it up as they forage for food.

You will find the pond will often turn green in Spring as algae grows in the water but this should clear as soon as the real aquatic plants grow up. Overfeeding will lead to more algae growth (through uneaten food laying in the pond) so make sure you remove as much of the silt on the bottom of the pond each autumn.

It may be difficult with a small pond to fit a filtration system but this will help. In short, time, patience and good pond management works best.

The Catfish Convention 2010

Dr David Ford, Report to FBAS, March 2010

The CSG (Catfish Study Group) held their 31st Convention in the prestigious hotel 'The Prince of Wales' on the famous Lord Street of Southport in Lancashire. Friday through to Sunday evening of March 5th – 7th, lecturers from around the World brought the latest scientific knowledge on Siluriformes to about 80 Catfish lovers.



The large lecture room became a dining hall when they held the traditional Grand Dinner on the Saturday Evening with an after-dinner talk by Dr Peter Burgess, who is also their Vice President. 'Confessions of a fish scientist' was his theme....

This traditional part of the programme was taken by USA's Ray (Kingfish) Lucas at last year's conference, as shown by the slide.



Peter talked the audience through his own varied and interesting life story with many amusing slides and fishy tales.

Another tradition was the 'CSG Market Place' where stands by sponsors and supporters of the Convention displayed their wares and interests. Manufacturers Aquarian, Rena, API, PondCare and Tetra were there...



The Mars Fishcare stand – CSG VP Dr Peter Burgess is their consultant.



Tetra's man is Dave Hulse

The specialist societies BCA (British Cichlid Association), BKA (British Killifish Association), BLA (British Livebearer Association), BIDKA (British and International Discus-Keepers Association) were there too...



The BCA stand included the Best in Show winner at Bradford AS, *Vieja argentea* – a Cichlid among the Catfishes!

Helen Knutton-Allcroft is Show Secretary for the BKA.



Live Foods by Mark Breeze



Brian Walsh had his fish carvings on display, including Catfish sculptures as special prizes for CSG members and the lecturers.



Here is BIDKA Show Team's Mike O'Sullivan. The BIDKA announced that their next Show would be at Haydock Park Racecourse in springtime next year.



The Aquarium Gazette Stand was busy, and their Editor, David Marshall, won the first prize in the Raffle!



Another display was the CSG's 'Catfish Breeders' Stand where members showed their successful spawning of Catfish species....



A dozen display units held the Catfish fry and a notice board gave details.



CSG's Adrian Taylor started the lecture programme on Friday with his attempts to identify the 'Moth Cat' catfish.



He showed that it was certainly an *Erethistes* species, but was it *horai* or *minuscule* etc ? In fact he proved the Moth Cat was actually all these species!



On Saturday, the speakers were Ingo Seidel from Germany and Claus Christensen from Denmark. Ingo described 'Searching for Catfishes in Surinam'. Although situated in South America, this country speaks Dutch and English rather than Spanish. It is 80% Rain Forest and so home to a myriad of tropical fishes.

Claus was the MD of the Danish 'Tropica' firm and collected aquatic plants for them from all around the World. He showed slides of plants from Brazil to the River Kwai.

On Sunday there were lectures by Michael Hardman (UK and USA) on the 'The Evolutionary Biology of Catfishes' and Markos Alexandrou (Bangor University) on 'Speciation and Coexistence of Corydoradinae Catfishes' which were very scientific and also the very latest in research findings.



The final lecture was by Ingo Seidel again with 'Searching for new L. Plecos in Northern Brazil'. These scientists revealed the reason why Catfish are so fascinating to a certain section of the hobby. There are 3,080 (and counting!) species of Catfish ranging from less than 2 cm to 2.7 metres in size. They can be found in both the New and Old World,

Markos Alexandrou

in freshwater and marine.

They have every feeding type from predatory to vegetarian and every breeding method that Nature has devised.

There was much for the many guests of a successful conference to discuss, including where to hold the 2011 Conference.

To be announced.....

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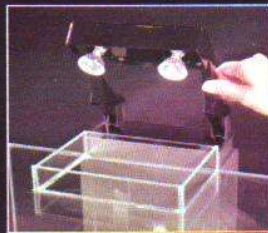
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GET THE EDGE

BY LES HOLLIDAY

The latest Hagen Fluval range of designer aquariums have really met the challenge with regard to creating a stylish living feature in the home or work place.

These fully co-ordinated complete aquarium sets are guaranteed to make a stunning addition to any interior space with versatility built into each design.

The **Fluval Roma** is a rectangular aquarium designed on clean and simple lines available in sizes ranging from a 90 litre capacity model up to 240 litres. The bow-fronted **Fluval Vicenza** makes full use of available space with its graceful curves and comes in a choice of two sizes with 90 litre and 125 litre capacity models and if you are really short of room the beautifully adaptable 200 litre Venezia corner aquarium fits neatly into a corner giving an unrivalled view of the aquarium from all angles. The top of the range **Fluval Profile** model is, however, the most likely to deliver a wow factor with its size and extra deep dimensions. Available in 2 sizes, one 100 x 47 x 65cms with a capacity of 275 litres and an even larger model measuring 120 x 47 x 65cm at 323 litres capacity. The aim definitely is to provide a really spectacular display.



Size is often regarded important in creating an impressive effect but the incredibly stylish **Fluval EDGE** aquarium, the most recent addition to the Fluval range, shows that with much more compact dimensions it's still possible to complement any living space.

Designed to fit where room is limited the uncluttered lines of the Fluval EDGE adds a designer look to any situation and an exciting ultra modern feel with its clean architectural lines and supreme simplicity.



The glass top ensures that the living contents of the aquarium can be viewed from above through the shimmering water, as well as through the four side panels, unhindered by equipment or trailing wires and allowing a good all round view whether placed on a desk, coffee table or kitchen top.

A further area where the Fluval EDGE scores though is in its incredible versatility. Thanks to the compact, extremely efficient 3 stage filtration this aquarium ensures a clear and healthy environment for a wide range of subjects. Designed on similar principles to the AquaClear hang-on filter the water from the aquarium is first drawn through a mechanical foam filter which traps particles and debris, then through a carbon insert which chemically adsorbs odours, discolorations and impurities before finally entering the biological filter supplied with Biomax to encourage growth of masses of friendly bacteria.



“Algae Clear”, an additional form of chemical adsorbent is also available as an insert, designed to trap phosphate, nitrite and nitrate and denying nuisance algae the nutrients needed for it to grow and multiply.

Hobbyists are finding the Fluval EDGE is capable of amazing things and perhaps the most exciting is the success many marine aquarists are achieving using this aquarium as a nano-reef tank.

Minh Tran living in Fresno, California is a good example. He is a self confessed sufferer of what he calls Multiple Tanks Syndrome which encourages him to continuously set up various types of marine system such as his current 510 litre mixed reef tank and a 23 litre Fluval EDGE marine nano tank.

Minh Tran has set up his marine nano tank with only a minimum of modifications to the original specification. He decided to increase the lighting for the benefit of the photosynthesing invertebrates he intended to keep and chose an 18" fitting with 2 x 18watt T5 tubes. Other more minor changes included adding a small pump to increase water flow and a sponge insert to the output from his filter to prevent it dumping too many micro bubbles.

Minh's nano tank subjects include a variety of hardy corals such as the Candy cane coral (*Caulastrea* sp) the Hammer coral (*Euphyllia* sp) and soft corals like the Clove polyp (*Clavulina* sp). Anemones like the Rose Bubble Tip (*Entacmaea quadricolor*) and various colonial types (*Ricordeas*, *Palythoas* and *Zoanthid* sp) he finds also do well. Although he doesn't include any fish in his nano system Minh has a large assortment of crabs and shrimps including Hermit Crabs (*Paguristes* sp), Porcelain Crab (*Neopetrolisthes* sp), Boxer Shrimp (*Stenopus* sp) and Harlequin Shrimp (*Hymenocera* sp), which he judges to be generally the most hardy.

Minh also considers that whilst his Fluval EDGE is one of the most successful marine nano tanks he has set up, its functions are limited as a reef tank but certainly workable. His main recommendation for running this kind of marine system is to perform regular 90-95% water changes 2 to 4 times per month to keep the water quality high. "Keep rock work low and leave some room at the back to allow more room for hands without knocking over corals and to encourage better flow" was his final comment.

The Fluval EDGE it seems is versatile in many ways and Minh has pushed the boundaries to show just how successful it can be in the most demanding circumstances. From a general application point of view it's most admirable features are a unique equipment module which hides and holds all of the equipment needed to keep the aquarium looking good and working efficiently, the built in twin 10 watt Halogen bulbs which provide economical lighting, have a long life and are easily replaceable and the 3 stage filtration system which effectively ensures a healthy, pristine aquarium environment.

A whole host of Fluval EDGE dedicated accessories are also available to compliment this great little aquarium including a heater pre-set to 26°C/78°F heater for an easy upgrade to a tropical set up, a range of aids such as the Fluval EDGE Fish net, a gravel cleaner and algae magnet.



There's even an attractive ornament with integrated planting pots, designed to hide the filter intake stem from view. Filter accessories like the Fluval EDGE Foam, Biomax renewal kit, Carbon Clean and Clear renewal sachet, Algae Clear sachet and Pre-filter sponge are also available. With aids like these conveniently to hand, maintenance of the Fluval EDGE is likely to be a breeze.



For more information on the Fluval EDGE aquarium visit www.hagen.com, or to see the marine setup created by Minh Tran go to www.fluvalblog.com.
1.



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KNOW YOUR FISH



Channa pulchra

Scientific name: *Channa pulchra*, Britz 2008

Origin: Kyeintali Chaung, southern Rakhine State, Myanmar.

Size: 20-25cm/8-10".

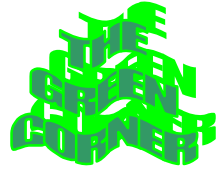
Here's an almost contradiction – a good-looking Snakehead! Not only that, this species is small enough to fit into a reasonably sized tank although you might still need a brick on the cover glass to prevent it from escaping.

Prudence is called for when choosing tankmates – if they fit into its mouth then don't expect them to last too long. Otherwise, the fish will be content to eat anything you care to put into the tank – from flake to livefoods.

Keeping a small number together is said to cut down on the aggression but tank furnishing including plants, pots, pipes and pieces of wood might help them to find their own hiding places should arguments break out.

They have been bred. Apparently the male collects fertilised floating eggs and deposit them in a cave

The area for aquatic plant-lovers



A rare species of African waterlily has been propagated at Kew
(Image: Andrew McRobb, RBG Kew).

In a fitting success story to celebrate International day for Biological Diversity on 22nd May 21010Carlos Magdalena, a horticulturist at Kew, has discovered the secret of growing a rare species of African waterlily – bringing it back from the brink of extinction. The 'thermal' lily (*Nymphaea thermarum*) is believed to be the smallest waterlily in the world, with pads that can be as little as 1 cm in diameter.



This '[thermal' lily](#) (*Nymphaea thermarum*), so named because it grows in freshwater hot springs, was discovered in 1987 by German botanist Professor Eberhard Fischer of Koblenz-Landau University, Germany.

It was known from just one location in Mashyuza, Rwanda, in the south west of the country. However, it disappeared from this location about two years ago due to over-exploitation of the hot spring that fed its fragile habitat. Luckily, Professor Eberhard Fischer realised that the species was in jeopardy and he transported a few specimens to Bonn Botanic Gardens soon after its discovery. At Bonn, horticulturists were successful at preserving these valuable specimens and indeed they lasted for more than a decade. However, the species proved extremely difficult to propagate.

As a result of a conservation plant exchange between the institute at Bonn and Kew, a handful of seeds and seedlings reached Kew in July 2009.

All other known waterlily species start life as submerged plants, until large enough to send pads to the surface. Therefore seedlings were initially grown submerged like any other waterlily. But, at both botanic gardens, this method was unsatisfactory. Seedlings were barely clinging on to life and did not develop to adult stages.

Over many months Carlos ran a series of trials involving a range of temperatures, water hardness, pH and depth. Plants grown in harder water at shallower depths seemed to develop further. However, no plant reached maturity. Perhaps there was something crucial about the plant's natural habitat of which he was not aware?

The original German description of the species and its natural habitat supplied the final clue: "it grows in damp mud caused by the overflow of a hot spring. Water reaches the surface at 50 °C but the plant colonizes an area where the water has cooled to a temperature of 25 °C".

This meant that, unlike all other known waterlily species, *Nymphaea thermarum* did not grow submerged in the deep waters of lakes, rivers or marshes. The revelation was that this small, extremely rare and unusual species, with a spread of only 5 to 20 cm, grows in the damp conditions at the edge of a thermal hot spring – the vital clue needed to crack the code.

With this knowledge, Carlos placed seeds and seedlings into pots of loam within small containers filled with water, thus keeping the water at the same level as the surface of the compost, at a temperature of 25 °C. In this way, the last remaining individuals of the species could be exposed to the concentrations of carbon dioxide and oxygen in the air.

To his surprise and joy, the plants started to improve and after a few weeks, eight plants began to flourish, growing to maturity with thicker, greener and wider leaves. In November 2009, Kew's collection of *Nymphaea thermarum* flowered for the first time.

Now there are over 30 healthy baby plants growing at Kew and some are producing seeds so soon there may be an army of these tiny waterlilies here at Kew. Its future in botanical collections seems secured for the long term.

Laguna Powerclean Cordless Pond Cleaner



Laguna are proud to introduce a revolution in powered pond cleaning; the Laguna Powerclean

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The Power to Clean The Powerclean employs a unique 3 stage process to eliminate sludge, leaves and blanketweed.

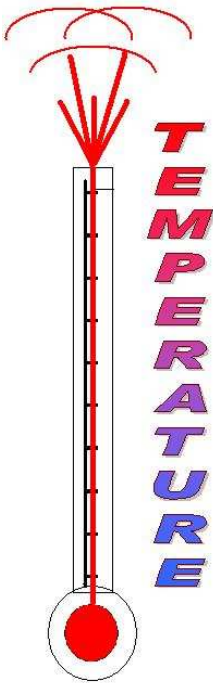
1. The brush attachment loosens caked on debris.
2. Rotating blades effectively chop and break up weeds and leaves allowing the powerful motor to easily suck them through the waste tube.
3. The water passes through the included fine mesh bag which traps all debris for a sparkling clean pond. Cleaned, nitrate rich water can be routed back into the pond or onto garden plants to act as an effective fertiliser and collected waste can be used as an eco-friendly compost.

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The Laguna Powerclean Cordless Pond Cleaner will be available from good aquatic stores and garden centres during Spring 2010.

For further information please contact Paul Trott on 01977 556622 (ext 263) or e-mail paul.trott@rchagen.com
www.hagen.com



Most tropical fish are ectothermic.

In other words their body temperature is approximately equal to that of the surrounding water. Consequently, as temperature changes it has a profound effect on them.

Rupert Bridges, of Tetra, explains just how many aspects of fish, aquarium and pond management aspects are affected.

This article is reprinted from:

HOP SPOT

英國錦鯉愛好會東南俱樂部

The E-Max of the South East Koi Club



Principally, a rise in temperature will increase metabolic rate – a phenomenon described by 'Q10' (temperature coefficient) theory. This predicts that for every 10°C rise in temperature, the metabolic rate will approximately double. In fish, metabolic rates multiply by 1.65 to 2.7 for every 10°C rise in temperature (Halver & Hardy, 2002).

Optimum temperatures

All fish have an optimum temperature range, over which they theoretically perform best (in terms of growth rates, immune function etc). For warm water (tropical) fish, this is usually within the range of 23 – 32°C. For example, the ideal temperature for farming Nile Tilapia is 30.5°C, and for Channel Catfish it is 29.5°C.

Different tropical fish will live in different temperatures in the wild, although usually within the range mentioned above (although there are exceptions of course). They may enjoy a constant temperature year-round, or experience seasonal fluctuations. Those from more stable environments will be more sensitive to inappropriate temperatures in an aquarium. In most cases, a stable temperature within the range 24-28°C is recommended for tropical fish.

Temperature and breeding

Many aquarists enjoy breeding their fish, and temperature can play an important role in this. For example, a cooling of the water can recreate the effect of heavy rainfall, and trigger spawning in some species. In addition, the quality, quantity, and development times of the eggs, and even the ratio of males to females, can be affected by the prevailing temperature.

For example, Dr Uwe Romer, in his Cichlid Atlas, reports on the effects of temperature of numerous *Apistogramma* species. He found that survival of *A.cacatuoides* fry was greatest within the range 24-27°C, and that the proportion of males in a clutch increased as the temperature was increased from 20 – 30°C. Out of 33 species, he determined that there was a statistical link between temperature and sex ratio.

Nwosu and Holzlohner (2000) investigated the effect of temperature on egg development in a warm water catfish – *Heterobranchus longifiliis*. At 20°C and 30°C no eggs hatched, and only minimal hatching was achieved at 23°C and 29°C. The optimum hatching rate was achieved at 25°C and 27°C, which corresponded to the ambient temperature during the fish's breeding season.

Studies like these demonstrate that for successful breeding projects, even more careful control of temperature is important. A couple of degrees could mean the difference between success and failure.

Temperature and feeding

Because metabolic rates increase at high temperatures, so does a Koi's requirement for energy and nutrients. In addition their capacity to grow increases, as they are able to convert nutrients into new body mass at a faster rate. High protein and energy growth foods can therefore be fed in the summer months, to improve growth rates and help Koi deposit sufficient energy reserves for cooler parts of the year. Feeding rates will also increase, as Koi consume a greater volume of food to increase their energy and nutrient intake.

Winter brings its own challenges, as Koi become less active and require reduced quantities of food. Firstly, the quantity of food given to them should be reduced, and you will notice that they consume less at feeding time. However, don't stop feeding them – if they are active and searching for it, a small amount of food will maintain their energy reserves.

Research has shown that starving fish during the winter leads to decreased energy reserves, and increased susceptibility to disease. Critically, Koi require energy reserves of around 6-8MJ/kg for maximum health, and >5% body fat. The quality of the food fed during the winter must also change. Wheatgerm is especially digestible at low temperatures, and it provides essential nutrients and fibre to improve condition and aid the passage of food through the gut. Wheatgerm-based foods are usually used once water temperatures reach 10-12°C.

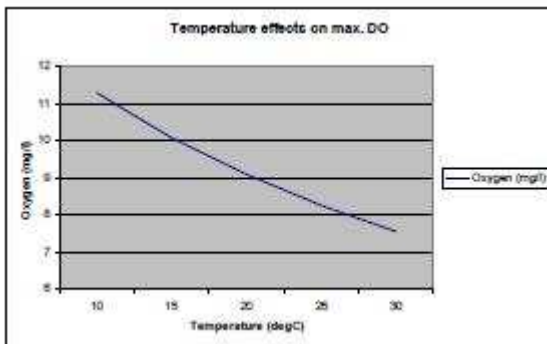
Temperature and oxygen supply

One of the most profound effects of temperature is to the supply of oxygen to our fish. To understand this, it is important to bear these points in mind:

High temperatures increase oxygen demand, as metabolic rates are higher

High temperatures reduce the oxygen content of water

High temperatures reduce the capacity of fish's blood to carry oxygen



So, at high temperatures oxygen levels are lower, right when fish need more of it. This is why above a certain temperature growth rates will slow, and Koi may go off their food – they are simply unable to obtain sufficient oxygen to support such a high level of activity.

Consequently, it is essential to provide high levels of aeration in the summer. It is also a good idea to test for oxygen using a liquid kit or electronic probe. Do this first thing in the morning, as overnight oxygen levels will be at their lowest if the pond is heavily planted or plagued with algae. Levels should also be checked in the afternoon, at 2-4 hours after feeding. This is because in unplanted and algae-free ponds, oxygen levels are likely to be lowest following feeding, when Koi are using additional oxygen to digest and process their meal.

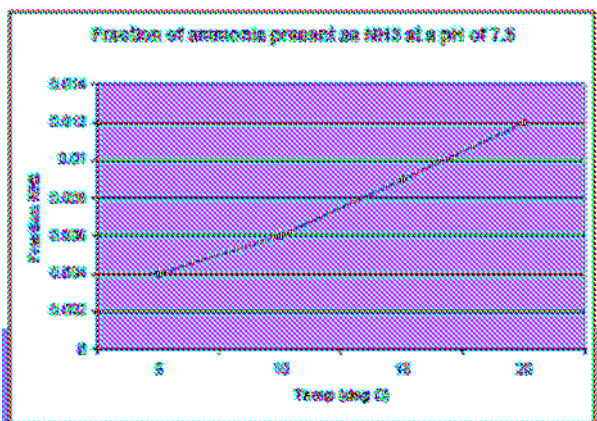
Low temperatures are less of a problem when it comes to oxygen supply, although very sudden and dramatic cooling of the water can impair respiration and lead to oxygen starvation. Additionally, if ice forms over the pond then this will prevent oxygen from diffusing into the water, which is why you must always keep a part of the pond ice-free.

Temperature and filtration

The nitrifying bacteria in pond filters are affected by temperature in much the same way as our fish. All things being equal, an increase in temperature will lead to an increase in activity. This is beneficial, as Koi produce more waste in the summer when they are feeding more. Having said this, recent work (Chen et al, 2006) has suggested that this relationship is not quite so straightforward. In most biological filters the bacteria live in a biofilm, through which oxygen has to diffuse. At higher temperatures, when oxygen concentrations fall, the amount of oxygen that diffuses through to the bacteria will decrease. This can limit the positive effect of temperature on ammonia and nitrite removal. High rates of nitrification can be maintained by vigorous aeration, especially just before the water enters the biological filter media.

Filter bacteria are also active in the winter (down to 2°C), although at a much reduced rate. This means that the small amount of ammonia produced by fish at this time of year can still be removed. It is for this reason that filters should not be turned off during the winter months, unless absolutely essential.

Temperature and water quality In addition to its effects on oxygen levels, temperature affects water quality in other ways.



For example, the amount of ammonia present in its toxic unionised form (NH₃) increases as temperatures rise (see chart). Therefore it is even more important to ensure your filter is kept in good working order through the summer.

Temperature will also influence water quality through its effects on algae and plant growth. In well-planted, or algae-rich ponds, there is an on-going day/night cycle of photosynthesis and respiration. During the day plants and algae are net consumers of carbon dioxide and producers of oxygen. At night, when photosynthesis stops, they become net consumers of oxygen and producers of carbon dioxide. In warm water this effect is most intense, leading to fluctuating carbon dioxide levels. Because carbon dioxide forms carbonic acid in water, it lowers the pH. This can lead to the pH level rising during the day, and then falling at night.

The severity of this effect depends on the amount of algae/plants, and also on the buffering capacity of the water. The buffering capacity can be measured by testing the carbonate hardness (KH) level. If it is low (<2-3°dH), daily changes in pH are likely. KH will deplete more rapidly in the summer, as it is used by filter bacteria to remove ammonia. It is therefore important to test KH and pH regularly in warmer weather, especially if your pond is well-planted or prone to algae.

Temperature and disease

As you might expect, temperature also governs the lives of various pathogens (disease-causing organisms) in the pond. Just like fish, different pathogens have preferred temperatures at which they are most able to cause infection. Commonly, the warmer the temperature, the more capable they are of infecting our fish. However, this is balanced by the increased activity of a fish's immune system at warmer temperatures.

Whitespot (*Ichthyophthirius*) is a good example of a parasite affected by water temperature. In order to multiply it has to complete a life-cycle which is only partly spent on the fish. This life-cycle may take 5 weeks at 10°C, but only 3-4 days at 21°C. Therefore, its capacity to multiply is improved as temperatures rise (to an upper limit). For healthy fish, this is not necessarily bad news though. Below 14°C the specific immune system does not function properly (Morvan et al, 1998), in other words any memory response (i.e. based on previous exposure to the parasite) will be impaired. However, the long life-cycle makes it harder for the parasite to dominate. At higher temperatures, the specific immune system is working more effectively, and along with non-specific immunity is able to deal with low-level infections. Higher temperatures also make it easier for us to treat Whitespot, as it can only be affected during the part of its life-cycle when it is away from the fish.

For example, formalin treatments should be carried out three times at 5 day intervals at 16°C, and three times at 14 day intervals at 10°C (Treves-Brown, 2000).

Problems tend to occur when fish become stressed over a pathogen's optimum temperature range, as this reduces their immune response. Pathogens that are adapted for causing infections at lower temperatures can also cause problems, as they are able to infect when the fish's immune system is still impaired. Problems in spring are especially common when temperatures begin to warm, as in addition to an immune system that is slower to respond, fish may be in a weakened state after the winter. This is why it's important to feed throughout the cooler months to maintain energy reserves.

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Top Temperature Tips

Acclimate fish slowly to temperature changes of more than a few degrees, e.g. when adding a new fish to your pond (remember that fish kept in indoor poly-tunnels and greenhouses may be used to water that is 5°C warmer or more than your pond).

Don't skimp on aeration – at high summer temperatures it can make the difference between healthy, growing fish and sick fish.

Feed appropriately for the time of year – wheatgerm foods in the winter, growth foods in the summer.

Test water more frequently in the summer, and also in the spring when filters are adapting to higher waste levels.



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My Dream Fish



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

by Kev King, Hounslow & District A.S.

At 51, an avid angler and fish-keeper struggles to imagine what his dream fish could be. Sitting in his comfortable green armchair admiring the inhabitants of his 72" Plasma Screen, viewing a mixed community hustling and bustling to and fro.



A shoal of iridescent Neon Tetras skirts apprehensively beneath a glistening group of stately Silver Dollars – giants and dwarves in unison.

I ponder, as someone who has proudly landed a modest Common Carp of 26lb and yet still finds the anticipation of a tiny Tuxedo Platy popping 50 or so free swimming defenceless fry into a world of dancing Cabomba, still, a truly fascinating experience.

How to choose between the giddiness of the humble Zebra Danio in dashing courtship and the contrasting laziness of the golden Clown Loach as he basks belly up acting out the final death scene from that “Scottish Play?”

How utterly privileged I am to be able to witness through a secret silent window into the piscine population, a moving, swaying, living canvas in which different species universally harmonise.

Marvelling now as fiery Odessa Barbs chase one another frantically through mysterious moss-clad bogwood scattering an unwary shoal of Glowlights.

Getting enthralled by the antics of our domino-spotted Snowball Plec as he plays hoopla between the remaining ring of shredded cucumber, and being equally amazed as the two blushing Kissing Gouramies live up to their reputation in their never-ending ‘push-me, pull you’ battle for supremacy whilst Mr Anostomus tries to valet the bodywork of a Silver Dollar or infiltrate the squadron of red-arrowed Bala Sharks.

The truth is that with all this wonder to fulfil my senses, how could I single out a Dream fish?

Love ‘em all – every damn one of them!



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Creating, and appreciating, a Wildlife Pond

Wildlife Ponds provide a constant source of interest, even in the winter months when the foliage dies back, the shallow areas encourage birds wishing to bathe in these areas. As Spring approaches, the excitement of all those new shoots making their way to the surface and appearing with their tender light green leaves is such a joyful time.

Frogs start splashing about and Newts are seen making their way to the waters surface. Lily leaves now appear and the fully-submerged oxygenating plants seem to take on an ever-increasing look of fresh green foliage.



With Summer truly underway, background plants (that may be up to six feet tall) provide one of Nature's playgrounds to all the wildlife that the pond will encourage.



Wild flowers and grasses all mingle with cultivated marginal plants being hosts to the most wonderful colours you could see, these all being featured within the Dragonflies, Damselflies and Butterflies, that all wish to share your pond with you.

The construction of wildlife pond is simple, with a deep end (up to 2 feet) and a shallow half (1 foot deep) running into a beach or shoreline area which amphibians will be entering and exiting the pond.

Wildlife ponds often have no fish, so with no fish, that means no nets etc. to keep Herons away, all adding to a more natural appearance. Filtration is also not apparent in wildlife ponds and so no pumps are required. This is a blessing if you have no easy-to-use mains electric on hand in the garden.

We have designed and built the pond with the kind permission of Solesbridge Mill Watergardens. We only started the construction in Autumn 2005. Wildlife ponds more than any other take time to reach perfection; this well may take several seasons, in fact, it will improve as time goes by.

At this time the pond was in its nursery stage, plants had to develop, and form new looks to the pond as it matured. We may wish to add some new plants, whether background or foreground plants, or an exciting new colour of water-lily.

Whenever you visit Solesbridge Mill Watergardens, and we hope that will be often, take a few minutes to walk down to our Wildlife Pond and reflect on its ever-changing appearance.

Mark and Malcolm Goss Aqua Pond Services



Having got to Manaus a busy city right in the centre of South America on the River Amazon, once known for its colonial buildings, but are fast diapering in a sea of skyscrapers. Basically, one boards a boat going right and in the direction of the Rio Negro that branches off the Amazon passing Santa Maria, Santo Antonio and beyond. Described by Michael Goulding as "a river with such poor water quality yet rich in life". One cannot write all that one sees, there is so much to report, but only try to give you a taste of life in such a rich and diverse area of our planet.



At the start, or should I say the ending, of this great river one passes through white water of the Amazon and is met by a huge wall of water flowing into the Amazon, being muddy in colour.

Being such a spectacle I feel it should have been one of the seven wonders of the world. Plant acids stain these waters of the Rio Negro giving it its dark and unique colour that in our aquariums we are trying to imitate for our fishes, such as Discus, Tetras, Catfishes and many more.



The Rio Negro rises in Colombia where it is known as the Guainia, before joining with the Casiquiare on the border with Venezuela. This is truly a mighty river, with a length in excess of 2,550 km and 80 km wide in places during high water, in all having an area of water being 14% of the total volume of the Amazon basin.

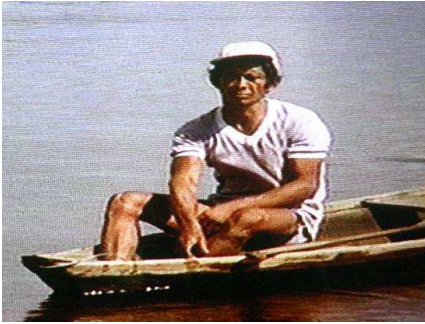
On all sides are inlets from other rivers, many rising in the Andes and are in the most Blackwater tributaries. Like the Negro itself they are lined to the banks by forest, after all we are now in the middle of the largest forest on Earth.

Many beautiful fish can be found here, the Neon *Paracheirodon innesi*, and Cardinal *Paracheirodon axelrodi* tetra can only be found in the Rio Negro and some of its tributaries. Here in the lower Rio Negro rainiest months are between December and May.



As we left Manaus we watched a never-ending armada of boats carrying fresh-caught fish arrive at the harbour. Many of these being exported by Asher Benzaken, the largest ornamental fish and discus export business in South America. There are 1,600 vats with 2000 fish depending on size in each vat and are controlled by just 30 workers.

As we entered the lower Rio Negro it was in the dry season and many of the banks showed sandy areas. Our boat tied up and we were greeted by a fellow known as Chris Clark who not only had been to the Amazon before but after this trip was planning to write a book on this great river.



Chris had assigned Justino and his boat along with Joau, a jungle man and fisherman, Plenho who would navigate us and lastly Canea also reputed to be a very good jungle man also.

We brought 3 canoes which are tied to the side of our river boat. It was about 4 o' clock we turned up a small river and travelled about 2 Km and tied up for the night.

In the early hours everybody was awake and all decided to jump in the river to cool off, except me as I cannot swim. Justino invited me to look for caiman in a canoe, the locals call them crocs. I had to pinch myself to believe this was not a dream, but armed with a torch and some thick string, we paddled off, trying to catch a caiman's eye in the beam of the torch. Eventually you could see two red dots in the distance.



We paddled in silence, not a sound, keeping the light on the caiman's eyes. When we were right along side the caiman, Justino made an almighty grab for its neck. There was a lot of splashing and confusion, but in the end he had it in the back of the canoe. It was about 1.2 meters long.

So, there I was sharing my little space with a very angry caiman, who would just love to give me a very nasty bite.



Back sailing up the Rio Negro we passed what locals call the "Islands". There are a few hundred of these long narrow forested islands, these being the largest group of fresh water islands in the world.

We sailed on for hour after hour through virgin forest that seemed endless with continuous sounds of insects, there must be millions of them.



Kingfishers are a common sight, some very large and other the same as our native species back home. As we rounded a bend we surprised a group of six giant otters (*Pteronura brasiliensis*) They looked at us, and then they were gone.

Just a little further along Justino caught a ray-like fish, it was about 60cm across, with camouflage colours to match the river bed. The locals call this fish the "wish you were dead fish". Apparently if you stand on its long whip-like tail, and it stings, you wish you were dead for about three days.

It was getting dark when Justino set off in a canoe, it was incredible what this man could see in the dark even after the moon went down. We found an inlet off the main river and when it narrowed we tied a net to an overhanging branch, then paddled across, playing out the net as we went. The net was about a metre in depth and on reaching the other side tied that also to a branch, when we was due to return next morning would I see those fish that we see in our aquariums back home?

Well it rained during the night, I have never seen or heard rain like it before it was frightening. When we returned to the net about midday half of it had broken away. As we gathered the net up I could see we had caught about six small Characins, they small and silver in colour and about 25mm in length. The other fish being a *Corydoras* catfish, It was about 2 inches from my hand and within a second jumped and was gone, it had the markings of ether *Corydoras adolfoi* or *Corydoras burgessi*.

Once back to camp I studied my maps and from our travels I felt clearly this was the Rio Unini, next day I was going to return. The others could not understand my excitement, as these fish to them were not as important as the larger food fish, after all we had to eat. Well next day I was off and reassured everyone I would not get lost and was happy to be on my own. The undergrowth maid my progress very slow but after a while following the banks of the Rio Unini I came across a small clearing. Although the water was clear it was dark in colour, and I took a sample to test later.

As I sat quietly a whole shoal of small "loach like" fish appeared and just darted about in front of me, in went my net and I had caught 3, these turned out to be a species of *Characidium* being a Characin. I made my way back to where Justino placed his net a couple of days ago.



Here you can see the main Rio Negro looking quite calm today compared with a few days ago. The Rio Unini was too wide here for me to cross so I walked backwards in an easterly direction.

I came across small inlets with sandy shores and as I stared down into the water I could not believe my eyes, there were lot and lots of *Corydoras* just swimming in about four shoals. The bandit eye patch plus that gold/orange colour in front of the dorsal was so vivid. When I gently lowered my net in the water they were not bothered, in fact a few swam into it. These were clearly *Corydoras adolfi* or *burgessi*, sorry but I just could not say with certainty which. Next day the whole team moved on after they had not caught any fish for food. Nobody seemed happy, except me.

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Bleher's Discus Vol 1	Heiko Bleher
Alan Shearer	

A CENTURY of FISHKEEPING by Dr David Ford FBAS

Now over 70 years old, the Federation has been around for most of the last century. Just how much has our hobby changed in all that time?

Part 2

Here's my personal view....

Aquarists

The fish haven't changed in millions and millions of years, let alone 100. But the people have. Like all good Britons, as soon as a hobby became popular (and fishkeeping is indeed one of the top hobbies) they formed a Club.



formed 1938

I haven't found a 100 year old fish Club, but many are 50 years old and the major association the Federation of British Aquarist Societies (FBAS) celebrated 70 years in 2008.

It was in the late 40s and early 50s that most towns and cities formed their own local Fish Club. They became affiliated to the FBAS so they could get information and certificated Judges for the popular 'Open Shows' where aquarists displayed their prize-winning pet fish. Over 300 societies were registered by the 60s and 70s.



Then, like all committees the world over, they split into geophysical or political groups. The A of A (Association of Aquarists) formed in competition to the FBAS. Scotland formed their own Association, the FSAS (Federation of Scottish Aquarist Societies) and they too eventually had competition with USA (Union of Scottish Aquarists).

Northern England felt neglected and formed their own Federation of Northern Aquarium Societies (FNAS) but this was centred in Lancashire, which was the wrong side of the Pennines, so Yorkshire went their own way and formed the Yorkshire Association of Aquarist Societies (YAAS). The War of the Roses continues! Wales, Ireland (back then the aquarists association included Northern Ireland and Eire), and even Cornwall, formed their own groups.

The associations then held their own Open Shows which grew in the 70s and 80s into huge affairs. The FBAS occupied Alexandra Palace and Royal Horticultural Hall in London's Vincent Square. Clubs built tableaux for fame and prizes.

The aquarium industry attended with marketing or sales stands and they recruited the 'Top Aquarists' for advertising. The YAAS responded with an annual Yorkshire Aquarists Festival at the Doncaster Racecourse. FNAS held theirs in Manchester with the British Aquarist Festival.



These National Shows attracted prize-winning fishes and so awards such as Champion of Champions (at BAF) and Fish of Fishes (at YAF) were created. These fish and their proud owners appeared in many adverts in the aquarium magazines of those times.

These Shows survived into the 90s with attendances over a two-day weekend numbering more than 10,000! Then people changed. The cost of travel increased dramatically, the cost of renting the venues inflated and by the turn of the century the Internet had arrived with instant information - no need to spend money travelling to Fish Shows for help with your hobby.

Some Shows have survived to 2010. The FBAS now occupy a holiday village at Hayling Island for a weekend in October each year. Their Supreme Championship is still awarded and industry attends with stands of their products. The FNAS's Champion of Champions is also awarded but now at a small one-day Open Show in Darwen. Yorkshire still has a Fish of Fishes, but at a village Show at Stockton On the Forest (near York) in July each year. No longer do thousands attend, just a few devoted aquarists who are fanatical about their fish.

As the local aquarium Clubs declined, the popularity of a different type of fish Club developed - the Specialist Society.

The lovers of Catfish formed the Catfish Association of Great Britain which has evolved into an international group (CSG, Catfish Study Group) who hold an annual conference with guests from around the World (see elsewhere in this issue for a report).

There is a Killifish Society, a Discus Society, the British Cichlid Society, a Livebearers Group, the Anabantid society, several marine groups and of course the Goldfish lovers the GSGB (Goldfish Society of Great Britain), with its Midland cousin AMGK (Association of Midland Goldfish Keepers), Northern cousin the NGPS (Northern Goldfish and Pondkeepers Society) and North-Eastern cousin the NEGS (North-Eastern Goldfish Society). With Internet pages, video conferencing, email connections and often home meetings, these are the Fish Clubs of the future.

Industry

As the hobby of fishkeeping developed over the last century, so the industry grew to cater for the hobbyist's needs. There are many small firms specialising in ornamental fish imports or breeding, aquatic plants, aquariums and their accessories. Some firms have grown to international status, driven by the competition of the capitalist system. Mars the largest privately-owned group of companies in the world have their own unit devoted exclusively to fishcare (indeed, called 'Mars Fishcare') with their own research units. Germany's 'Tetra' and 'Sera' brands are now global; Canada's 'Hagen' products are sold world-wide.



The USA has 'Wardleys', 'Penn-Plax', 'Jungle', 'Mardel', 'API' and more, and Japan exports 'Hikari' by 'Kyorin'.

28th April 1985 - lunch of Atlantis range at British Pet Trade Fair, Harrogate
A range of Aquarium Equipment I developed for Mars Fishcare no longer available!

British companies include 'Interpet' and 'King British' and more. All usually sell fish foods and water treatments, remedies and accessories. Complete aquarium systems can be found where all you need do is fill with water, plug-in and switch-on. Then (later, of course) decide what fish to install.

This sophistication has changed the hobby over the last half of our hundred years. Earlier times, the hobby was male orientated since one had to be a carpenter, electrician and biologist as well as a DIY enthusiast. Now the aquarium can be an easy-to-install living ornament making it attractive to the ladies. One obvious result of this change is the appearance of fish foods on the supermarket shelves.



That fish food too has changed over 100 years. Initially it was table scraps and then it became crumbs and dried ant eggs some 50 years ago. Now it is flake, tablet, sticks, granules, pellets, powder, frozen, freeze dried, irradiated and live!

The choice of diets for petfish in the modern supermarket is amazing

The industries making all these products have their own controlling bodies where the members agree to a code of ethics for their businesses. Here in the UK we have OATA (Ornamental Aquatic Trade Association since 1991) and internationally there is OFI (Ornamental Fish International since 1980). The latter covers 44 countries.

International trade shows take place too, so large and complicated they are biannual such as 'InterZoo' in Germany and 'Aquarama' in Singapore.

In the UK the pet trade shows such as PATS (Pet & Aquatics Trade Shows) take place annually in the South and North of England. There will be a / (October 6th & 7th) at the International Trade Centre in Telford (West Midlands) in 2010.



Modern equipment is sophisticated and integrated for maximum efficiency

The Fish

Actually it is not strictly true to say that all fish have not changed in the last 100 years. For tens of millions of years they lived happily in their own way until Man (and Woman too, of course) came along and started to eat them.

Man then domesticated some species, especially Carp, and developed goldfish and Koi for ornament. But it is within the last 100 years that the most changes can be seen as captured wild species are bred in captivity for the ornamentals trade. The Far East and Southern USA fish farms developed rapidly after the 50s and 60s created the market. Pet fish is now the top export earner for Singapore. Jungle fish farms are numerous in Malaysia, Indonesia and Thailand. Israel, Italy, Japan and Chinese fish farms mass-produce and export ornamentals, especially goldfish and Koi.

At the beginning of our considered century there were more fish aboard the sea-going liners than passengers, but now there are more flying fish than people. Popularity polls by various aquatic publications vary slightly but the top ten are always Goldfish, Angels, Tetras, Guppies, Mollies, Swordtails, Platys, Zebras, Corydoras Catfish and Koi.

Despite global warming, pollution, even wars, their future seems assured.



In the USA Siamese Fighters are sold from the shelf in pet supermarkets

Conclusion

100 years has seen dramatic changes in almost everything in our world including the fascinating and rewarding hobby of fishkeeping.

My father (who was also an aquarist) told me how great it was to look into the fish's silent and peaceful world, to view their grace and beauty.

I, in turn, told my children, and then my grandchildren, now my great-grandchildren, the same story. I also explain that ever-evolving technology will continue to help our hobby, so the future looks great, but never forget you are their god.

To read more of fishkeeping history visit these websites:

Of course, www.fbas.co.uk <http://www.fbas.co.uk> for the latest news on Shows, Club meetings and links to other Fishkeeping organisations.

www.ifocas.org

<http://www.ifocas.org>/IFOCAS is the International Federation of Online Clubs and Aquatic

Societies who are dedicated to the promotion of the fishkeeping hobby worldwide.

www.yorkshireaquaristsociety.co.uk

<http://www.yorkshireaquaristsociety.co.uk> and click on 'badges' to see a collection of British Fish Club badges from the last 50 years. ...and

www.scottishaquarist.co.uk <http://www.scottishaquarist.co.uk> for our Scottish members.

100 years ago there was only London Zoo Aquarium (and the Royal Aquarium with no fish)....now there are 30 Public Aquariums in the UK where you can visit and marvel:

Alton Towers Aquarium

Anglesey Sea Zoo

Aquarium of the Lakes

Blackpool Sea Life Centre

Blackpool Tower Aquarium

Blue Planet Aquarium

Blue Reef Aquarium

Bolton Museum Aquarium

Bournemouth Oceanarium

Brighton Sea Life Aquarium

Bristol Zoo Aquarium

Chester Zoo Aquarium

Deep Sea World

Exploris, N.Ireland

Great Yarmouth Sea Life Aquarium

Lake District Coast Aquarium

Liverpool World Museum Aquarium

London Aquarium

London Zoo Aquarium

Macduff Marine Aquarium

National Marine Aquarium

National Sea Life Centre

National Seal Sanctuary

Oban Seal and Marine Centre

St Andrews Aquarium

Scarborough Sea Life Centre

The Deep, Hull

Underwater World at Birdworld

Underwater World, Hastings

Weymouth Sea Life Park

Most have websites where you can get more details, just Google or Bing etc.



KEEP ON TOP OF YOUR FISHKEEPING

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

Pond

Clean out pond filter (only 3/4 of the filter medium), replace UV tube with care but **switch off electric supply before you start**.

Feed fish, but do not over feed.



As marginal plants grow tall, make sure they are secure, so winds do not blow them over.

Cut back Marsh Marigold (*Caltha palustris*) double or single after flowering to water level, this will make them flower once more in September.

Net off Duckweed or flood a small pond so Duckweed drifts off. Remove excessive algae from waterfalls.

Fish House

For those that show fish keep on top of cleaning Show tanks.

Those that show their fish most weekends, subdivide your Show fish so they have rest times.

Save that fish for weeks in advance, for those Championship Classes.

Aquatic plants that are not growing too well move to another tank if possible; change lighting and increase wattage of lamps. Also clean florescent tubes.

Community Aquarium

Siphon aquarium gravel to remove debris .

Remove dying or decaying plant leaves

Make sure your air pump is above water level, so not risking siphon-back of tank water if electric is switched off, or power cut occurs.

Re-position pump, use non return valve, and/or anti-siphon loop, in airline.

Try feeding with live food as and when it is available at your local shop.

Search your rain-butt for mosquito/gnat larvae

Cut back cutting-type plants that grow along the water surface stopping light getting to lower growing plants. Re-plant such 'prunings' to provide more plants.



DID YOU KNOW?

A growing number of FBAS PUBLICATIONS

are now available for

FREE DOWNLOADING

on the FBAS website

www.fbas.co.uk

In Memoriam

Jim Carney

We regret to announce the recent passing of Jim Carney.

Jim, a member of Bethnal Green A.S. and Independent A.S., was an FBAS 'A' Class Judge for many years, serving on the Judges and Standards Committee. In his latter years with the Committee, Jim was responsible for supervising the trainee, or rising Judges as they undertook their tests (from 'B' Class to 'A' Class), usually at a convenient Open Show.

One of Jim's passions was catfish and he could 'talk for England' on this subject, so dear to his heart and he was a regular on the Society Speakers' circuit.

Jim fervently believed that learning about fish was an ongoing process. Not for him the judging at an Open Show on a Sunday and leave the books alone until the next Show. Jim believed that all Judges should pick up their reference books several times a week and learn and understand about the fish they were judging. It is a belief that is as true today as it was then.

Always approachable, Jim also believed that it was important to talk to exhibitors at a Show. Many times he gave information and advice to some of the newer exhibitors which subsequently helped them greatly.

The Federation pays tribute to Jim and his services to the hobby over many years, and extends its condolences to all members of his family.

**PLANT BOOK
OUT NOW!**



If a job's worth doing, it's worth doing well. And so it has proved.

In the past, the Federation's Plant Booklet was a modest publication of many words but few illustrations and, like all its other brother and sister publications at the time, solely in black and white. What a difference several years, computers and the Internet have made.

Thanks to some sterling work, lots of research and patience the newly released Plant Book is complete. Running to well over 100 pages, it deals primarily with Aquarium Plants from an exhibitor's point of view although there is a chapter on aquarium plant care.

The three groups under which plants are shown at Open Shows are separately presented, each with an index, a Pointings List and an illustrated Section of typical plants in that group. In addition to providing information about what the Judges are looking for and how each plant is pointed, there are copious notes on how just to go about exhibiting aquatic plants at an Open Show.

Common Names and Synonyms Lists help to identify each plant and a Glossary makes it easy to understand the technical (botanical) terms used.

However, what makes this a truly great Book is its price – it's FREE, as like this Bulletin, it is available to download from the FBAS website



FESTIVAL OF FISHKEEPING GETS NEW SPONSOR



The Federation of British Aquatic Societies is pleased to announce that AQUAJARDIN has become the latest Company to sponsor the 2010 Festival of Fishkeeping event at Mill Rythe Holiday Village, Hayling Island.

In addition to sponsoring the largely unseen RO water system (so very necessary for exhibits such as the Discus Show), the Company's presence will be undeniably visual as it is providing many Furnished Aquaria for the marquees at the Festival, together with its own well-placed Company Information Stand featuring some video screens to make it interactive, as well as colourful displays, choice products and promotions. Aquajardin will also be providing the hundreds of fish to be seen within all the many decorative aquariums.

Through its good relationships with Tetra and Reef One, it is hoped for even more attractions at the Festival including promotional offers and the launching of new aquariums.

Aquajardin will be advertising its association with the Festival in several ways: instore, at their sites, sending out a press release to their Aquatic Club members, and also taking out full page advertisements in the Aquatic Press.

Full updates in respect of the Festival of Fishkeeping can be found on the dedicated Festival of Fishkeeping website www.festivaloffishkeeping.co.uk

For further information about the Festival, please contact the organiser, Joe Nethersell, on 020 8847 3586 or by email joe@the-nethersells.fsnet.co.uk

SHOW & EVENTS DIARY 2010

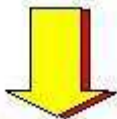
(full details can be found on FBAS website www.fbas.co.uk)

FBAS ASSEMBLY

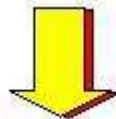
MIDLAND CHARITY AUCTION	5 th June
CROUCH VALLEY BKKS KOI CLOSED SHOW	6 th June
BRACKNELL A.S. OPEN SHOW	11-13 th June
T.T.A.A. OPEN SHOW & AUCTION	13 th June
GROCKLEMANIA	13 th June
CASTLEFORD A.S. AUCTION	18-20 th June
CATFISH STUDY GROUP Meeting	20 th June
ISLAND FISHKEEPERS OPEN SHOW	20 th June
35 th BKKS NATIONAL SHOW	20 th June
BRISTOL TFC OPEN SHOW & AUCTION	26-27 th June
PRESTON & D.A.S. AUCTION	26 th June
U.S.A. OPEN SHOW & AUCTION	27 th June
FBAS MIDDLESEX SHOW OPEN SHOW	27 th June
WEST LOTHIAN A.S. AUCTION	4 th July
NW CICHLID GROUP Meeting	4 th July
Y.A.A.S OPEN SHOW/AUCTION	4 th July
GOLDFISH SOCIETY of GB Meeting	10 th July
RYEDALE A.S. 25 th ANNIVERSARY DAY	11 th July
PORT TALBOT OPEN SHOW & AUCTION	17 th July
ESSEX SECTION BKKS KOI SHOW	17-18 th July
CATFISH STUDY GROUP Meeting	18 th July
SOLWAY A.S. OPEN SHOW/AUCTION	18 th July
SCCRS OPEN SHOW	18 th July
GT MANCHESTER CICHLID GROUP AUCTION	25 th July
FRIENDS OF YORKSHIRE OPEN SHOW/AUCTION	25 th July
CATFISH STUDY GROUP Meeting	8 th August
THREE COUNTIES OPEN SHOW	15 th August
PERTH A.S. OPEN SHOW & AUCTION	15 th August
CASTLEFORD A.S. AUCTION	15 th August
W.A.S.P AUCTION	18 th August
S.E. KOI 24 th OPEN SHOW	22nd August
FBAS ASSEMBLY	29-30 th August
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
	18 th September

CATFISH STUDY GROUP OPEN SHOW & AUCTION	19 th September
T.T.A.A THREE RIVERS SHOW & AUCTION	19 th September
GOLDFISH SOCIETY of GB OPEN SHOW/AUCTION	25 th September
BIRMINGHAM & MIDLAND KOI CLOSED SHOW	25-26 th September
FAIR CITY A.S. OPEN SHOW & AUCTION	26 th September
GT MANCHESTER CICHLID GROUP AUCTION	3rd October
FESTIVAL OF FISHKEEPING	9-10th October
PRESTON & D.A.S. AUCTION	10 th October
SCOTTISH AQUARIST FESTIVAL	10 th October
CATFISH STUDY GROUP MEETING	17 th October
KIRKALDY A.S. AUCTION	17 th October
STAMPS AUCTION	17 th October
SHEAF VALLEY A.S.AUCTION	18 th October
WEST LONDON BKA Meeting Weybridge	24 th October
BASINGSTOKE & D.A.S. OPEN SHOW	24 th October
NW CICHLID GROUP Meeting	7 th November
CASTLEFORD A.S. AUCTION	17 th November
GOLDFISH SOCIETY of GB Meeting	20 th November
SCCRS AUCTION	21 st November
FBAS GENERAL ASSEMBLY	4th December
FBAS FESTIVALDINNER	11th December
CATFISH STUDY GROUP CHRISTMAS MEETING	12 th December
HOUNSLOW & D.A.S.CHRISTMAS EVENING	15 th December

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