FEDERATION OF BRITISH AQUATIC SOCIETIES

BULLETIN

www.fbas.co.uk

SEASON'S GREETINGS
TO
FISHKEEPERS EVERYWHERE

NEWS, VIEWS & ARTICLES

BY FISHKEEPERS

FOR FISHKEEPERS

Tetra food®

Advanced nutrition for healthy fish and clear water!

We're at the leading edge of advanced technology fish food and all our research is geared around producing products designed to enhance the health of your fish. Our premium staple fish food ***TetraPro*** *is manufactured by a patented production process, that is unlike any flake foods and provides a core of active ingredient concentrate for optimum health and vitality. There's* ***TetraPro*** *with omega 3 fatty acids, to give more energy and better growth. For brilliant colour try* ***TetraPro Colour*** *with high-quality carotenoids. And for extra resistance, use* ***TetraPro Vegetable*** *with spirulina algae. With over 50 years of experience and research behind us, we have everything you need to ensure years of worry-free enjoyment. www.tetra.net*

Tetra

The experts at making fishkeeping easy

FEDERATION OF BRITISH AQUATIC SOCIETIES

BULLETIN

December 2008

Contents

Produced for FBAS website by Dick Mills

www.fbas.co.uk

EDITORIAL

I'll be glad when the Festive Season is over, and I can put my feet up!

The past few months have been just too hectic – my own Society's Open Show, the Festival of Fishkeeping and the FBAS 70th Anniversary Dinner all tended to blur into one great fishkeeping experience!

With this issue of the Bulletin, we come to the end of our free on-line downloads. In order to read/download future issues you will need either to belong to an FBAS-affiliated Society or take out an individual subscription.

I think you will agree the last three issues have been well worth reading, thanks to excellent contributions from around the hobby. A subscription won't break the bank either at only £4.00 for four copies, so why not ensure your aquatic reading is delivered promptly to your computer in-box in 2009? You can find details of how to subscribe on the FBAS website

www.fbas.co.uk/Bulletin.html

On behalf of the Bulletin's production team may I thank everyone who let me have something to include during 2008. I wish you every happiness for the Festive Season and the New Year.

Peter Furze, 9 Upton Road, Hounslow, Middlesex TW3 3HP
Tel/Fax: 0208 570 0934 e-mail: peter.furze@btinternet.com

Without doubt when breeding fish the most crucial stage is when the larval are first able to free swim on their own accord and the need to find external sources of food.

A couple of factors that often control how difficult it for us as fishkeepers, when attempting to raise a brood of fry, is their minute size and the number of fry in the brood.

In the wild this is governed by natural factors such as, there would be plenty of food around for the fry and there would be plenty of space for large broods of fish and natural reduction by predators. So we have to supply food of correct size, in correct quantity, that will promote growth and also provide enough space for brood to grow but be prepared to cull any runts in the brood

Over the years through work and the hobby I have bred some strange marine and freshwater aquatic animals, ranging from molluscs, crustaceans and fish (whose adults were small to quite large) and resulting progeny when first born have varied from just a few microns to a few millimetres in length.

Fry just a few millimeters long

When writing about breeding Tetras, Barbs, Danios and Rasboras I have mentioned many times in my articles such words as **yolk sac**, **larvae** and **free-swimming larvae** but what do these terms really mean?

Just the size difference between larvae and adults tells us that they feed on different foods and they use different feeding strategies.

In terms of feeding, fish larvae are without doubt separate species when compared to their adult counterparts. What is meant by this statement is that the larvae, after hatching from the egg are so small and poorly developed that their feeding ecology is vastly different from that of what the species practices during the rest of its life. So special attention must be giving to the way that young fish search for, find and ingest their food.

In my fish breeding articles I mention the stages of growth of the fish, they are: Yolk sac larvae, Free-swimming larvae, Juvenile and Adult

LARVAL PERIOD - There are two distinct periods in the larval period.

Larva with Yolk Sac

The Yolk Sac Period

This is when the larvae first hatch and carries its own food supply in the form of energy rich yolk.

The Larval St Age:

This is when the yolk sac has been absorbed and before metamorphosis into the juvenile stage. It is also the point when the fish becomes 'free- swimming'. Their food source now is exogenous.

End Of The Larval Period

This can be best described in terms of a metamorphosis and represents the transition from the larval appearance, to the time when the small fish takes on the characteristics of the juvenile. Some of the charges are:
Yolk sac resorbs, paired fins develops, muscles are defined and active

JUVENILE PERIOD

This period begins when the organ systems are fully formed, or nearly so. Juveniles are recognizable by the presence of fully formed fins and have the appearance of miniature adults -although they may not often have the distinctive adult colour patterns.

The juvenile period lasts until the gonads become mature and is usually the period of most rapid growth in the life of a fish.

ADULT PERIOD

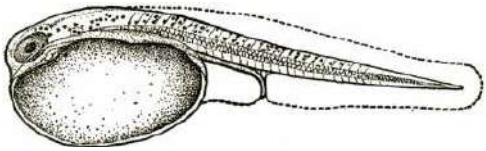
Once the gonads are mature a fish can be classed as an adult.
The onset of this period is reflected in spawning behaviour and often in the development of reproductive structures and colour patterns.

Now that we have looked at all the stages of life of the fish, how can we raise in our tanks broods of Barbs, Danios, Rasboras and Tetras from the minute yolk sac larvae to the adult stage? This is the way that has allowed me to raise, over a long time, thousands of fish.

Yolk Sac Larvae

I breed the vast majority of these fish in bare tanks (that is in a situation where there is no gravel substrate making it quite a clinical set up).
At this stage there is no difference from the wild to the aquarium.

Larvae do not take external food; they are feeding the rich yolk-sac that can be clearly seen on the tiny larvae using a magnifying glass.



Newly hatched fish, Actual length 2.1 mm

This is a time when you can lose the brood by placing any source of food into the tank - dry foods, and even live foods such as Brine Shrimp (that will die), will pollute the water. This will subsequently kill the brood that are *not* able to take an external source of food. It is also not the time to feed an infusion type food.

Free swimming larvae

This is the time when we see the still tiny larvae moving through the water on their own accord, swimming in darting motions either near the surface or in mid water. It is also the time when they *are* able to external sources of food. This is a critical time in the life of the young fish, when there must be an adequate amount of food and it must be the correct size and quality.

It has been proven that the vision of this type of larvae is poor. Despite the general excellence of vision in mature fish, that of the offspring is distinctly inferior. The handicap is probably one of the reasons why fish breed in considerable numbers, given the probability that so few survive.

The often transparent bodies of the larva cannot shield the nervous system from light, so that, while their powers of image formation are limited, they respond like plants to light that strikes their bodies and use other senses to find their food. In fact, we have to make sure that there is enough food in the correct density and size for it to nigh on flow into the mouth of the free-swimming larvae. We have a few options for first food:

1. A cultured minute live infusion food that has always gone under the general name of "infusoria". I have cultured this source of food for years using fresh powdered milk (see reference at end of article).
2. I have been using a very fine powdered dry food supplied by ZM foods - very successful for certain species of Danios, Barbs and a few Tetras.

   Fed carefully, the food floats on the surface of the water and the free-swimming larvae seem to sense it and feed.

3. Recently I have started culturing vinegar eels *Turbatrix aceti.*
They are about 2mm in length and swim in mid water and will stay alive until eaten by the larvae.

Vinegar Eel, *Turbatrix aceti*

When the larvae have been fed correctly on one or more of these foods for a few days the 'fry' as I will now call them should be able to take larger foods, such as live Brine Shrimp *nauplli* or a larger grade powdered dry food.

Brine Shrimp *nauplli*

Once at this stage, the problems should be behind the fish breeder and the fry will move on to juvenile and adult stages.

SPACE

Danios, Barbs, Rasboras and Tetras can be prolific breeders and just one pair will produce hundreds of eggs.

If the fish breeder is successful in the brood then raising a fair amount of tank space will be required. In the wild this is not a problem, but we must only keep and raise enough fish that we have space for. All runts and deformed fish must be culled and if you have too many fish for your tank space then why not pass some on to friends?

CONCLUSION

I hope that this brief look at the life history of these egglaying fish will give you an insight to the wonderful biology of our world of fish.
In future articles I hope to look at the methods of feeding in more detail.

References:

Fishes an Introduction to Ichthyology by Peter B. Moyle & Joseph J. Cech, Jr.
Biology of Fishes by Q. Bone, N. B. Marshall and J. H. S. Blaxter.
Breeding Egglayers by John Rundle
Live Foods for Aquarium Fishes by John Rundle

POETS PAGE

This poetic offering by the late great **Tom Easterbrook** first appeared in Plymouth's "Fishy News" in 1953.

"White Spot Lament" by Gleepy-Olis

This is the fishy bloke all forlorn,
Who saw on a fish one early morn,
A spot so white and oh, so small,
And it wasn't so long till it covered them all.

This is the chap who fussed and blew,
Who brought up the temperature through and through,
He raised it higher, then higher and higher,
Till I'm sure that his fish thought they were on fire.

This is the Aquarist who looked once more,
To his wife he did call with a voice quite a roar,
'Not a spot can I see, I'm sure it's all gone
I'm happy as can be, I could burst into song.'

On the following day alas and alack,
The parasite white spot had found its way back.
His fish look quite sick and had started to shake.
Thought he, a trip to the chemist's I'll take.

This is the chemist, who smiled with glee,
'Some Quinine Hydrochloride I'll sell him' thought he,
Four grains to a gallon and bang in the lot,
Make sure you keep the water quite hot.

This is the tank that clouded like mad,
Our Aquarist friend started feeling so sad,
Said he to his wife, 'I feel that I oughta,
Siphon off half of this polluted water.'

Now clear and settled, as bright as can be,
His tank looks quite posh for his friends to see,
Once more has he learnt, no more will he groan,
He'll keep all new fish for a time on their own!

Chlorine and Chloramine

by Dave Hulse,

Tetra Information Centre

Neither chlorine nor chloramines are natural constituents of water, and like many un-natural substances, they can cause quite severe pathology to fish when present even in very low concentrations. Both chlorine and chloramine are found in tap water because they are added to the domestic supply by the water companies, to ensure our water reaches us in a 'potable' (or drinkable), state.

Chlorine can be added to water in a number of ways. It can be added in a chemical form as sodium or calcium hypochlorite, however as the water companies are dealing with such vast quantities daily, the most economic way of chlorinating water is to add chlorine gas. This then forms a mixture of HOCl (hypochlorous acid), H^+ (hydrogen ions) and Cl^- (chloride ions). Chlorination of water by gas tends to slightly acidify the sample (due to the release of hydrogen ions). This means water companies in softwater areas (where pH change buffering is low), have to ensure the chlorination does not cause excess acidity. The chloride ions released are not toxic, and are in fact found naturally in water and are vital in the body fluids of fish.
The active (or toxic) component of the reaction of chlorine gas and water is the hypochlorous acid. This is very unstable in the water and immediately dissociates forming an equilibrium mixture of hydrogen ions, hypochlorous acid and less toxic OCl^- (hypochlorite ion) as shown below:

$$\mathbf{HOCl \Leftrightarrow H^+ + OCl^-}$$

The balance of the reaction depends on the pH of the water. Water in the pH 6 – 7 range will have the majority of the chlorine in the hypochlorous acid form. As the pH rises the balance shifts to hypochlorite ion form. However it is very difficult to measure the concentrations of hypochlorous acid or hypochlorite ion. The total chlorine level (or free chlorine) is easy to determine and the balance of hypochlorous acid to hypochlorite ion can then be determined from the pH level of the water.

Due to the instability and pH governed equilibrium of chlorine in the water the amount of active chlorine in water soon decreases. Water companies have to calculate the loss of active chlorine over a known length of pipeline to ensure that a level of 0.2 – 0.5 mg/l flows out of our taps.

So what does all this applied chemistry means to us fishkeepers? Put simply we must ensure that NO chlorine ever reaches our fish. The fact that chlorine is in a less toxic form (Hypochlorite ion) at higher pH values is not relevant. Both hypochlorous acid and the hypochlorite ion are toxic to fish; the latter is less so. The toxicity relates to the fact that the negative electrical charge on the ion makes it harder for the molecule to enter the fish's cells and cause damage.

So how do we ensure the water that we put in our ponds or aquaria is free from chlorine? If we choose to use rainwater (inadvisable due to lack of pH buffering minerals), then this would be free from chlorine. Water from any other natural source *should* be free from chlorine. As the bulk of us fill our ponds or tanks with tap water then we can be certain that a low level of chlorine is present in the supply.
Thus chlorine must be removed from the water before it comes into contact with the fish. We can do this in two ways; by chemical treatment with a harmless dechlorinator or by filtering the tapwater through activated carbon.

Tap water conditioners such as **Tetra AquaSafe** contain agents that inactivate the chlorine converting it into harmless by-products. Quality tap water conditioners often contain other compounds that will remove heavy metals from the water and promote mucous coat production by the fish to enhance immune protection. Tetra AquaSafe also contains vitamin B1 compounds which reduce stress in the fish making it an ideal agent to add to the water when new fish are added to your tank or pond.

The other way to remove chlorine from your tapwater is to filter the water through a carbon block. Activated carbon block filtration will reliably reduce the free chlorine level down to a few µg/L, depending on tap water perfusion through the filter and employing reliable pre-filtering. To get 100% dechlorination it is necessary to use a chemical dechlorinator.

Another way to dechlorinate is to simply leave the chlorinated water you intend use for your fish standing for a minimum of 24 hours. The instability of the free chlorine will mean it soon breaks down and is released from the water. Aeration of the water will improve dechlorination. This method is not as efficient as chemical or carbon treatment, but is cheap. A major disadvantage is that other potentially damaging compounds in the tap water are not removed by standing / aeration.

To test the efficiency of your dechlorination method, use new **Tetra 6in1 Test Strips**, these test the key parameters of aquarium or pond water quality and will now also return a value for residual chlorine.

So what level of chlorine is safe for ornamental fish and what does excess chlorine do to them? Aquaculture experts recommend a maximal level of chlorine of 0.003 mg/L free chlorine. Above this toxicity problems may start. Both hypochlorous acid and hypochlorite ion are strong oxidants. They damage the fish's membranes and body surfaces by penetrating cell membranes and causing non-specific damage to structures in the cell such as enzymes and nucleic acids (DNA & RNA). As mentioned above the hypochlorite ion is less toxic as its negative charge makes it harder for it to enter the cell through the membrane. Gill tissue is especially prone to damage by chlorine, and the subsequent necrotic areas may lead to secondary infection by fungi and bacteria.

Where does chloramine fit in then? **Chloramine** is a form of *combined chlorine* where the chlorine (added as a gas or from sodium or calcium hypochlorite), combines with any ammonia present in the water. Chloramine is much more stable than hypochlorous acid or hypochlorite ion, and so lasts much longer in the water.

An increasing number of water Companies add chloramine to the potable water as a disinfectant due to its superior stability. Different authorities use varying ratios of ammonia to chlorine as summarised in table 1 below. The reason for this non-uniform dosage across the country is because the pH of tap water is not constant, (due to local geology), and ammonia shifts to its ionic form at lower pH values.

Chlorine:ammonia ratio	pH favoured	Name
4:1 – 5:1	7.5 – 9.0	Monochloramine
7:1	4.0 – 6.0	Dichloramine
9:1	Below 4.0	Trichloramine

Table 1: The three main types of combined residual chlorine (Chloramine).

The problem is that chloramine is not as good at disinfecting water, (in other words it doesn't kill pathogens as efficiently).
Another problem with chloramine is that is far more toxic to fish than free chlorine (it's a combination of chlorine and ammonia – how fish unfriendly can you get?)

Chloramine converts haemoglobin (the oxygen carrying agent of blood) to methaemoglobin, which cannot carry oxygen. The same corruption occurs due to nitrite poisoning and the gross appearance of the blood is a change from a healthy red colour to a rusty brown. Chloramine seems to be more dangerous because it causes gill damage and a subsequent reduction in oxygen carriage. Free chlorine by contrast causes a drop in oxygen tension in arterial blood, due to the reduced level of oxygen uptake at the damaged gills.

In summary both chlorine and chloramine are essential additions to our drinking water. The supply would soon foul up and we would all become very sick without these disinfectants.

However as fishkeepers we MUST employ a strategy to get rid of chlorine or chloramine from the water before it comes into contact with our fish.

Visit **www.tetra-fish.co.uk**

ASK US

Q: I'm hoping to start marine fishkeeping and have done some research reading. I've come across references to a 'refugium' – what is it, and will I need one?

A: A refugium can mean different things to different people.
On one hand it's the buzz word for a type of external filter utilising macro-algae (usually some form of *Caulerpa*) as a natural filter medium.

The unit is hung on the rear of the tank (or it can be placed beneath the aquarium) and kept well-illuminated. A reasonable depth of a growing medium – a trade name for this is 'Magic Mud' – is placed in the filter and cuttings of macroalgae are planted into it.

As the macro-algae thrives, it absorbs nitrates from the aquarium water passing through the refugium. By regularly 'harvesting' the macro-algae you achieve two things: new growth is encouraged and you are physically removing the nitrate-laden cuttings. Obvioously, when the macro-algae is photosynthesising some excess oxygen may be produced. So, why not illuminate the refugium during the night to keep oxygen levels in the main tank at better levels?

The second function of a refugium is simply that – to provide a refuge perhaps to small species (of fish or invertebrates) that would otherwise be preyed upon by the larger fish in the collection.

Wholesale Tropicals

RETAIL SHOPPERS ONLY

You will be amazed by our rare and unusual fish!

OPENING TIMES

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

On No.8 bus route - opposite main Post Office.

- OPEN ALL BANK HOLIDAYS 10.30am-2.30pm

NO MAIL ORDER ON DRY GOODS.
FISH DELIVERIES AVAILABLE AT OUR ONLINE TROPICAL FISH SHOP
www.tropicalfishfinder/wholesaletropicals.asp
or VIEW OUR ENTIRE TROPICAL FISH STOCK AT
www.tropicalfishfinder.co.uk

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

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

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

1-15 TREATMENTS

Interpet Ltd is one of the most established names in the aquatic industry with over 50 years of experience. We are specialists in treatments and have been a market leader for many years. In addition to this we are committed to all aspects of aquatics dedicated to new product development and industry evolution.

We have re-launched our market leading Aquarium Treatments range, making in-store product selection a simple and straightforward process for all fish-keepers, from the total beginner to the experienced hobbyist. All products come with a Fish Health booklet which tells you all you want to know along with information on our whole range of 15 treatments.

Interpet treatments use advanced formulations that utilise the best technology to blend active ingredients making them very effective while reducing the stress on the fish. The products are easy to use with every one coming complete with a pipette and measuring cup.

All of our fish medicine products are approved under the ‘Small animal exemption scheme’ manufactured to GMP standards dictated by the Veterinary Medicine Directorate which gives fish keepers the assurance of the best quality products. Our on-site dedicated scientists use latest technology for ensuring all aspects of manufacture get the best possible quality control.

BIOACTIVE TAPSAFE

Tap water is sterilised by chlorine compounds for safe human consumption. Chlorine and other contaminants in tap water are harmful to fish as they are aggressive to the delicate skin and gill membranes of fish.

Bioactive Tapsafe is a unique formulation developed in conjunction with the global leaders in Biotechnology. The advanced formulation removes chlorine, chloramine and also heavy metals, this allows even hot tap water to be used as part of a water change mix. Bioactive Tapsafe adds an Aloe Vera protective colloid that creates a protective barrier around the fish's delicate skin and gill membranes. Uniquely, Bioactive Tapsafe also adds a culture of bacteria and enzymes that consume any excess biological waste in the aquarium and boosts filter performance.

In essence, Bioactive Tapsafe has 5 steps of protection for your fish:

Instantly removes harmful:

- Toxic Chlorine
- Toxic Chloramine
- Toxic Metals e.g. Copper

Instantly adds:

- Aloe Vera – a protective healing coating for the delicate skin and gills of the fish
- Beneficial Bacteria – a blend of bioactive bacteria to boost essential biological cycles and consume toxic waste

For stockists please contact:

Interpet on 0845 2267437 or email customercare@interpet.co.uk

FESTIVAL of FISHKEEPING 2008

After this year's miserable 'summer' we were waiting for a bit of luck for the Festival of Fishkeeping and, in the end, we got two 'miracles'.

Setting up went more smoothly than ever before, the whole Exhibition was 'ready to go'on the Friday evening instead of trailing over into the Saturday morning ("A 'first' in the Festival's entire history," says Joe).

Secondly, the weather for the whole weekend turned out be be blue skies and sunshine from beginning to end and visitors poured in early on Saturday morning and appeared to do so again on Sunday.

An unusual feature greeted visitors this year as outside the main entrance to the Show marquees was a celebratory 'Cake' designed by Peter Caira, of Hounslow & D.A.S. in honour of the Federation's 70th Anniversary. Each side of the Cake featured an aquarium or an Aquascape.

Although an 'enclosed event,' the several marquee-enclosed 'Halls' never gave a sense of being claustrophobic. Thanks to some clever planning, each 'aisle' had a theme whether it was Discus, Koi, Goldfish, Trade and Craft Stands or Competitive Fish Show areas. A centrally situated refreshment area made a very convenient resting place between sections!

The Discus Show commanded instant respect, especially as fish on dispaly were from such diverse countries as Poland, Spain, Germany, Malaysia, Singapore and the UK. Still with an oriental connection, Star Fisheries provided a magnificent centrepiece display containing fish especially collected from China for the Festival.

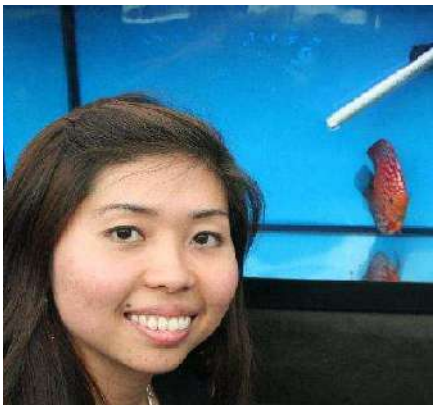
Tetra showed their talent for 'one-upmanship' as their bright orange Mini was equipped with not the obligatory sat-nav but a DVD player – with display screens both in the boot and on the dashboard!

Working on the principle that big is not necessarily best, UKAPS, the online aquarium plant Society, displayed three stunningly-furnished nano tanks, two of which featured glass sides of exceptional clarity.

But, naturally, the essence of the weekend for a lot of residents was the competitive side. The largest physical Shows - the Discus and Koi - ran literally side by side over the two days; on Saturday, the British Open, Catfish, Killifish, Betta and Goldfish Shows taxed the brains of the Judges and the anxiety of the exhibitors. This year two new Saturday Competitions were added - for Best Pairs and for Best Breeders.

Sunday was no better, with the Festival Open Show and the FBAS Supreme Championship to contend with!

There were shocks on the Fish Show front and it turned out to be a case of 'doubles' all round in some cases.



Cindy Tan won both 'Open' categories in the Discus Show with her stunning entry, and Tony Vaughan of Ireland upset the applecart by not only taking Grand Champion in both 'Hobbyist' and 'Open' Discus Shows, he had the audacity to do so with a 'Wild' fish, putting all the other man-made varieties to flight. It just goes to show that Mother Nature can't all be bad, after all.

On the 'British Open' and the 'Supreme' front, again a single fish (from TDC, of course!) took both top honours.

The Society Furnished Aquarium Competition again proved to be very popular with visitors. It was interesting to see how many swings occurred during voting - many youngsters voted for the aquarium with the castle and coloured gravel, whilst adults favoured more sedately furnished tanks.

The top four places vied for position over both days but only one Society, Dunstable & District Aquarists Society, managed to top the votes on both days and so proved triumphant overall.

Probably the most popular stand was the 'Home-bred Fish Sales Stand'. Stocks were snapped up eagerly by fishkeepers looking for high-quality fish at bargain prices. You had to be up early in the morning to take advantage of the offers as many found out to their disappointment. Luckily, careful (or considerate) planning by 'suppliers' meant that some stock was reserved for the second day!

Tucked away in mid-marquee was the Lecture Room - you probably missed its blacked out windows - and here the Guest Speakers, Dr Peter Burgess, Professor George Turner and others strutted their stuff to the followers of their various subject matters.

For those specialist devotees, the British Livebearer Association, the Anabantid Association, UK Discus Club and the British Cichlid Association had informative displays and the latter held their Convention and their stupendous Auction (which was still going strong during the final day's prize-giving ceremonies) at the Festival.

But the Festival wouldn't be the popular event it is without the residents. Early Friday evening, the recurring topic of conversation was "Great to see you again, how've you been, how are your fish doing?" just going to prove that to some the social scene is just as important as the fish on the bench.

Saturday evening saw the traditional Children's Fancy Dress and, although there was only one entrant in the Adult version, one could not deny his enthusiasm!

Thanks to all for coming, whether you were an exhibitor, resident, Judge, Trade representative, Guest Speaker, Day Visitor or Steward - you made it all worthwhile - and very many thanks to the Show Organisers, Manager and Staff of Mill Rythe for hosting the best aquatic Festival of the year.

See you in 2009 – you'd be wise not to miss it!

There's more coverage, Show Results and photographic highlights on the FBAS website

www.fbas.co.uk

Main Results

SUPREME CHAMPIONSHIP sponsored by Tetra

SUPREME CHAMPION
Aphanius dispar
TDC, Derby & D.A.S.

2nd	Characodon lateralis	John Smith, Mid-Sussex A.S.
3rd	Eleotris vittata	TDC, Derby & D.A.S.
4th	Aphanius mento	TDC, Derby & D.A.S.
5th	Labeo rubropunctatus	Allan Finnigan, Leicester A.S
6th	Vieja regani	J.Egan, Port Talbot A.S.

View SUPREME JUDGING SHEETS at
www.fbas.co.uk/SUPSHEETS 1.html

BRITISH OPEN CHAMPIONSHIP sponsored by Tetra

1st	Aphanius dispar	TDC, Derby & D.A.S.
2nd	Vieja regani	John Egan, Port Talbot A.S.
3rd	Botia histrionica	John Egan, Port Talbot A.S.
4th	Fundulopanchax marmoratum	TDC, Derby & D.A.S.
5th	Barbus 'Odessa'	TDC, Derby & D.A.S.
6th	Melanotaenia trifasciata	TDC, Derby & D.A.S.

FESTIVAL OPEN SHOW

Best in Show	Mastacembelus erythrotaenia		TDC, Derby & D.A.S.
Reserve	Angel		Phil Austen, Portsmouth A.S.
Reserve	Rudd		Ian Mainsbridge
Championship Trophy	Ma	C.siamensis	Allan Best, Strood A.S.
	Ob	Female Guppy	Malcolm Short
	P	Platy	TDC, Derby & D.A.S.

TETRA SUPREME PAIRS

1st	Corydoras nanus	TDC, Derby & D.A.S.
2nd	Phallichthys fairweatheri	TDC, Derby & D.A.S.
3rd	Aphanius dispar	TDC, Derby & D.A.S.
4th	Phallichthys quadripunctatus	TDC, Derby & D.A.S.
5th	Nannostomus marginatus	TDC, Derby & D.A.S.
6th	Barilius barilioides	Keith Sollitt, Bracknell A.S.

TETRA SUPREME BREEDERS

1st	Pseudomugil furcata	TDC, Derby & D.A.S.
2nd	Synodontis petricola	TDC, Derby & D.A.S.
3rd	Tateurndina ocellicauda	TDC, Derby & D.A.S.
4th	Synodontis petricola	TDC, Derby & D.A.S.
5th	Phallichthys fairweatheri	TDC, Derby & D.A.S.
6th	Aphyosemion gardneri 'Gold'	TDC, Derby & D.A.S.

GSGB GOLDFISH SHOW sponsored by AQUARIAN

Best in Show **Best Baby Class**

Ranchu John Parker, GSGB Common Goldfish Chris Whitehurst

KILLIFISH SHOW sponsored by RO-MAN

Best in Show

Nothobranchius guentheri

Terry Baker

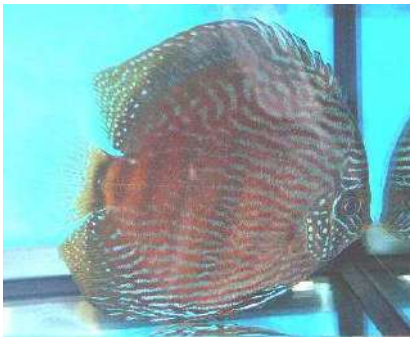
KOI FESTIVAL sponsored by Tetra and RO-MAN

Grand Champion

Size 6 Kohaku

Trevor Childs

UK DISCUS SHOW sponsored by Tetra and RO-MAN



Grand Champion, Hobbyist & Open
Tony Ball, Ireland

President's Award
Best Polish Fish

Hobbyist 'Open' & Open 'Open'
Cindy Tan

Michael & Sally Meacham
Radislav

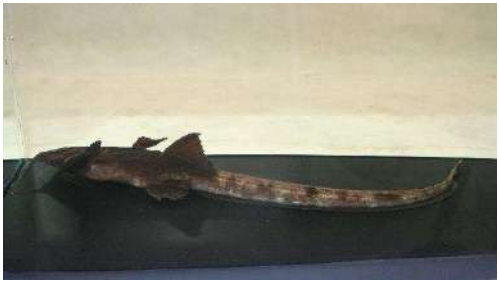
BETTA SHOW sponsored by RO-MAN

Best in Show

Shortfin male blue Pla Kat

Yonathan Novianto, Indonesia

CATFISH SHOW sponsored by AQUARIAN



Best in Show

P.cotylephorus

Allan Finnigan, Leicester A.S.

Reserve	L.galaxias White Spot	Allan Finnigan, Leicester A.S.
Reserve	Corydoras ambiacus	TDC, Derby & D.A.S.

SOCIETY FURNISHED AQUARIUM
sponsored by Tetra and Anglo Aquarium Plant Co

1st Dunstable & D.A.S.

2nd Island Fishkeepers
3rd UK A.P.S
4th Hounslow & D.A.S.

Saturday Result	**Sunday Result**
Dunstable	Dunstable
U.K.A.P.S.	Island Fishkeepers
Hounslow	U.K.A.P.S.
Island Fishkeepers	Hounslow

HIGHEST POINTED SOCIETY Leicester A.S.

FBAS CHAIRMAN'S AWARD Port Talbot A.S.
For outstanding support for FBAS Shows during 2008

ORGANISER'S AWARD John Egan, Port Talbot A.S.
Highest total Place points in the 'Supreme' and 'British Open'

2008 FESTIVAL OF FISHKEEPING HIGHLIGHTS

2008 FESTIVAL OF FISHKEEPING HIGHLIGHTS

FLUVAL - *INNOVATION AND STYLE*

by Les Holliday

Autumn is always an exciting period at Rolf C. Hagen as it is the time when all of the planning and design earlier in the year comes to fruition with the new season's product range. A policy of continuous attention to improvement over many years has ensured that aquatic products like those from the Hagen's Fluval brand represent leading edge European design and technology incorporating technically advanced innovations to deliver the highest quality products on the market.

This year is no exception and features a complete revamp of a major part of the Fluval range including the brilliantly redesigned Fluval 'U' series of underwater filters, the technologically advanced Fluval 'E' series and 'M' series, submersible aquarium heaters and a new '260 Limited Edition' of the highly popular Vicenza 260 fully integrated complete aquarium set.

When I was asked to test out some of the new underwater filters in the Fluval 'U' series I soon noticed that as well as looking outstanding these filters featured some impressive new handling characteristics.

As a departure from the bottom loading design of Fluval filters in the past, access to the filter compartment is through a flip-top lid on the top of the compartment allowing quick and easy maintenance without removing the filter from its fixing bracket. Easy cleaning and replacement of the filter cartridge are assured with this excellent improvement in design.

The new ‘U’ series filters also offer customised water flow patterns by adjusting the completely redesigned 3-way flow mechanism.
A simple adjustment to this mechanisms gives the choice between top output for maximum circulation and oxygenation, bottom output for deep water agitation or by choosing the alternative integrated spray bar a gentle even flow, ideal for planted aquariums.

If you liked the technology incorporated in the Fluval Biolife range of filters you will also approve of the 3-stage filtration in the new ‘U’ series. In similar fashion to the Biolife, filters in the ‘U’ series are designed to meet high standards and are ideal for use in fresh, marine or even reptile environments like terrapin tanks. The first stage is a foam pad which removes large particles, followed by a poly/carbon cartridge to trap fine debris, improve water quality and remove impurities. The third and final stage is a compartment filled with Biomax a filter medium that has a proven record of excellence in optimal biological filtration efficiency.

Engineered to be silent and efficient in running this nicely designed range of filters provides a choice of models for tanks ranging from 45 – 110 ltrs, 90 – 150 ltrs and 130 – 240 ltrs capacities and offers an ideal solution for installations where external filtration is not possible.

The new Fluval ‘E’ series must be simply the most technologically advanced submersible aquarium heaters available today.

Featuring ‘Vue Tech’ technology, a term used to describe the LCD display which not only allows continuous monitoring of real time water temperatures but also changes colour if the water temperature varies from the pre-set temperature.

Precise temperature settings can easily be arranged in 0.5°C increments and the LCD glows green when the pre-set temperature is correctly maintained. The LCD changes colour to blue if the aquarium water falls 1°C below pre-set level and red for a rise of 1°C above. Should external factors cause a rise or fall beyond 3°C the LCD screen will flash either red or blue to indicate the potential risk. To enable this amazing amount of control Fluval 'E' series heaters rely on advanced micro processor technology with dual temperature sensors ensuring accurate and real time water temperature readings.

Other features of this highly innovative range of heaters is an integrated fish guard which offers full protection for fish and other life forms in the aquarium which cannot come in direct contact with the heater core.
Its sturdy construction in black plastic also protects the glass sleeve from accidental knocks or against shocks from large fish species and each heater comes with a matching secure slim profile mounting bracket which allows the heater to be adjusted or removed whilst leaving the mounting in place.

Fluval 'E' series heaters are available in 50w, 100w, 200w and 300w sizes for aquariums of 60, ltr, 120 ltr, 250 ltr and 375 ltr capacity.

The Fluval 'M' series of aquarium heaters are more conventional in design and are quality manufactured in Europe using superior components and construction. Constant attention to improving the efficiency of this long established heater range means that they can be trusted for exceptional performance and unsurpassed reliability.

Although very conventional looking in many respects the Fluval 'M' series uses reflective technology to give each heater's glass sleeve mirror-like qualities. As they reflect the colours of their surroundings these heaters are far less obtrusive than standard glass sleeve models.

Fluval 'M' series heaters are available in 50w, 100w, 150w, 200w and 300w for aquariums of 50 ltr, 100 ltr, 150 ltr, 200 ltr and 300 ltr capacity.

The introduction of the Fluval Italian designer collection of complete fully integrated aquariums heralded a whole new concept in aquarium design with the emphasis clearly on style. One of the most popular choices from this collection has been the bow-fronted Vicenza range designed to enhance modern decor with simple classic lines.

The Vicenza 260 ltr model, the largest in the range, measuring 121 x 46 x 64cm has recently become available as the new Vicenza "260 Limited Edition" with some fine additional features. Lighting has been upgraded to include T5 HO 39W tubes incorporated into a unique ambient lighting system, which includes a light timer. One of the new Fluval 'E' series 300w heaters with Vue Tech technology is also part of the set and filtration relies upon a Fluval 305 External Filter with all filter hoses connected through the aquarium base, avoiding mess and clutter. In rich walnut and black this very special aquarium will only be available in limited numbers.

HAGEN ...For Pets • birds • cats • dogs • ponds • aquatic

Visit http://www.hagen.com

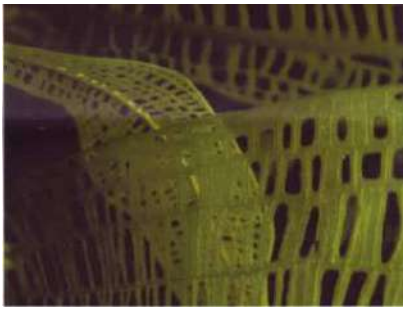
AN *APONOGETON* DELIGHT

by Shughie McFee
from Plymouth Fishkeepers
***Fishy News* Magazine**

The Madagascar Lace Plant ***Aponogeton madagascarensis***

(pronounced 'A-pon-oh-gee-ton mada-gas-car-en-sis').

This is, as its name implies, from Madagascar and is actually endangered in the wild due to habitat destruction. Fortunately, most plants available commercially in this country have been captive grown. For those who are unfamiliar, this plant is an amazing sight. It has very unusual leaves as the tissue surrounding the vein structure is completely missing, so each leaf looks like a beautiful piece of dark green lace.



Leaf structure

The problem is that the plant is extremely difficult to grow. It requires absolutely clean water, and no algae.

Algae settling on the leaves will quickly kill the plant. It needs cooler water from 62^{o} – 68^{o}F and will not tolerate boisterous fish. Most people who manage to keep it alive do so in a tank dedicated to just that plant.

That said, according to a major European plant grower, about 90% of *Aponogeton madagascarensis* plants collected fail to thrive in aquaria even under the best conditions, while the remaining 10% settle in and grow into a magnificent display. Since this is a fairly expensive plant, you should buy it with the understanding that its maintenance may be difficult.

SPECIALISING IN FANCY GOLDFISH
FOR OVER 25 YEARS

Star Fisheries

THANKS FOR COMING TO SEE US

at

Festival of Fishkeeping in Hayling Island

We hope you enjoyed seeing those

Fancy Goldfish

which we had personally selected
during our special collecting trip to China.

As you can see, we do have
some of the rarest Fancy Goldfish in the World.

All enquiries to: andy.green@starfisheries.co.uk
Telephone number: 020 8643 8162
Fax number: 020 8643 8166

OATA

SPONSORS TO THE GOLDFISH SOCIETY OF GREAT BRITAIN
Star Fisheries, 94a Benhill Road, Sutton, Surrey SM1 3RX

Ivan Dibble visits the 2008 German Livebearer Convention

Here's a little taste of the D.G.L.Z. or German Livebearer Convention that I have just had the good fortune to attend. I was only able to do so thanks to the Assistance of my good friends Dai Jones, Harro Hieronimus and Harald Auer, all of whom help me to get to and from the airports as unfortunately my legs are still not getting any better. So thanks guys.

Now originally last spring I had booked to go by car but unfortunately due to others falling out through sickness I almost nearly did not go. However I had not been over for a number of years now cancelling at the last minute and each time in circumstances like those above so as I had been promising my German friends for so long that I would get over again I felt that I could not let them down yet again.

So even though it was at the last minute I called Air Berlin and Thursday the 18th September found me at the Stanstead airport waiting to join Air Berlin flight to Paderbourn in central Germany.

Well it was a very short flight and just 1 hour latter I was leaving Paderbourn airport having been met by our good friend Harro.

Now the journey from the Airport to Adorf is only about 50 klm so with Harro driving it was not long before we were arriving at our very attractive destination in the village of Adorf

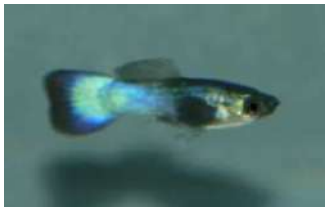
and finally to the Guest House, which is much bigger than it looks from outside, where the Meeting would be held.

It has a Bar & Dining Room and can seat well over two hundred people with more space in the Hall - not to mention the Beer Garden!

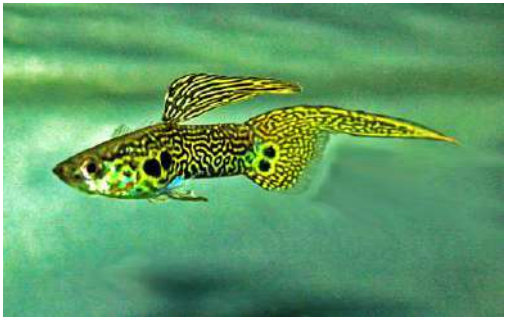
On arrival, the preparation was well under way with all the Guppy tanks, 200 plus already set up and ready for judging, but they were still putting up the aquariums for the wild species.

And so as they had not yet started judging the fish, I took the opportunity to get the camera out again. And as the Guppy's were to be judged first next morning I focused on them. so here are just a few of the fish exhibited.

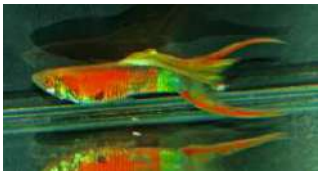
Short-finned varieties

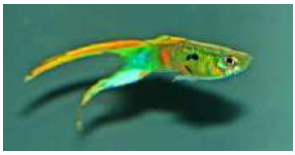


Single-swords

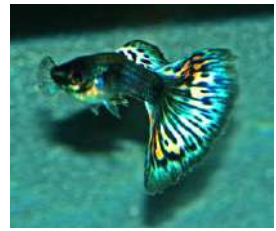


Double Swords

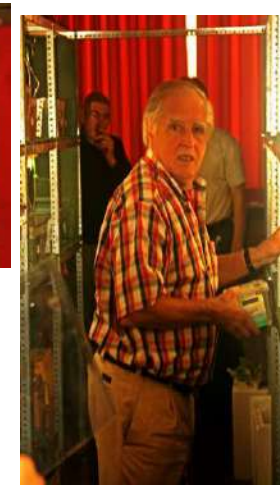




Broad-finned



When I walked into the hall after breakfast on Friday morning the judging and recording of the Guppy results was well under way



The Guppy's were all set up in glass tanks, over 200 of them set out on a number of tables and there were some really nice fish there.

So as not to get in the way of the judging, I started to take pictures of the wild livebearers as the people brought them in as most of these were being placed on separate stands using plastic tanks which made it far harder to take a reasonable picture.

Of course, all these had covers put on them after the fish were put in.






So let us take a look at some of the other fish there.









Of course there were many more but, as I said, the plastic tanks did not help with photography.

Early Saturday a coach turned up at the front door, those on board and a number of others had driven all through Friday night from France to get here for today. This is one of the reasons I always enjoy going to this meeting as you get to meet up again with friends from all over Europe.

For instance this Year I able to renew friendships not only with this French group but also old friends like Albert Parner from Denmark or from Switzerland in fact the D.G.L.Z. was operating the EEC long before they were!

All morning people are milling around the show stands. You can just see the wild fish show stands at the back of the hall here, but slowly through the morning the hall will fill up until there is usually over 200 people here, then at mid-day the first Auction will start.

Harro alone does most of the auctioneering but he is quite good having had a lot of experience at it. This auction can go on some times until quite late in the evening, this year it wound up about 6-0 pm and a wide variety of fish came up, both wild and cultivated.

Through out the day, as for the whole 4 days, there is waiter service to the tables for both food and drink and it is both excellent and inexpensive. Talking about which, if ever you are thinking of coming along to this event, then with Bed & an Excellent Breakfast costing no more than £25 per night for a double room, you had better book your room very early to avoid disappointment!

Well time marches on and soon it is time for the Saturday evening festivities and the D.G.L.Z. Presentations, but I won't trawl through all that here. Of course these festivities go on late into the night but these days I more often go to my room and down load my pictures before going on to bed.

Sunday morning and every one is gathering again to look at the fish in the Show to see what fish are coming up in the second auction.
This time it is the larger part of the fish that were in the Show, and if you look at the stickers over all the tanks you can not only see how they did in the Show but also which will be coming up in the auction. In this way you can note down the number of the fish that you are interested in and then bid on that number when they come up.

However all good things have to come to an end and so Sunday evening was full of good wishes until the next time as the majority of people will be going home tonight. Personally though, I stayed on until the Monday and had a late Breakfast as my flight was not until 2- 5 pm and Harald was working with the local group to pack away all the staging and by mid morning you would not have thought that there had been anything here the day before.

KNOW YOUR FISH

Long-nosed Hawkfish
Oxycirrhites typus

Family: Cirrhitidae
Geographical Distribution: Indian, Pacific Oceans
Size: 100mm

Description: Instantly recognized on two counts – the long snout is an obvious giveaway although the bright red checkered pattern comes a close second.

The long single dorsal looks as though it is in two parts but in fact is continuous. A feature of the dorsal fin are small 'cirri' or tiny curls at the end of the spines.

Behaviour: As its common name infers, the fish uses its pelvic fins to perch on a rock or Gorgonian coral outcrop, keeping an eye out for prey (like a Hawk hovering).

Aquarium needs: The marine aquarium should be furnished with suitable 'perches' to suit the fish's lifestyle. A hardy species, it will take frozen 'fish-based' foods, but may not take flake foods too readily.

DRAUGHT or BOTTLED?

Mark Ellis, of New Zealand's Kapi-Mana Aquarium Club takes a look at the use of Natural Sea Water In The Reef Aquarium

NSW (Natural Sea Water) vs. **ASW** (Artificial Salt Water) in the Aquarium is a debate that has been raging for some time. Everyone has a different perspective or point of view. Before making any conclusion we need to be in possession of some facts:

- There are many successful aquariums using both NSW and ASW.
- There are many unsuccessful aquariums using both NSW and ASW.
- Most of the animals in our aquariums came from the ocean, which is made of NSW.
- There is a huge amount of industry and marketing involved in the sale of ASW.
- People have had different experiences, both good and bad, switching from one to the other.
- Much literature is written from people in the US or UK who do not have access clean NSW and often have no experience with it.

I should start by saying that I use NSW and that I use it by choice.
By this I mean I can afford to use ASW but personally believe that NSW is better for my Aquarium. I do believe that there are many valid reasons to use ASW and I do not criticise its use, but these factors do not affect me.

Water Changes

I thought I would cover this before I continued. This is another topic for hot debate. Most say do but still some say don't. I say do.
There are many different components in small! concentrations that can't be tested accurately (trace metals, electrical conductivity) in NSW. The easiest way to replenish these is to change out the water occasionally. This not only puts some of the unknown 'goodness' back into the water it is taking some of the unknown 'badness' out. Again many people run very successful Aquariums without any water changes, but I think for the most part success is more likely with them than without them.

Beginners: For anyone new to the hobby or not as technically minded as some, change the water, and change it often. I talked to a first time marine keeper whose local pet store had told him to never change that water, that once its right it will stay right forever. Not sure where this information came from, but it's wrong.

The choice for most of us is not whether or not to do the water change, but if the change should be made with NSW or ASW.

NZ NSW

I collect my saltwater from the Cook Strait (south coast Wellington, Island Bay). I try to get it into my tank as quickly as possible, there is micro-life (plankton) in there that benefits the life in my tank and I want as much of it to survive as possible. For the purpose of this article I tested Wellington south coast water. Let's take a look:

Visual Inspection : Crystal clean water, no 'floaties' & no discolouration
Odour : Smells like salt water! No 'rotten egg' smell or any other odours other than that of clean ocean water.
Temperature : 16℃ (drops to under 10℃ in Winter)
Specific Gravity : When heated to 25℃ .024 on my refractometer
Calcium : 410ppm (Salifert)
pH : 8.08 (Pin Point electronic PH Monitor)
Magnesium : 1280ppm (Salifert)
KH : 8.4 (Salifert)
Nitrate : 0 (Salifert)
Nitrite e : 0 (Salifert)
Ammonia : 0 (Salifert)

All the tests were done after the water was heated to approximately 25℃, less then 4 hrs from being in the ocean.

So as far as its chemical composition is concerned NSW seems to be close to perfect for reef conditions. Now this should not be a surprise as ASW is imitation NSW anyway so its parameters should be similar, after all it's the real thing. Just like in the tropics different parts of the year will give slightly different results, especially as seasons affect *temperature*, which drastically changes the chemical composition of the water.

There is little doubt that the nutrient content of the water from NZ will be much higher than that of tropical reefs. The protein skimmer should take care of this, and many corals (leathers, mushrooms) will benefit from some nutrients in the water.

Pollution from NSW

This is the big one, the biggest fear with NSW, polluted water. I have heard this many times “I am not willing to risk my tank by using NSW it’s just not worth the risk, my tank it worth a zillion dollars", fair enough too!
I have a significant investment in my own aquarium and am not willing to do anything that could destroy it; I just don't see pollution as a risk.
If your collection spot is sensible, then the biggest problem you have is from freshwater *run off,* which can be avoided. *Run off* carries with it all the nasties from the land, dirt, pesticides, pollutants, sewage and anything else you care to mention. Don't collect after it’s been raining, collect from an incoming tide, problem solved.

Now let’s remember where we are, NZ is a very clean place, there are many that are not. Europe and the US spring to mind. I figure if it’s unsafe for you to swim there, it can't be good for your tank! That being said, collection of NSW still needs some thought, so I have some tips:

- Incoming tides bring clean water (loaded with plankton) from the deep sea.
- Never collect after its been raining (I like 2-3 days or more).
- Never collect if the water looks unclean or smells 'foul'.
- Collect water as far away from boat ramps or any other 'man made' pollution sources as possible.
- Take water from the ocean where there is current, do not collect from stagnant pools.
- If you’re not sure, don't bother.

If common sense is used I would be surprised if in NZ pollution would ever be a problem.

I think this is a 'myth' that tanks are wiped out by pollution, everyone has heard stories of people's tanks being wiped out but you will never meet one. Be careful and use common sense and you will be fine.

Introduction of Pests from NSW

Some people fear that some horrid parasite, bug, worm or other nuisance will be introduced into their tank from NSW. I have had *Aipstasia* & Planaria (flat worms) in my aquarium and I can assure you that they didn't come from NSW. I have not heard of the introduction of such pests with NSW, and I assume the fish or corals eat anything that comes into the tank long before it gets a chance to establish itself.

I think this is another myth, everyone has heard a story but you will NEVER actually meet anyone who has had this problem. I like all the little critters and bugs, my fish and coral eat them, free food!

Nutrients & Algae

Another perceived problem with NSW is the introduction of nutrients that cause algae blooms in aquariums. If this was true then how can there be so many tanks using NSW without algae problems? Or how can there be so many algae ridden tanks that use ASW? Again I think this is just a rumour, there may be some truth in it but I doubt it.

My tank has very little algae, and I have seen many other tanks that are completely algae-free using NSW, and I have seen the opposite too.
Algae blooms and other factors may influence this, but a tank that has an adequate skimmer or other form of nutrient export should be fine.

Why Should I use ASW?

There are situations when ASW *should* be considered :

No suitable collection point You cannot get to the ocean or the parts you can get to are polluted or unsuitable for other reasons.
Convenience It requires too much effort to get to the ocean or you require so much water its impractical to collect it. You may also be physically unable to collect the NSW.
FUD Fear, **U**ncertainty & **D**oubt, in the end it is better to be safe than sorry.

Dollars & Cents

This is an important point, so I will remake it. I can afford to use ASW, but we want what is best for our tanks, and that is NSW. It is true that the cost of ASW can be quite expensive, as you have to purchase the salt and use filtered water (RO/DI or both). If you are using ASW without using filtered water and you have access to NSW, then NSW is going to be a LOT safer. Although NSW is 'free' there are costs in getting there and in time.

Conclusion Already?

Perhaps I am biased but I see no reason not to use NSW if you have a good source of it available. Many people do use it and use it by choice.
It has nothing to do with the cost saving (although it is good), as any cost saving is often offset by the inconvenience of collection.
Much of the negativity surrounding NSW does not apply in NZ and although there are some horror stories I suspect that's all they are, stories.

After a water change, and for the next few days, my corals are swollen at night, polyp extension is noticeably better and *Xenia* pulses harder than ever. I believe this is an effect of the plankton in the water giving the corals a natural source of food. This is what is missing from ASW, the micro-life.
I would strongly urge anyone, especially those here in NZ to try NSW if they can. Your tank may well thank you for it.

Filtered for

perfection

HOW PURE IS YOUR WATER?

RO-MAN

WWW.RO-MAN.COM

TEL :- 01823 698813 FAX 0845 2991606

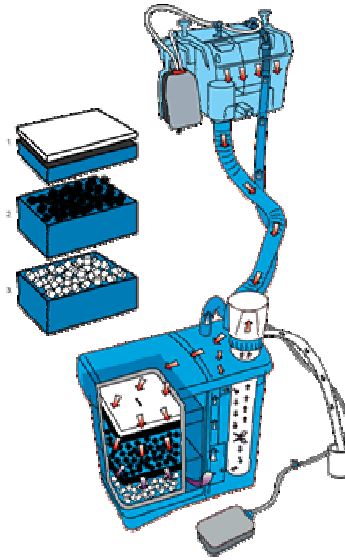
NEW PRODUCTS

Have you spotted any of these at your aquatic dealer's?

September is traditionally the time for GLEE at Birmingham's NEC. We noticed the following items that may be of interest to you.

From **Reef One Ltd**, the home of biOrb, comes the **Life Collection** of aquariums. These low maintenance, extra thick clear acrylic aquariums have multi-stage filtration and have Intelligent Light with ultra-bright LEDs and 24 hour light cycle which includes blue moonlight. At night, the 'illuminated edge' provides a stunning effect.
A 'flat-packed' aquarium stand also saves space at the retailer's whilst awaiting sale and the new magnetic algae scraper is specially designed for use with previously tricky-to-clean biOrb aquariums.

Details available at www.reef-one.com



Marine aquarists need look no further for an ‘all-in-one’ filtration system than this offering from **Aqua One**. The **MariSys 240** not only provides excellent filtration performance, the surface skimmer with return flow module is self priming thanks to the integrated peristaltic pump, thus ensuring if power is lost the filter does not overflow and automatically restarts when electricity is resumed.

Through a combination of static bed down-flow wet and dry filter, combined with theair-driven protein skimmer, this system provides an extremely efficient solution that is capable of supporting 4kg of fish fed at OATA guidelines of 1% body weight per day based on feeds containing 35% protein levels.

The power head installed has a maximum output of 2600 litres per hour and delivers approx 1800 litres an hour at average operating heads. With the ideal turnover for a marine fish only system being 6 times per hour the MariSys is more than capable of supporting the specified 240 litres.

Details available at www.aquaone.co.uk

If you're a filter, then **JBL** have got you backed up into a corner – at least if you're one of their **CristalProfi** series.

The filter is held in place by exterior magnetic pads (these remain in place even when the filter is removed for periodic servicing).

You can now say goodbye to those limited performance suction pads thanks to this great idea.

Details from www.jbl.de

Final Thought:

We've always been told that water surface area should be at its maximum for best oxygen intake. This albeit stylish aquarium seems to contradict this idea!

2009 OPEN SHOWS

CATFISH STUDY GROUP CONVENTION	20-22nd March
MID-SUSSEX A.S.	5th April
STROOD A.S	19th April
RYEDALE A.S. NEW VENUE	26th April
AQUARAMA Suntec Centre, Singapore	28 – 31st May
STAMPS	31stMay
SHEAF VALLEY A.S.	7th June
BRISTOL T.F.C.	27th June
YAAS	5th July
SOLWAY A.S.	19th July
PORT TALBOT A.S.	18th July
FRINEDS OF YAAS	9th Augsust
HOUNSLOW & D.A.S.	19th September
KAAS	27th September

Gain support for your Society's Open Show by:

- advertising its date on the FBAS website and in this magazine
- putting your Show Schedule 'on-line' on the FBAS website
- supporting other Societies' Shows, then they'll return the compliment
- giving 'Goodie Bags' to all exhibitors, not just the top few winners.

RIVER·REEF
AQUARIUM

- Beautiful design with curved glass
- Looks elegant in the home and gives panoramic views of the underwater world
- Available in 2 sizes in black and silver: 40cm/48 litres and 50cm/94 litres
- High output T5 PC Daylight Plus lighting: 40cm/48W and 50cm/72W
- LED lighting gives a beautiful night mood
- Independent light switches
- Come with built-in cooling fans
- Comprehensive 3 stage filtration system
- Cabinets are also available in black and silver
- Plant and marine kits are available separately