



FEDERATION OF BRITISH AQUATIC SOCIETIES

BULLETIN

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BULLETIN

September 2008

Contents

EDITORIAL

MY FISHKEEPING EXPERIENCES

STARTING OUT WITH MARINE FISH

ASK US

PROFILE OF A FEDERATION JUDGE

YOU ARE WHAT YOU EAT

KNOW YOUR FISH

PLYMOUTH'S DIAMOND

2008 GROCKLEMANIA

NORTH EAST YORKSHIRE KILLIFISH GROUP SHOW

RAFFLES

FESTIVAL OF FISHKEEPING

EMPEROR TETRA

HOME-BRED AND SURPLUS FISH STOCK SALE

THE UNITED KINGDOM DISCUS ASSOCIATION – UPDATE

THE GREEN CORNER

STAR FISHERIES TRIP

NEW PRODUCTS

ALL ABOUT REVERSE OSMOSIS

SHOW DATES

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EDITORIAL

The accent this quarter is on achievements and we're pleased to report that no less than two important 'milestones' have been reached.

2008 not only sees the 70th Anniversary of the FBAS (well, OK it was actually reached in April this year) with its associated Dinner on the 22nd November at Hayling Island – tickets still available from Grace Nethersell – but Plymouth Fishkeepers Society had equal cause to celebrate as it was their Diamond (60th) Anniversary in June.

In these days of instant gratification, it just goes to show that there are some people who have longer attentions spans than the proverbial gnat, and we would like to recognise and acknowledge the time and effort that must have been expended by so many over the years to make such anniversaries possible.

As you can see, this issue is full of aquatic information and social entertainment – a true cross-section of our hobby. Thanks to all our roving reporters and contributors for making such a varied package – let's hope you can keep it up!

Don't forget to say 'Hello' to us at the Festival of Fishkeeping next month!

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My Fishkeeping Experiences

by

Sue Sharp



Plymouth Fishkeepers Society

reprinted from 'Fishy News' 60th Anniversary Issue 2008

What have I got in common with Plymouth Fishkeepers' Society?
Why, we both have a 60th Anniversary this year!
I am just one month older than the Club.

I bought my 180 litre tank in October 2004, not having kept fish for about 25 years. It wasn't until the following spring that I read an article in the Herald's "Club News" which spurred me into coming along to the Club.
The first talk I heard was by Monty Ray.

How things have changed since I first kept fish. I so wish I knew about the Club before I made many expensive mistakes. I found the Club very welcoming on my first visit and since I joined I have only missed a few meetings. I really look forward to our 'get togethers' and have learned so much. There is a wealth of experience in the Club and I have found that knowledge is willingly shared. I also enjoy seeing members' fish when they show them.

I had my arm twisted the first year to enter the Home Aquarium Competition. My sole reason for doing so was that I hoped when the judges came around they would tell me what I was doing wrong.
Much to my amazement, and I think every one else's, I won! So I suppose I couldn't have been doing too much wrong, I do have a tendency to overstock.
I can walk past a sweet shop quite easily, but fish shops and garden centres are my weakness!



Male and Female Platies (*Xiphophorus maculatus*)

I (accidentally) bred some really nice Platies and was advised to sell them on.

One which I sold was bought by another member and consequently won Best In Show, when the one I entered in the Show didn't get a look in!

I don't want to breed fish as such, but I do enjoy seeing the little babies grow up. I can well remember how excited I was when I saw the first baby Platy in my tank. I called it PJ (Platy Junior) and used to sit in front of the tank for ages waiting for it to venture out from amongst the plants.



Spiked Tailed Paradise Fish

I did buy a pair of Spiked Tailed Paradise fish and was really excited when I saw the female laying eggs.

I managed to save some of the eggs and quite a few hatched. Sadly, one by one they all died.

More recently, seven of the eleven baby Bristlenosed Catfish survived. These are great catfish to keep as they are active by day.

Bristlenosed Catfish (*Ancistrus* sp)



I look forward to many years association with the Club.

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Probably the most significant development to happen in the aquatics industry in the last couple of years is the onward rise in popularity of marine fishkeeping. There are several factors that lie at the heart of this; improvements in marine aquarium life support technology, the availability of live rock, an increasing number of marine species being captive bred and not least, a certain Disney film about a little clownfish...

Compared to freshwater species, marine fish are undoubtedly harder to keep. Their water quality requirements are exact and even slight deviations from the precise physical and chemical conditions found in the tropical seas will lead to the fish becoming very poorly. Many marine tanks contain delicate invertebrates such as soft corals, anemones, tubeworms, shrimps or starfish and these creatures are the most demanding aquatic organisms of all. Successfully keeping these in an aquarium depends on provision of consistently perfect seawater quality.

What is seawater?

So before we look at planning and establishing your marine aquarium, we should first consider what makes seawater so unique and how we mimic

these conditions in the aquarium for these demanding marine species. Over 97% of global water is found in the sea and the oceans cover 71% of our planet, due to billions of years of land erosion, volcanic eruptions and other destructive forces, a considerable reserve of dissolved minerals have built up in the sea. In fact, crudely speaking, if you where to boil 1 litre of seawater, you would be left with around 35 grams of mineral salts. Thus to keep marine fishes, we must clearly add salts into freshwater to mimic the saline conditions of the fishes natural habitat.



TetraMarine Seasalt has been specially formulated to closely imitate natural seawater, but with elevated levels of key minerals (such as calcium and magnesium, which soon become depleted in the closed aquarium environment). Troublesome algae-encouraging nutrients such as nitrate and phosphate have been removed from the formulation, even though they are present in natural seawater.

Getting the exact amount of **TetraMarine Seasalt** into the water is utterly crucial, whilst fishes can tolerate a salinity (salt level), slightly lower than full strength seawater; (in fact this can be a useful tonic for poorly marine fishes), all invertebrates such as corals, shrimps etc are utterly intolerant of anything other than full strength seawater. So before water can be added to the marine tank, it must first have the correct amount of salt added. Then we need to test the salt level in the seawater to ensure we have put in the correct amount, regular testing of salinity in the aquarium is also crucial as pure water constantly evaporates which will concentrate salts left behind. The simplest way of testing salinity is to use a **TetraTec Hydrometer**, this accurately measures the density (as specific gravity) of the seawater sample, which rises as more salts are added.

Planning for success

When planning your new marine aquarium, one of the first decisions to make is the size of tank you are going to have. The old adage of the bigger the better is very true for marine fish systems. The greater the volume of water the more stable the water body is, and also you'll be able to keep a higher biomass of lovely marine livestock. Available space and budget should be the restrictions on tank size, literally go for the largest tank you can afford or fit in the designated safe space in your home.

There is an increasing popularity for so called 'nano' tanks, small aquaria of 50 litres or less. While these 'bonsai-aquaria' may seem an appealing and cheap option, they are very demanding due to the inherent instability of such as small body of water. Nano tanks are best left to marine fish keepers with considerable experience and a penchant for miniaturisation!

As marine fishkeeping becomes more popular, a number of complete marine aquarium systems are becoming available. These are a one-price solution enabling the first time marine fishkeeper to buy everything they need to get started. Often buying a complete system like this can work out cheaper than buying all the individual components (filters, heating, lighting etc), separately. However, these systems are very prescriptive and it can be very difficult to modify or improve these tanks as new technology become available. Many budding marine fishkeepers will enjoy thumbing through catalogues and magazines choosing the best hardware for their new marine tank, others will prefer the one price approach.

The keystone of most marine aquaria is the protein skimmer, whilst filters, heaters, lighting etc will perform a function familiar to most who have kept freshwater species, the skimmer can only be found in seawater systems. The unit passes billions of tiny bubbles up a column, down which seawater is circulated. The bubbles strip out dissolved organic wastes which collect in the frothing collection cup. Less dissolved muck in the water means a less polluted tank – these units are utterly crucial on all beginners marine tanks. Only once an aquarist has had many years of experience will they consider risking the benefits of not having a protein skimmer, debate rages among connoisseurs of the hobby on the impact of skimmers of plankton populations in the tank; all would agree for the beginner a skimmer is a non-negotiable essential.

What type of aquarium you have will also influence your choice of livestock for the tank. Fish only systems are the simplest way to get started with some of the slightly more forgiving marine fish, however, many of the fish ideal for this sort of tank can grow very large, (thus requiring a huge tank), and many are obligate carnivores, (requiring efficient filtration).

Most marine fishkeepers today want to keep a 'reef' tank a balanced ecosystem built around liverock, with numerous mobile and sessile invertebrates and a small stock of carefully selected fish – chosen for their compatibility with the inverts.

Once you have selected your tank, planned your livestock, read a good book, poured over countless websites and confusing forums and sought the advice of every expert who will lend you their ear, you are ready to get started!

Installing and establishing your marine tank

When you have got your one box marine aquarium home, or unloaded the countless boxes of separate equipment, the tank must be set up dry. Follow manufacturer's instructions closely here, again the one box solution offers the advantage of simplicity at this confusing stage.

With the tank in place and the equipment all ready to go it's time to fill the tank with water. Tap water contains nitrates and numerous other trace chemicals that can cause chronic problems in reef tanks, so the majority of marine fishkeepers use water purified through a Reverse Osmosis (RO) unit. RO water is available at many aquatic stores and some have even begun selling seawater. If you live in an area of the country where the tap water is suitable to use for mixing seawater, then ensure you use **TetraMarine AquaSafe** to remove toxic chlorine and chloramine and condition the water.

The correct amount of **TetraMarine Seasalt** must then be added to the water and then left to fully dissolve for at least 2 days. Check the salinity is at the correct level then add the liverock. After a further week during which time you check water quality, ensure you are happy with the aquascape etc, you are ready to add the first fish. Follow the advice of your local aquatic store staff closely, especially regarding selection of fish and livestock for different stages of the establishment process. These folks will be experienced in guiding customers through setting up a new marine tank. It pays to stick to one store, especially in the early days of your tank so that the staff will know your tank and what livestock you have in it – this will greatly aid them in suggesting new purchases as the tank establishes.

After one or two small hardy fish are added, the tank begins to mature. The liverock massively speeds up this process and addition of **TetraMarine SafeStart** will speed the process even more. Use **TetraTest** aquarium water test kits to monitor Ammonia and nitrite closely at this stage, in addition to regular checking that the pH has remained at 8.2, the KH is above 4dH, nitrates below 50 mg/L and temperature at a stable 24°C.



Feed your marine fish sparingly at this early stage, but a 2 or 3 small meals a day are likely to be required by many constantly browsing marine fish. Base their diet on new **TetraMarine flake, crisp and granule** foods, these have been created to meet the dietary needs of most common marine aquarium fishes.

Offer numerous other treats, such as **Tetra FreshDelica** to provide essential diversity of food for the array of fishes and inverts in your tank. Once the tank matures feed rates can be slowly increased ideally in frequency rather than portion size. Again your local fish store will be a useful source of advice and guidance.

In addition to establishing the tank, an area and vessel to mix, heat and aerate new salt water for water changes will be needed; seasalts take 24 hours to fully dissolve in RO water. *Never add instantly mixed seasalt into your marine aquarium.* Finally, don't forget that water lost from the tank by evaporation **MUST** be replaced with RO water *and not with seawater* as only pure water evaporates, leaving the salts behind in the tank.

What is liverock?

Liverock is the substrate on which a successful reef tank is built, quite simply it is porous rocks that have been taken from the sea! Seems fairly straight forward and to the new marine fishkeeper it's just rocks; to anyone who has kept a reef tank before, liverock is one of the most exciting parts of marine fishkeeping! As the rocks have come from the sea they are packed with marine bacteria, beneficial algae spores, microscopic invertebrate larvae and numerous other currently invisible life forms. Addition of liverock to a new marine tank instantly seeds a barren desert with natural marine flora and fauna. Do not compromise on live rock! A reef tank is set up to succeed with a good stack of liverock as the substrate and you would be amazed at the plants and creatures that appear from nowhere after a month or so, with new discoveries to be made for many years after.



ASK US

Let's face it, experienced fishkeepers think they know it all so why not put us to the test? If you have a fishkeeping query, we have a large number of experts waiting to deal with your problems – all you have to do is 'Ask Us!'

FBAS Chairman Les Pearce answers a tricky one.

Q: I'm new to the world of brackish water. I have an established tank and I am just curious if there are any plants, or possibly coral, that can live in those conditions?

Dustin

A: As far as I know, there are no corals as such that will survive in brackish conditions. There may be some anemones etc that will, I am not sure.



Plants, however, are a different matter.

Depending on how high the salt content of your water is, some or even most aquatic plants will survive to a greater or lesser degree but the ones that do best are those with tough, waxy leaves such as Java Fern, *Microsorium pteropus*. I have always found that plants that do survive seem to grow smaller in brackish conditions than they do in fresh water. I do not know why this is, but I imagine it is perhaps

something to do with the water density being higher or the effects of osmosis.

PROFILE of a FEDERATION JUDGE



KEITH COCKER

Many people have seen me around at Open Shows over the years and probably don't really know that much about me. Well, here goes!

I live in Ipswich in Suffolk and my two main interests are Amateur Boxing with the Suffolk ABA and the keeping and judging of tropical fishes. I first started keeping tropical fish in 1963. I then joined my local Club the Suffolk Aquarists and Pondkeepers Association which had a long history going back to the 1930s.

I became Secretary, Show Secretary and made Vice-President. Sadly, the Club like a lot of others folded due to the lack of interest. I am now a member and FBAS delegate of the Norwich Aquarist Society and, yes, I make a round trip of nearly 100 miles once a month to the meetings.

It's an excellent club to belong to, great members and a very informal and friendly atmosphere. The meetings are held at the Griffin Public House in Thorpe St Andrews, Norwich and we attract such eminent speakers such as Pete Cottle, Andrew Smith and Dave McAllister to name just a few.

I became a Federation 'A' Class Judge in June 1980 and have since judged for many Societies' Open Shows over the years - some still going but sadly a lot are now defunct.



At home I now only have one tank running. It's a quite heavily-planted aquarium filtered by an Eheim Ecco external filter; the lighting is provided by three tubes controlled by time switches at various times during the day.



This system works fine for me, the plants grow and any algae problems are controlled by the fish.

I keep a mixture of fish, 20 or so different species, including the following:



Pterophyllum scalare

I have been keeping Angels for quite a long time and the silver is my favourite one.

I find these cichlids easy to keep and they mix well with my other fish.



I only have two species of Characin – *Phenocogrammus interruptus*, the Congo Tetra, and the small *Nannostomus marginatus*.



The only Barb is the gorgeous *Puntius denisoni* and the Opaline Gourami, *Trichogaster trichopterus* (blue), make up the larger fish in the tank.



The smaller fish I keep are *Danio choprae*; these are a very colourful shoaling fish and earlier this year I put in a shoal of *Microrasbora* sp. galaxy (now *Danio (Celestichthys) margaritatus*). This fish was quite a find! Peaceful, and the males are so colourful.



Bottom feeders (not scavengers!) are *Yasuhikotakiasidhimunki* and two species of *Pangio*.



I have six varieties of *Corydoras* catfish and these are *Corydoras nattereri*, *Corydoras panda*, *Corydoras julii*, *Corydoras adolfoi*, *Corydoras guapore* and my favourite Cory, *Corydoras sterbai*.



Algae is controlled by small *Otocinclus affinis* and Hillsteam Loaches, *Sewellia lineolata*.

These two species keep the tank spotless of any algae.



Snails, if I get any on new plants etc, are taken care of by Clown Loaches, *Chromobotia macracanthus*.



I also keep a shoal of *Kryptopterus bicirrhus*, the Glass Catfish, mainly so that my little niece can see their bones!

And lastly, of course, I keep Guppies with all this lot.

For me, all these species get on perfectly well together with no problems of fighting, or aggression.

Well that's me, hope it gives an insight of me and what fish I keep.

YOU ARE WHAT YOU EAT

by LES HOLLIDAY



How often do you hear the well-used phrase 'You are what you eat' on TV programmes devoted to health and life style or in magazines similarly oriented?

Lots of times I'm sure, with the current fascination with diet as a way of promoting our health and vigour. It is true though and research has proved it, that a healthy diet does contribute the most to our wellbeing.

Not unexpectedly, the fish we keep in our aquariums are governed by the same rules and in recent years masses of research has been applied to captive fish nutrition to make sure the foods we feed are formulated to meet the nutritional needs of the various types of fish we hope to maintain in optimal long term health.

In the wild, fish can roam free and satisfy their own nutritional requirements often from a highly varied basket of natural foods. However, once enclosed within the bounds of the aquarium they are completely dependent on the aquarist to fulfil their needs. The hobbyist has three main sources that can be relied upon, live, frozen and processed foods. The benefit of feeding live foods is that often these will be emulating the fish's natural diet. The downside is that it is difficult to provide a balanced diet with so few options from which to choose and many live foods do carry a risk of introducing harmful pathogenic bacteria or protozoans. Frozen foods are also liked by fish because they are similar to fresh foods but often have low nutritional value and require feeding in large quantities. Processed foods on the other hand are very good sources of nutrition with a known formulation including a concentration of proteins, fats and vitamins and are readily accepted by many fish species.



It was with great interest recently, therefore, that I accepted the opportunity to take a look at the re-launch of the highly popular Hagen Nutrafin Max range of processed foods which promised a whole new approach to fish feeding.

Hagen's Nutrafin Max range has always offered a very comprehensive choice of foods, providing both staple diet and specialised diets, all formulated following state of the art research. In the past, the Hagen research facility in Canada has pioneered innovative manufacturing methods, such as natural enzymatic processes to separate fish meat from non-digestible bones and scales leaving a highly nutritious fish protein concentrate low in ash and also original research into the addition of Pre-digested Plankton as a 100% natural colour enhancer.

The new formulation approach is no less innovative, using added elements like Advanced Yeast Extract (prebiotics) which supports immune and digestive systems to optimise long term health, by encouraging the growth of desirable pro-biotic bacteria while inhibiting the establishment of undesirable species. Garlic is another addition to help combat internal and external parasites, whilst supporting digestion and a healthy intestinal tract. Nutritional value has been increased over a wide range of foods by adding salmon and pollack fish oils to increase Omega 3 fatty acid content. Bio-processed krill has been used as a natural colour and palatability enhancer. Improved manufacturing processes have allowed higher rates of content of foods like spirulina to be included in herbivore targeted foods both in freshwater and marine foods.



Nutrafin Max Tropical Fish Flakes has always been one of the most popular foods in the Nutrafin Max range. This food now benefits from the generally applied updated formulation and contains salmon and pollack oils, bio-processed krill plus advanced yeast extract, making it even better at meeting the nutritional needs of most freshwater fish.

Putting the science on one side for a moment – I found this new super food was readily accepted by the fish in my lab freshwater community tank and I like the way the flakes float for a while on the surface before slowly sinking to the bottom of the tank. This

gives plenty of opportunity for surface feeders, feeders in the water column and bottom feeders to obtain their share. The same formulation is also used for Nutrafin Max Tropical Fish Micro granules, another popular current food product that's been updated and re-launched.

Nutrafin Max Spirulina Flakes can also be included as a well-recognised food and is strongly recommended for all freshwater and marine herbivores due to its vastly improved formulae. Now extremely rich in quality spirulina, with a guaranteed content of 40%, these flakes are a powerful source of antioxidant rich pigments, fatty acids, unique muco-proteins for skin and fin

condition as well as vitamins and trace elements. Garlic, advanced yeast extract, pre-digested krill and multi vitamin supplements are also included in the ingredients. A spirulina-based food is essential for herbivores and is also relished by many omnivores as a change from staple formula foods. Many herbivores are also bottom feeders and the similarly formulated Nutrafin Max Spirulina tablets are ideal as they can be allowed to sink to the bottom of the tank or be pressed onto the glass to allow a close examination of the condition of fish while they feed.



Earthworms have always been a popular live food but have inherent problems with regard to the risk of also introducing pathogens. A safe way of feeding this highly beneficial protein source is provided in the reformulated Nutrafin Max Bottom Feeders Sinking Tablets.

These highly palatable sinking food tablets now feature earthworm as one of the main ingredients, together with pre-digested krill, advanced yeast extract and multi vitamin supplements. The binder used to maintain tablet integrity is Calcium Montmorillonite clay, which supports digestion and assists in removing toxins from the gut.

Colour enhancing foods come in many forms but the main active ingredient in two newly formulated Nutrafin Max foods, Colour Enhancing Flakes and Goldfish Colour Enhancing Pellets is a special algae meal rich in red algae pigment and sourced from Hawaii. These foods provide a rich source of natural colour enhancers, thanks to natural pigments such as astaxanthin, which also is rich in antioxidants that support the immune system and growth function in fish. Several of the other ingredients which make up the reformulated range also fortify these foods and the Goldfish Colour Enhancing pellets are now also formulated using Calcium Montmorillonite clay as a natural binder. I have personally had good results with using astaxanthin as a colour enhancer, which is particularly good in developing red and yellow pigments in goldfish and Koi.

An interesting new development exclusive to Nutrafin foods is what I like to call combination foods. Nutrafin Max Livebearer Flakes and Freeze Dried Tubifex combines a staple diet flake food developed especially for livebearers which includes spirulina and pre-digested krill combined with F.D. Tubifex. Freeze dried Tubifex worms help to heighten palatability as well as adding a protein rich food which mimics floating insect larvae and stimulates natural feeding instincts. Other new foods in the combination diet range include Nutrafin Max Earthworm flakes and Freeze Dried Tubifex, Brine Shrimp Flakes combined with Freeze Dried Brine Shrimp

and Mysis Flakes with Freeze Dried Mysis Shrimp. The last two foods mentioned, whilst relished by freshwater fishes are also particularly good for broadening the diet of marine species.

The updated formulation used to meet the nutritional requirements of marine fish in Nutrafin Max Marine Flakes and Marine Granules now contains spirulina and human grade Nori Seaweed, a natural rich source of iodine, an important trace element for marine fish. These staple foods, together with the combination foods mentioned earlier and a further newly introduced food Nutrafin Max Sinking Pellets with Shrimp and Krill, which is an excellent sinking pellet for bottom feeders, provide a first rate varied diet for marines.



Big fish have not been forgotten in the Nutrafin Max re-launch and as well as reformulated current foods like Nutrafin Max Cichlid Spirulina Sticks new introductions to the range include Nutrafin Max Cichlid Granules (both small and medium sized pellets); Nutrafin Max Discus Granules, a sinking granule with a premium formulation including 20% earthworm; Nutrafin Max Pleco Logs to meet the nutritional needs of these suckermouth catfish and Nutrafin Max Predatory Sticks containing 20% krill and 20% earthworm plus red algae meal and advanced yeast extract aimed to meet the nutritional requirements

of large predatory tropical fish.

As you can see, the new Nutrafin Max range features a host of new innovative foods and is now one of the most comprehensive on the market. So large that I have not been able to include comment on classic foods like the reformulated Nutrafin Max Goldfish Flakes, newly formulated food for turtles, reptiles and amphibians featuring *Gammarus* shrimp called Nutrafin Max Gammarus Shrimp Pellets and Nutrafin Max Baby Fish Formulae, based upon spirulina and earthworm with added calcium and offered in an extra fine powder which allows most fry to feed easily.

You may have noticed that my overall impression of Hagen's new Nutrafin Max range is very positive. Processed fish foods can be regarded the ideal way to ensure aquarium fish receive the best diet for their nutritional needs and I would have no hesitation in recommending this new exciting range of premium grade fish foods which offers a highly nutritious and comprehensive choice of fish foods based on excellent ingredients.

KNOW YOUR FISH

Characodon audax

Family: Goodeidae. Jordan 1923.

Described : Miller & Smith 1986

by Ivan Dibble, Fish Ark Mexico



Range: - The El Ojo de Agua Las Mujeres at El Toboso in the Mexican state of Durango is the only known habitat of this species.

Above is the species as it appears when first caught from the wild. While not too long after it has been in the aquarium it loses the reddish tinge that it shows here and becomes more like the specimen below.



It is more commonly known as "The Black Prince" This came about because I was the first to introduce these into the UK when they were an unnamed species. Well, fortunately they bred readily for me and I was soon overrun with them and started spreading them around. Fearing they would get mixed up with the already present *Characodon lateralis*, I gave them this common name

which seems to have stuck with them world wide ever since.



Habitat is the habitat near the village of El Toboso.

There is a small stream in the village, which seem to be where the water from the spring sinks back underground again. But most of the fish are at the main spring itself that is to the left of the village halfway up and then you have to walk through some scrubland to get to it.

When you do, you will find a small spring that seemingly the locals are now trying to protect as they have

built a stone wall all around it now and the water flows out under the wall and away to an area where a lake has now formed.

Anyway here we found good numbers of *Characodon audax* and at 6-0pm the water temp was 19°C.

The males of this species can reach around 4-5cm in length while the females can be 5-5cm.

In the wild we found them in a water temperature of 19°C however in the aquarium, my experience has been that they will tolerate a temperature of as high as 80°C. Nonetheless, they do seem to grow better (if somewhat slower) at lower temperatures.

Although a peaceful species with other tank mates of its own size, they do get very territorial and will not tolerate overcrowding, but will live together in harmony if given sufficient room and cover is given

Here is a fry (trophotaenia still attached) shortly after birth when it's only a quarter of an inch long



Some people however are lucky and fry will survive within the Aquarium. But in most cases you will need to confine a female separately and give the fry when born plenty of cover to escape her attention.

Like many Goodieds they are greedy eaters and do better when kept very well fed (Note: Do not overfeed in one lump - just feed more often - on a good protein diet with a reasonable amount of live food).



PLYMOUTH'S DIAMOND

Members past and present, together with visiting aquarists, gathered in the Common Room of the Marine Biological Association's impressive premises on Plymouth's Hoe to celebrate the Society's 60th Anniversary.

Peter Rendle, who has the onerous title of Laboratory Steward at the MBA, delighted guests with his often irreverent look at the Association's proud history - it includes no less than 7 Nobel Prize-winners amongst its staff over the years - although one present illustrious member of both Association and Plymouth Fishkeepers Society cannot, as we were told, tell his Merlin engine from his lawnmower!



It was great to enjoy the Society's record of achievements going back through the years, an wonderful display of mementoes made excellent reading, all put together by 'The Oracle' aka Joyce Rundle. Editor Stan McMahon has also produced a very humorous edition of the Newsletter containing many famous appearances by members over the years. Not to be left out, Bill Rundle produced excellent table decorations, place name labels, souvenir Bookmarks and Notepads all suitably embellished with the Society's Anniversary logo.



Julie Rundle, Lady Chairman of the Society, was clearly thrilled to bits to be presenting the evening and paid tribute to all who had helped build up and sustain the Society's reputation and extended a particularly warm welcome to John Stevens, from Bristol, who was one of the Society's founding members.

Dick Mills, from the FBAS was on hand to present a Trophy to the Society to mark the occasion and other 'outsiders'

included Roger Saltrick, Janet and Mario German from the Ilford Society.

The shy retiring star of the evening was, of course, John Rundle, who masterminded the whole event and through whose good offices made it possible for the Dinner to be held in such appropriate surroundings.



Couple a Fish Show with a weekend away, add in some sunshine, 'overseas travel' and excellent company and you have a recipe for total enjoyment.

All these qualities come together each year on the Isle of Wight where the Island Fishkeepers stage **Grocklemania**.

The following pictures give a taste of what it was like.



The Club's newest member!



And a hard-pressed Show Sec!



Plymouth's Bill Rundle



DJ Alan Stevens and supporters



The BBQ breakfast proved very popular

Oh yes, there were fish there too with 216 entries making it on to the show benches



Paul Corbett's Red Shiner



Best in Show – Odessa Barb



This Pufferfish lookalike, *Tatia perugiae*, had a prime spot on the Show bench in direct sunlight which brought out the best in its colours.



Tim Edwards reports from

North East Yorkshire Killifish Group 2008 Show

North East Yorkshire Killifish Group held their 2008 Show and Auction on Sunday 20th July. People travelled as far as 140 miles to come and buy, show and swap killies and other fish.



There was 3 Auctions which included some very rare fish indeed such as *Rivulus xiphidius* and *Aphanius* Sp as well as *Nothobranchius* and more commoner types such as *Aphyosemion australe*.

Also of note was the table sale with some extremely rare Anabantoids at affordable prices and bags of live *Daphnia* collected in the area.

The Show was well supported by young and old alike with some cracking examples on display and lots of the usual banter which goes hand in hand with showing a fish.



Best Fish in Show was an *Aphanius dispar* from TDC of Derby & D.A.S.

There was also big cheers and a standing ovation as a special award was given to Jessie, a lifelong Killie keeper and inspiration to us all on the UK Killie scene.

And finally lots of pie & peas and black pudding/bacon cobs were consumed.....a great day and lovely weather to boot.

Get it in your diary for 2009!!!

RAFFLES

Does your Club run a Raffle on Club Nights or at Open Shows?

If the answer is yes can I suggest that any donated prizes should be checked that they are complete and in good condition.

I recently won a raffle prize which turned out to be a second-hand game which had not been put away properly by the previous owner. It was grubby, in my estimation, and part seemed to be missing.

Sadly recycling would not take it, so it had to go in the dustbin.

Don't get your Club a bad name.

Anon

Shafted by a breeder ???.



from **Hot Spot**
SE Section BKKS magazine



from **Aquarium World**
FNZAS magazine

Festival of & Fishkeeping & Water Gardening Weekend

October 10-12, 2008 at Mill Rythe Holiday
Village, Hayling Island, Hampshire

PLUS
SPECIAL
OPEN BOWLS
COMPETITION!

JOINTLY
SPONSORED BY
AQUARIAN

HAGEN
www.hagen.co.uk

RO-MAN
Specialist Pond Supplies

Tetra



This year's events:

- 'Masters' Open Show (on Sunday - sponsored by Hagen)
- The Tetra Southern Koi Festival (jointly sponsored by Tetra and RO-Man)
- Goldfish Society of Great Britain Fish Show (on Saturday - sponsored by Aquarian)
- British Open Final (on Saturday - sponsored by Tetra)
- The FBAS 'Supreme Championship' Final (on Sunday - sponsored by Tetra)
- Catfish display (on Saturday - sponsored by Aquarian)
- 'Jinchi Kai' - UK Ranchu Specialist Goldfish (sponsored by Aquarian)
- UK Discus Show (jointly sponsored by Tetra and RO-Man)
- Society-furnished aquaria (sponsored by Tetra)
- Hagen, Eas Tetra reptiles
- Speakers from the aquatic and water gardening worlds.
- Furnished aquariums, pond and water garden displays, reptiles, trade displays.

practical
fishkeeping
MAGAZINE

www.practicalfishkeeping.co.uk

A host of exciting attractions for both residents and day visitors, including:

- Freshwater tropicals
- Discus
- Marine fish
- Koi and goldfish
- Native freshwater fishes
- Filtration and lighting
- Water gardening
- Reptiles

Prices

Half-board

Two-night weekend £95

Three-night weekend £115

Lunch available both days
Cabaret entertainment, fancy dress competition and dancing on all three nights.

Hotline bookings: Contact
Grace Nethersell, 8 Acacia
Avenue, Brentford, Middlesex
TW8 8NR. Tel. 0208 847 2586.

Day visitors

Day visitors welcome on
Saturday, October 11, and
Sunday, October 12, 10am-5pm.

GET IN FREE!

Supporting the hobby of
fishkeeping

AQUARIAN
API TETRA

One day visitor gets in free with
this token - just cut it out and
keep it and hand it in at the door!

practical
fishkeeping



With only a month to go, arrangements for this year's Festival of Fishkeeping weekend at Mill Rythe Holiday Village on Hayling Island are not only well in hand but tantalising details are coming to light.

As with every Festival, the organisers ensure that there is 'something new' there each year.



This year it will be the turn of the spectacular Goldfish, as **Star Fisheries** will be displaying fish specially selected and brought back from China for the event.

Whilst many might hold the Goldfish less esteemed than some other more exotic tropical favourites, Andy Green, of Star Fisheries, has promised that there will be some stunning varieties on display to delight visitors to the event.



On the tropical 'exotic' front, again the impressive Discus are likely to deliver the goods. The technicalities of keeping these fish might seem to be a mystery to most but Geoffrey Tan from Malaya will be on hand to deliver a presentation on this very subject.

**SPECIALISING IN FANCY GOLDFISH
FOR OVER 25 YEARS
Star Fisheries**

We are pleased to announce
that this year we will be part of the

Festival of Fishkeeping in Hayling Island

You can expect to see an amazing selection of
Fancy Goldfish which have all been personally
selected by us. In addition, we will have on offer
some of the rarest Fancy Goldfish in the World.

See them at what can only be described as
“The Fishkeeping Event of the Year”

All enquiries to: andy.green@starfisheries.co.uk

Telephone number: 020 8643 8162

Fax number: 020 8643 8166

We look forward to seeing you there!



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



A common belief amongst aquarists is that it is a well-furnished aquarium, stocked with colourful fishes, that attracts newcomers into the hobby. Last year, nearly a thousand people voting for their favourite tank (Ilford's, by the way) in the **Society Furnished Aquarium Competition**.

Again this competition will be returning to show just how diverse the designs of furnished aquariums can be in the home. Tetra have kindly offered to sponsor the Competition.

Each entry will be judged by visitors to the Festival who will be asked to vote for their favourite aquarium based on the question:

"Which aquarium would you like most in your home?"

This is the only judging criterion.

The aquarium gaining most votes on each of the public days (Saturday and Sunday) will be declared the daily winner. The aquarium gaining highest total number of votes over the 2 days will be deemed overall winner and receive the Wally Ryder Memorial Trophy. More information about entering this Competition can be found on the FBAS website, www.fbas.co.uk

They say that all good things come to those that wait, and we have kept one piece of great news until the end:

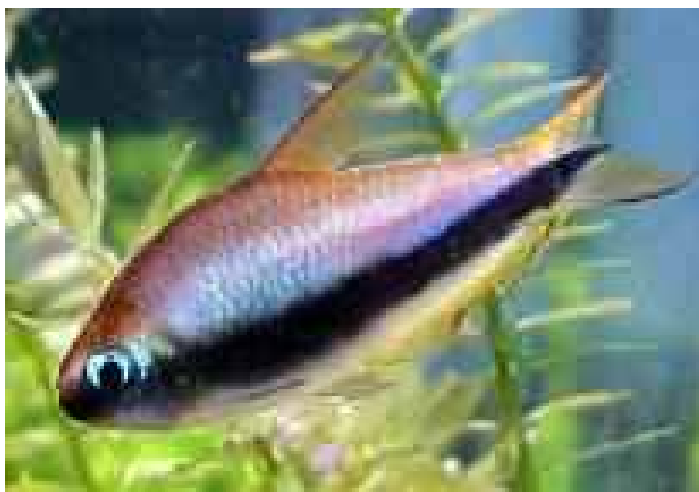
Day Visitors to the Festival will be able to enjoy **FREE ADMISSION** on the Saturday and Sunday thanks to generous sponsorship from Aquarian and Practical Fishkeeping magazine.

Simply clip out the token at the bottom of the main Festival advertisement page in Practical Fishkeeping magazine and present it when you arrive to gain admission.

The 2008 Festival of Fishkeeping will be held over the weekend of

10th-12th October at Mill Rythe Holiday Village,
London Road, Hayling Island, Hampshire PO11 0PB

The Emperor Tetra by Peter Turner



Nematobrycon palmeri is the rightful contender for the name Emperor Tetra. First introduced to the hobby in 1959, *Nematobrycon palmeri* has maintained its popularity because it is colourful and peaceful, making it an ideal community tank fish. It's also easy to breed if given the right conditions.

Original reports about *N.palmeri* suggested that they were kept in very soft water with an acid pH. These fish were from wild stock. Now the fish we see in dealers' tanks are from captive stock and accustomed to some variations in water quality – but still not a hard-water fish. They look their best if kept in small groups or shoals.

Sexing

The male with fairly long extensions to the middle rays of the caudal fins is easiest to spot. When the fish are young, just look into their eyes – the males have a bright blue iris. Females tend to be a bit smaller than the males when fully grown.

Breeding

The Emperor Tetra is an easy fish to breed if young adults are chosen. It spawns readily when in condition and will supply between 50 to 100 eggs. The fry should not be a problem to feed and raise.

The Breeding Set-up

Emperors don't require a large tank to spawn in. An 18" x 0" x 10" tank filled to a depth of 8" is quite large enough.

The tank is filled with tapwater at a pH around 7 and a very low dH. The tank is left bare with nylon wool mops and an airline for a slow rate of bubbles.

Do not fit a filter at this stage. Maintain temperature of between 24°C (76°F) to 28°C (82°F). Allow 24 hours to pass before placing the selected pair of fish into the tank. Select a pair of young adults. Emperor females do not have to be all that plump to breed; we are dealing with a fish that will only supply a maximum of 100 eggs.

Spawning

Place the fish in the tank in the evening. This gives the fish chance to become acclimatised to the breeding tank. The majority of pairs will spawn on the second morning.

The male drives the female into the mops and she lays the tiny eggs. Not many eggs will be scattered outside the mop area. Spawning can be a lengthy affair, up to 5 hours. This is the time to remove the parents, as they'll soon eat the eggs of left in the tank. If you're not sure if they've spawned remove them from the tank after two days.

Raising the fry

At this stage, fit a small sponge type filter. At 28°C (82°F) the eggs will hatch within 30 hours. The fry stay within the confines of the mops and, if you lift one, you should see the very tiny fry fall to the tank floor. This stage lasts for about five days, until you notice the fry free-swimming. Now they need food and even at this point somewhere to hide, like one suspended spawning mop.

Feeding the fry

First food should be infusoria. Brood numbers are small, but they can get through copious amounts of infusoria feeding on it for about 10 days. Now and then, drop a few Brine Shrimp nauplii into the tank; if the fry take it move them on to Brine Shrimp in the morning and microworm in the evening. Once on this food, the growth rate is accelerated. When the fry are about 3mm, move them to a larger growing-on tank. At the end of 12 weeks you should have young fish of 20-25mm in length.

Reprinted from the magazine of Dunstable & District A.S.



FESTIVAL OF FISHKEEPING 2008

HOME BRED AND SURPLUS STOCK FISH SALES

Following the success of last year's home-bred and surplus stock fish sales Stand, we are staging it again this year. We have increased the number of tanks from 32 to 56 and provided a new Stand to cope with them.

As last year, only residents staying at the Festival will be eligible to sell their fish from these tanks, but one change from last year is that due to the cost of providing this new set-up we are having to levy a small hire charge of **£6 per tank** as this Stand is not sponsored.

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

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

For entry forms and conditions of entry please contact :

**Paul Corbett, The Orchard, Rectory Lane,
Gatcombe, Isle of Wight PO30 3EF**

Tel. 01983 721246

CONDITIONS OF ENTRY

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

Maximum of three tanks per owner unless space permits otherwise.

Tank hire is £6 per tank payable by cheque at time of entry, cheques payable to FBAS. No commission will be charged.

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

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

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

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

Tanks will be available to receive fish **from 0900 on Friday 10th October.**
All fish must be tanked **by 0900 Saturday 11th October.**

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

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

BOOKING FORM BELOW MUST BE RECEIVED BY NO LATER THAN TUESDAY 30TH SEPTEMBER 2008, earlier if possible please!!!

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

Number of tanks required.....
Cheque enclosed for £..... (£6 per tank) payable to FBAS

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

Send this portion to:

**PAUL CORBETT, THE ORCHARD, RECTORY LANE
GATCOMBE, ISLE OF WIGHT PO30 3EF**

TO BE RECEIVED BY NO LATER THAN TUESDAY 30TH SEPTEMBER 2008



The United Kingdom Discus Association – Update

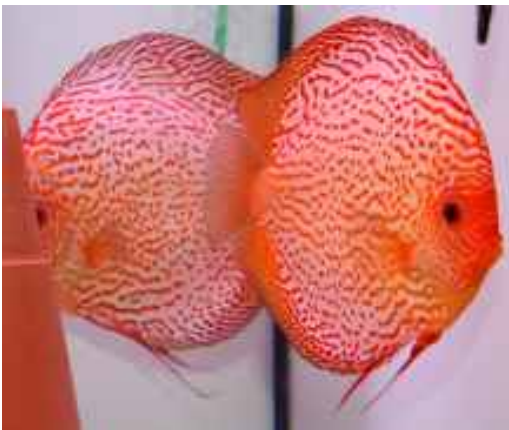
The last 12 months have been pretty hectic for the UK Discus Association.

In October of last year we had our most successful UK Discus Championships ever – thanks to the ever loyal support of FBAS and our new found friendship with author extraordinaire Bernd Degen.

It was during the Show debrief that we decided to launch on our most ambitious projects to date:

1. to plan and initiate a formal United Kingdom Discus Club
2. to build on our friendship with the International Discus Community

I am delighted to announce that we have been successful on both accounts. In May and June we were honoured to participate in the Open Dutch Discus Championships and the Polish Discus championships respectively; and during July we were able to finalise our club constitution.



A pair of Stendker Discus

Open Dutch Discus Championship 2008 - Vianen, The Netherlands

In honour of their 10th anniversary the Discus Club Holland organised the first ever Open Dutch Discus Championship on in the beautiful town of Vianen. The Show was strongly supported by Stendker Diskuszucht, Sera, Zoo Zajac, Aquazonia, Discus Centrum Amsterdam, Discuskwekerij Haaglanden and attracted nearly 600 visitors.

The jury presided over 70 tanks of Discus fish that were organised into 'Wild Discus', 'Classic Hybrid Discus', and 'Modern Hybrid Discus'.

One of my personal highlights of the Show was an opportunity to view several dozen incredible breeding pairs of Discus that had been brought to the Show by Jorg Stendker, of Stendker Diskuszucht.

Polish Discus Championship – Krakow, 4-8 June 2008

The Polish Club of Discus Lovers (PKMD) was formed in 2004. During June of this year, they organized and hosted the 2nd Polish Discus Championships in Krakow. The Show was well attended by nearly 6000 Polish visitors and their biennial Discus competition attracted many international entrants and exhibitors. The Grand champion of the Show was a stunning Red Spotted bred and owed by Ivan Seah of 'Ivan Seah Discus Farm', Singapore.



7th International Discus Championship 2008 – Duisburg, Germany

During the first week of October I will be in Germany at one of the greatest Discus Shows in the World. The Show is sponsored, organised and run by Zoo Zajac. The judges include:

Chairman: Bernd Degen (Germany); Mrs. Annie De Maesschalck; Belgium;
Mr. Dr. Teoh Guan Hock (Malaysia); Mr. Kuo Yun Kuan (Taiwan);
Mr. Horst Linke (Germany); Mr. Dougall Stewart (England);
Mr. Peter Thode (USA).

This will be the first time that I have judged Discus in Germany and I look forward to meeting great and interesting people – it will also mean that I will have the latest and greatest news on the Discus scene in time for the 4th United Kingdom Discus Championships to be held once again at the **Festival of Fishkeeping Weekend** at Hayling Island, this year.



The United Kingdom Discus Championship and Club

The formal launch of the UK Discus Club will take place during the United Kingdom Discus Championships.

Membership packs, advice and all of the usual 'Discus Goodies' will be available from the UK Discus Club stand.

This year we hope to see the qualification of an additional International Discus Judge as well as the 3rd Year exam for one of our National Judges. We will also be holding an introduction to Discus judging session for interested parties that are staying on site.

If you would like to enter fish into our Show or to participate in our Judges session please book now as places are running out fast.

If you would like to find out more about joining our club then please contact me at dougall@ukdiscus.com – please ensure that you include 'FBAS' in the subject line in all communications.

We appreciate that many people often feel that 'Discus' is a fish too far for them and that judging these superb fish is an even more mysterious subject. Let us prove you wrong on both counts!

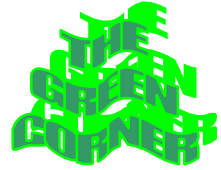
I have written a piece about the United Kingdom Discus Judging Program and the induction session to be held at Hayling Island in October and you can read it on the FBAS website www.fbas.co.uk

However much you may read about these fish and how many pictures you see of them, there is simply nothing like seeing the fish themselves, so why not make a point of coming to the Festival of Fishkeeping and finding out first hand if Discus might just be the next fish you keep?

Hope to see you there,

Dougall Stewart
UK Discus Club President
<http://forum.ukdiscus.co.uk>

The area for Aquatic plant-lovers



Water Lettuce – *Pistia stratiotes*



Another common names given to this plant is 'Nile Cabbage' and it is believed that its original natural distribution was Africa.

However, take a look at the following list of other common names and you'll soon appreciate that it is commonly found worldwide: Nile Cabbage, Tropical Duckweed, Water Cabbage, Water Lettuce, Water Lily, Laitue d'eau, Pistie, Flor de Teturno, Lechuga de Agua,

Lechguilla, Lechuguita de Agua, Repollito de Agua, Repollo de Sapo, Verdulago de Agua.

Apart from invading Florida, it is also found on several Pacific and Indian oceanic Islands as well as South-East Asia. In New Zealand it is declared a pest plant.

This floating plant has large velvety leaves, whose hairs trap air and assist buoyancy but it is the long trailing roots which provide its most useful characteristic. Not only do they provide an excellent refuge for newly-atched fry but they also take up nitrates from the water.

Whilst reasonably harmless in the aquarium - it won't survive outdoors in the UK much past October, despite being offered for sale at garden centres – in tropical climates it becomes a waterway-clogging nuisance. Apart from physical removal some other more natural ways have been found to control its rampant growth. Adults and larvae of the South American Weevil, *Neohydronomous affinis*, feed on *Pistia* leaves, and the larvae of Moth *Spodoptera pectinicornis* from Thailand.

STAR FISHERIES



FANCY GOLDFISH TRIP TO CHINA

AUGUST 2008

By the time you read this article we will be a fair way into our buying trip to China.

This planned trip takes us many thousands of miles across the world. This year we have been promised some fantastic fish, some very rare indeed. Of course all will become clear when we eventually start our selection process.



You will see that on these pages there are two pictures of young fish. The first features Black Ranchu and the second has Panda Butterfly. The fish are nice quality, with excellent colour and potential.



These fish, and many more like them, will be available from the end of September and of course we will be taking a very large selection to "The Festival of Fishkeeping" on Hayling Island.

Our aim is to try and be able to offer you the very best selection of Fancy Goldfish in the world. I am confident we will achieve this.

All standards and all varieties should be available.

Please do not hesitate to contact me should you require any further information or advice.

Andy Green

All enquiries to: andy.green@starfisheries.co.uk

Telephone number: 020 8643 8162

Fax number: 020 8643 8166



EARLY WARNING ALERT!!!

**Remember
Saturday December 6th**

it's the FBAS ANNUAL GENERAL MEETING

NEW PRODUCTS

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

Tetra extends popular filter ranges

For more experienced aquarists with larger aquariums, a big external filter is considered the best way to maintain healthy water and livestock.

To cater for these hobbyists, Tetra is adding to its popular range of EX external filters with the TetraTec EX2400. Able to filter aquariums up to 1,000 litres, the EX2400 offers the convenience and ease-of-use that the range has become well known for, in an altogether more powerful package.



As well as offering something new for owners of larger aquariums, Tetra is also launching a miniature internal filter - the TetraTec IN300. Responding to the rising popularity of smaller ("nano") aquariums, the filter carries all of the same benefits of the rest of the IN range, including split foams, powerful aeration and water flow, and convenient cleaning.

So Long, Suckers?



For far too long, the bane of the aquarium has been sucker-pads which have the habit of losing their suction after a few months, depositing the heater, internal filter, worm-feeders, power heads etc on to the aquarium floor (usually behind your favourite plant or rock formation). **MAGCLIP**, from Zoomed, extends the magnetic algae scraper a bit further, allowing you to positively anchor those suckers where you need them most!



Something for the Pond?

If you're out around the pond, we can suggest a couple of things to make it look better. The coloured polished rock might be just the thing to enhance the Koi pond's surrounds whilst if it's water clarity you want, then why not Hoover up all the silt from the pond floor with this budget-priced version of Oase's long-standing must have?



Traditionally, behind every aquarium there's a tangle of cables but there is no excuse for your pondside to look the same! This very neat power junction/switch-box not only looks smart but you can detach the box from its fixed base plate for easy initial cable installation of any subsequent alterations.

Martin Dadswell explains



Where do I use an R.O. system? Possibly the question should be where do I NOT use an R.O. system. An R.O. system is not used to filter water within the fish tank. It is not an aquarium filter. An R.O. system is used to filter water for filling & topping up your fish tank. The R.O. system gives you a “blank canvas” to which to add chemicals or salts to make it suitable for your fish.

What is Reverse Osmosis? At its most basic, it is a water separation device. Water is passed under pressure over a semi-permeable membrane. The holes in the membrane are large enough to allow water molecules through but not large enough to allow other larger molecules (dissolved solids) through. A RO-MAN system will remove 92 – 98% of the “Total Dissolved Solids” (TDS) from the water. By adding a De-ionisation stage we can remove 100% of the TDS from the water, thus making it ready for chemicals to be added to give it just the right balance for the aquarium. It should be noted that R.O. water should NEVER be used without adding chemicals back into the water as it is too pure and will damage your fish.

How does the R.O. Filter work? I'm sure that most people remember learning about the osmosis in school. Just to refresh: It is the process by which clean water is attracted to dirty water when separated by a semi-permeable membrane. By applying pressure we can reverse the process - Hence the name "Reverse Osmosis".

What are the Stages in an R.O. System? The membrane is the heart of the system & needs to be protected. This is done by pre-filtration. Depending on the size of your system RO-MAN systems have two or three pre-filters. For this purpose, we are looking at a 3-stage 50 gallon per day system.

Stage 1 - 5 Micron Sediment Filter – for the removal of sediments such as dirt, sands and rust. We do not use a 1 micron filter as we find that they block very easily and this affects the performance of the system.

Stage 2 - Carbon Block Filter – This is used for the removal of chlorine some heavy metals & other contaminants. RO-MAN use a top quality roasted coconut husk activated carbon block filter.

Stage 3 - The Membrane – As mentioned earlier this is the heart of the system.

A RO-MAN membrane removes 92-98% of the Total Dissolved Solids in the water by the process described earlier. As it is the heart of the system it is important to have the best possible membrane. RO-MAN uses a "Thin Film Composite" membrane made under licence for us in the USA by a leading membrane manufacturer. Cheap Asian made membranes should be avoided as the quality of the film is not consistent.

After the water has passed through the membrane you have two options.

1 – Use the water as it is.

2 – Further polish the water using De-ionization (discussed later).

MEMBRANE CARE

To flush or not to flush?..... As well as being the heart of the system the membrane is also the most expensive part of the system. So looking after it (or preventing membrane fouling) is paramount. For this reason all RO-MAN systems have a flush valve fitted as standard.

Filtered for

perfection



RO-MAN

WWW.RO-MAN.COM

TEL :- 01823 698813 FAX 0845 2991606

So why bother with flushing? Flushing the system helps to remove any particulates that may be caught on the membrane surface thus clogging the pores. This is done by removing pressure from the membrane, allowing water to flow freely & quickly across the membrane & then to waste.

Changing the prefilters. The prefilters mentioned above are good for 1000 gallons of product water (3500 gallons of water put through the system) or 6 months whichever is sooner. By changing your prefilters regularly you are helping to keep your system running at its optimum & avoiding things like exposure to chlorine which will damage the membrane.

ADDITIONAL STAGES POST FILTRATION

De-ionization – RO-MAN membranes remove 92 – 98% of the TDS in the water.

For some applications, such as drinking water this is perfectly adequate. For other applications such as Marine fish keeping and window cleaning a TDS of zero is necessary. To attain a 0 TDS we use a De-ionization (DI) Resin. This is a granular substance that acts like a sponge and sucks the remaining TDS out of the water until it reaches capacity. You should monitor the life of Resin with a TDS meter.

Inline Carbon Filter – RO water can sometimes taste slightly metallic. So if using RO for drinking it is sensible to add an inline carbon filter as a final stage to remove the after taste. This filter goes inline between the storage tank and the faucet and contains Granular Activated Carbon.

Pre Filtration On larger systems (100gpd and above) we feel that extra prefiltration is needed. The reason for this is entirely financial. Membranes are expensive so this extra protection can be money saving in the long run. If you have a 200 or 300 gallon per day system you have more than one membrane to protect so the savings can be huge.

Granular Activated Carbon (GAC) – All single membrane RO-MAN systems with 3 prefiltration stages contain a GAC filter. This filter is an Active carbon that removes chlorine & other TDS from the water.

Chlorplus – All multi membrane systems contain a Chlorplus filter. This is a long life chlorine & chloramines removal filter. It has a life of 16666 gallons of water (put through the system) or 6 months (whichever comes first).

ACCESSORIES

TDS Meters - A TDS (Total Dissolved Solids) meter is used to check that your system is working to specification and also to monitor when your resin is depleted. RO-MAN sell both inline and handheld TDS meters, we find that personal preference is the guide as to which is better for you.

pH Meters - These measure the pH in the water (important for fish keepers). This HM Digital electronic meter is water proof and floats. It has glass probes which do not need calibrating every time like some cheaper models.

Water Storage - If you are using your system for drinking water you need a pressurised tank and a faucet as RO systems make water very slowly and the water needs to be allowed to reservoir. The RO-MAN Tank Kit gives you everything you need to use your water system for drinking. Otherwise you can use any food safe container to store your water. RO-MAN supplies a 10 litre and a 25 litre container for small users. We also can supply a 1000 litre IBC for those with larger storage needs.

THERE'S STILL TIME!

You've still got time to book your seat at the FBAS 70th Anniversary Dinner on the 22nd November at Hayling Island.

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

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

Dinner only **£30.00 per person**

Dinner plus overnight accommodation **£45.00 per person**
and Sunday breakfast

You may also contact Grace directly by telephone on 020 8847 3586 or by email: grace@the-nethersells.fsnet.co.uk


SHOW & EVENTS DIARY

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

FBAS GENERAL ASSEMBLY	6th September
BRISTOL A.S. (Goldfish) OPEN SHOW & AUCTION	6th September
KENT/WEST LONDON BKA MEETING and AUCTION	7th September
THE LONDON SHOW	7th September
SCOTTISH AQUARIST FESTIVAL OPEN SHOW	7th September
SELECT A.S. OPEN SHOW & AUCTION	7th September
WASHINGTON A.S.P OPEN SHOW & AUCTION	7th September
BRISTOL TROPICAL FISH CLUB OPEN SHOW	13th September
YORKSHIRE CICHLID GROUP AUCTION	14th September
HOUNSLOW & DAS OPEN SHOW	20th September
N.GOLDFISH & PONDKEEPERS SOC OPEN SHOW	20th September
GRIMSBY & CLEETHORPS A.S. OPEN SHOW & AUCTION	21st Sept
T.T.A.A. OPEN SHOW	21st September
CATFISH OPEN SHOW & AUCTION	21st September
FAIR CITY A.S. OPEN SHOW & AUCTION	27th September
GOLDFISH SOCIETY G.B. OPEN SHOW & AUCTION	27th September
KAAS OPEN SHOW & AUCTION	28th September
BKA CONVENTION	3-5th October
GREATER MANCHESTER CICHLID SOC AUCTION	5th October
SUPREME FESTIVAL OF FISHKEEPING	10th-12th October
PRESTON & DISTRICT A.S. AUCTION	12th October
CATFISH STUDY GROUP	19th October
TONGHAM A.S. OPEN SHOW	19th October
CASTLEFORD A.S. OPEN SHOW & AUCTION	26th October
MERSEYSIDE A.S. AUCTION	26th October
CAER URFA A.S GRAND AUCTION	26th October
BRADFORD A.S. OPEN SHOW & AUCTION	9th November
GOLDFISH SOCIETY G.B. GENERAL MEETING	15th November
CATFISH AUTUMN	16th November
CASTLEFORD A.S. AUCTION 8pm	19th November
FBAS 70th ANNIVERSARY DINNER	22nd November
A of A ANNUAL GENERAL MEETING	23rd November
FBAS GENERAL ASSEMBLY	6th December
CATFISH STUDY GROUP Christmas Meeting	14th December



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