

Today's Fishkeeper

MARCH 2004 £3.25

PASSIONATE ABOUT FISH

Big barb tank

How to set up an aquarium for large barbs



Sally lightfoot crabs

Cute crabs for your reef tank

Chameleons for beginners



Knifefish

Oddballs that can swim forwards and backwards

Meet the aquarist

David Ford - fishkeeper extraordinary



**AQUARIST
AND PONDKEEPER**

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Welcome!

Sometimes you really do wonder at the mentality of bureaucrats. Because the scientists haven't been able to work out exactly why a ball of barley straw helped stop nuisance algae in pond water they decided to ban it under a directive specifically drawn up to protect the environment and pondkeepers from being harmed by chemicals. Yet when this property of Barley Straw was first discovered it was hailed as a safe and organic method for controlling a very common problem in ponds. Then suddenly we got this bolt out of the blue which threatened many people's jobs and livelihoods. It would also mean pondkeepers would have to go back to the bad old days of treating their ponds with chemicals every few weeks.

Thankfully the EU saw sense (no thanks to our bureaucrats, but well done all the people in the industry who helped fight this stupid regulation) and you can still put a mat of barley straw in your pond to combat the algae without fear of arrest for introducing an illegal substance!

Moving swiftly on to other topics I am amazed at some of the reports of massive "koi" deaths in Japan. The fact that all the fish concerned so far have been food fish bred in different fish farms from our Nishigoi seems to have escaped many journalists. Simply because they didn't realise all carp are called "koi" in Japan they have jeopardized the whole of the Nishigoi industry both in the UK and in Japan. They say a little knowledge is a dangerous thing!

Looking through this month's magazine we seem to have fitted a quart into a pint pot again. I particularly enjoyed Erwin Schram's feature on new letias. This group of fish are some of the hobby's star performers and I always keep an eye out for those that are something out of the ordinary.

My own fish room has been undergoing a major transformation with many of the old tanks being breeding tanks being taken out, and a number of furnished aquaria being set up. This month I have written about my new big barb tank. This group of fish have always been some of my personal favourites and I have won many show certificates with several different fish. The only problem with showing this sort of fish in the sheer volume of water you need to take to a show. Being a bit older and slightly wiser now, I have no intention of showing my big barbs this time around (I don't think my back would cope with the strain!), instead they can stay in their home and look pretty for anyone who comes to see them.

And finally

Spring has sprung and I have most people put down the garden at my pond this week. Like many people I tend to be a little slack during the winter on checking my pond fish, yet this is the time when the fish do need looking at regularly. This is especially true as the warmer weather kicks in because diseases and parasites wake up at this time of year and can devastate your stock if the pond water is not in good condition. So in the words of a TV advert "keep em preened" so if your fish show any signs of disease or ill health you can catch it early enough to prevent a disaster.

Until next month

Derek Lambert



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Keep an eye out for these handy symbols to help you with your fishkeeping.

| | | | |
|--|-------------|--|-----------------|
| | COMMENT | | NEW NEWS |
| | NEW COMMENT | | REVIEW |
| | CONTRIBUTE | | DIARY |
| | FORWARD | | 10min |
| | SHOPPING | | 50p |
| | OPINION | | NOT RECOMMENDED |

WIN

a Salt Water Aquarium worth £595



Turn to p37 for rules and entry form – good luck!

Starting Point...



Just beginning in the hobby?
Pat Lambert writes especially for you.

Fishkeepers are often confused by the conflicting information offered by various authors, but I have recently found an article published in 1980 which really takes the biscuit. I quote: "Problem fish are only problems because of the way we treat them. For example - Mollies prefer a temperature which is high, 80° F or over, they like algae, which needs plenty of light, and they need salt" Read further on in the same article and you find: "My personal problem fish, which never, despite all attempts, seem to survive more than a couple of weeks, include Mollies". Here is an article telling the reader how to keep Mollies when the author confesses that he cannot keep them himself (How much more confused can you get than this!)

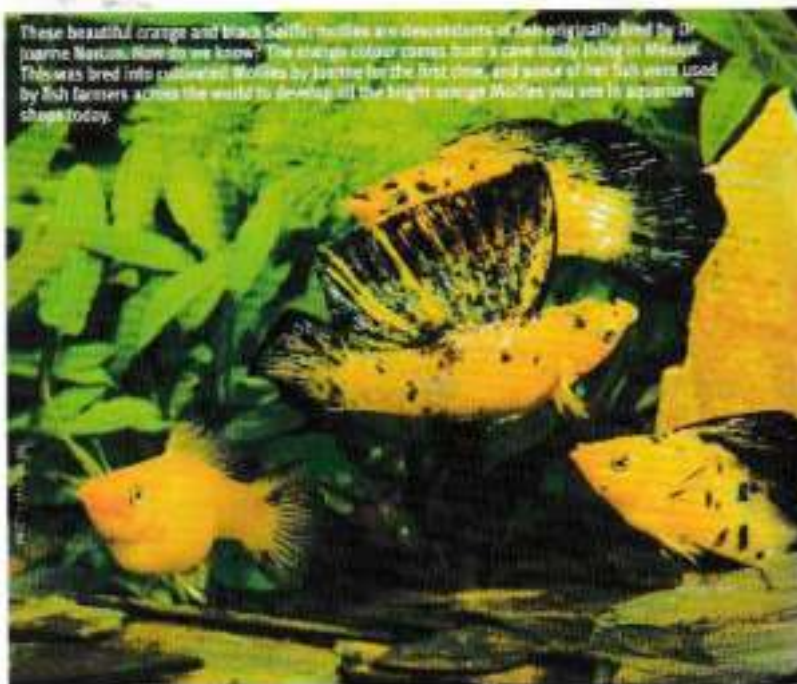
What Mollies want

The greatest Molly expert I know is Dr Joanne Norton from Iowa, USA. Her Mollies are legendary and world renowned. She does not use salt in the water, temperatures only reach the upper 70s and while they may browse on algae, these greedy omnivores are fed on live foods and flake. Because they are greedy feeders, close attention must be paid to water quality with regular water changes. Joanne changes anything up to 50% of the water several times a week.

A couple of months ago I wrote about Saltin mollies, which are found in brackish water habitats and adapt well to saline conditions, but personally, I have never kept them in saline water, just very hard, alkaline water. I've fed copious amounts of live food and flake, carried out regular water changes, and they've happily lived and bred in my tanks.

To make things even more confusing, there are some Mollies that are found in softer water. A Molly that I like (known as the Catemaco molly) comes from Lake Catemaco, Mexico.

It's the brackish-fresh brackish-fresh ever changing water when they are transported around combined with poor water quality that Mollies can't stand.



These beautiful orange and black Saltin mollies are descendants of fish originally bred by Dr Joanne Norton. How do we know? The orange colour comes from a cave molly (fish) in Mexico. Fishes bred into saltwater Mollies by justine for the first time, and some of her fish were used by fish farmers across the world to develop all the bright orange Mollies you see in aquarium shops today.

where the water is much softer than in many other Molly localities, Mollies come from limestone caves, sulphur springs, hot coastal lagoons, estuaries and cooler mountain rivers - so when anyone discusses Mollies, one has to ask, "Which Molly?" confusing isn't it!

Priceless Rubies

The Black ruby barb is one of the most striking Barbs I have ever kept. This very active fish needs a larger tank than its adult size of 6cm would indicate. Mine lived very happily in a 90cm tank which contained floating plants and was not too

brightly lit. There were numerous hiding holes but plenty of open swimming room. mid-water was appreciated. They really appreciated lip-smacking live foods but were not fuzzy feeders.

The Black ruby barb used to be the commonest small barb around, but with all the newer fish now available I haven't seen them so often. Even out of breeding colour, when both sexes are yellow grey, males are easily distinguished from the females. The black barring and the black on the finnage of the male is more clearly defined and the female has a plumper body.

There's no mistaking a male Black ruby in full breeding colour, as few can surpass such a beauty.

The transformation is complete when



Black ruby barbs are still very attractive even when not in full breeding colour.

males display to other males. All the finnage becomes jet black, a colour which suffuses the rear body making the black barring disappear. The front portion of the body becomes deep crimson and, with fins outspread as he displays, you can see why he is likened to a ruby. The top of the back is a silvery green. Breeding males dance around each other forming a circle head to tail. This is a wonderful sight, but when breeding with the female the colours are never so intense as during the dance. At dancing time they must tank among the most beautiful of our community fish.

First comes the aquarium

The first thing to do when you purchase a new aquarium is to test it for leaks. Fill it

with water and leave overnight, if all is well it can be emptied and moved to its permanent position. Always remember that if the tank is resting on floorboards it must be positioned across the joists and not along them, as this distributes the weight evenly. Water weighs a lot and tanks have been known to migrate through the floorboards.

Problems arise when a tank has been set up for some time, is fully stocked, and springs a leak. If the tank is leaking slightly in one spot along the silicone sealed seams, it is often easily dealt with, as it's usually a slow leak anyway. Locate the leak and empty the tank to below the leak's level. Clean around the leak, dry off the leaking area and quickly cover the outside and inside of the seam with fresh silicone sealant. Leave to cure for 48 hours before refilling.

Cracked tank or (heaven forbid) unslipped

tanks are more serious. When a tank cracks all the seams come undone and you are left with broken glass, dead fish or fish flopping around in any puddle they happen to have been lucky enough to fall into. Cracked tanks are often caused by accident and you are usually there to deal with it.

We have experienced the disaster of broken tanks when a bank of tanks cracked over. You have to be very careful to avoid broken glass and if you are there at the time of the disaster you may be able to rescue some of your fish. We were not so lucky, it happened during the night and all the fish were dead. It was a nightmare come true! Our special collections and breeding stock were gone. I could have given up in despair, but kind friends rallied round and helped us make a new start by giving us some of our own bred fish that had been passed to them. That's what the fish keeping fraternity is all about. ➔



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KEEPING ITS HEAD DOWN

Here's a fish that's a little different, for those of you who like such fish. The Spotted headstander's normal swimming position in the water is head down at about 60° angle from the horizontal. The fish moves into a straight downwards position when grabbing for food in the substrate, so it's quite a good scavenger.

There are several headstanders available but this one, *Chilodus punctatus*, only grows to 7.5cm. There are other species which are larger like the Striped headstander (*Anotostomus anostomus*) a beautiful species which grows to 28cm. The Spotted headstander enjoys all foods but likes vegetable matter in its diet. The

greenish tinted body is covered with rows of brown spots. A black horizontal stripe runs from the mouth, across the eye and along the body to the caudal peduncle. Not always recommended as a beginner's fish, as it does not always take kindly to being moved, however, I had one when I was a beginner and it lived happily in my 120cm tank.



Three Spotted headstanders in typical pose - head down.

DEALING WITH A CRACKED TANK EMERGENCY

1. Switch off all electrical equipment
2. Collect large buckets together and siphon water from the tank into the buckets. You will probably have to use a lot of tap water with a dechlorinator.
3. Place compatible species together in each bucket (remembering that, although some species may be fine in a larger community tank, some may not co-habit well in a bucket).
4. Use an air-pump but cover the buckets as frightened fish might jump.
5. If you only have the one tank or any other tank(s) you have are fully stocked you will need a new tank. Stranger as it may seem, is often cheaper, in the long run, to buy a new tank than to replace one side of a broken tank. You can also set the tank back up straight away without worrying about curing the sealant.

LOST FOR WORDS



This Swordtail has a fish house on its head.

Argulus (Argulids): These fish lice are flat, have sucking disks, and a siphon. They are transparent and grow to about 3mm, so can be seen with the naked eye. They inject with the siphon and suck blood from the fish.

Dechlorinators: These remove chlorine from tap water. Their action is instantaneous. This can be added at the same time as the fresh water or immediately afterwards.

Gravid Spot: A dark spot located in front of the anal fin of many female livebearing poeciliids.

Potassium permanganate: This is an oxidizing agent frequently used in pond remedies for algae control.

Rise-in period: This runs from the setting up of a new tank to after the fish have been introduced and ammonia and nitrite readings are nil. The period can last from four to twelve weeks.

Skewed Sex ratios: This is when there is a predominance of one sex in a brood of young. Sometimes the whole brood can be exclusively male or female.

The ten golden rules of fishkeeping

Read all about it

Take the first steps in fish keeping by finding out all you can about caring for your fish.

- Manufacturers often provide free booklets about fish care.
- Inexpensive books provide information on setting up.
- Today's Fishkeeper experts are on hand with help & advice and sections of the magazine are devoted to beginners.

THE WATER

1 Testing: Before introducing any fish to your new tank test the water for Ammonia, Nitrite and Nitrate. Safe water ready to receive fish should have zero readings of Ammonia & Nitrite and almost zero nitrate. Test the pH, pH7 is neutral, above this is more alkaline and below 7 is more acidic. Read up on pH requirements for any fish you intend to purchase.

2 Temperature norms:
Freshwater tropicals 21-27°C
Males: 28°C
Coldwater 13.5-21°C
 Some delicate species have very specific requirements, read up on them before you purchase.

3 Filtration clears the water in your tank. Choose the filtration most suitable for the fish you intend to keep. Some species do not appreciate being blown around the tank, others that come from fast flowing waters like more turbulence. Large tropical, coldwater and reservoir require larger filtration systems.

THE FISH

4 Stocking levels: For **tropical** tropical we recommend 1cm³ of surface area per 1cm of fish.

Marine: For a fish only setup we recommend 2.5cm of fish for 9l of water and for Reef only setups we recommend 2.5cm of fish per 27l of water.

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Provide a maximum of 250cm of fish per 4500l of water. Measurements should be based on the optimum adult size of the species not the size at the time of purchase. **NEVER OVERSTOCK**

- Knowledge:** Find out as much as you can about any fish you hope to buy before purchase.
- Introducing fish:** Fish should be added a few at a time over a period of several weeks to new setups. This allows the filter system to mature.
- Quarantine:** All new purchases should be quarantined for established tanks for at least two weeks.

THE ROUTINES

5 Feeding: Twice daily feeds are the norm for most adult fish. Try to feed at the same time each day as this establishes a routine. Only offer as much as the fish can eat in a few minutes.

6 Water changes: Freshwater tropical 10-20% weekly
 Marine no more than 20% every two weeks.
TESTING also appreciate an occasional water change. Keep an eye on ammonia, nitrite and nitrate levels. They should be zero in a mature pond.

7 Cleaning filters: These should be cleaned once a week. If they work by biological filtration (bacteria break down the waste) and have a sponge in them, this must be cleaned in old aquarium water that is then discarded. Never use any household detergent or soap on aquarium equipment or tanks.

OBSERVATION: Only observation is the key to successful fishkeeping. Look for any abnormal swimming patterns, bulging or listlessness. See that the fish are eating well and that all are getting their share. If fish are in difficulties test the water.





Danio Furniture

Just because every shop sells it and it's cheap, don't overlook the pretty Zebra danio. Its popularity is justly deserved.

Mary Sweeney creates a community around Danios.

It was our editor, Derek, who suggested Danios for this month's topic. Often I find that the most difficult part of getting these articles out is settling on which fish to write about. I knew he was onto something when the first thing that came to my simple mind when I read his e-mail was a little twist on a corny old joke. There, now we have the fish. The rest is simple. I know all my kin will forgive me, especially Danny O'.

All nonsense aside, the fishes of the genus *Danio* (and formerly *Brachydanio* and now the new *Devanio* as well) have often been overlooked on the basis of youthful discriminations. Tankkeeping newbies are

acquisitive beings, and Danios are egg-layers. It seems that sometimes Danios lose out in the new hobbyist's race to breed fishes, the race that's won by the livebearers that are the darlings of the new hobbyist. Oh, those gravid Guppies with their promise of more new (and free!) fish in just a few days. When we notice the nearly exploding belly of the female Danio, the promise is there as well, but alas, they lay eggs, eggs that don't have a chance of hatching in the community full of egg predators. At least a baby livebearer is born with some sense of impending doom and hits the water in a ball that unfurls and flees. Danios come from eggs, and these eggs must be protected and nurtured for a little while before we can admire our newborns. This is the only reason I can imagine for missing out on the Danios early on...because there isn't a finer community fish to be found, an opinion based on the benign disposition, delicate beauty, and the general good department of these little cyprinids.

Wherefore art thou, Danio?

In the old days, life was simple. (Or so they say.) When one spoke of the Danio, all those gathered assumed the fish in question was the Zebra danio, a true bread-and-butter fish if ever there was one. Even in the old, old days, Zebra danios were found in the Woolworth's pet department along with a few Guppies, Mollies, Angelfish, an odd Cory, and usually a nice collection of Goldfish, Carpets, Fantails, Shubunkins (sometimes), and the startling Black moors. Small pet shops were a little more diversified; they carried all the above plus a few Cichlids and Weather loaches. It's still the same in rural areas. There's a nice community tank to be had from the local vendor, but for anything special, one must be prepared to look a little farther afield. That's the way it usually goes with Danios. There is more variety in species than just the Zebra danio, but it may take a little detective work to put them in your own aquarium.

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Bengal danios (*Devario devario*) are one of the more unusual species which a shop keeper could order in for you. They grow to about 10cm and are just as hardy and peaceful as the other members of this group.

NEW NAMES FOR OLD

Newly discovered species aside, the names of some of our familiar species have been updated recently—revised, as it's called in ichthyology. This is good for the academics. It keeps things orderly in the textbooks where it matters to people who devote their

lives to the study of such things. For a hobbyist seeking a particular fish, it can sometimes be a little bit of a nuisance. If, for example, you are looking for a Giant danio, don't be so surprised when it comes up under its new name, *Devario malabaricus*, rather than the old familiar name, *Danio malabaricus*. Same fish, different name. Just relax a bit. It keeps as all humble.



Giant danios are one of the larger members of the group which grows to about 10cm.

Which fish for you?

Danio aequipinnatus, the Pearl danio. This gem is easily the most striking of the common Danios, its silver-blue body decorated with an iridescent ruddy stripe running from just aft of the belly to the tail. It is not hard to find in most well-stocked pet shops and if not actually in the shop when you're looking, can probably be ordered if you are on good terms with the shopkeeper. N.B. It is wise and prudent to find an aquarium shop where you will be on good terms with the manager. Your referrals, kind words and steady business pays off in fish-finding favours over and over as time passes.

The Pearl danio is found throughout India and SE Asia and is commercially cultured on a wide scale. Pearl danios are good with temperatures in the 20 to 24° C range. These fish don't appreciate an overly warm tank; it shortens their lifespan. Water chemistry should be neutral in all aspects. Clean, well aerated water is all that is wanted by this great community fish. The Pearl danio prefers to stay near the top of the water and the upturned mouth lets you know that it's always ready to dash away with any treat that lands on the water's surface.

Danio nigrofasciatus, the Spotted, or Dwarf danio is a native of Burma. The female is larger and rounder than the male, but neither of them get larger than 4.5 cm. This is a truly handsome fish, a little quieter in nature than the other Danios. The water should be slightly warmer for this fish, up to the area of 25 to 27°C. This species forms a faithful pair bond, which is a little unusual for fish that do not care for their eggs or fry.

Danio rerio, the Zebra danio, is really a stunning fish. Forget that it costs nearly nothing and has been around since Noah's Ark. The male has a golden yellow background with blue longitudinal lines. There are fine red lines between the blue and the yellow. There is a long-lined variety that makes a cave for weird morphs like few others could. Part of the appeal is that the colour continues into the long tail and anal fin, giving the fish a real presence. The background colour on the female is white to the male's yellow. Again, the female is larger. In the females of the Danios, you will notice that the dorsal fin is rounded when the male's dorsal is more squared. This, and the larger size of the female are the main reliable means of sexing the fish.

Keeping Danios well

One nice thing about Danios is that they don't require any furniture at all. Everything you give them beyond clean, well-oxygenated water and good food is a luxury.



Pearl danios are very attractive additions to any community aquarium.

to them. These are truly low maintenance keepers. And they give back so much: sleek, shimmering beauty and good action without any of that annoying frenetic pace associated with some of the more racy types. Even so, they are active fish that fare well in a long tank. Depth is not really important to them; they are generally found near the waterline. In fact, when one wants to spawn them, the directions call for a reduction in the depth of the water.

If you are hoping for some fry in the community—however rare that may be—try to be sure to use coarse gravel. If the eggs drop between the pebbles, there is a chance they will be safe. There are many stories of unusual “finds” in aquaria that were equipped with undergravel filters: lost fish, mystery fish, foundlings.

Plants for the Danio tank

Plants are safe with Danios. Some easy plants that don't require heavy daily lighting or CO₂ fertilization to thrive are: Java fern, Java moss, Anubias, Water sprite, Anacharis, Dwarf sagittaria, and Cryptocorynes. It's generally best to keep the plants to the



Leopard danios are a rarer variety of Zebra danios. The upper fish is a female showing a nicely plump belly. Males of both colour forms tend to be more golden in colour than females.

back and sides to allow the most free swimming room front and centre where you get the benefit of the fish. Use a timer set to 12 hours on a day to help prevent the dreaded brown algae (diatoms). It's a mess that shows up in low-light conditions.

Danios do look their best in natural light, so try to put them in a spot where you can see their true colours from time to time. You will be astounded at how poorly they photograph compared to how good they will look in your tank.

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Tank mates

Tank mates for Danios include just about any fish that won't give them a hard time. They don't cause any trouble so don't give them any. Since they're top-dwellers, choose fish that stay around the mid-water and bottom for a nicely balanced tank. There are plenty of peaceful species to choose from here. Some that come to mind include Platies, Mollys, small Callfishes, Dwarf cichlids, Guppies, Swordtails, other Danios, and virtually all of the small Tetras.

Enjoying egglayers

There comes a time when you are ready to move up to spawning egglayers. You've mastered the art of saving livebearer fry and you're getting broody. Yes? Danios are perfect. There's not a doubt in the world about which fish is female. Discovering the males in a tank of adult Danios takes a little more attention, but a ripe female Danio looks like she'll explode before she lays her eggs. She is, if possible, even more gravid

looking than a pregnant livebearer.

Danio fry are like tiny slivers of glass. When you can see them swimming about and the yolk sacs are completely absorbed, they can be fed on liquid fry food or infusoria as many times a day as you can while still maintaining that elusive but critical perfect water quality required for healthy fry. This is the rub. Those livebearer fry will survive in the community tank as long as the tank is lightly stocked and there are enough hiding places. In fact, it is not unusual for a livebearer tank to maintain a steady population for many years without the hobbyist adding any more fish at all. Birth, life, death, alpha and omega, all in a glass box filled with water. This is just not so likely to happen with egg scatterers like Danios. If you think a female livebearer is beastly for eating her newborns, prepare yourself for the egg scatterers. They eat their eggs right after they have been fertilised. What a system! It's a wonder there are any fish at all!

There are many techniques for breeding egg-layering fishes, and only so many words permitted for this article, so I'll have to save this discussion for another time. Enjoy!

AQUARIUM DIET

Danios do like their grub(s). They are fond of small insects, worms, and other tiny meaty foodstuffs. Very finely scraped beef would suit them just fine. It's really not difficult to give your fish some table scraps. Before you cook your beef, just run a very sharp knife along a lean side of a roast. The small amount of meat from the knife will drive your fish into a feeding frenzy. Just don't overdo it. There's still only so much food they can eat. Likewise, slip the skin off a fresh or frozen green pea. Crush the inside of the pea and give them as much as they will eat in a few minutes. If you have vegetable-eating fish in the tank as well, the competition will be fierce! Of course, they do eat prepared foods as well.

10 Community Cautions

1 Big fish will usually eat small fish

Be aware of the size to which the species in your community set up will grow and try to keep them even.

2 Fish require different water temperatures

When creating a community, always ensure that the fish you are choosing can live at the same temperature and adjust your thermostat accordingly.

3 Fish have varying dietary requirements

Remember to cover the scope of dietary needs within your feeding regime and add extra filtration if you stock carnivorous species.

4 Do not mix riverine and still water fish

Riverine fish require higher oxygen and filtration levels than still water fish. Still water will kill them. When exposed to fast moving water, still water fish quickly become distressed and lose condition. Choose either a still water OR a riverine Community.

5 Fish have different water requirements

Always ensure that your community tank only contains species that need the same water pH and hardness.

Tetra

The Heart and Mind of Aquatic Life

6 Fill all the levels

Different fish live in different areas of the tank. There are top, middle and bottom dwellers. A good community tank will include each of these.

7 Never over stock

Cramped conditions can lead to aggression in otherwise placid species.

8 Keep your eyes open

Look for bullies in your community and remove them immediately. Prevention is always better than cure.

9 Provide sufficient territory

Always ensure each species in your community has its own territory. For example if you have 5 species of cave dwellers, ensure there are 5 caves...

10 Differing dispositions

Quiet tranquil species can easily become distressed when in close proximity to lively boisterous tank-mates. Keep the temperaments of your community fish similar.

Create your community with Tetra's Virtual Aquarium at www.tetra-fish.co.uk

Tetra, PO Box 373, Eastleigh, Hampshire, SO53 3UX

ARE EARTHWORMS SAFE TO FEED FISH?

Q How can I prepare Earthworms so that my Cichlids can eat them. I've heard that I need to clean them and then boil them, but I'm not sure how true this is. Is there a risk of disease from feeding these worms to my fish?

Peter via e-mail

A I feed my cichlids with Earthworms as often as I can. I do not prepare the Earthworms. I dig them up dip

them in the water to get the soil off the Earthworms and feed the fish. Of course if the Cichlids are small, I cut the earthworm in pieces so that the fish can eat it. The Cichlids love the Earthworms and the fish will be well prepared to spawn. I have seen two Cichlids grab the Earthworm out at each end and struggle to see who can win the Earthworm. To watch the fish and see how they love to eat Earthworms is worth the digging. In my 46 years working with the hobby, I have no reason to blame the Earthworms for any sickness

among my fish. The only thing I'm not doing is using Earthworms that have yellow contents in their gut and do not smell good. But, earthworms dug out from a compost heap or around your apple trees are usually fine. So, I would not hesitate in feeding this excellent food to my fish as long as they can take it. Small Earthworms to smaller fish, and bigger Earthworms to bigger fish. It's as simple as that.

Al Stalsberg

CAN I KEEP BOLIVIAN RAMS IN A COMMUNITY?

Q I would like to know is it a good idea to keep two Bolivian Rams in a matured community tank. I have 3 Dwarf rainbows, 2 Bourmani rainbows, 3 Dwarf gourami, 1 Swordtail, 2 Corydoras and a Bristlenose catfish. I know that Rams get aggressive at breeding time, are the Bolivian rams one of them? Secondly, I have read that having four of a single species is good practice. Is this correct in view of my own numbers?

Robert Lyons, aged 11, South Wales

A I must say that the Bolivian Ram is one of them. But I won't say they are especially aggressive, you must not forget that these fish are Cichlids and you must know Cichlids to understand their behaviour. That's what makes the Cichlids extremely interesting. I must say another thing too, don't put too many fish in your tank, this will only lead to problems. And I would suggest that you increase the fish you have in the tank. Let me explain why. Your Rainbow fish is a shoaling fish and there need to be more to get the shoaling behaviour, this will make the fish feel more secure.

I don't know what sex your Swordtail is, female or male? But you should at least have a pair, or several females to one male, because if you have more than one male the biggest one will chase the weaker one, and maybe in the end he will die. The same goes for your Corydoras. They love to be in a shoal and I would say you should have 5 or 6 together. I'm sure you will see a different behaviour. So what you have heard that having four or more of a single species is good, and to most of the fishes it's good. I will advise you to get a good book about fish, and read about your fish. The more you learn, the better it is for the fish.

Al Stalsberg



Bolivian rams can be kept in a community with other peaceful fish but will become territorial when they are in breeding condition.

ARE THERE OTHER FISH THAT WILL EAT ALGAE?



Black-bellied limias rival bristlenoses for eating algae and are a lot prettier!

Q I have a problem with excessive algae growth in my new Jewel aquarium. It has formed a thick coating over much of the bottom and several rocks. I know Bristlenose catfish are supposed to be the best algae eaters but I think they are ugly and rather boring fish. Can you suggest something else that will do the job of getting rid of the algae or at least keeping it under control?

John via e-mail

A Just by chance I have been having the same problem in one of my newly set up furnished aquaria. Since I didn't have any bristlenoses to hand I tried some black-bellied limias (*Glinu melanocephala*) which were always considered a good algae eater when I first started in the hobby. They have worked a real treat and I would recommend them to anyone with a problem with algae. It took a group of 2 semi-adults and 4 youngsters just over a week to clear most of the algae. The limias have coloured up brilliantly and put on body depth since going in the tank.

The only down side is the scarcity of this species in the trade. They do come in from Europe from time to time and they are available through the British livebearer group - 'Viviparous' (check out their website www.viviparous.org.uk for more details about this organisation). Other limias that can also be used for this task are Cuban or hump-backed limias.

Derek Lambert.

Q&A

Star Letter 

Although Green damselfish (*Chromis viridis*) are hardy fish they will not tolerate high levels of nitrate in their aquarium.

How can I reduce my Nitrates?

Here are the details of my system: 70 x 24 x 26 inch tank, 90kg live rock. Water flows down stand pipe through filter pad into sump. DeJoc Ap600 skimmer. 4 inches of coral gravel in sump, flow down through gravel to return chamber. Small trickle filter run by maxi jet DeJoc calcium reactor DeJoc phosphate reactor 25w Tmc UV Teco cooler.

I can't get the nitrates below 20 (rising to 40 or more between water changes). Also, I cannot seem to get a good constant output from the calcium reactor, I set the tap and when I look later it has come to a stand-still! Would a peristaltic pump solve this?

The stock is as follows:

1 Marine Delta, 5 Chromis, 1 Dottyback, 1 Masdaris, 1 Flame Angel, 1 Cherub Angel, 1 Algae Blenny, 1 Pyjama Wrasse, 1 Arrow Crab, 1 Cleaner Shrimp, 1 Boxy Shrimp, 1

Gorilla Crab, Around 30-40 Hermit crabs and about the same number of Snails, 1 Brittlestar, 4 Sand Sifter Stars, 1 Medusa Coral, 2 Brain Corals, 3 Toadstools, 1 Colony of Mushroom Corals, 3 Tridacna Clams, 1 Pulse Coral, 2 Gorgonians, 1 Green Buttae Polyp, 1 Brown Star Polyp Colony, 1 Hammer Head Coral.

Fish are fed with Brine Shrimp and Mysis mixture with Kent vit sappy (occasional whole Shrimp)

1 30ml cupful of Marine Snow and Kent Phytoplankton target fed every other day.

Mervyn via e-mail

I think that if you change the way you feed, your nitrates will fall. The good thing is that they do fall with a water change indicating a clean system.

Your stocking levels seem fine, with the fish stocking low you should not have this nitrate

problem. Shrimps and hermit crabs stocking seem sparse, so you could increase those to about 8 shrimps and 60 hermits, which will clean up any uneaten organics for you. If you spread out your feeds, say feed 6-10 times a day instead of just once, then more food will be utilized instead of rotting producing nitrates. An in-depth report on this can be found on our web site under free downloads. www.aquaworld.co.uk

You could also install a denitrator, (do not use a sulphur model). Aqua-Medic produce a very good unit, but wait first to see how effective the change of feeding and increased cleaner population is. The pipe on the calcium reactor should only be very short, and positioned above the sump so any fluid runs down the pipe. Take the pipe off and flush it with warm RO water to stop calcium deposits blocking the pipe. A Peristaltic pump can be utilized but use only those termed as micro doser or the flow rate might be too high.

Andrew Caine


AQUA MEDIC

for all your marine keeping answers

HOW CAN I GET RID OF RED SLIME ALGAE?



Hermit crabs are great for cleaning up any uneaten organics in the aquarium

I am new to marine fish keeping but I am having a relatively easy ride with my 400 litre system, having no real problems (which I put down to good advice, reading and stocking really slowly). All went well until about one month ago. At one end of the aquarium I noticed a formation of dust over the racks. It looked like dust and when I placed the jet of a powerhead onto it the covering went up into the water just like dust being disturbed. This then developed into a covering of red slime algae. Though only a small area, it is annoying. I siphon it off every day but it re-appears the day after. Please could you advise if there are any chemicals that can be added to remove this type of algae, and what can I do to stop it re-occurring.

Nick Peterson via e-mail



Your slime algal bloom has been caused by an accumulation of sediment containing organics over the rock surface which rolled down to cause the slime algae outbreak, and this is due to a lack of water flow in that specific area. Adding chemicals can be tricky and if you overdose this can be very dangerous for your livestock. Poly or by Kent and Anti Red by Aqua Medic are both very good at oxidising the organics which are a food source. However these relieve the symptoms but do not address the cause that you must do. Simply add another powerhead to your system, directing the water flow over the desired area, this will keep any sediment up into the water, not allowing it to fall out of suspension onto the rocks and rot down. By doing this you will also be feeding your filter feeders as they will benefit from the organics in the debris. Do not make the mistake of re-directing a powerhead as this will only cause the same problem but in a different area of the aquarium.

Andrew Cairn

HOW CAN I DIVIDE MY HOSPITAL TANK?



I have been given a 7' x 2' x 2' tank which I will be setting up in my garage as a Hospital / New stock tank. Would it be possible to separate this tank off into three sections using acrylic or polypropylene sheets bonded with tank construction sealant (each section will be individually filtered using an Eheim canister filter)? I do not like using glass dividers because of a cut I received a couple of years ago with an old tank. I had a look at your advice on pipe work and was worried about increasing the toxin levels in the tank by using unsafe materials. Would it be possible for you to provide me with lists of what would and would not be safe to use in a marine or tropical set up?

Also would it be safe to use stainless steel inside the tank? I have a friend who uses his old cooking pans to make caves and such like in his breeding tanks but I have my reservations about placing metal in the system. Thank you for your time and effort with my problem.

Andrew Johnson via e-mail



In marine water please use acrylic. I know you do not like glass, but if you get emery paper the glass edges can very easily be sanded down smooth. This would be a much cheaper and better option. You must use marine grade pipe work or trouble cook follow. If you are going to utilize freshwater, then hard pipe from any plumbing merchant can be used and it is much cheaper. Under no circumstances put pans into a marine aquarium as over time these will rot down leaching toxins into the system. I hope this has pointed you in the right direction.

Andrew Cairn

Star Letter Prize from



Modern Coral Reef Aquarium books, written by Ni J. Nilson and Svein A. Fossas are regarded as probably the most authoritative series of books for the marine hobbyist in years.

At Aqua Medic, the leaders in Marine Aquarium technology, is pleased to present whichever of the three volumes, normally £55.00 each – desired to this month's star letter.




ANTIPNOS

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Fantails for a pond?



Fantails are hardy and beautiful. Keep with other fancy goldfish varieties and other peaceful cold water fish.



I have read that fantails can be kept in an outdoor pond but when I bought one I was told that they like a warmer temperature. Is this right?

Arny Nerstone, Sutton, Surrey



You were probably given the correct information about the fish you bought. For shop-bought goldfish have often been reared to tolerate size in warmer conditions.

If these fish are gradually acclimatised to a lower degree of warmth then they can go in the outdoor pond. It would not be safe to put the fish into the pond until the middle of May when the temperature of the pond water is rising to 60°F. Fantails adapt well to both pond and aquarium life but any adjustments must, as always, be made slowly.

Another point worth noting here is that when you purchase new fish for the pond they should be quarantined for a couple of weeks. Any problems that arise are much easier to spot and deal with.

Before the fish is released into the pond, the fish should always be transferred carefully and not just dumped into the pond. Place the fish and its water in a bucket which can be floated for a time to equalise the temperatures, then very gently tip the bucket and wait for the fish to swim into the pond.

Randy male goldfish



I had one small goldfish in a small tank for three months and then I bought another to put with it. When I switch the light on over the tank the new fish chases the other one, nudging it vigorously and almost pushing it out of the water. Can you explain this please? Vic Sumner e-mail



From the description of the way your new fish is behaving it appears to be a male and the other one is a female. The chasing is one of the preliminaries to spawning and the sudden light seems to spur the male into action. Unless the female is ready to lay her eggs nothing will happen. It is, however, important to note that the first fish could be outmated by the other one in such a small tank as it will not be able to hide away.

Are there two plants with the same name?



Three years ago my pond had a lot of 'Fairy Moss' which was full of beautiful white flowers in the spring. I lost it all in the winter. I have since then bought two lots of 'Fairy Moss' but it has never flowered. Are there two kinds of plant with this name?

Peter Sanderson, Bristol



I think you have mistaken the name of your plant with the white flower. My guess is that it's Water Crowfoot which has a firm leaf below the surface and a shiny roundish one on the surface. The plant flowers profusely in the spring with white flowers that look like miniature buttercups. The plant known as Fairy Moss is probably *Azolla caroliniana* or other azolla species.



This is azolla which is usually called Fairy Moss.

Big buddies



Tinfoil barbs (*Barbus schweinfurthi*) at 35cm when full grown are far too large for a normal community but in this sort of set-up make beautiful showy fish.

Better known for his exploits with livebearers, **Derek Lambert** has also kept a community of larger Barbs for over a decade. Now he is restarting his Barb community and explains what equipment and fish he is using this time.

Walk into almost any aquarium shop around the world and you will find a few big Barbs for sale. The commonest are Tinfoil barbs and many budding fishkeepers have unknowingly purchased these fish because of their striking silver bodies and bright red fins. What they don't realise is these fish will happily grow to 30cm given the correct conditions, and will almost certainly outgrow their aquarium within a year. So what are the correct conditions for big Barbs?

Think big

First of all you will need a large tank. My old one was 200 x 45 x 45cm and the new one is 200 x 45 x 60cm which I feel is a better depth for these lively fish. Ideally an even bigger tank would be better, but practicalities come into play. A big tank will dominate even a fair sized room. Go too large and you may find the room looks tiny and cramped with the other furniture in it. The other point to remember is the weight of your tank. A 200cm tank is very heavy and requires two fit men to carry it and a very strong floor to take the weight.

Next we come to decor. Big Barbs barge about in their tank in a shoal. Swimming room is far more important than plants, rockwork and other cover in the aquarium. I usually limit the decor to a few pieces of

logwood to create a quiet area in which fish can move into out of the general hurly burly of the shoal, otherwise I leave the tank bare. This means an attractive background is important and there are plenty of these sold on rails at your local aquarium shop. Plants are often high on a Barb's menu so I don't bother with them other than the plastic variety and again these are concentrated around the quiet area.

Filtration and water circulation

Filtration is an important factor in any aquarium housing large fish. A big Barb

SUBSTRATE

Since you are not going to be using the substrate as a growing medium for your plants you can limit the depth to just a fine covering for aesthetic reasons. I tend to prefer sand for this rather than gravel. The Barbs will sieve through it looking for any morsels of food which have become buried so a thin layer will be constantly turned over and kept clean by your fish.



Spenser barbs (*Barbus lativittatus*) grow to 18cm long as full grown fish. The black markings fade a bit with time but they are still imposing fish when full grown.

Tank is no exception to this, and for years my aquarium ran on two large internal power filters that were just about adequate. I would clean each one alternately, so the filter bed of one filter would always be at its peak. I now have a large external power filter and will be using this instead of the two internals, however, I will still include an internal power filter to boost water circulation as well as filtration. It is important to remember most of these fish are riverine in origin and love nothing better

than to swim against a water current, hence the reason for including the extra internal.

Water conditions

Water quality, particularly as regards pH and hardness, is something that tends to preoccupy many aquarists' minds. We are often told how important it is to match our aquarium conditions to those the fish would experience in the wild. This is where

LIGHTING

Lighting is purely there for you to see the fish by, so you can just use a fluorescent tube or, better still, one that enhances the colours of your fish. Since Barbs are rather scatty fish it is important to make sure the lighting comes on slowly. In the morning, open the room curtains first and leave the tank for an hour before switching on the lighting. If the tube flashes on without this gradual waking up process the fish will charge about and may hurt themselves on the end glass.

adaptable big barbs come into their own. Most species you find for sale will adjust to most water conditions from soft/acidic right through to hard/alkaline, but take great care when you buy fish that the water they have been living in is similar to yours. If it is very different, place the fish and water they have been transported in into a bucket and slowly siphon water from your main tank into the bucket. This should be done over a period of an hour. When the bucket is full, empty out half the water and start to refill with tank water, again over a period of an hour. At all times the bucket must be covered and the cover held down with a heavy weight. Take great care when netting them out for transfer. This is vital, as all big Barbs seem to come fully equipped with



Denison's barb (*Puntius denisoni*) will add a splash of red to the big barb community. At only 15cm maximum size it is at the bottom end of the 'big' category but even all the bigger tank mates are totally peaceful, they will be happy with them.



Clown barbs (*Barbus everetti*) are another species which remain fairly small at only 12cm but will cope well with much larger fish. Their rich golden colour and distinctive markings make them worthwhile additions to your community.

their own suicide gene which makes them want to leap out of the water and go carpet surfing. Not a healthy occupation for any fish.

Captive diet

Big barbs will eat absolutely anything that will fit in their mouth. Flake foods will be hoovered off the surface, although the general melee that ensues when food is put in their aquarium will mean that most flake food will be gobbled up in mid-water and picked off the bottom rather than the surface. Pellets are really good as well as frozen foods. Try to feed these omnivores as wide a variety of foods as possible. Mine have always enjoyed meaty foods and frozen bloodworms were on the favourite foods list. Live maggots were also gobbled up (try not to allow any to escape, as chasing great big black flies around the house is not a fun occupation). Feeding too many of these, however, is not a good idea and only use the plain white ones. Earthworms are right at the top of the list. Large ones can be chopped up and small ones will be sucked in like spaghetti. Just about any cooked unspiced vegetable will be eaten. Carrots are particularly good because they help improve the colour of your fish, but peas and other green foods are important as well.

It is important to remember that these fish are literally "pigs with fins" and will scoff down as much food as they can. The down side of this is that they will pass partially digested food out if you over do the amount and frequency of the meals. This puts an unmissable load on your filtration system and your fish could rapidly be in trouble.

Keep the feedings down to a per day and only as much as they can eat in 5 minutes. If you do feed more often (I usually did because I was trying to maximise the fish's growth rate) then make sure you keep a close eye on the water quality.

Personal favourite

Out of all the egg-layers I have kept over the years my original big Barb tank was my favourite set-up. It is not that they are brilliantly coloured - far from it. Most are

WATER CHANGES

These are very important to the type of fish we are going to be keeping in this aquarium. Water changes can be a real back breaker if you normally use a bucket and syphon tube. Changing so to 20% of the water in big tanks is a time consuming and arduous task. A wise aquarist will invest in one of the automatic water changers available or a simple powerhead that can be attached to a normal garden hose. The water can then be pumped out directly down a drain. Ideally, for refilling, you should run off a water butt of water a couple of days before and treat this with a water conditioner. A good sized heater/stat will be able to raise this to the correct temperature over a couple of days and you can then just pump your freshwater back into the tank.

silver fish with a black blanch here and there. Reddish fins abound and of course now we have Denison's barbs with that gorgeous red flash along their flanks. My own tank houses a filament, 2 Clowns, and a Swamp barb which I was lucky enough to come across in a local shop the other day. Denison's and a titrail will be added a little later when the filters have fully matured. The tank already looks a shimmering mass of fish despite the largest fish being only 6cm long and most of them about the 4cm mark. But that is part of the fun of keeping this kind of set-up, the fish won't reach full size for some time yet, but you have the pleasure of seeing them grow up into majestic adults. Enjoy!

Red-cheek barbs (*Barbus ophiocheilus*) grow to about 25cm and make a good addition to this sort of aquarium.





Golden orfe make great pondfish.

Blonde and beautiful

Roy Osmin finds an unexpected catch down by the river.

One lovely Summer's afternoon a couple of years ago, I was strolling along the bank of a small lake when I came upon an angler fishing from a narrow peninsula of land. I politely enquired as to whether he had "had any luck," to which he replied, "Just a couple of small Roach."

He proved an amiable character and we got talking. During our conversation a dragonfly chanced to settle on the tip of his rod, its beautiful metallic emerald green body sparkling in the sunshine. It remained there motionless for some time. It may well have remained longer had it not been disturbed, for it appeared to appreciate this excellent observation post. The disturbance came without warning. The rod tip suddenly jerked skywards and the line immediately began to strip from the reel, its ratchet screaming in resistance.

What on Earth is it?

The angler grabbed the rod and struck. This was a big one! The now arched top section giving clear testament to this. The fish put up quite a fight, but after a few minutes began to tire and the angler slowly started to recover the line. Eventually the fish was brought towards the bank and we gained our first glimpse. It was indeed a beauty. Its long bullet-shaped body, red fins and blind scales glistening as it cut through the water.

"What on earth is it?", the angler exclaimed, as he endeavoured to manoeuvre his landing net beneath the darting fish. "I think I can tell you that", I said with considerable surge. "It's a Golden orfe!" It was a truly magnificent specimen, about 35cm in length and

weighing some three and a half pounds. The fish was carefully unhooked and gently placed into a spacious keep net, where it appeared to rapidly recover from its ordeal.

Remarkably, this was not the only Golden Orfe that this angler landed during the afternoon. Soon there were three others in the net. All of good size and each in fine condition. I was interested to discover what Golden orfe were doing in this lake. For although I believe that some fisheries do stock them, normally the standard varieties of coarse fish would be the only expected species. I later found out.

The lake in question was situated alongside a small garden centre, at one end of which was an aquatic section. One night, some time earlier, a couple of outside vats containing Golden orfe had flooded and a number of fish escaped. Fortunately, they



Orfe like nothing better than to live in a shoal like this. Here Golden and Black are in dropped sizes for a pond.

had been washed into an adjacent ditch, the waters of which fed the lake.

Of course, at that time, the Orfe were relatively small. But their excursion into the wider world had enabled them to grow rapidly and form a shoal. The angler had encountered the shoal, which was clearly tempted by his appetizing maggot selection.

In fact, the angler had a profitable, as well as enjoyable, afternoon. I later learned that he had sold his catch of Orfe back to the aquatic dealer from whom they had originally come. He in turn sold them on as large specimen fish to a gentleman with a very spacious water garden feature.

This narration of events leads me conveniently into the subject of this article, which is of course, Golden Orfe. And how these strikingly beautiful, but sometimes underestimated fish, can add a new dimension of interest and pleasure to the average water garden.

Shoaling instinct

I have in the past regularly seen ponds that contain one or perhaps two Golden orfe in addition to a selection of Goldfish varieties. Lovely though these are they will never be seen at their best in such circumstances.

This is a shoaling species and at its happiest and most contented only when permitted to exercise this important natural instinct. For this reason I would always recommend that a group of three be the minimum number kept, with five or more being better, depending on the size of the

pond. It is also preferable, in my view, to introduce them as juvenile specimens, allowing them to mature and grow together.

Once Orfe are settled and established in a pond they will frequently become extremely confident, sometimes quite tame. When food is offered they are likely to be the first on the scene. Other more timid species quickly learn that if they are to get a share they must overcome their hesitancy.

SHAPE AND FORM

The educated eye can establish a very great deal about a fish simply by closely observing its shape and form. The general body configuration, for example, will give a good indication of the water habitat from which it originates. Mouth position clearly suggests the level in the water column at which the fish spends most of its time. Fins, especially the dorsal, often provide a clue to the fish's health and general condition.

A glance at the Golden orfe's streamlined torpedo-shaped body immediately indicates that these are fish built for speed. Also, that they are superbly equipped for holding their own against the powerful current of a fast flowing river or stream.

In the garden pond, therefore, they are extremely active inhabitants, frequently vigorously swimming around near the surface in search of food. This will often be found in the form of flies and other winged insects that they catch above the waterline with considerable dexterity. They will also readily consume snails and other invertebrates as well as, of course, standard pond foods.

The fact that Orfe are predominantly surface dwellers does not mean that they do not visit all levels. On the contrary, these are inquisitive customers that will regularly thoroughly investigate every area of the pond in their perpetual search for nourishment.



Looking at these three Golden orfe you can see the range of black markings that occur on this fish. A pure orange fish is considered of the highest quality.

As we saw from the opening paragraphs of this article, Orfe are a particularly fast growing species. In favourable conditions with a nutritious and plentiful food supply they will rapidly put on weight and add quite a few centimetres to their length in a season. They will, however, normally only reach a size commensurate with their environment.

Although sometimes initially underrated as an ornamental pond fish, many pondkeepers become keen enthusiasts once they have kept them. The late wartime leader Sir Winston Churchill was a great fan of Golden orfe, in fact it is said that these were his favourite fish. Evidence of this fondness can be found in one of his most well known paintings *The Goldfish Pool at Chartwell*.

Range of qualities and colours

Like most species Golden orfe can be found in a range of qualities. Those at the top end tend to exhibit a blemish-free golden body contrasted by blood-red fins. Lesser specimens frequently possess body markings such as black spots on the dorsal

area. In certain cases these dark pigmentations will blend together creating black patches. In my view, such fish can still be extremely attractive. Though this would probably not be the opinion of the true aficionados.

Two other recognised varieties that are sometimes seen in the display vans of aquatic dealers, are the Silver orfe and the Blue orfe. The former though a lovely fish is, in my view, seen to best advantage in an aquarium. The Blue version can actually be found in a variety of attractive tones and shades. These range from a light blue/grey to quite dark blue, especially on the dorsal region. A shoal of contrastingly coloured Orfe in a well-maintained water feature is a delight.

Breeding

In many instances Orfe are likely to be one of the first species in the pond to engage in reproduction. The reason being that they are able to do so at somewhat lower water temperature due to their river based origins.

The mating ritual itself is an extremely boisterous and often noisy affair, with much chasing, buffeting and splashing. This surface disturbance will often be the first indication the pondkeeper gets that

CONCLUSION

Golden Orfe make a lovely addition to a garden pond. Their swift, powerful movements, attractive coloration and sleek aqua-dynamic contours are a pleasure to see, in many ways creating an appealing contrast to some of the more sedate Goldfish forms. If you are considering adding stock to your pond for the coming season, why not try some Golden Orfe? You will not be disappointed.

breeding has commenced.

Eventually hundreds of translucent eggs are released by the female and fertilised by the male. These normally fall among plants to which they are likely to adhere. Mating can occur anywhere in the pond, but the shallows are frequently favoured.

No parental protection of the eggs occurs and a "free for all" feast involving all inhabitants of the pond will follow. Consequently, few if any are likely to survive without direct intervention on the part of the pondkeeper.



This Blue orfe has a lovely blue sheen to the flanks.



Sea view



From left to right: James Morris (Aqua-Medic UK's e-commerce secretary), Phil Jones (Aqua-Medic UK's Managing Director) and Scott Arnold (Director of Aqua-Medic UK).

This month
Andrew Caine
travels to Germany
to see Aqua-
Medic's factory.

Once upon a time, many weeks ago, a little shop keeper was sitting behind his till guarding it with his life when suddenly, and totally out of the blue, the phone rang. Blowing the dust off the receiver, his trembling hand moved towards his ear, when a little squeaky voice burst into his head. "Fancy a trip over to Germany down to the Aqua-Medic headquarters in Bissendorf?" said Scott Arnold, a director of Aqua-Medic UK. "Try and stop me", came my reply, and I was packing my bags before I put the phone down.



Looking at this beautiful marine aquarium on display at Aqua-Medic's head quarters it is easy to see why marines are so popular in Germany.

AQUA MEDIC

AQUARIUM FILTRATION
– Bio-engineered

What was really good to see was a range of products on extensive tests

The great day arrived, down the motorway I went in my rust bucket to a pre-arranged meeting point. I was to share the trip with Scott, Claire Stevens, company secretary and the big man himself Phil Jones, the Managing director of Aqua-Medic UK. One Olympic breakfast later, very full and satisfied, we boarded a plane bound for Paderborn Germany, where we were met by Dr Maribed Schiller a director of ab Aqua-Medic GmbH.

Off down the autobahn at great speeds, when in Rome do as the Romans do I thought, as the break lights of the car in front came on, first stop was to visit a supermarket, no, not to purchase food but a big pet supermarket. Big as it is, the quality and care has not been lost with the size of the place. Whilst there, a marine livestock shipment came in, 30 boxes of corals and fish for a retail outlet. This is a huge shipment when compared to that of most marine wholesalers in the UK, who do not take 30 boxes at a time, and it gives you an idea of the interest in marines in Germany.

Maribed ferried us all to the hotel at around 6pm, it had been a good day and it was about to get even better. After a quick shower, I met my three intrepid fellow travellers down in the bar awaiting our taxi. We arrived for a meal at a beautiful restaurant, where we were greeted by a giant of a man, Herr Klaus Hansen, the other director of ab Aqua-Medic GmbH. We ate, we drank and we talked fish, we then retired to the upstairs bar where we drank and talked fish, I was then passed an extremely strong vodka. I like vodka but the tale ends here. Apparently we stopped talking fish and entertained everyone with singing instead.

Next morning at 9am I was being whisked off to the headquarters, the working hub of ab Aqua-Medic GmbH. I walked over the mat into the reception. Yes, there's a mat around the building filled with Koi carp. This wonderful attention to detail is synonymous with the development, build quality and product range from this company.

Bigger than I initially thought, which was

greeted with the comment, "We need more space", the warehouse is full with orders and stock, and the lighting factory is working flat out. What was really good to see was a range of products on extensive tests. Most were lined up, working and, in some cases, being put under extreme pressure to make sure that the working capabilities were well within the specified usage. I saw new additions to the Percula aquarium range, with the silver and solid beech looking absolutely great, along with other products I will write about after the UK launch. The whole place was very impressive. I was shown around by Maribed and Klaus, who were answering questions and entering into light-hearted debate over ideas as we walked through every department. We shared many ideas and we are both looking into various aspects of marine aquatics, so I look forward to further discussions with them in the future. How time flies. Too soon we were all being whisked back to the airport and bundled into a plane bound for home.



Aqua-Medic's headquarters in Germany are always popping up the corners as they expand their production capacity & world globally.

AQUA-MEDIC

AQUARIUM LIGHTING
- Consciously better

An invertebrate for you



Sally Lightfoot crabs hide away in crevices and under rock to avoid being eaten.

SALLY LIGHTFOOT CRAB *PERCNON GIBBESI*

This is a cracker of a beast, often called the flat crab or common shore crab as it can be found in the inter-tidal regions of the tropics, hiding under rocks and in crevices. One of the more common hiding places is, remarkably, under long spine urchins. This has not been classified as a true relationship, as we believe there is no benefit to the urchin and many urchins do not have crabs hiding under them. It is thought to be a good predator avoidance trait by the crab, a good one indeed!

This creature makes a good addition to any reef aquarium. Its flattened body allows it to go where others cannot and it suddenly appears from its hiding place, dancing on its nimble feet, giving great pleasure as you catch its movements from the corner of your eye. Most people will admire it, but look at you in disbelief when you tell them it's reef safe! "It's a crab, not small either, and if you think it's going in my tank you have got to be kidding" It is indeed a beauty with extremely long legs radiating out of the flattened body, topped off with splashes of iridescent

green, red and yellow markings over a brown background. Fantastic just fantastic!

Crab it is and, guess what, it is an algal grazer so should be considered as part of the cleaning crew. It will actively strip unwanted algae and crop the new growth, helping your army of hermit crabs and snails. This crab adapts readily to aquarium life, but acclimate them well as many deaths are accounted for by quick acclimation to your aquarium's water quality. They also tend to fare better with moderate to high water flow.

If your aquarium will not supply enough of the natural diet, this crab will start to scavenge which is another plus, but danger can be lurking. If you starve your cleaners this crab will be forced to look for food elsewhere and who can blame it! There have been reports that large individuals have damaged corals, other invertebrates and even taken small fish. This, however, is the exception not the rule. Feed your cleaners, they do a good job and, like any good employee, you pay them well.

PROFILE

Family:
Arthropoda

Name:
Percnon gibbesi

Location:
Widespread over the tropics

Feeding:
Algae grazer

Size:
3 cm across carapace

Water Flow:
Medium to high

Lighting:
No specific requirements for the crab

Difficulty:
Easy if all its requirements are met. As always, very good water quality and plenty of food.

AQUA MEDIC

AQUARIUM FILTRATION
– Bio-engineered

PHOTO: BIODIVERSITY

Sarcophyton elegans is often called "yellow Tonga Leather Coral" or "Yellow Fiji Leather Coral". This one is from Flanders reef in the Coral Sea.

A coral for you



FIJIAN OR YELLOW TOADSTOOL (*SARCOPHYTON ELEGANS*)

What a stunner! What more could the soft coral reef keeper ask for, so much vibrancy in coloration which is only superseded when this beast erupts into an array of flowing tentacles in the current. What beauty evolution has created to grace our humble living room displays.

This coral is a great example of trickery (Maybe trickery is the wrong word to use but it describes the easy trap many fall into). Here we have a Toadstool coral, and as such is an extremely hardy, all rounder. Water flow, lighting and food don't really matter. Toadstools can go anywhere. Slam on the brakes, we have just been tricked by descriptions of a genus of corals, and not bothered to look at the requirements of an individual species.

When we look at the whole genus of *Sarcophyton*, we see that all species have a stalk surmounted by a mushroom shaped top (the capitulum) where the polyps extend from. We also note from reading that they adapt to aquarium life very

easily, and can grow at a fast rate and they are also easy to cultivate. So, as a genus, they are easy to identify, easy to keep and grow well - the beginner's ideal coral. You see one in the shop and you go off home with your purchase. Two weeks later you are scratching your head as to why it died since Toadstools are so hardy.

Yes they are, but this one species cannot adapt to general conditions like other members of the genus. This is the baby that breaks the mould. There is only one law in biology, that is there are no laws in biology. Our Toadstool comes from the shallow areas of the reef, so requires high light intensity, T5s or halides only. Unlike other toads, it likes good strong water movement and requires feeding daily on a mixture of phytoplankton and animal based coral foods. Give this baby its requirements and it is indeed an extremely hardy Toadstool, one that will jump up and show you its real beauty. Unlike its cousins, it is unable to adapt to different conditions.

PROFILE

Phylum :
Cnidaria

Name :
Sarcophyton elegans

Location :
Fiji and Tonga

Feeding :
Liquid coral foods daily

Size :
Very varied due to expansion,
commonly 5 - 20 cm

Water flow:
Medium to Strong

Lighting
Intense T5s or Halides

Difficulty :
Not for the beginner but very long
lived given the correct conditions

AQUA MEDIC

AQUARIUM LIGHTING
- Consciously better



Life in fast flowing streams

Paraneotroplus bulleri (under spawning hole) in Rio Grande, Coahuila river system in Mexico.

Juan Miguel Artigas Azas introduces the Mexican cichlid, *Paraneotroplus bulleri*, which has no common name.

ALL PHOTOS: JUAN MIGUEL ARTIGAS AZAS

Paraneotroplus bulleri inhabits shallow fast flowing areas of clear water streams and rivers which are normally devoid of aquatic vegetation, have a sandy and rocky bottom with boulders being common in the streams. *P. bulleri* are usually found in the upper two metres of the habitat. Water temperature ranges from about 20 to 26°C, pH is on the alkaline side from about 7.5 to 8.0 with moderate hardness.

It is endemic to the fast flowing areas of the upper Rio Coahuila river system including Rio Upanapa, Coahuila, Grande, Sarabia and Jalisco, located in the northern part of the Tehuantepec isthmus in Mexico.

Rivers in this range are found in the tropical rainforest of the northern Tehuantepec isthmus in Mexico, which have their sources in the tropical rainforest

mountains including in some cases the Chimalapas rainforest biosphere reserve. Yearly water precipitation exceeds 4,000mm and can reach 3,500 mm in part of the range. Rivers can substantially increase their flow after the rains with the consequent decrease in visibility and temperature.



The Rio Alegre is a fast flowing stream in the upper Coahuila river system. This is a habitat of *Paraneotroplus bulleri*.

FACT FILE

Name:
Paraneotroplus bulleri

Size:
P1 and Tonga

Etymology:
The name was given by Taha Regan to honour Dr. A. C. Buller, who collected the type specimen in Mexico.

Holotype:
British Museum of Natural History (BMNH) regn. no. 10.91, a 40 mm unique specimen.

Type locality:
Rio de Sarabia, Mexico.

Temperature:
20-26 °C

pH:
7.5-8

NATURAL DIET

Parachanna mulleri is normally found in groups swimming against the very strong currents, where they use their sub-terminal mouth suitably adapted to rip-off chunks of *aufwuchs* and algae growing on the rocks in shallow areas exposed to the sun. Juveniles are also found in these rivers feeding on algae but prefer to hide among the rocks and boulders.

Breeding

Breeding starts in the late winter and early spring (March) with an apparent peak in April. The rivers have their shallowest and warmest phase during this time, which means an abundance of food can be harvested by the fish. *Parachanna mulleri* starts breeding efforts when males attain a minimum size of 20 cm, while females are normally smaller around 15 cm total length.

Pairs apparently form prior to the establishment of a territory, which is then defended by the pair. The preferred breeding areas are not in the strong currents but just outside of the rapids, where water has a moderate flow. Pairs dig a small depression in the gravel which is usually no more than 5cm deep and 30cm in diameter. The surface of the gravel and rocks in the nest is then cleaned of any debris by the pair, although some *aufwuchs* is allowed on the surface.

Males patrol the territory in big circles

while the females stay just on top of the nest. Once the genital organs appear as white blunts in the genital area, spawning is imminent. Spawning occurs when the female deposits rows of strongly adhesive eggs directly on the gravel or small rocks, passing from one to other without hesitation. The eggs, which number a few hundred, are a little over 2 mm in their longest axis. They are green and translucent and fixed incredibly well with the rocks on which they are placed.

Males are extremely shy and rarely remain in their territories to face any great danger, females stay until a threat becomes too strong. At this point they decide to abandon their nests. Approaching these cichlids for observation while they breed has to be done quietly and patiently if you want them to stay. Abandoned eggs quickly become prey to the big schools of *Astyanax mexicanus* which are common in the habitat.

Captive spawnings

In the aquarium eggs hatch approximately two days after spawning. The defenceless wrigglers carry a yolk sac that provides them with food for the first five days of their lives. In this period the wrigglers are placed by the female in the centre of the nest in a crack among some rocks. Once the fry are free swimming they are taken by the pair to the currents, where they remain very close to the bottom and seem to hold pretty well.

At this point the pair face dangers more willingly and will allow the presence of an observer, or at least the female will. The

ORIGINAL DESCRIPTION

Regan, C. Tate, 1905: "A revision of the fishes of the American cichlid genus *Cichlasoma* (sic) and of the allied genera". *Annals and Magazine of Natural History* (7) 16: p436-437. The description appears in Tate Regan's (1878-1943) revision of *Cichlasoma*, where the curator of the British Museum of Natural History reexamined the status of the *Cichlasomine* neotropical cichlids, lumping most of the species into sections of this then powerful genus. He however describes a new genus *Parachanna*, where the type (and only) species is *P. mulleri*. The initial generic placement of this species in *Parachanna* regained acceptance (Burgess, 2000) after Kullander's restriction of *Cichlasoma* (Kullander, 1983).

babies invariably hide under the rocks of the habitat or in the cracks until danger is gone. Pairs have to be extremely careful as the threat of the large *Astyanax mexicanus* schools devouring the babies is great but at this point they have invested a lot of energy. The babies can be seen constantly nibbling on the exposed rocks and appear to be very capable at manoeuvring in the currents even at this young age. Signals by the mother, made with spasmodic body



Parachanna mulleri female guarding her spawn in the gravel depression in front of her, in Rio Carolina in the upper reaches of the Coahuila river system in Mexico.

KEEPING *PARANEOTROPLUS BULLERI* IN THE AQUARIUM

Having read about the natural condition of the natural habitat of this cichlid, you have been given a clear hint about the water parameters that this fish requires for its well being. Well oxygenated water with low dissolved metabolites are a must. Water temperature has to be maintained in the range as found in the wild. This will lead to greater activity and provide enough dissolved oxygen in the water to prevent stress. Failure to comply with these requirements is obvious as the fish dramatically increases its respiration rate, a good sign of stress.

Tank size is important and my recommendation is for a long tank of a minimum of 1.8 metres, but longer tanks should be provided if possible. *Paraneotroplus bulleri* is a fast and certainly aggressive cichlid, especially conspecifically. Bigger individuals constantly bite conspecific's caudal peduncles until they are severely damaged. Being a water current fish, I guess this damage could be critical in

their natural habitat.

Gravel, open spaces and some cover should also be provided, as this makes the fish at ease and allows us to witness some of its natural behaviour. As with most Central American cichlids, breeding is not difficult once the right conditions are provided. Small depressions dug in open spaces in the gravel are used for spawning, which could be triggered by increased feeding and temperature, followed by some days of fasting.

Fry can be fed with brine shrimp nauplii. Adults, although mostly herbivorous, should however accept any food offered. I assume they have a certain degree of opportunism in their natural habitat and *aufwuchs* certainly contains more than vegetable matter. In any case, they are happy to take any dry foods offered. Use your common sense to provide them with a good variety of food.

Don't forget the natural shyness of this fish, which must be the first

obstacle to surpass in order to keep them happy and lead them to breed, showing us the best of their coloration and behaviour. There are a number of ways to overcome this shyness; dither fish are very useful for this end, and Poeciliids and Atherinids should do a fine job. Another way is to keep the fish in a high level tank. Death comes from above in their natural habitat and the fish feel much more at ease when they don't feel they are constantly watched from above. Temperature in the middle to upper part of the range helps them to become active and not so shy. All this however, could be futile if more aggressive companions constantly bully them - so watch out for this as well.

If the shyness can be overcome and favourable conditions given, there should be no way to prevent them from gaining your heart with their beauty and their wonderful breeding behaviour. Babies are well kept and can actually prosper to adulthood in the tank provided there are no big predators.

shakes, plus opening and closing of her fins, are quickly followed by the herd. Males, as in other Central American species, guide the wanderers.

Pairs guide their babies until they attain approximately 2cm in total length, when they apparently decide to abandon their parents. Striped *P. bulleri* are common in very shallow rapids with rocky bottoms, where they are incredibly fast at hiding themselves when danger approaches.

Conservation status

Paraneotroplus bulleri is not listed in the Mexican Official Norm NOM-059-ECOL-2001 or the IUCN Red List of Threatened Species.

The habitat remains stable in its extreme range.

There is however an important risk for this species. The seemingly unending deforestation of the northern Tehuantepec Isthmus increases the silt on the rocks and the turbidity of the water in areas which this fish inhabits, decreasing the amount of available food and posing a risk to this and other species.

For many years the plan to develop a major engineering project to establish a quick and cheap transportation route for items to and from the Atlantic and the Pacific oceans, through the Isthmus of Tehuantepec, an alternative to the Panama Channel, has been threatening the incredibly rich ecosystem of the potentially

affected area. The project would include railroads and a superhighway for the traffic of products, and would surely bring ecological affliction to the zone and possibly pollution as well. It is likely that this project will materialise one day, but hopefully in a way that respects the incredibly rich flora and fauna of this wonderful place on earth.



While not officially at risk in the wild deforestation causes silt to settle on the rocks reducing the amount of food available to this species. This is the Rio Carolina in the upper reaches of the Cintalco river system in Mexico.

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Top Gear

All the new products from around the aquatic industry.



Back to its grass roots

Waterlife's Chairman, Graham F. Cox, was an early innovator of captive breeding techniques of the Percula Clownfish over 25 years ago. He went on to develop a group of market-leading sea water products, which were marketed under the SeAquaRange name. This brand has been revived to mark the launch of their new and exciting marine-care range.

This long marine research heritage, forms the basis of the new products, which include reformulations of old favourites as well as entirely new innovations. The range is comprehensive but compact, so you don't end up with 3 products if one will do the job. Three years of R&D, using the latest research available, means these products are both effective and easy to use.

The marine hobby can be an expensive one so Waterlife have avoided expensive, unnecessary packaging, whilst still using the best technical grade ingredients.

In addition this sea water range is manufactured entirely in the UK, giving consumers products that are reasonably priced. All of the new liquid treatments are available in a 120ml bottle size, offering fantastic value for money and meeting the

needs of the ever-increasing marine hobby. Look out for the new products below at your local stockist.

These products supplement the existing Seawater range, which includes UltraMarine sea salt, Caprazin (disease treatment) and the SeaDrometer (hydrometer). For further information contact Waterlife research Ind Ltd, Tel 01753 685696 or check out the website www.waterlife.co.uk

MARINE AQUARIUM SCREENSAVER



Now available to the aquatic trade from PPI the "Serene Scene Marine Aquarium" screensaver. View marine life so vibrant you won't believe your eyes! Gorgeous details have gone into creating the high resolution, 3D fish models and reef tank for an indescribably realistic effect. Achieve serenity from an exquisite marine habitat without the expense or maintenance of the real thing. So peaceful. So mesmerising. With 26 exotic species of fish, it's like having your very own aquatic oasis - well almost.

At a SRP of £17.99 it is suitable for both PC and Macintosh computers. For more information contact Stewart Hatfield, PPI 0215 982 3599.

THE NEW RANGE

| Product | Use | Size | RRP (incl. VAT) |
|-------------------|------------------|--------|-----------------|
| N,3 Buffer | Balances pH | 250g | £6.65 |
| Biomax | Filter starter | 120 ml | £8.49 |
| RepliCa++ | Calcium additive | 175g | £5.99 |
| SeaTrace | Micro elements | 120 ml | £5.99 |
| SeaGreen | Algae fertiliser | 120 ml | £5.99 |
| Iodine Booster | Replaces iodine | 120 ml | £5.99 |
| Strontium Booster | Strontium plus | 120 ml | £5.99 |
| Vitazin | Multi-vitamin | 120ml | £8.49 |
| IwantiFood | Liquid diet | 120 ml | £4.49 |

MAKING A SPLASH!

Available from the 7th February 2004 the new Tetra Pond Cascade Pump (CPX) and Fountain Pump (FPX) will be available from wholesalers and aquatic retailing outlets. The launch of the two pumps follows the success of the Tetra Pond OFX (open flow) already established in the market place. The addition of the CPX and FPX range now offers a powerful new family of Tetra pumps.

With levels of flow ranging from small fountains, spillers, pebble pools and self contained features to impressive waterfalls and cascades, retailers can maximise their range whilst gardeners have the knowledge and scope to pick the right pump for their water feature.

New TetraPond pumps hit the market place.



NITRATE FILTER FROM D-DELTEC

High levels of nitrate are being reported in tapwater from various areas around the UK at the moment. Whilst often ignored as a pollutant, fish and invertebrates are sensitive to this poison and although they will tolerate low levels better than they can ammonia or nitrite, long term exposure to high levels will cause health problems for all aquatic life. With this in mind you should check the level of nitrate in your aquarium regularly and possibly introduce a nitrate filter. The Deltec Nitrate Filter is designed for marine and freshwater aquariums. It uses a different process than normal biological filters with the bacteria living under anaerobic conditions with the aid of a special liquid nutrient. The special nutrient is added slowly to the filter water through osmotic membrane bags. The Deltec Nitrate filter system removes not only nitrate on a fully biological level but also produces important trace elements through a reduction process. Small quantities of phosphate are also removed under certain conditions, however Rowaphos should still be used in conjunction with this product.

AMPHIBIOUS POND PUMP RANGE UPDATED



Blagdon's range of Amphibious pond pumps have been manufactured in the UK since 1983 have a proven track record. They are designed to run fountains, filters, waterfalls and water features. There is a comprehensive range of fountain heads, fittings and adjusters

included and a low velocity pre filter prevents the pump from clogging. There are four models in the range and these should be available from February.

| CODE MODEL | MAX. FLOW | MAX. HEAD | MR. |
|---------------|-----------|-----------|-----|
| 0010122 A2500 | 2400 ltrs | 2.62 | |
| £134.99 | | | |
| 0010139 A3100 | 2700 ltrs | 3.25 | |
| £159.99 | | | |
| 0010146 A3500 | 3300 ltrs | 3.40 | |
| £179.99 | | | |
| 0010153 A4100 | 3600 ltrs | 4.01 | |
| £205.99 | | | |

For more information contact The Blagdon Information Centre, Interpet, Vincent Lane, Dorking Surrey, RH4 3YX.



BARLEY STRAW REPRIEVE

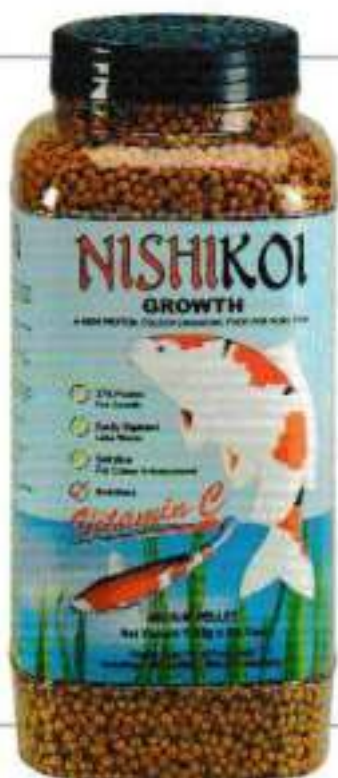
It raised more than a few eyebrows when the industry was told barley straw and those products made from it would be banned by the EU. After a protracted wrangle with the Health and Safety Executive in this country which enforces these EU directives, representations were made direct to the Commission in Brussels. The problem has been that the mode of action of barley straw was not fully understood and so could not be registered with the Biocides Directorate. In a meeting in

December the competent authorities were made to see sense when it was suggested that we table hydrogen peroxide (slow release during breakdown) as the mode of action (hydrogen peroxide being a recognised biocide) and that the directorate 'overlook' the other unknowns that may contribute to



barley straw's algacidal properties. Happily barley straw has now been cleared for sale in the UK until at least

August 2007 by which time its action may be fully understood and this problem not occur again.



NISHIKOI LAUNCH NISHIKOI GROWTH 1125G WITH FREE MAGAZINE OFFER.

Nishikoi Growth (1125g jars) is promoted this season with an irresistible and industry-first offer to tempt any pond keeper. Nishikoi has teamed up with Today's fishkeeper to offer all pond keepers who purchase special packs of Nishikoi Growth throughout the 2004 pond season the opportunity to receive a free magazine. The offer is limited to one issue per household by returning a redeemable voucher from the special Nishikoi Growth 1125g promotion packs. For further information contact Ben Helm - Tel 01509 550403 or e-mail - ben@nishikoi.com

T5 ULTRA-VIOLET STERILISER/CLARIFIER RANGE FROM D- DELTEC

The D-Deltec high efficiency T5 Ultra-Violet steriliser range uses an electronic ballast which cuts down on flickering and helps extend the working life of these tubes up to 9000 hours. Another very useful attribute is the fact they are rated for use either as a UV Steriliser for aquarium use or as a pond clarifier to deal with green water problems. The smallest tube in the range is a 30w which uses a water flow rate of 500 l/hr to sterilise water for a reef system of between 250 - 500 l or a fish only setup of between 125 - 250 l. For pond clarification it can handle up to 1000 l. At the top end of the range a 4 x 30 W tube assembly can deal with a reef system of between 4000 - 8000 l, a fish only setup of between 2000 - 4000 l and clarify a pond of up to 35,000 l capacity. The water flow rate on this would be 8000 l/hr. With 5 different models in the range there is a UV system ideal for your needs.

New Marine shop

This month *Today's Fishkeeper* visits the East Midlands Aquatic Centre in Trowell, Nottingham.



Tim Singer outside his new shop. The sign was going up in a few days time and the shop will be more visible then. Even so it is a good idea to ring before you visit just to get directions.

Many marinkids in the Nottingham area already know Tim Singer from his days with Hydroscape in Aysworth. Now he has moved premises to a much larger venue in Trowell, although at the moment you may find it a little difficult to find. Tucked away between a pub car park and hotel and without any sign on the door, it is almost like Tim was trying to keep it a secret. Now the basic systems are in place and some livestock is ready for sale he is in a position to tell the world about his new venture. This he did with his special open weekend on the second weekend in January. On the Saturday we had the pleasure of meeting some of Tim's customers both old ones from Hydroscape and new ones which have got to hear about this new marine only outlet.



The quarantine room is only just being set up but all the stock in the main showroom was quarantined and properly acclimated before Tim put them on sale.

Lots of plans

At the moment it is still very new and only partly filled. The middle of the show room is empty but long term plans include a beautiful display tank in this area. Out back Tim has a large quarantine room. All new



Just a few of Tim's customers when we were there. Many more will follow as the shop becomes better known.

stock will be fully quarantined and acclimated here before being moved into the sales tanks.

Despite having only just been set up there were some rather nice marine fish and inverte on sale when we visited. Long term

this is destined to be a "must visit" marine outlet because of Tim's knowledge and enthusiasm. Even now, at its embryo stage, it is a marine shop well worth a visit, particularly if you are just starting out. Tim gives excellent advice and could well save you a small fortune by preventing you from making costly mistakes.

Long term plans do include pond fish and equipment outside but this will be sorted out once the marine side has been put in place.

Everyone at *Today's Fishkeeper* wishes Tim all the best with his new business venture and look forward to returning later in the year when everything is up and running at full strength.



All the sales tanks were in pristine condition and the fish in excellent health.



One of the invertebrate sales tanks. Everything is clearly labelled up and in tip-top condition.

Shop name: East Midlands Aquatic Centre, 1 Nottingham Road, Trowell, Nottingham NG4 3PA. Tel: 0115 9350921.
Shop opening hours: 9am - 4pm 5 days a week. Closed Monday & Tuesday.
Proprietors: Tim Singer
Number of tanks: 70
Specialities: Marine.
Staff knowledge: All things marine.
Brands stocked: Aquamedic, Jewel, Esita, Tetra, little fishes and all other major brands.
Which groups of fish do you sell? Marine

Our verdict

Long term this is a "must visit" shop but even now it is well worth a visit.

Tim's verdict on the manufacturers

Which manufacturer has the best range of products in your opinion? - All Aquamedic.

Which company gives your company the best service? - All Aquamedic.

Our readers Write

Dick Mills is 'in the chair' for your opinions.



Dick Mills has a special interest in Tetraodon puffers because puffers, puffers are just as aggressive as many other fish of this genus.

I seem to be in a bleak mood right now (well, at the time of writing, that is). I'd lost two longstanding friends - one from my previous workplace and one from my fish-circle of friends. As if this wasn't enough I've had a query come in about the suicide tendencies of fish! But first on with the incoming mail

A cautionary tale

Claire Baxter has sent in this cautionary tale:

"We have a humpback puffers (Tetraodon palmatensis) and it was brilliant to see Erwin Schrom's write up on them. The picture of our female is identical, the one we believe is a male is a little smaller and a brownish colour with even more distinct markings. We were a little concerned at the mention of them being less aggressive than other puffers as we have found it to be the opposite. We could not find much information on them and have gained most of our knowledge through experience studying them.

They were originally sold to us as a pair but it soon became apparent that this was NOT the case. The male was consistently hunting the female in an aggressive not

morning nature. She had ripped fins and was not eating, spending a lot of time near the surface of the water.

Since splitting them up into two 200 litre tanks they are extremely different.

The puffers are notorious for being lazy and unresponsive to people, but given space they swim around the tank and hunt from the cover of dense broad leaved plants. Due to all the treatment one has become quite lame and insists her food, mainly worms, cockles, mussels and prawns, are regurgitated with a stick in front of her first. They benefit enormously from a blue moonlight tube but will feed under normal light. Their beak-like mouths make light work of most food including whitebait and it is apparent that these are not mere fin nippers but they could inflict serious damage and I would not recommend that they are kept with any other fish not even of their own kind. I hope this information may be of some use and would appreciate any feedback."

Claire's letter was in response to a write up by Erwin in December issue of TFK, page 32. A quote from Erwin said "Nothing is known about its behaviour in the aquarium up to now!" Now, thanks to Claire's observations, we may be a little more in the wise.

In the last year or two there seems to have been a revival in the interest in keeping Pufferfish (or perhaps more opportunities to buy them); a particular favourite seemed to be the Molitor pufferfish (*Carinotetraodon travancoricus* although you may find it being sold under its old name of *Tetraodon travancoricus*). This is a very tiny species (maximum size 3.5cm) and another about which little is known.

Incidentally, there is a great book on Pufferfish in the Aqualog series. *The puffers of fresh and brackish waters* by Klaus Ebert. It includes care, breeding, and suitable aquarium companions. It has all the new nomenclature (scientific names) and with unusual puffers arriving all the time is an excellent starting point to find out something about them.

Claire's fish are also suffering from a parasitic problem, and the relevant part of her letter about this problem has been forwarded to Lance Jepson for his advice. Still on health matters: it is sensible to wear disposable gloves when handling these fishes as their skin may be poisonous; certainly it is good policy to wash your hands after handling them anyway, just in case.

Carpet surfing Bristlenose catfish?

It seems that some bristlenose catfish, *Ancistrus* sp., are opting out of this world by escaping from their tanks. An acquaintance of mine found no less than eight of them on the carpet! Do they jump or climb out? Would some particular water conditions drive them to this final cry for help? Perhaps you would know?

With the hoped for approach of Spring, thoughts will soon be turning to the re-awakening of pond life, although my Water

in association with

ROSEWOOD
PET PRODUCTS

SICCE

It will be in flower over Christmas. Who's going to see the first Frog spawn? I thought it might be apt, considering that Today's Fishkeeper will be celebrating its 20th birthday in May (being born as The Annetra Aquarist on May 1st 1994) to include a picture of almost an ancient monument. It's an external thermostat, still doing sterling service on one of Bill Rundle's aquariums down in Plymouth. Have you got any old aquarium/pump equipment that's still performing well past its expected 'sell-by' date?

Now for a couple of really nice 'letters' (I'm only the referee, they could have come by email, snail mail, pigeon post, fax, telephone - who knows these days!)

Cut out and keeps

Mr Scott Hudson has a constructive suggestion for our Editors. He says: "We are extremely keen on fishkeeping and reading your magazine. Could I please make a suggestion? You know those 'cut out and keep pages' of fish in Today's Fishkeeper well I want to keep them but I don't want to destroy my copy of the magazine. My idea is that if you put the posters either 4 page ones or 2 by printing 1 on 1 side and 1 on the other. This way people can pull them out and keep them as well as keeping the magazine in top top condition. I hope this doesn't sound rude as it is only a suggestion." It's nice to know that our efforts are valued; how about a binder to keep your 'cut-outs' in?



Bristlenose catfish seem to have a death wish at the moment, but just how do they escape from their tank?



All the feed back we have had about last year's has been very positive.

Best ever Festival

Ken & Joyce Forward from Gillingham in Dorset have had an experience they want to share with us. "As a first in attending the Festival of Fishkeeping this year, my wife and I feel that the editorial did not really do the event justice. Apart from one or two overlaps in the programme we thought it was a great success. The highlight of the show on the Friday evening was the comedian Lew Llewellyn. You mentioned Grace Netherell on the great job she did, right I add that on the Friday evening our chair was so close to the marquee and the noise of the pump was so loud that we were unable to sleep. When I mentioned this to Grace she was

most apologetic and gave us another chair around the other side. We were so pleased with the event that we booked ourselves in for this year's event (14th-17th October). Without the year's event being plugged in Today's Fishkeeper we would have been the losers."

Having been there, I also share Ken and Joyce's enthusiasm for a great weekend which had something for everyone whatever their individual tastes in fishkeeping. However, trying to capture everything that went on would have occupied far more space in the magazine than was practicable. The double-page spread (December, pages 49-50) give a good impression of the happenings. Incidentally, if anyone missed (or wants to re-live) any of the lectures, they are now available as FBAS videos, from the usual source.

See you next month.
Dick Wills



This ancient thermostat is still doing sterling service many years after it was first connected.

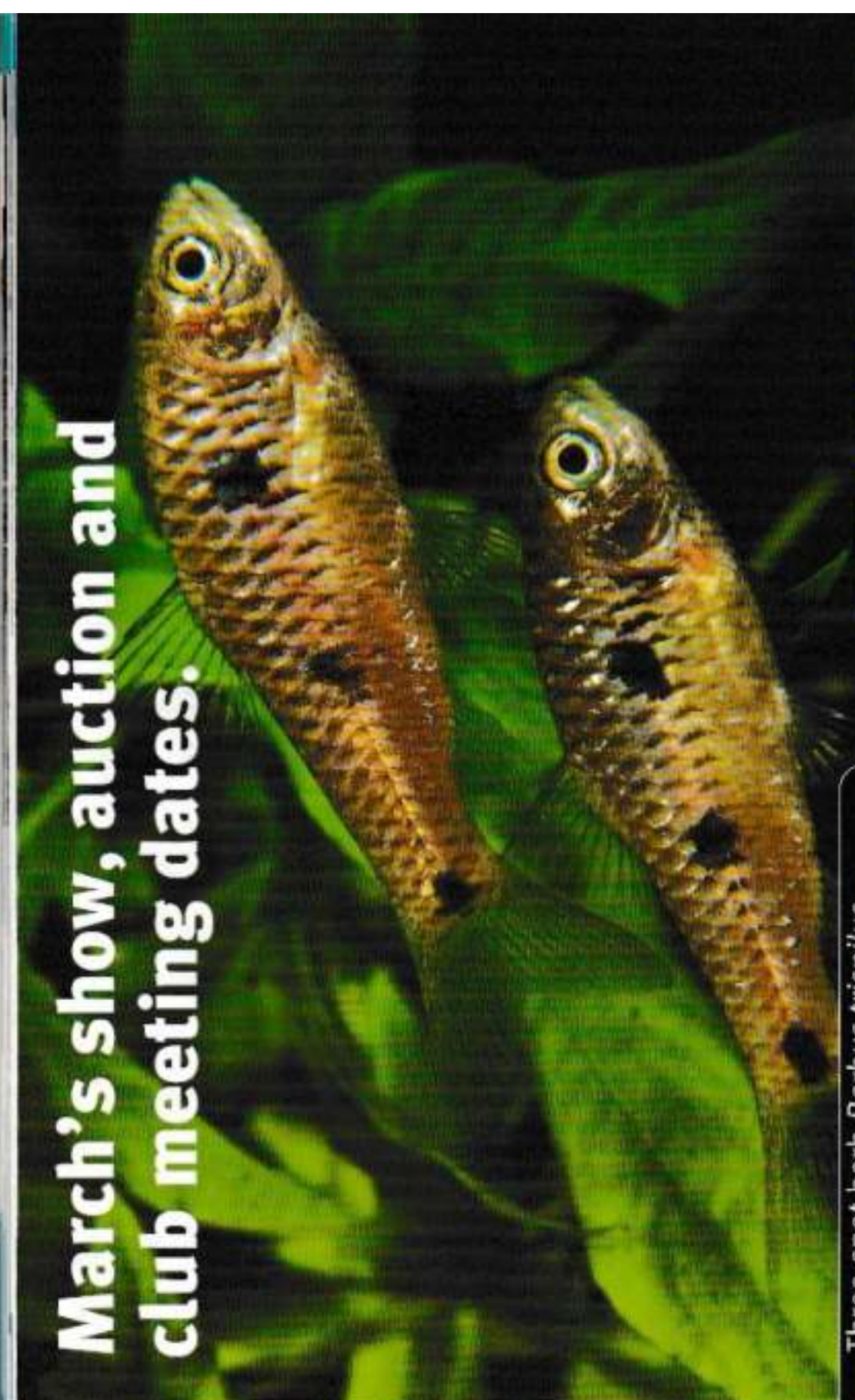


people and their pets

... somebody has to understand them

telephone: 01952 883408

March's show, auction and club meeting dates.



Three-spot barb *Barbus trispilus*



Copy for Today's Diary Dates

Copy for Today's Diary Dates should be sent to Today's Fishkeeper, Whitebridge Court, 11 Essex Road, London, EC2A 4PU. Telephone 01832 800000. Fax 01832 775555. Or e-mail book@today.co.uk. Website: today.co.uk

Mon 1st Kilkenny A.S. meeting. Contact John Bird on 01728 636689 or Joe Graham on 01532 782964 after 6pm or email: jone@grahamfishkeepers.co.uk
Selway A.S. meeting. Contact 01987 752606
St Helens A.S. meeting. Contact 09047 671463
Ayrshire Fishkeepers Association meeting. Contact 01599 603272
Walsgate & Redhill A.S. meeting. Contact 01291 782282
Merseyside Aquarist Society meeting. Contact 0151 260 3064
Warrington A.S. meeting. Contact 0925 682979
Ilford & District A B P Society meeting. Contact 200 8307129
Part Talbot A.S. meeting. Contact 01639 770736
Co Armagh Tropical/Marine Fish Society meeting. Contact 0283 813 1212 or 0776 0605
Tues 2nd Southern Leigh & D.A.S. meeting. Contact 01202 305740
Palatine & District A.S. meeting. Contact: john.burns@btinternet.co.uk
York & Ouse A.S. meeting. Contact 01904 494277
The Irish Tropical Fish Society meeting. Contact on 0548306
Hullian A.S. meeting. Contact 0151 889190
North Yorks A.S. meeting. Contact 01904 377371
Preston A.S. meeting. Contact 01272 33445
Lang Tour Aquarists and Pondkeepers Group meeting. Contact 01591 599295
Wed 3rd Wyke A.S. meeting. Contact 01483 405483
Corby & D.A.S. meeting. Contact 01536 280918
Oasis Fish Club (Sunderland) meeting. Contact 0191 853433
Perth A.S. meeting. Contact 01738 622204 or 01506 509518
Carlton Fish Keeping Club meeting. Contact 0275 426065
Portsmouth A.S. meeting. Contact 01673 883352
Bracknell A.S. meeting. Contact 01628 712874
Pyelide A.S. meeting. Contact 01461 61993
Tameside A.S. Meeting. Contact 0161 339 6993
Plymouth & District Aquarists' & Pondkeepers' Society meeting. Contact 0738 642440
Thurs 4th Glenrothes meeting. Contact D. Smart, a Lochly Ave., Craigville, Fife.
Fairley A.S. meeting. Contact 01278 622204 or 01506 509518
Sandgrounders A.S. meeting. Contact 01709 549077
West Cornwall Fishkeepers meeting. Contact 01728 707593 or 01299 654518
Sat 6th Ashby (Scotch) Open Show and Auction. Contact 01726 347995
Mon 8th Kilkenny A.S. meeting. Contact John Bird on 01728 636689 or Joe Graham on 01532 782964 after 6pm or email: jone@grahamfishkeepers.co.uk
Bristol Aquarist Society (Goldfish) meeting. Contact 01792 207267

Grimby & Cleethorpes meeting. Contact 01472 809718
St Helens A.S. meeting. Contact 01512 673603
Orley A.S. meeting. Contact 01274 533618
Rabbit Hood A.S. meeting. Contact: mitalbar@btinternet.com
Derby and District Aquarists meeting. Contact 01332 773616
Darwin A.S. meeting. Contact 01294 209275
Northwich A.S. meeting. Contact 01606 880965
Caer Uffa A.S. meeting. Contact 0192 527264
Telford & D.A.S. meeting. Contact 0922 699721 or 0995 546420
Lang Tour Aquarists and Pondkeepers Group meeting. Contact 01591 599295
Northern Goldfish and Pondkeepers meeting. Contact 016 9697507
Greenock D.A.S. Meeting. Contact 01475 704239
Banger Aquarists & Breeders Society. Contact 01674 611339
Clyde Aquarist Society meeting. Contact: john.burns@btinternet.co.uk
Hull A.S. meeting. Contact 01484 562389
Strom & D.A.S. meeting. Contact 01634 221291
Aberteen A.S. Meeting. Contact: aberteen@btinternet.co.uk
Linlithgow Aquarist Society meeting. Contact 01506 509518
Hallifax A.S. meeting. Contact 01274 852427
Tameside A.S. meeting. Contact 0161 339 6993
Bradford A.S. meeting. Contact 01274 852427 or 01317 287 2709
Hounslow D.A.S. meeting. Contact 200 8892 6623
Durstable & D.A.S. meeting. Contact 01484 750564
Hambledon And District Aquatic Club. Contact 01795 640614
Plymouth & District Aquarists' & Pondkeepers' Society meeting. Contact 0738 642440
Thurs 10th Mid Sussex A.S. meeting. Contact 01924 602402
Kings Lynn Fish Club meeting. Contact 01553 789922 or 01553 793743
Fairley A.S. meeting. Contact 01278 622204 or 01774 88907
Isle of Wight meeting. Contact 01673 721266
South East Marine Aquarist Society. Contact 01279 305147
Yorkshire Cichlid group meeting. Contact 01924 367988
Basingstoke A.S. meeting. Contact 0124 970 1481
Sat 13th
Sun 14th
Mon 15th Kilkenny A.S. meeting. Contact John Bird on 01728 636689 or Joe Graham on 01532 782964 after 6pm or email: jone@grahamfishkeepers.co.uk
Thorpe & D.A.S. meeting. Contact 01931 609394
Selway A.S. meeting. Contact 01987 752606
Merseyside Aquarist Society meeting. Contact 0151 260 3064
Ayrshire Fishkeepers Association meeting. Contact 01599 603272
Oldham A.S. meeting. Contact 0161 632 8207

Tues 16th Part Talbot A.S. meeting. Contact 01639 770736
Southern Leigh & Dist A.S. Action. Contact 01702 352749
Greater Manchester Cichlid Society meeting. Contact 02766 800286, 01206 353563, 0151 766 4463 or 01422 240735
Midland Marine Aquarists Society. Contact 0121 309 4459
Lang Tour Aquarists and Pondkeepers Group meeting. Contact 01591 599295
Wyke A.S. meeting. Contact 01483 405483
South Park Aquatic Study Society. Contact Eric Corle 6921680
West Yorkshire Marine Aquarist Group meeting. Contact 01924 620288
Carlton Fish Keeping Club meeting. Contact 0275 426065
Tongham Aquarists Society meeting. Contact 01252 426065
Portsmouth A.S. meeting. Contact 01673 883352
Perth A.S. meeting. Contact 01738 622204 or 01506 509518
Bracknell A.S. meeting. Contact 01628 712874
West Yorks A.S. meeting. Contact 01904 377371
North East Yorkshire KIB Group meeting. Contact 01663 609931
Thurs 10th April 2004 Today's Fishkeeper an sale
Glenrothes meeting. Contact D. Smart, a Lochly Ave., Craigville, Fife.
British Tropical Fish Club meeting. Contact 0127 573 2445
Sandgrounders A.S. Contact 01709 549177
Fairley A.S. meeting. Contact 01278 622204 or 01774 88907
Discus Ireland meeting. Contact 0161 318593
Sat 20th
Sun 21st Carlisle Study Group Convention. Contact 01461 61993 or phone 01204 253092
Mon 22nd Kilkenny A.S. meeting. Contact John Bird on 01728 636689 or Joe Graham on 01532 782964 after 6pm or email: jone@grahamfishkeepers.co.uk
Tues 23rd Northwich A.S. meeting. Contact 01606 882966
Lang Tour Aquarists and Pondkeepers Group meeting. Contact 01591 599295
Greenock D.A.S. meeting. Contact 01475 704239
Croydon Aquarist Society meeting. Contact 020 8034 0984
Strom & D.A.S. meeting. Contact 01634 221291
Castletown Aquarist Society. Contact 01977 209754
Wend 24th Hounslow D.A.S. meeting. Contact 200 8890 6923
Hilldale A.S. meeting. Contact 01274 889272
Tameside A.S. meeting. Contact 0161 339 6993
Warrington A.S. meeting. Contact 01606 82991
Thurs 25th Mid Sussex A.S. meeting. Contact 01273 601407
Fri 26th West Cornwall Fishkeepers meeting. Contact 01728 707593 or 01299 654518
Eastbourne & District Pondkeeping. Contact 01323 773199
Sat 27th
Sun 28th Livebearer Action at the Chichester hotel, Chichester, West Sussex. Contact Alan Ashwell on 01283 317742
Mon 29th Kilkenny A.S. meeting. Contact John Bird on 01728 636689 or Joe Graham on 01532 782964 after 6pm or email: jone@grahamfishkeepers.co.uk

One Lifetime

One of the great characters of the aquatic world who bridges trade and hobby is **Dr David Ford**, Dave, to his many fishkeeping friends.

I have known David since he developed Aquarian fish food in the early 70s. He was giving great talks at many local fish clubs, including my own where I met him for the first time and I have maintained contact with him ever since. At fish shows, exhibitions and fun weekends, he participates fully in all the activities. He's a great after dinner speaker with lots of fishy tales to tell. He has had more than one retirement party and can still frequently be seen at fish keeping events (he was at the Champions of Champions in Chesterfield). Dr David Ford, former head of the Aquarian Advisory Service, may have retired, but David the aquarist definitely has not.

I thought that our readers (this includes many of his fish keeping friends) may like the following potted autobiographical version of the fish keeping life of Dr David Ford.

How it all began

It all began for me in 1945. The second World War had just ended and Nottingham's war and only pet shop had just opened for business. I was an 11 year old, wondering what to do with my life. Looking into the new pet shop's window I saw what I thought was the most beautiful creature in the world... a Black Moor.

Few pets were around in the post-war era; only a few small, common goldfish. Tropical fish were only seen in biology books and to say you could keep coral fish in captivity was fantasy. Hence the existence of exotic goldfish was unknown to me. The Black Moor was quite a shock! The velvety sheen and jet-black flowing fins, with its rounded body and bulging eyes, made me want to own the fish more than anything else on earth.

First purchasing disaster

It was £5 - more than most men earned in a week then. So the fish remained unsold and I saved hard. Pocket money would take a lifetime so I took a job after school



It all started with a Black Moor

delivering groceries. Meanwhile I built an aquarium to receive the fish I knew I would own one day. Silicone sealant was unknown, so too was plastic (can you imagine a world without plastic now?). Angle iron aquaria were unavailable (all materials were used in bombs not aquaria) so I made a cement one. This was a concrete box with a front glass-cemented Zoo plate with 'green putty' a non-setting cement.

The great day arrived when I had saved the five, and I collected the Black Moor and installed it in my concrete aquarium. All my relatives, friends and neighbours came to view the subject of my new hobby - I was an aquarist. Next day the Black Moor was dead.

I knew nothing of New Tank Syndrome or that cement was alkaline. Devastated, I

vowed to study Aquarology and never again lose such beauty through ignorance.

Forward from there

Hence I studied Chemistry and eventually attained a PhD in the Physical Chemistry of Aquarius systems. I developed the Aquarian range of fish foods and remedies for the Mars group then ran the Aquarian Advisory Service for over 20 years. I have travelled the world of fish keeping and dealt with some 100,000 fishy problems for the service. I hope this compensates in part for killing that Black Moor.

The fish food development work for Mars

today's fishworld

involved setting up a fish laboratory at the Waltham Pet Centre, called the Aquacentre. This was in the 1970's and at that time the art of marine keeping was very new. Understanding the correct SG, the importance of nitrifying bacteria, the best essential trace elements in fact many aspects of the marine hobby that we now take for granted were then unknown.

To carry out nutritional studies, I had to install marine aquaria and rapidly learn all about the husbandry involved. It proved so fascinating I not only kept books of tanks in the laboratory, I installed a 60 gallon tank in my living room with wall mounted spot lights and under tank filter units. All this was at the cutting edge of technology at the time. It even managed to burst and flood the fitted carpet and three piece suite with sea water.

The marine aquarium was eventually stocked with coral fish and invertebrates and masses of living coral (conservation was not an issue then). It was a great success, especially when the Anemone

fishes started spawning. The fry were transferred to the Aquacentre and raised on the developing fish foods.

Meanwhile I ventured forth to tell the world about the new Aquarian range. This meant visiting practically every fish club in the UK from Aberdeen AS to West Cornwall AS. When the Aquarian range was launched overseas I took the lecture 'Birth of Aquarian' to America, Japan, Spain, Belgium, Holland, France and Germany.

I have long since retired from the Waltham Aquacentre but the unit is still there today - with marine, tropical and freshwater sections where scientists and technicians are still studying the needs of these fascinating animals.

DAVID'S PONDS

At the present time I own not one but three ponds in a steeply sloping garden. They house Koi in the bottom pond, water plants and a fountain in the middle pond and a small top pond for filtration plus interconnecting waterfalls. A pump takes the water from the base of the bottom pond to the top filter via a UV steriliser to reduce green water problems.

Dr David Ford at work in the Aquacentre laboratory



David at work in his garden pond

You can see how steeply the garden slopes in this winter shot.



The ponds in summer



A great Loricariidae expert comes to town

All the news from around the club scene.

Catfish Study Group (UK) Convention 2004

This year's convention is going to be something special for Suckermouth catfish enthusiasts. Dr Jonathan W. Armbruster who is one of the world's greatest experts on this subject will be giving a presentation at the CSG (UK) Convention on Sunday March 21st at Lorton High School, Mayfield Drive, off Newton Road, Lorton, Wigan. The venue is 3.5 miles east from J23 M6 on the A580. Turn left onto the A572 - Mayfield is 1.3 miles along on the right. The doors open at 10.00 hrs.

Dr Jonathan W. Armbruster is the Associate Professor and Curator of Fishes at the Department of Biological Sciences Auburn University, Alabama, USA. This is the first time he will be giving this presentation in the UK and is definitely one not to miss.

Apart from Dr Armbruster, Dr Gordon McGregor-Reid who is the director of Chester Zoo, will be talking on Conorovalien. Entrance fee £5.00 Members - £5.00 non members. There will also be a Bring & Buy (Fish & Plants Only) Dr Peter Burgess of Aquarian advisory service, Glen Barrow with Bring wood & frozen foods & of course full canteen facilities.



Dr Jonathan W. Armbruster will be speaking on Suckermouth catfish at this year's CSG (UK) convention.

Livebearer auction

If you are interested in obtaining some of the rarer livebearers then the Chesterfield Halls Chesterfield, Derbyshire is the place to be on Sunday 28th March. Livebearer enthusiasts from all over the country will be descending upon this hall for one of the largest livebearer auctions to be held in the UK this year. The auction starts at 1.30pm. For further information contact the PMA Alan Rothwell on 01782 317741 or check out the website for more details and a map to the location :- www.viviparous.co.uk

National Show league results



As in previous years, the National Show League results will be announced at the Livebearer auction. If any exhibitor has not sent their results in to the magazine yet can they please do so by the 14th March at the latest. This will give us time to notify the 1st - 4th place winners before the event.

DICKIE DOVE

Dickie Dove was the FBAS Treasurer for many years and became, as those who knew him will tell you, a legend. One former Council Member describes him as the best Treasurer the Federation ever had, or could wish to have. In one particular year, 102 Societies affiliated - some say it was easier to join than argue with him!

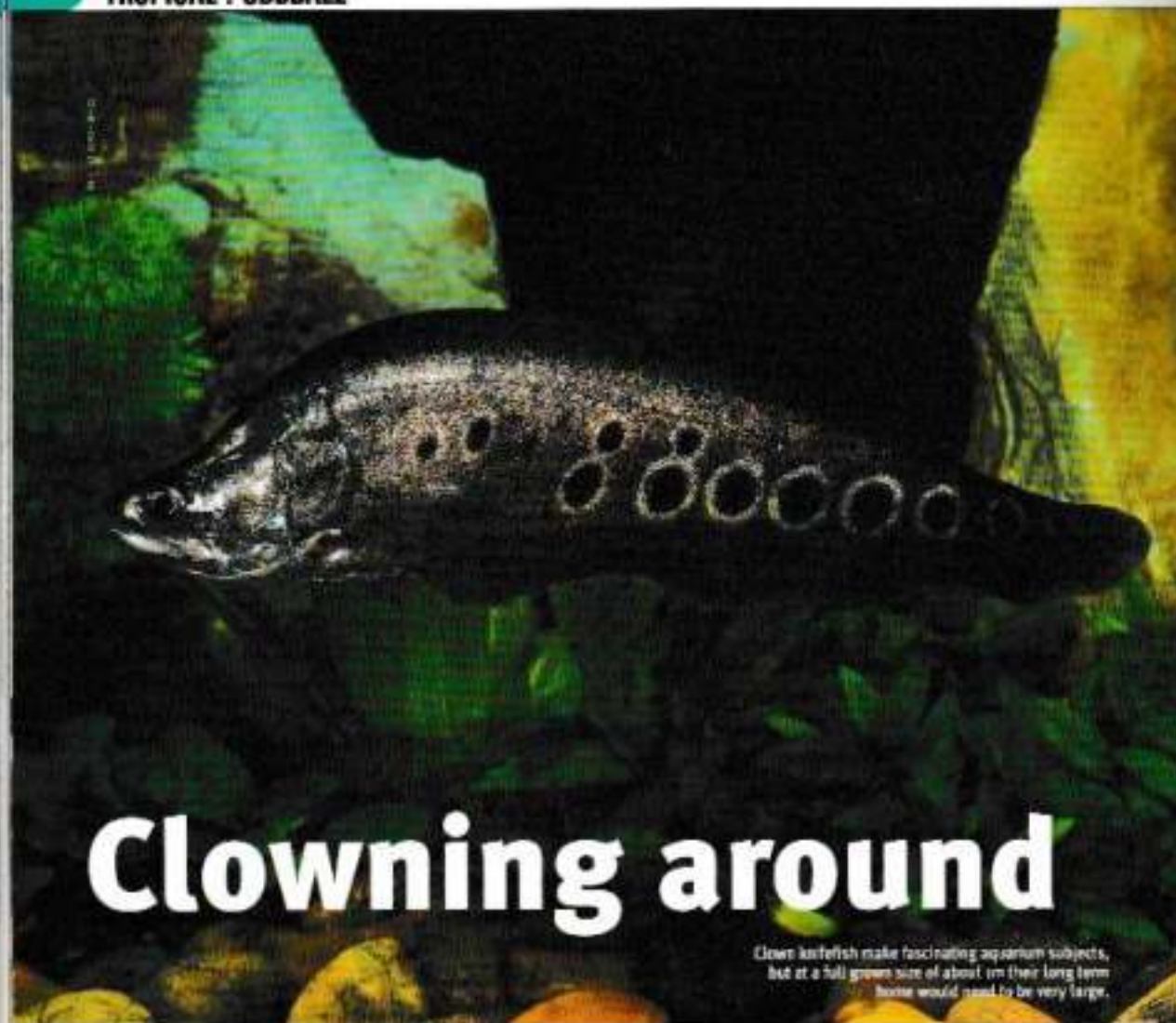
His 'economising' knew no bounds and his ineffectiveness in saving (or not spending) money were amazing to behold. He organised printing of the Minutes and was proud of the money saved; sadly, he could have done with spending some on the typewriter/printer ribbon as they were usually too hard to read! If you ever get a letter in the mail from Dickie, you know it was from him instantly. Although it did have a stamp - even Dickie couldn't avoid this - usually the envelope had been recycled from a previous existence (cut in half and re-taped up) and the actual letter paper was often an its second or third life too. Letters written on the back of old Jubilee flyers were quite common. An accomplished fishkeeper, he bred many species for local fish shops, to whom he also supplied self-caught Tubifex worms.

Dickie had a very colourful life based up with aircraft. After serving in the Royal Air Force in Rhodesia he worked for Imperial Airways at Croydon, before moving to Heathrow with them. Following retirement from British European Airways, he threw himself in local affairs and revitalised the Pinewood Community Centre near his home in Crowthorne. With his wife May, he attended a Buckingham Palace Garden Party last year in recognition of his years of outstanding services to the community.

Our condolences, and those of Federation fishkeepers everywhere, go out to 'Auntie May' and the rest of his family at this sad time.



DICKIE DOVE
1928 - 2003



Clowning around

Clown knifefish make fascinating aquarium subjects, but at a full grown size of about 1m their long term home would need to be very large.

Paul Skinner has always liked those fish which are not classically considered community fish, here he features one of his favourite types - Knifefish.

Knifefish have always been one of my favourite types of fish and I have always been fascinated by the many species that are very similar in form, even though they belong to different families and are from different parts of the world. The fact that there are Knifefish that come from South America, Africa and Asia shows how successful this body form is. If this were not so, the body form would not have been copied by such a diversity of fish.

Body form

Knifefish are rather large, elongate, strongly compressed, freshwater fishes. The stomach and anus are found very far forward on the body, and the anal fin is linked with the small tail in a single long fringed fin. It is this fin that provides propulsion for these fish and it is this

method of movement that I find so fascinating. The rhythmic wave like movements of this fin move the body forwards, or by passing waves in the opposite direction the fish moves backwards. They can swim very well in either direction, and can retreat from a predator without making any movements of the body. Similar methods of swimming are found in other fish such as the above mentioned South American Knifefish. All the other fins, except the pectorals, are greatly reduced or absent.

The large mouth contains numerous small teeth and all Knifefish are predatory irrespective of their size. On the snout there are two tubular nostrils, the swim bladder has been transformed into an accessory breathing organ, and they often rise to the surface to obtain air.

The Clown knifefish is a very attractive fish having a line of black spots along the

ides that often have a well-defined white ring around each one. The number of spots can vary, individuals usually having between five and ten spots. In nature, this fish lives in rivers, canals and swamps where it swims near the surface. They are carnivorous and feed on insects, shrimps and small fish.

School project

Several years ago I was approached by a school who had a large aquarium, that was not being used. The science teacher wished to set up a species tank for unusual, and preferably nocturnal, type of fish that could be used to illustrate their behaviour. As the teacher had a good fishkeeping knowledge, I suggested that Clown knifefish might prove to be a good choice for study.

Our research in aquatic literature suggested that efficient water filtration would be very important, as they are heavy feeders and produce large quantities of high protein waste. We decided to install an external power filter in an effort to cope with this problem. We discovered that they can be quarrelsome but if sufficient hiding places were provided, a small group could

be kept together. Bog-wood and heavy planting were to be used to give shelter.

Pecking order formed

The fish were introduced and proved to be quite quarrelsome at first. However, as they settled down they formed a distinct pecking order and the infighting became less frequent. From the start the fish fed well, although the feeding always took place under the 'moonlight' tube when the pupils could observe the natural night-time feeding habits. The fish grow quickly and within six months they had all more than doubled their size. This growth rate is not totally unexpected when you consider the potential adult size of the fish. However, I think that the fish are much better under these conditions than the more conventional methods I had used in the past.

The pupils turned up some interesting information about the conditions that occur in nature. They discovered that the fish laid eggs on prepared surfaces, and

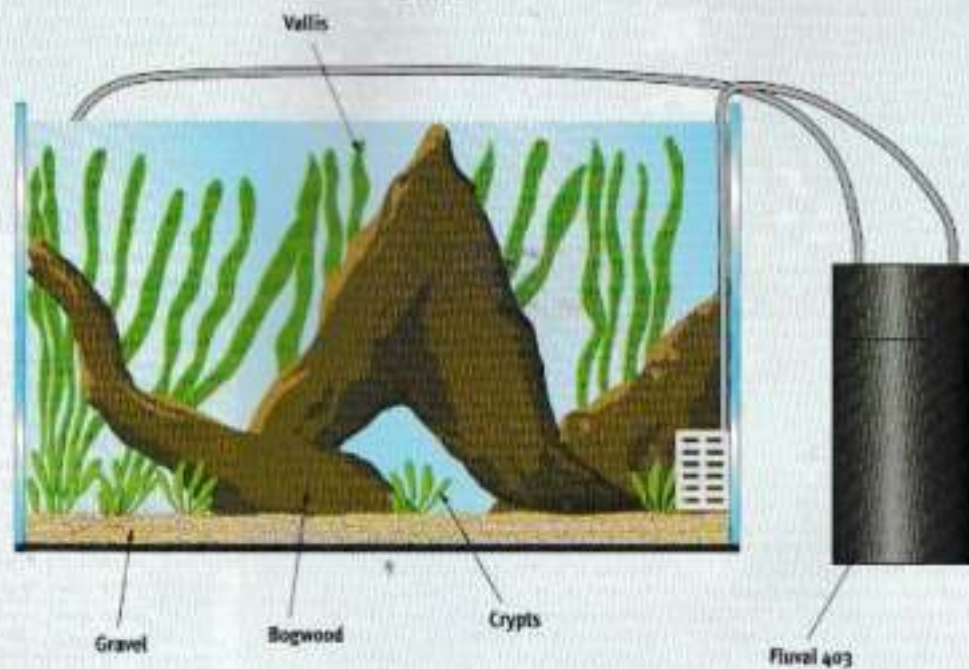
that several thousand eggs could be laid in any one spawning. Apparently spawning takes place in May, June and July. After laying the eggs, the female takes no further part in looking after them but the male guards them protectively. It is stated that the eggs hatch in five to six days and the male then leaves them to their own devices. The flesh has a fine flavour but contains many small bones.

By following this experiment the pupils of the school learnt much about the interesting habits of these fascinating fish. They also learnt about the use of a commonly kept ornamental as a food item in its natural habitat. By the time my involvement was curtailed, the fish had reached a size of nearly 30cm and needed a larger home. I heard they were going to be donated to a larger educational facility with an even larger aquarium available. I often wondered how they progressed, for I believe that by keeping these fish under these conditions, the first captive spawning might be achieved. Indeed, I would love the facilities to repeat this experiment myself, but I think that this suggestion may cause major domestic conflict - still maybe if I win the Lottery!

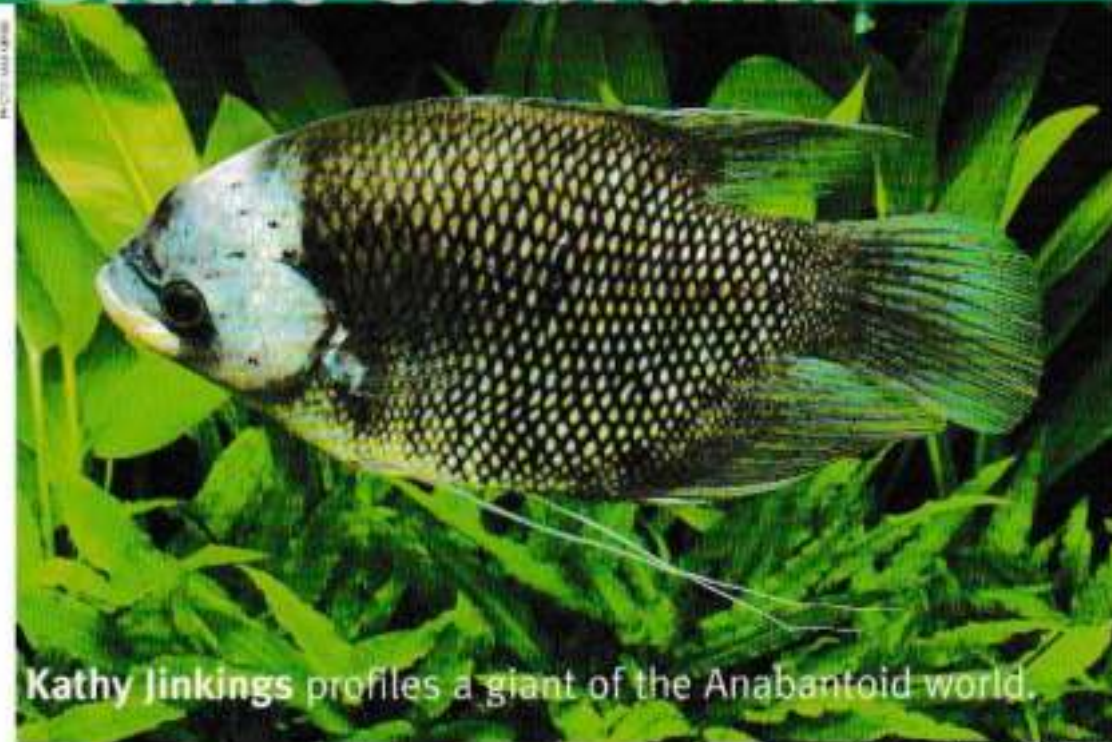
AQUARIUM SET UP

Tank Used: 350 x 60 x 60 cm
 Filtration: Fluval 403 External Power Filter
 Substrate: Gravel
 Decor: Bog-wood
 Plants: Vallis and Crypts
 Diet: Frozen Shrimp, Silver fish & Prawns

Temperature: 26°C
 pH: 7
 GH: 15°GH
 The fish: 6 - all around soon when purchased
 Lighting: 'Moonlight' tube



Giant Gourami



Kathy Jinkings profiles a giant of the Anabantoid world.

The Giant gourami is the largest of the gouramis, and only suitable for an aquarist with lots of space! The juveniles are often found on sale, and the unwary aquarist can find himself with a very large fish to home. They aren't just long - these are big, solid fish that require a very large aquarium. In the aquarium the juveniles can be a little territorial, but the adults settle and are good community fish if a suitably large aquarium and tankmates can be provided. It is not a fussy feeder, accepting most foods, but is certainly a prodigious feeder, and requires an excellent filtration system. Indeed, its eagerness to devour everything offered and to grow rapidly has resulted in it becoming a popular food fish, and has been introduced to many countries for that purpose.

Native habitats

In the wild it inhabits lakes and rivers as well as swamps and flooded forests where vegetable lands are easy to come by - like other gouramis, the Giant gourami can breathe moist air, which enables it to live in stagnant waters with a low oxygen level. It is not fussy about water chemistry, being happy with soft to medium hard water, pH 6.2 to 7.8.

The young fish have 8 to 10 dark vertical bars, but as the fish ages the bars fade so that the fish is a more or less uniform grey. Albino's are also available, which are pink. As the fish ages it gets uglier - the eyes distinctly protrude, the slender nose thickens, and the fading colour leaves little trace of the smart little fish that was originally purchased. It's not all bad for the Giant gourami though - even if they won't win any beauty contests, they do become very tame, and are a popular choice for 'pet' fish.

If you can provide sufficient room to keep a pair (which is not easy, as the sexes are not very different in appearance - the male can be identified by a pointed dorsal fin and thickened lips) they can be spawned in the aquarium. Like many other gouramis, they are bubble nesters. Both parents help to build the bubble nest about 10cm across, which is mostly composed of plant matter glued together with a relatively few bubbles coated in mucus. Once the pair have spawned, the male guards the eggs and maintains the bubble nest until the fry hatch. If plant material is available, this will be used to help build the bubble nest. However, attempting to maintain a planted tank is unlikely to be successful - the Giant gourami is likely to make a track out of any plant installed within reach. The filter also needs to be robust.

Giant gouramis are only suitable for aquarists with very large aquaria. This is a mature specimen, youngsters look very different and can be mistaken for Chocolate gouramis.

PROFILE

Name:

Giant gourami

Scientific name:

Chalmanemus gouramy

Size:

70cm

Aquarium type:

Community of large peaceful fish or species tank.

Distribution:

Southeast Asia: Sumatra, Borneo, Java, the Malay Peninsula, Thailand and Indochina (Mekong basin).

Diet:

Pellet foods are good as a staple diet, some green food should be given.

Temperature:

26 - 30°C

LYRETAIL MARBLE MOLLY

Poecilia hybrid



PHOTO: MAX GIBBS

New tetras imported from South America

Top German aquarist **Erwin Schraml** has found some beautiful new tetras to try out in your community tank, if only you can persuade your local shop to stock something a little unusual.

At the present time it is not only catfishes that are making furrows, but a whole series of tetras **would be** to the enrichment of our aquaria. Exactly! Did you notice that I wrote "would be"? The fishes are numerous at the distributor/wholesaler, only they don't swim at the retailers. What might be the reason for that? Do the retailers avoid the deviation from their standard assortment - but why?

The matter of space

Actually, the "bread and butter" fishes that provide the retailers livelihood, are species which have been available for an eternity to fishkeepers, they sell well so, naturally, those species won't be banished from the sales assets. There is not endless space

available there, and this is often the reason why the new releases are not taken on.

Fear

Yes, with the new releases something could go wrong. Living animals cannot be placed in any kind of situation, and their housing may be somewhat complicated.

King customer

Do the new fish receive from us buyers the special attention that they require? Its no use if the fish are in the retailer's tanks and nobody wants them. The buyer who intends to buy Cardinal tetras for his tank doesn't want to buy a swarm of unknown new tetras, which are more expensive and perhaps less beautiful than Cardinal tetras. Therefore both sides need encouragement.

Be aware of the new releases and have the courage to try them out.

A small selection

Kai Arendt has called (in a short note) a predominantly blue coloured tetra from Peru: "Peruvian Sapphire Tetra", which he identified as *Amblycoryca (pangulonus)*. In my opinion this identification is uncertain, because according to fishBase this species reaches about 20cm (to caudal peduncle). Arendt, however, assumes it reaches only 5cm total length. Well, we will see. The lively schooling fishes have many bright and dark blue, iridescent scales and glimmering dots; a dark blue lateral stripe; a slightly golden yellow coloured backhead and a red adipose fin. Directly in front of the tail fin is a short, vertical, red coloured stripe, and it seems as though this colour comes right through the fish.



Amblycoryca cf. pangulonus well deserves the common name of Peruvian sapphire tetra.

Boehlkea sp. "Skyblue"

The systematics of tetras is so complicated that it is often difficult to select a genus that fits the species that are newly emerging in the trade. Colour patterns, for instance, play only a very small part, because these animals often completely change colour, from their coloration in life, when preserved in alcohol. Therefore it is difficult to make comparisons from these characteristics.

A species, whose status is not at all sure, is called, at the moment, *Boehlkea* sp. "Skyblue". *Boehlkea* is presently monotypic (only contains one species in the genus), so this classification seems to be very doubtful. The fishes reach about 5cm and are constantly on the move. They take all kinds of food and appear to be easily housed.



Placing *Boehlkea* sp. "Skyblue" in this genus may be of uncertain scientific validity but what is certain is that they are great fish for a small fish community.

Bryconamericus sp. "Peru"

Although *Bryconamericus* is not really a genus, 75 species were placed in it, although not all remained there. Some are considered to be synonyms or were transferred to other genera. However, 56 species are still treated as valid. So it is not surprising that the species shown here has not yet been identified. These fishes are pretty fancy, with blue-green glittering shadings, implied bars, with a shoulder spot and delicately coloured fins. Since the animals were imported by Aquarium Glaser from Iquitos, they have received temporarily the designation *Bryconamericus* sp. "Peru".



This new Peruvian tetra (*Bryconamericus* sp. "Peru") would add a welcome splash of colour to any community aquarium.

Creagrutus cf. cochui

From Belem (Brazil) Aquarium Glaser has received a predominantly yellowish coloured tetra, which is currently available in the trade as *Creagrutus* cf. *cochui* GERY, 1964. Thereby it is relatively certain that this is incorrect, because this species comes from the drainage system of the upper Amazon. I asked Richard Vari (a scientist who had already worked with this genus) to look at the photo and I had hoped he would recognise them. But he had not seen any live specimens and he could not identify them from the photo alone. I personally think that the fish's head shape is not at all like that of a *Creagrutus*. It looks more like some of the *Hypofessobrycon*, although it has a much shorter anal fin than most representatives of this genus, so, we have come no closer to the true identity of this species. It happens!



We do not know the true scientific name of the fish called *Creagrutus* cf. *cochui* in the trade, but it is still a lovely small tetra for your aquarium.

"Blue Red Peru Tetra"

The "Blue Red Peru Tetra" is a particularly pretty new release. Males have many semi-transparent red areas in the fins, which make a strong contrast to the bluish basic coloration. Evidently they are relatively easy to acclimate, and they take almost all kinds of food. Males remain somewhat smaller and build their own territories. Therefore they require more places and dugouts. These fish without territories (males and females) form small swarms, which like to play against the current of the filter. The species originates from the drainage system of the Rio Nanay.



This has to be one of the prettiest new introductions for some time.

Kitty tetras

A species from the drainage system of the upper Rio Xingu became known as "Kitty Tetras". Costa & Gery had described them in 1994 as *Hypessobrycon lawacei*. Males get a very pretty golden dress with colourful transparent fins. Chest, ventral, adipose and anal-fins are yellow-orange. Caudal and elongated dorsal fin are reddish. The iris is bright red in the upper part. A broad black spot is found at the base of the caudal peduncle. Males also grow bigger than the insignificantly coloured females. The trade is more frequently supplied with tank bred fish of this species than through wild catches.

Nannostomus marginatus "Purple"

The small group around *Nannostomus marginatus* gets more and more interesting. Again a new colour morph or subspecies can be added which is referred to as "Purple-Marginatus". The males of this form originating from Peru, are predominantly purple-red in coloration. After the "Morgenthaler Marginatus" and the "Willow or Roundstripe Marginatus" this third form appears within such a short time. Unfortunately, up to now, all marginatus forms are rather unproductive even with established breeders. Therefore, we are dependent on imports.

"Apricot-Tetras"

A little bit bigger than all the other species shown here and known as the "Apricot-Tetra". The males of this species can reach about 7cm. They originate from Peru, but the exact location is unknown. None of them have been scientifically identified because the genus *Pseudochanna* has only five described species quite clearly arranged. The pastel shades of this species are bright enough to make them an attractive aquarium fish. The large mouth identifies the fish as greedy gluttons. Actually they swallow all pieces of foods that will fit in their large mouth and they are not choosy. They require space for swimming and digouts, play happily in the current, and should not be housed in small tanks. Water temperatures between 23 and 28°C are optimal for this species.

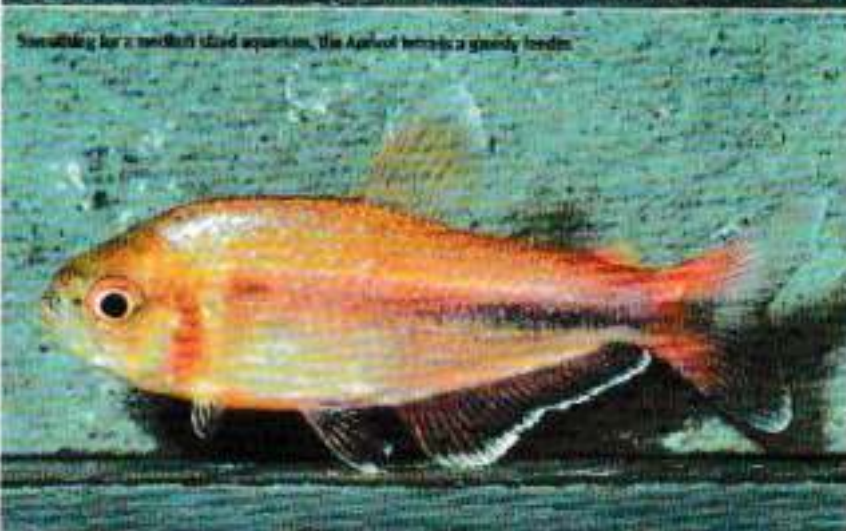
Kitty tetras are captive bred these days and most fish for sale come from European breeders rather than from the wild.

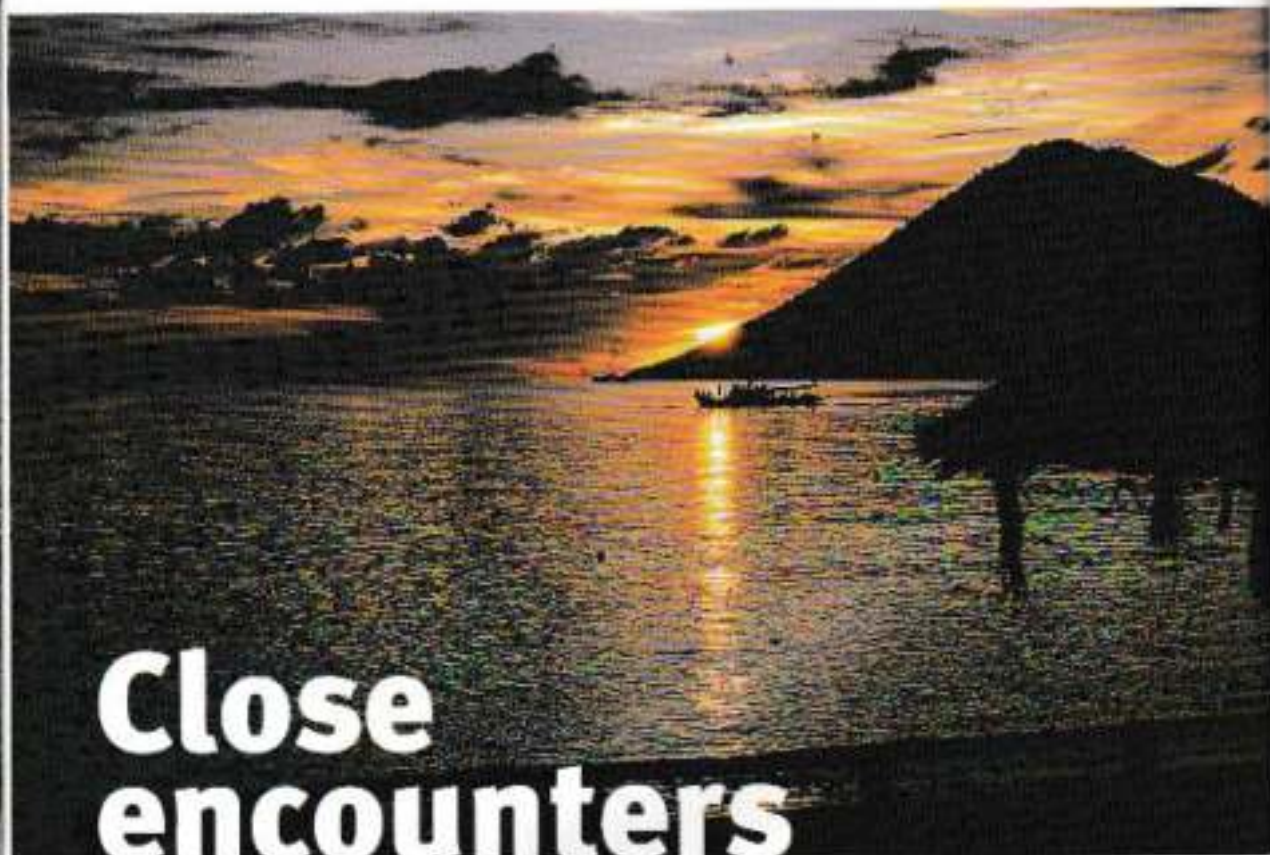


This small pencilfish (*Nannostomus marginatus* "Purple") is a new and spectacular addition to this distinguished group of fish.



Searching for a new fish sized aquarium, the Apricot tetra is a greedy feeder.





Close encounters on the reef

Sunset from Liang Beach, Bunaken Island. The waters here teem with aquatic life.

BY ANDREW WATSON

Max Gibbs goes diving in Bali and Bunaken island.

Just nine days after returning from an interesting trip to the greater area around Cebu in The Philippines, I was on my way to Heathrow for a flight to Bali. I had pre-planned an itinerary which would give me a week in Bali, and then a little more than a week on Bunaken Island off the north of Sulawesi, and then... Well, beyond that was not firmly arranged.

In Bali I stayed in the hubbub of Kuta just long enough to catch up on some sleep, hire a car, and meet up with Larry Smith, a renowned personality in Indonesian dive circles. Together with one of his sons we drove to Bali's premier dive spot at Tulamben, where the wreck of The Liberty,

an American freighter, lies between one to thirty metres just off the shoreline. The wreck attracts many beautiful fish and fascinating invertebrates—and hordes of

divers! Further along the beach is a shore entry to a wall topography, but for us the most interesting area was an extensive sandy stretch between these two sites.



Painted cleaner shrimps (*Periclimenes amboinensis*) come in many different colours to mimic their background. They take up residence in one place and the fish come to them for cleaning.

Watching the traffic at a cleaning station

A "cleaning station" is home base for some Cleaner wrasse species and Painted cleaner shrimps (*Pastillogobius ambuensis*). Just remaining as still as possible to observe the variety of reef fish, lining up for cleaning by either the wrasses or shrimps, is a riveting experience. This affords a close encounter with some reef fish that would otherwise keep well clear of an intruding diver. Resident deep within the rocky shelter of the cleaning station we could see a Moray eel that, on one occasion was having its teeth cleaned by a trio of cleaner shrimps.

Not far from the station a pair of Yellow rose gobies (*Stenogobius xantherhynchus*), hovered above their entrance hole in the sand, like two parallel barber's poles. As I edged forward to take their picture I was surprised that they appeared to be so unusually tolerant of my approach. But then I could just make out a strange fish's head peering out from the hole, which presumably is why they did not make the customary plunge into the safety of their burrow. Other shrimp gobies make their homes in the same extensive sandy areas, standing guard at the entrance to their burrow while the commensal Alpheid shrimps, using their large chelipeds, shovel out the spoil excavated from within. As I approached their territory the gobies would quiver their bodies and fan their caudal fin to signal to the almost blind shrimps that danger threatened and they should stay safely inside until given the all-clear. These signals are conveyed via contact between the goby's tail and the long antennae of the shrimp.

Poisonous Sea slugs

Unusual sea slugs (Nudibranchs) were also frequent sightings, exposed as they made their way across the sand from one potential feeding site of sponge, hydroid, or tunicate growths to another. Their bright colours a sure sign to predatory fish or other invertebrates that these are unpalatable, or even poisonous animals, and not to be messed with. While admiring one such nudibranch I was very surprised when an ornamental head suddenly pushed its way through the sand. It was that of a "Napoleon eel" (*Ophichthus bonapartei*). This species does not usually show more than its head during daylight hours, and more often than not makes a quick retreat when a stranger appears, but this is the first time I have ever seen one actually breaking up through the sandy surface.

Big pebbles pile up onto the shore, stretching into the shallow area of sea within about the first ten metres or so (depending on the state of the tide). Where the pebbles meet the sand is a rewarding



This "Napoleon eel" suddenly pushed its way up from under the sea bed.

spot to lift some of the stones to see what is hiding beneath. Nudibranchs, Flat-worms, Shellfish, Sea slugs, Urchins, Comb jellies, Shrimps, and other invertebrate life will be found - often in abundance. But the special creature to find in this way is the charming little Boxer crab (*Lybia tessellata*). Beautifully coloured and finely marked, they are distinguished by carrying tiny anemones (*Inactis producta*) on their waving chelipeds. They are amazingly fast once uncovered, and will make off speedily to shelter under pebbles lower down in the bed. But if managed to be caught up and placed out on the sand, they seem to be so confused that they sit bewildered in that one spot. When returned to the pebbles, however, they immediately resume the rapid hiding technique and disappear out of sight. These delightful reef inhabitants are occasionally found in the aquarium market and make fascinating reef tank creatures.

Shoals of Jacks

A big shoal of Jacks, with mirror silver bodies bisected by a bright orange stripe along the lateral line, patrol this sandy area, sometimes heading to the "tail", but invariably turning to stay over the preferred flat sand and pebble area. These are the Smooth-tailed trevally (*Selomus leptolepis*). The species does not appear to grow over large, unlike some other Jacks, and could make an attractive addition to the larger marine aquarium. It is said to reach 20cm, but I have never seen any in the Tulamben shoal quite as big as that, and I

would estimate the larger ones to be nearer 15cm. I am sure it would be a hardy aquarium fish, although I determine that without personal experience, just a hunch!

I have seen the Bluefin trevally (*Caranx melampygus*) offered as juveniles in the aquarium trade, and this species grows huge! It would certainly need accommodation as capacious as might be found in public aquarium displays to hold this impressive predator. At Tulamben big specimens of this fish are seen up to 100cm in length, and frequently attack the Smooth-tailed trevally shoal to which prey! The Bluefin is most often seen in small groups of between 4 to 6 specimens. As one makes a lunge into the shoal the others move in to take advantage of the brief disarray and panic.

Huge shoals of some Jack species (*Lampricide*) are renowned for their swirling circular swimming pattern, forming cylindrical or funnel shaped masses which can stretch from the sea bed right up to the surface. I once found a group of five big Bluefins at Sipadan curiously circling swimming more than a mile. They continued to circle and allowed two of us to approach for a close encounter. We puzzled over this but came to no conclusion. Now, on this last visit to Tulamben, I saw a single big Bluefin endlessly circling a prominent rock, reminiscent of those curious fish at Sipadan. I gradually edged up so close as to imperil its circuit, it briefly peered at me from around the rock, from one side and then the other, before speeding away in disgust at my interference, I imagine. Strange behaviour. <->



What do you think you are doing? This Bluefin trevally had a good look at Max before swimming away in disgust.

someone will crack the problem in time to come, allowing this exceptionally beautiful fish to be kept successfully in the aquarium.

A similarly reputedly unsuitable basslet for aquarium culture is often found in close association with Purple queens, but rarely in such concentrations. This is the Redfin anthurus (*Pseudanthias oliveri*). The mature male Redfin is a highly attractive fish at any time, but from a gopm until dusk falls it performs energetic courtship displays to its harem of females, to persuade them to join him in a rush upwards in the water column to spawn. The colours of both body and fins intensify at this time, to further enhancement of the everyday colouring. The temptation to buy either of these Serranids should be tempered by consideration of their fickle feeding habits when in a captive situation.

Most exciting find.

One of the most exciting finds for me at Bunaken was of Orchid or Harlequin shrimps (*Stomatopoda pinnata*) right under the anchorage for the dive boats at Froggies Diving, where I was staying. Salmon, an excellent and knowledgeable local guide (with a suitably apt name) working at the resort, took me to a sizeable rock in no more than one metre depth of water. He carefully lifted it to reveal a pair of the highly ornamental starfish-foot eating shrimps! Two big Sea Hares and two scorpionfish shared the territory.

The drop off walls are what the extended area around Bunaken is famed for, and by and large these remain as spectacular as ever. The nearby extinct volcanic island, Manado Tua, adds many more exciting areas to explore. ■

On to Bunaken

With so much life concentrated in this one area of Iulamben I had no cause to move elsewhere in the island for further exploration on this occasion. My next venue was to be the idyllic island of Bunaken, not from Manado in the far north of Sulawesi.

The famed coral gardens of Bunaken have taken a battering of abuse from illegal fishing, inconsiderate boating practices causing coral destruction, and other thoughtless acts. But the marine park now has regular patrols to regulate the use of the facilities, preventing boat anchor damage and other malpractices. Dive operations have now become based on the island, and the operators recognise the essential importance of protecting the area for their long-term benefit. So now the gradual recovery of the coral gardens is showing progress.

Big fish galore

For those interested to see the big fish there are White-tip sharks, Tagle rays, Barracudas, Napoleon wrasse, and other spectacular fish frequently seen off Manado Tua. Turtles are often encountered in the area too, and we were thrilled to see a Dugong cow with its calf at close quarters on this trip. But the huge shoals of reef fish which festoon the walls in their thousands are what creates the most lasting memory of this rich marine area. Orange and white Pyramid butterflies (*Wentiaurichthys*

polyepis) parade along and up and down the extensive coral-covered walls in breathtaking numbers. Brilliant purple and glowing orange Basslets favour the higher ramparts of the walls, with Purple queens (*Micropogonias undulatus*) predominant. What a pity this fabulous fish is not adaptable to aquarium life. Both males and females are richly and spectacularly coloured with magnificent purple colouring, embellished with some golden marking in the female, and a blood red "spot" in the angular dorsal fin of the male. But the species is reputed to be a non-feeding aquarium fish, and consequently does not regularly enter the aquarium fish trade these days. Maybe



Pyramid butterfly fish parade up and down the coral covered walls at Bunaken.

Ponderings



Frogs are very agile hunters.

Frogs, newts and oxygenating plants are among the topics chosen by **Dave Bevan** as spring approaches.

Dipping deeper

The Common frog is a skillful hunter well equipped for stalking and catching its prey. Its eyes are positioned on the sides of its head giving it almost 360 degree vision, enabling it to detect the smallest of movements. Its back legs not only propel it through the water at great speed, but also enable it to jump into the air to both catch its prey and escape from predators. Its long sticky tongue is hinged from the front of its

mouth and can be extended with lightning speed and finally its large mouth enables it to swallow its prey.

A nocturnal hunter it moves slowly through the vegetation until it spots its prey and then watches its prey intently, its head moving up and down and from side to side very slowly as it judges the distance. Suddenly it explodes into action as its back legs launch it into the air and its tongue flicks out. Before it hits the water the prey is already in its mouth.



FASCINATING FACT

A single female frog can produce between 2500 and 4000 eggs each year. Although most of these eggs hatch, the predators soon move in and only a few tadpoles will leave the pond as small froglets and even fewer will return in 3 or 4 years time as adult frogs.

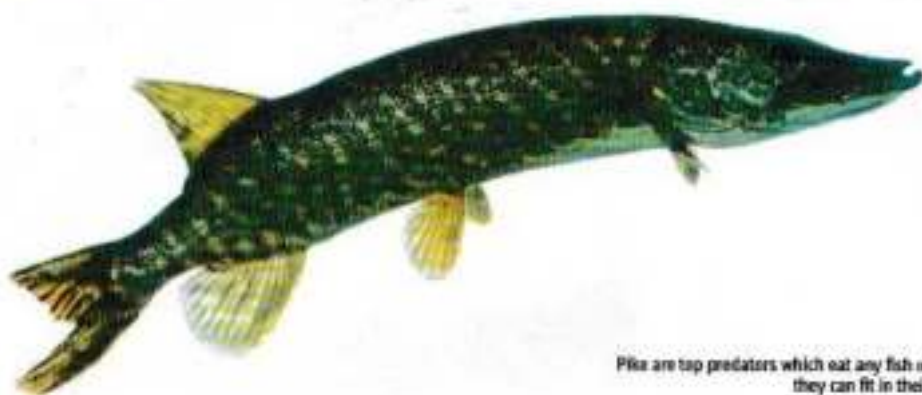
BELOW THE SURFACE

The Palmate newt is the smallest of our native newts, rarely exceeding 9cm in length. It is commonest in the south and west where it replaces the Smooth newt particularly at high altitudes.

It can be distinguished from the Smooth newt by its smaller feet and pale yellow belly. When in breeding condition, the male has distinctly webbed hind feet and a small filament projecting from the tail.

Newts are, by nature, secretive creatures but they may be seen during the breeding season by shining a torch on the shallow part of a pond by night, or simply sitting quietly by the water's edge during the day. If there is a reasonable population then every few minutes one will come to the surface, take a gulp of air, and return quickly to the bottom. In clear shallow water the males can be seen moving through the water plants as they court the females.

PIKE FACTFILE



Pike are top predators which eat any fish or animal they can fit in their mouth.

| | | | |
|----------------------|---|-------------------------|--|
| Species: | Pike (<i>Esox lucius</i>) | Identification: | Has a grey green back and greenish sides with yellow stripes and a white belly. The body is long and cylindrical with a dorsal fin near the tail. The mouth is large with backward pointing teeth. |
| Other names: | None | Habits: | A predatory fish that feeds on small fry when young, graduating to larger fish as it grows. Large specimens can take ducks. |
| Other forms: | None | Pond fish value: | A top predator that will take most other fish. Only of use in commercial Carp ponds where it keeps numbers of small fish under control. |
| Size: | Up to 1.5 metres (fish over 1 metre are rare) | | |
| Weight: | Up to 35kg (not usually more than 20kg) | | |
| Availability: | Only from specialist outlets | | |
| Habitat: | Prefers slow moving rivers, backwaters and pools with plenty of wood for cover. Often found in large lakes. | | |

FISHY TALES

Goldfish from 50 pence each according to the road side sign. Worth a look I thought, as I reversed up and drove through the gate. Not your normal retail outlet but a fish farm looking to diversify.

It was a muggy day but the fish, if a little overcrowded, were swimming happily in the tanks. An interesting variety of 7 to 10cm goldfish, comets and shubunkins at 50pence each. "They only come in last week but we have sold a lot already", said the owner. With a new pond to fill, I said I would take 20 assorted and within an hour they were swimming happily in their new pool.

Two days later one was found floating dead on the surface and within a fortnight another seven had followed. Visually they looked fine and water checks indicated the water quality was good - the pond is fed from a natural spring.

Soon they were coming up for food allowing closer inspection, and then the first signs of fungus appeared on most of the fish. The long hot summer continued and despite treatment the numbers dwindled and by autumn there were only three remaining. Anybody want a 7cm goldfish for £6.66?

BELOW THE SURFACE

The Palmate newt is the smallest of our native newts, rarely exceeding 6cm in length. It is commonest in the south and west where it replaces the Smooth newt particularly at high altitudes.

It can be distinguished from the Smooth newt by its smaller feet and pale yellow belly. When in breeding condition, the male has distinctly webbed hind feet and a small filament projecting from the tail.

Newts are, by nature, secretive

creatures but they may be seen during the breeding season by shining a torch on the shallow part of a pond by night, or simply sitting quietly by the water's edge during the day. If there is a reasonable population then every few minutes one will come to the surface, take a gulp of air, and return quickly to the bottom. In clear shallow water the males can be seen moving through the water plants as they court the females.

POND PROBLEM

As the pond starts to wake up there is a chance that your fish may succumb to spring sickness. This term refers to a general state of poor health that could be caused by anything from a bacterial infection to a large number of parasites.

If the fish have over wintered well then they will usually recover quickly, but those which have been weakened by the winter and have a poor immune system may die from the original infections or pick up more serious complaints ultimately leading to death.

The problem can be minimised by treating the pond with a general medication that will combat a broad range of problems including bacterial and parasitic infections. However, heavy use of these medications could give you more problems if it also kills the bacterial lode on the filter.



Early spring and the pond is just beginning to wake up - but so are the parasites and sickness causing bacteria.

CHOOSING FISH

It goes without saying that any new additions to the pond need to be healthy, so what should we look for when choosing new fish?

1. A reputable supplier with clean tidy premises who does not offer new stock for sale until they have been quarantined for at least two weeks.
2. Healthy fish are lively with quick reactions, avoid fish that stay on the bottom, attempt to hide, are loners or just hang in the water. The presence of any dead fish floating on the surface should really start the alarm bells ringing.
3. A healthy fish looks good, but having made a choice do not be afraid to ask the assistant to net the fish so you can have a closer look before making a commitment to purchase. Look for bright colours, erect fins and a full well proportioned body. If in any doubt have the fish bagged for closer inspection and reject any fish with fin damage, particularly if accompanied by blood streaks or signs of fungus or white spot. Check for external parasites like leeches and lice.



Take a close look at this fish, its dorsal is down, there are a few lips in the tail and the body is thin and wasted. Whilst no obvious disease is visible, the whole look of the fish indicates it may be sick and is best left in the shop.

SELECTING OXYGENATORS

There is a large selection of oxygenators, usually offered for sale in small bunches tied together with a band or lead strip. Resist the normal advice of "just tie the bunch to a weight and throw it into the pond". They might grow, but by the time they have established they may have spread to the four corners of the pond making control difficult.



Willow moss makes a good oxygenator for shallow areas of your pond.

They stand a better chance if the pieces are separated and planted in aquatic soil covered with small pebbles. Most oxygenators prefer to be in full sun, and many are happy in water up to a metre deep. Choose Hornworts, Pondweeds, Water crowfoot and Curled pondweed for the deeper water.

Hair grass and Willow moss look best in shallow water, whilst the Water violet, with its delicate underwater fronds and pretty pink ariel flowers, will thrive in water up to half a metre deep.

Unfortunately, the oxygenators also include some of the most invasive alien plants some of that are still offered for sale. Avoid Parrot's feather also known as *Myriophyllum*, Australian stonewort also known as *Tilapia minima*, *Crossula helmsii* and New Zealand pygmy weed and Chara or Stonewort.

WHAT ARE OXYGENATING PLANTS?

Oxygenating plants are those that thrive wholly or mainly below the water surface, carrying out the process of photosynthesis where by they remove carbon dioxide from the water and release oxygen during the day. This is an important function that enriches the water with oxygen and reduces the acidity. Unfortunately, the downside is that during the hours of darkness the reverse occurs as the plants respire taking in oxygen and releasing carbon dioxide resulting in low oxygen levels in early morning.

These plants also perform other useful functions. Their ability to grow quickly means that they are capable of using up large quantities of nitrates allowing them to compete with and reduce the incidence of blanket weed and other green algae. They also form dense stands of vegetation that provide the fish with welcome cover from predators as well as suitable spawning sites.

Once established in the pond they are almost impossible to get rid of but they can be easily controlled by simply raking out the excess growth every few weeks during spring and summer. Provided they do not take over more than around twenty percent of the pond's volume they will do more good than harm.



Time for a clear out! You can have too much of a good thing, even if it's an oxygenating plant like this Canadian pondweed.

From Graveyard to biology.



ALF NILSEN: WOODWIDE PHOTO - ALF NILSEN

Alf Nilsen reviews some milestones in the European history of the Marine hobby.



Graveyard aquaria were common in the seventies; dead coral skeletons, ugly and stinking growth of algae and dying fishes.



An aquarium set up after "The Ecology challenge" developed by Alf Nilsen.

I once had a friend, who still keeps in touch and still is my friend. I met this guy in the mid-1970's we were at that time both interested in graveyards. In his basement, which he had dug out with his bare hands, my friend had a nice collection of shiny white tombstones submerged in seawater. Among the tombstones he kept some very colourful fishes. Once a week some of the fishes died and were buried... tropical marine fish in a tropical marine aquarium of the seventies! A new millennium is here. The last decades have made dramatic changes to the marine aquarium.

Battle of the algae

But let us return for a moment to my friend playing around with coral skeletons in his basement. When I saw his set-up and the "beautiful" white corals surrounded by schools of blue damselfish, I liked the scene. And the scene was very much like those found in every marine


aquarium solutions



Our new lighting Revolution -



Dutch minireef aquaria with a combination of prolific growth of algae and corals.

aquarium in Europe at that time. The corals were dead and one had to struggle to keep them clean. My friend often complained: "All these ugly algae, how can I get rid of them?" He kept on washing the coral skeletons in bleach and adding copper sulphate... and the fish kept on dying.

Then I met another guy who was also to become a long-lasting friend. This guy was just like my other friend, playing around with marine aquaria. He was not at all interested in graveyards, but very much cared for algae! He also loved to read. We sat down over a beer and I was invited home to view his small aquarium. I was expecting to see another graveyard, but it was wrong! Here there were no skeletons and no dying fish. The aquarium was green, very green! The calcareous rocks that composed the decoration were all covered by hairy green algae that moved softly in the current. There were a few fishes, among them a Coral beauty (*Gomphogeomphos bispinosus*), the most beautiful fish I had ever seen in captivity. The aquarium also housed a Cinnamon fish (*Acanthopagrus caeruleus*), a Three spotted dacyllus (*Dascyllus trimaculatus*), and a couple of Damselfishes (*Pomacentrus* spp.). Remarkably the fish looked fat and very healthy! A new look!

Start of the marine hobby

In Europe our hobby actually started way back in Victorian England when enthusiasts started to keep invertebrates and algae from the local coastal waters. The German aquarists followed, and the first German book on the topic, called "Seeaquarium im Zimmer", was written by Reinhold Eduard Hoffman and published by Creutzsche Verlagsbuchhandlung in Magdeburg, Germany in 1886.

Peter Chlapaty (1921-1992), whom I had the opportunity to meet personally in his home in Munich in 1985, was very interested in fishes and played around with tropical fish aquaria for decades. He kept fishes that nobody else was able to keep at that time, such as species of *Chaetodon*.

Chlapaty published his experiences with marine fishes in his famous book "Meine Erfahrungen mit Korallenfischen im Aquarium" in 1960.

Natural systems

One person that was ahead of the rest of the crowd at that time was Leo Chin Eng of Jakarta, Indonesia. Mr. Eng used what he called "the Natural System", which was a non-filtered tank containing "lebarn Corals" that he collected near his home in Indonesia. The rocks added developed beautiful growth of algae and animals and most important little or "no" nitrite and nitrate seemed to build up in the system. The graveyard systems were known for not only containing nitrate (a compound that few worried about in the early days), but also accumulating vast quantities of the much more lethal nitrite. Leo Chin Eng was thinking in biological terms and was successful. In the early seventies he published several articles explaining about his experiences, theories and techniques in the States, but his methods did not at that time spread to Europe.

My friend's aquarium no longer exists, and the Coral beauty is long since dead. The memories of the early days of marine hobby are still there, however, and the story about "the graveyard and the algae" does in its own way summarise the most important change that happened with the marine aquarium towards the end of the 20th century... The marine aquarium shifted from being a sterile, dead system to a living, functioning biological system. Today the biological system has again become popular among some American aquarists. A method called "the Ecosystem method" has been developed by Mr. Long Sy.

1st milestone

I have no doubt whatsoever about this one... The appearance of Mr. Peter Wilkens on the coral reef in 1975 Peter Wilkens

published his first book on the marine hobby titled "Widene Tiere in tropischen Seewasser-Aquarium", in this book Peter Wilkens for the first time focused on keeping tropical marine invertebrates in captivity. While most aquarists were concerned about how to get rid of the algae and saw them as boring organisms that had no place in the aquarium, Peter Wilkens saw their importance. He focused on the biological diversity of the system and wanted to turn the marine aquarium into a living system.


As early as 1980 the market offered a variety of invertebrates to German aquarists. The aquarists wanted to learn and progress and the second book by Peter Wilkens became "the bible" for reef enthusiasts in the eighties.

During the eighties Peter Wilkens also published a number of articles on the use of "kalkwasser" which focused not only on how to add calcium, but also on why the adding of calcium is important. When aquarists started to use "kalkwasser" a true revolution happened.

2nd milestone

The Dutch Minireef Aquarium, a truly biological aquarium system was first used in the early eighties. The Dutch aquarists believed that the protein skimmer (which at that time were used by many aquarists in Germany) removed vital elements from the water, and the minireef system must be viewed as an effort to create a stable biological marine aquarium system without the use of skimming. The main reason for putting the Minireef as a milestone in this context is that the system represented a completely new way of thinking. It focused on the biology of the system and put the diversity of algae and macro- and macro organisms up front!

3rd milestone

When Leo Chin Eng used live rocks in his natural system, he named them 

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"Reborn Corals". When Jürgen Grobe published the book "Das Korallen-Aquarium" in 1965, we heard about "Lebende Steine" (= live rocks) for the very first time. Grobe made a journey to Egypt in late 1959 and it was on this trip that he collected live rocks and brought them back to his experimental aquarium. The original idea to use live rocks in the marine aquarium actually came from Mr. Schmidt. Grobe was a pioneer and discovered the effect of live rocks simultaneously - if not before - see Chin Eng, in the 70s marine aquaria housing the flora and fauna from the Mediterranean were very popular in Germany. The German aquarists using such rocks obviously discovered that interesting organisms developed from them and that they made the decoration look very natural.

From then on live rock became more and more popular and gradually the aquarists and the shops understood that the rocks did not only have an aesthetic effect, but also contributed to the biological stability of a closed reef aquarium. The micro- and macro- flora and fauna that appeared from the rocks were most diverse and interesting. New species of worms were discovered in reef tanks that were decorated with live rocks and there were many examples that Stony corals grew from live rocks in captivity.

4th milestone

Personally I have little doubt that the protein skimmer was a real revolution in the hobby. From my point of view it is this technical equipment that really made it possible to grow and keep the true reef building corals in captivity. The skimmer removes organic compounds including compounds that are useful to the organisms living in the



aquarium. The skimmer makes it possible to have a better control of the nutrient that builds up in the aquarium and thereby control the growth of filamentous algae.

5th milestone

If I personally would name an event that I shall never forget in my history of playing around with the reef aquaria, it must be when I first saw the parent colony of Stüber's Acropora growing in Dietrich Stüber's own aquarium in 1985. The aquarium of Mr. Stüber was not operated with a lot of fancy equipment. The skimmer was a home made one, the illumination consisted of 2 x 250 W HQI 4500 K and the evaporated water was refilled with calcareous water. And there it was, a young high branching Acropora that had grown out of a small piece of rock. Suddenly it was obvious that Acropora could be kept and grown.

Stüber told me that his famous colony first made its appearance in June 1982 when a primary polyp showed up from the base of a soft coral from the Maldives. In March 1983 the colony had grown to a height of 15

cm and produced several branches. The first baby colony was removed in September 1983 and placed in another aquarium in Berlin where it survived and started to grow easily. In March 1984 this baby had grown to a height of 15 cm. In December 1983 several other baby colonies had formed and three were removed and distributed to aquaria in Berlin, all these aquaria were heavily filtered over activated carbon. It is interesting that these cuttings did not survive. The first cuttings were broken off in June 1984 and this was a success. The Berliner Aquarist had discovered that one could spread Acropora by breaking off tiny branches... It had all started to sail!

Today several species of Acropora are grown in reef aquaria worldwide and thousands of baby colonies are spread among fellow aquarists. We now even see the first results of sexual reproduction of Acropora in captivity... but it all started in Berlin back in June 1982.



Part of a big reef aquarium belonging to Mr. Rudi Krause of Berlin back in 1985. When such scenes appeared in Germany, most of the rest of the world was playing around in their own graveyards.

THANKS

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Today's Surgery



This shows the damage to the gills by KHV



Lance Jepson MA
 VetMB CBiol
 MIBiol MRCVS
 discusses a
 disease which is
 pretty much
 world-wide.

KHV sweeps the world of Koi

Koi Herpes Virus (KHV) is a disease that has only been around for a relatively short time, but in that time it sure has made its presence felt. Count cases, businesses folding and a potential threat to the global trade in Koi – all due to this minuscule packet of DNA. Luckily this virus seems to be specific only for Koi and other carp (*Cyprinus carpio*) varieties, because even closely related cyprinids such as Goldfish appear to be immune to KHV. This disease is now pretty much world-wide in its distribution, with outbreaks recorded in Israel, USA, UK, Asia and now Japan.

KHV is a herpes-like virus in that it appears to be the same as other herpes viruses in some respects, but it is still sufficiently different to have an alternative name suggested. This is Carp Nephritis and Gill Necrosis Virus (CNGV), a name that

reflects the damage this virus causes.

The behaviour of this virus is also not typical of other herpes viruses. Carp pox (Cyprinid Herpes virus 1 or CHV-1) does behave like a typical herpes virus in that once a fish is infected it is likely to carry the virus for the rest of its life, and there will be recurrent outbreaks of the disease whenever the fish becomes stressed. With KHV the choices appear to be much more stark – most fish die, a few recover.

It seems very likely that infection with this virus occurs through the gills, but this does not mean that such a fish will come down with KHV. One of the most striking facts about KHV is that the disease depends very much on the water temperature. If the temperature is between 18 to 24°C then the virus is triggered to cause extensive damage to the gills.

Predisposing Factors

The main predisposing factors to an outbreak are the permissive temperature range of 18 to 25°C, and stress. Overcrowding, and in particular transportation, of Koi are likely to trigger outbreaks.

Species susceptibility: Only Koi and other varieties of carp (*Cyprinus carpio*) are affected. Goldfish and other cyprinids will not be showing any sign of disease.

Recognisable signs of disease

In a full blown outbreak, Koi and any other carp varieties such as Mirror carp will be

Koi Herpes Virus (KHV)



FINDINGS IN EXPERIMENTAL INVESTIGATIONS

- 95% of KHV-infected Koi kept at a water temperature of 21°C, died.
- At 28°C the disease progressed rapidly, but there was a slightly lower mortality of around 89 to 95%.
- At 18°C the death rate was 85%.
- No deaths occurred at 13°C.
- If virus-exposed fish were moved from water at 13°C to 23°C, a rapid onset of the disease was triggered and deaths occurred.
- KHV-infected fish show obvious gill discoloration and necrosis (flying off) of infected gill tissue. The gills become

severely damaged. Typically there are distinct patches where there is a loss of gill tissue down to the supporting cartilage of the primary lamellae. Secondary bacterial and fungal infections readily establish in these damaged areas.

- KHV-infected Koi appear to have much of their mucus coat; the fish appear thin and the eyes are often sunken. These symptoms may all be due to a combination of oxygen starvation from the gill damage plus the damage the virus does to the kidneys.

Preventing KHV getting into your collection is difficult. Infected fish that are not in the permissive temperature range will not show signs of the disease. Also it is not known at present how the virus can be transmitted, so it may be possible to transfer it on clothes, nets, plants and so on. We just don't know, but at the time of writing it is best to assume that this is a possibility.

Some Koi producers are attempting to 'vaccinate' Koi before selling on. This is done by exposing Koi to the virus at 23°C for 3-5 days and then transferring these fish to water held at the non-permissive temperature of 30°C. These fish are then resistant to KHV. They have high levels of KHV virus-specific antibodies in their blood and this is sparking efforts to produce a true vaccine.

found dead and dying. In large collections this can be almost soul-destroying. Investigation will reveal that the water temperature will be in the permissive range of 18 to 25°C. Infected fish appear lethargic and may swim close to the surface or gather in areas with high oxygen levels, such as water inlets or waterfalls.

There is obvious respiratory distress and incoordination. The eyes are often sunken and the skin and gills have a decreased mucus covering. There may be haemorrhages in fins and on the body. Catching the fish and lifting up the operculae (gill covers) will reveal areas of severe gill necrosis as white, grey or black patches. Often the supporting cartilage of the gill is exposed. There is often secondary

gill disease present such as high numbers of bacteria or gill flukes.

Treatment

Treatment options at present are limited. To attempt to save individual fish the use of covering antibiotics and surfactants such as chloramine-T may be of benefit. Those fish that survive KHV appear to be solidly immune to further infections. It may be that some of these recovered fish become carriers of the virus although recovered Koi have as yet failed to pass on KHV to other, non-exposed, Koi. Control of the infection by euthanasia of all in contact tanks is considered the most prudent course of action at present.

DISEASE LOOKALIKES

A full blown outbreak of KHV is very difficult to confuse with any other infection. The combination of selective die-offs of Koi accompanied by the characteristic gill damage make it unlike any other disease.

Spring Viraemia of Carp can cause similar large die-offs but the disease picture is different, poisonings too can do this but again the overall picture is different. It is only very early on in the outbreak, where maybe only one or two fish are ill that KHV may be mistaken for another disease.

Koi world



Bernice Brewster explains why the reports of widespread outbreaks of KHV in Japanese "Koi" are incorrect.



So far the Japanese breeders of Nishikigoi have been spared

Koi herpes virus (KHV) is becoming a major talking point world wide. At the end of 2003 Japan suffered a major outbreak of this disease, where it has had a serious impact. In Japan, all carp are called 'koi', in fact this is the Japanese word for the fish species, *Cyprinus carpio*, the carp. The coloured varieties of carp, which we know and love are actually called 'nishikigoi'. When the outbreak of KHV first occurred in Japan, all reports described the disease as occurring in koi, which immediately caused confusion in the western world as to whether this actually meant the ornamental industry. It seems it is purely the carp which are bred in Japan for the table. Whilst we might breathe a sigh of relief that so far, the breeders of nishikigoi have been spared, the virus has

spread to some 23 Japanese Prefectures and we must have sympathy for the farmers, some of whom have been ordered to kill all their carp stocks. A devastating situation for these carp farmers.

Ornamental industry in the firing line

In the meantime, back here in the UK, an article on KHV appeared in The Guardian 10th January 2004. This article voiced the concerns of the angling industry which might be wrecked by the spread of KHV. According to the article, antibodies to the KHV virus were detected on six sites in this country following mortalities of carp. Yes, I

am concerned about the spread of a disease, which we can do nothing to treat and control measures are often difficult to enforce, but my chief concern here is the "bashing" which the ornamental industry took for the spread of this disease. I am well aware that ignorant people do on occasion put ornamental fish into open waters and rivers, this is both illegal and irresponsible and organisations such as OATA have gone to great lengths to educate the fish hobbyists on this matter.

One of the organisations which gave the ornamental industry such a negative report in the article in The Guardian was the English Carp Heritage Organisation (ECHO) which was set up to promote fishing for carp but those which originated in this country. Why should English carp be so important? Because of the flood of specimen carp (legally imported and in some instances stolen from mainland Europe) do we suppose all these illegal imports to be free of disease, including the notifiable Spring Viraemia of Carp virus (SVC) could not KHV also have been imported with these?

I do not wish to go further with responding by "bashing" the angling industry which induces me to the same level. What I am desperate to say, is that we know there are problems in both ornamental and angling industries but instead of turning this against each other, which is extremely negative, why can't we co-operate? The common foe is not each other but the occurrence of a very serious disease, so let's get together bring the problems of our industries to the attention of the public and find a way forward TOGETHER, co-operate in funding research into KHV and how to effectively control this very serious disease.

WORLDWIDE PROBLEM

Koi herpes virus has also now been positively identified in Western Cape, South Africa in December 2003, so the impact of this disease is becoming global.



Our resident
Discus expert
Tony Sault solves
another batch of
your problems.

DISCUS PROBLEM SOLVER



Two lovely red cobalt blue diamond discus.

First attempt at breeding

Q I am thinking of starting to breed Discus but I need to know everything that is involved with doing so. I also need to know whether one large tank will be adequate, or two small ones, or one fairly large and one fairly small. Could you also tell me how to get pairs and if and where I could get proven pairs?

John Sengster, Via e-mail

A My standard breeding tank for one large pair is 100cm x 50cm x 50cm and then I advise at least 2 tanks of the same size for the young off each pair. For each pair you need twice as many rearing tanks. Many dealers sell proven and matched pairs as I do, so shop around and I am sure you will find what you want.

Can I add more fish to my Discus community?

Q I have a 120 x 45 x 60cm tank currently holding 7 Discus (approx 7 - 8cm each) as well as 2 Scobiancistrus, 3 Chequerboard cichlids and 4 Rams. I am looking out for a Blue snakeskin to make up a spectacular display of Discus. However, I am looking for advice on stocking levels. Do you think I have room for more fish? I would like to have one or two Gouramis - if there are any that would fit into a Discus set-up - and maybe a couple of Gold rams. Are there any other fish you think would

help maintain the tank or add to the display?

Regards Phil Tomlin

A Your tank at approx 330 ltr, if adequately filtered, will certainly hold more Discus, say 2 - 3 more and all should grow to full size in time. I do not recommend the addition of Gouramis as these do not like the same conditions as Discus and are fin nippers. The Gold rams or many other dwarf cichlids such as Apistogrammas would be fine.

Nervous newbies

Q Two weeks ago I got 5 fairly young Discus around 7.5cm in diameter. Their tank is planted at the sides with an open swimming area. Whenever I go to look at them or to feed them, they all dart behind the plants and hide there. I put the food in and move away but they refuse to come out from behind the plants. They do come out eventually but I am concerned that they may not be getting enough to eat and that the left over food will pollute the water. Will they ever get used to me and stop darting behind the plants? They make a frantic dash for cover and if one of them is too slow for another's liking, that other fish will literally lunge the fish out of the way. They don't seem to have any objections to the food that I am providing them with (Frozen blood worms, discus pellets / flake) considering their reputation for being picky eaters. Look forward to hearing from you. Lisa via e-mail

A You do not specify the size of your tank, but I suspect the 5 young Discus are very nervous due to the absence of tank mates and large open spaces. When you purchase Discus from a dealer's they invariably come from a tank full of fish where they feel very secure. I suggest you introduce some tank mates for them, if not more Discus, some dither fish such as a shoal of Cardinals or other such tetras. This will give them more confidence. Yes, they will get used to you and your conditions, so persevere. It is worth the wait. As regards your diet, can I suggest that when you purchase food for your Discus that you check the labelling for protein content, if it is below 50% then leave it alone. For example, a typical analysis of frozen bloodworm is 5% protein and 92% water and Discus find it very hard to obtain enough energy from bloodworm to thrive. It is only intended to be an occasional treat and should be used as such.



Aponogetons

Peter Hiscock discusses the care and propagation of this group of plants with a widespread distribution.

The Aponogetons (A-pon-o-Ge-Ton) are a group of plants native to Southern Africa, Asia and Australia although naturalised populations are also found in South America and warmer parts of Europe. There are over 40 described species of aponogeton although most of the varieties available for sale are crosses. In most cases, a stronger plant is the result of hybridisation, so this can only be a good thing, even if it becomes difficult to accurately identify some plants. When purchasing these plants it is important to see the plant's potential. Specimens for sale often look a little subdued next to larger or bolder looking plants. In some cases, aponogetons are available as bulbs and purchasing these may result in a healthier plant in the long term.

Distribution and preferred conditions

The widespread distribution of the plants equates to a wide range of preferred conditions within the group, and hence a wide choice of preferred aquarium conditions. Once again, to get an idea of correct care, it is important to look at the plants' natural habitats. For most aponogetons, streams and fast flowing rivers are the preferred environment. Under these conditions they enjoy easily available nutrients, moderate to high sunlight and a well-oxygenated substrate. The most notable of these conditions is the well-oxygenated substrate.

Aquarium Care

Many aquarium plants prefer a low (but not absent) oxygen level in the substrate to prevent nutrients from being oxidised and becoming unusable. In the case of aponogetons, a low oxygen substrate can be highly detrimental and will heavily reduce the health of the plant. In an



aquarium of differing plant species, this conflict can be resolved through a little community spirit. Placing aponogetons between groups of shorter plants will ensure that the substrate around the aponogeton is oxidised by the roots of the shorter plants. Smaller *Sagittaria* sp. or *Cryptocoryne* sp. are ideal for this purpose.

Some of the stream-dwelling aponogetons also like a little bit of flow in the aquarium so an ideal positioning would be near the filter outlet. Lighting and carbon dioxide conditions are unimportant for most species but all aponogetons will do best with moderate to strong lighting. The ideal conditions for aponogetons can be easily accommodated within most planted aquariums but the plants will also do well in slightly more adventurous environments. As many aponogetons also prefer slightly cooler conditions they are ideal plants for a

temperate vivien style aquaria, perhaps incorporating danios, minnows and small barbs with a pea-gravel style substrate and plenty of flow. Under these conditions there are few plants that will thrive as well as the aponogetons.

The resting period

In nature, most aponogetons enter a dormant period when the leaves die back leaving only the rhizome and roots before re-growing a few months later. In the case of Asian species the dormant period is due to changes in temperature whilst in African species it is related to drought conditions. In the aquarium, some of these species may also require this rest period at some point in their lives. Although the rhizome can simply be left in the aquarium it usually

does far better if it is removed for the rest period. The best way to do this is to remove the rhizome and place it in a covered container filled with damp sand, ideally kept at around 16-18C (60-65F) in a dark area. Around six to eight weeks later the rhizome can be replanted in the aquarium where it should soon produce new shoots. The plant will only survive this rest period if it has enjoyed enough light and nutrients to store sufficient energy reserves in the rhizome. It is difficult to know which plants are likely to require a rest period, especially as many specimens are crosses and not true varieties. A good indicator is the size of the rhizome, plants with a large rhizome or tuber are likely to require an energy store for rest periods, and so likely to enter a rest period at some point. In general, most aquarium hybrids do not require a rest period.

COMMON APONOGETON SPECIES:

This large plant produces heavily indented leaves up to 30cm long on stems and is ideal for the midground of larger aquariums. Good lighting and an iron rich substrate are vital for long-term health. Anaerobic substrate will reduce the plant's potential.

Madagascan lace leaf,

Aponogeton madagascariensis

This beautiful plant is the most easily recognised aponogeton thanks to its novel appearance. The leaf tissue between the plants veins is missing, leaving a skeleton or net like leaf. Although the plant is very popular, it is also very difficult to care for over longer periods. To provide the plant with the best conditions for survival it must be provided with clear water free from algae, a gentle flow and cool conditions (18-22C / 64-72F). The most common problem with this plant is that its fine leaves will become easily clogged with algae or plant debris, causing the leaf structure to break down. A solution to this may be a team of gentle scavengers and algae eaters such as the ever useful Japanese shrimps.

Aponogeton ratons

This plant is one of the hardest aponogetons but produces mainly floating leaves on long stems so is not often used in aquariums in its natural form. It is worth mentioning however as it is often crossed with other species to obtain hardy varieties with more controlled and attractive leaf forms.



Crinkled aponogeton,

Aponogeton crispus

Although commonly available, this plant is often underrated perhaps due to its spindly looking stems and messy appearance. Given good conditions, this plant is adaptable and fast growing, producing numerous ruffled olive green leaves. In the aquarium the plant normally reaches around 35cm although it can potentially grow much taller.

Aponogeton rigidifolius

This plant is the only aponogeton that does not have a nutrient storing tuber but instead produces a stiff woody rhizome. A good undemanding plant for hard water aquariums.

Compact aponogeton

Aponogeton alveolatus

Under good conditions this plant will become a stunning specimen due to its variable colour and undulating leaf form.

The leaves are normally a shiny pale green colour but often sport an orange-yellow hue. Prefers a gentle flow and cool temperature and will grow up to 40cm.

Aponogeton undulatus

Unlike other aponogetons, this plant will produce plantlets on stems, much like many *Echinodorus* sp. Grows to 40cm and will do well in hard water.

Water hawthorn

Aponogeton distachyos

This plant looks more like a lily than a traditional aponogeton and is best suited to pond conditions where it can be planted in water between 30-90cm (12-36") deep. The plant produces elongated oval floating leaves and produces white flowers, often at irregular times of year. In its native South African environment the flowers and buds are reputed to be a delicacy cooked with mutton or lamb and onions in a stew!

Propagation

Propagating apogonoids is best done through seed production and if you've never tried this before, the apogonoids are one of the best plants to begin with. Apogonoids will flower easily and most are self-fertile so

viable seeds can be produced from one plant. Flowers are produced on long stalks and if gently brushed the plant will become pollinated. After this happens the stalk will begin to die back and seeds will form on the stalk. When the seeds are released they will float for a few days before sinking and germinating. In nature this allows the seeds

to float away to different areas or be redistributed by animals. In the aquarium, the fishes normally eat up the seeds fairly quickly so it is best to remove the flower stalk before the seeds are released. A separate tank can then be used to germinate the seeds and grow new shoots before replanting in the main aquarium.



Water Hawthorn flowers infuse the air around them with a vanilla like perfume.



The Madagascar lace plant leaves of a specimen grown by Malcolm Goss reach 30cm in length.

THREE STAGES OF *A. ULVACEUS*

Aulvaceus corals are sometimes offered for sale



MICHELLE JAMES / TROPICAL



A. ulvaceus plant

Flowering *A. ulvaceus*



Chameleons for beginners

Adult male Veiled or Yemen chameleon showing normal coloration.

Bob & Val Davies look at two captive bred Chameleons which are suitable for the beginner.

At the moment two species are commonly available as captive bred specimens that are, using guidelines outlined here and last month, suitable for relatively inexperienced herpetologists. One or two species are still imported, especially Senegal chameleons. These tend to arrive stressed, thirsty, hungry and usually with internal parasites. Unless experienced in caring for such creatures, they are best avoided. Captive bred specimens will be less stressed, usually well fed, used to captivity and parasite free.

Veiled or Yemen chameleon (*Chamaeleo calyptratus*)

Veiled chameleons are native to Western Yemen and the South Western coast of Saudi Arabia. Their distinguishing feature is an unusually high casque that makes it an impressive creature. In such an arid environment the casque is useful for

collecting moisture droplets in the morning which run down into the Chameleon's mouth. It is higher in males and, by pulling the side flaps forward, he can make the head look larger and more intimidating. Male coloration of alternating bluish green and yellow bands is eye-catching. The Veiled chameleon is one of the most aggressive species and intolerant of other

specimens except when mating. Occasionally white deposits may be seen around the nostrils. This is nothing to worry about. Veiled chameleons possess nasal salt glands to allow the excretion of sodium and potassium as a concentrated white powder. This is an adaptation to an arid environment and saves the loss of valuable moisture.



Gravid female veiled showing warning coloration. Note the casque is smaller than the male.

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CAPTIVE CARE

Veiled chameleon

Size – 40-50cm total length, females slightly smaller

Vivarium size – Minimum 90x60x90cm for a single specimen

Substrate and decor – Newspaper but potting soil is more aesthetically pleasing and aids humidity. Framework of branches, one below a UV tube. Weeping fig bushes

Temperature – Daytime 27°C at cool end rising to 32-33°C at hot spot. 22°C night. Photoperiod 12-14 hours

Humidity – 60% early morning spray to drench leaves of plants

Food – Crickets, locust, waxmoth larvae, mealworms. Adult specimens will eat grape fry

Sexing – Males, even hatchling males possess a tarsal spur on rear foot

Panther chameleon

Size – 38-50cm females somewhat smaller

Vivarium size – Minimum 90x60x90cm for a single specimen. May be slightly smaller for females

Substrate and decor – As for Veiled chameleon. Ensure a branch is about 25cm from spot bulb for safe basking for both species

Temperature – Daytime 26°C cool end and 30°C hot spot. 20°C night. Photoperiod 12 hours

Humidity – 75-80% Heavy spraying - may need light spray later in the day

Food – As for Veiled – omit the plant. For both species food should be dusted 3 times a week with a multivitamin/mineral/calcium supplement

Sexing – Harder to sex as hatchlings since colour may vary according to mood and temperature. As adults males larger, rostral process and more colourful

Panther chameleon (*Furcifer pardalis*)

Native to the northern half of the island of Madagascar, this species is well known for the numerous geographical colour variations of males, although only one or two of these forms are available in the UK. Males may be bluish green with whitish-yellow lips, uniformly blue, green changing to vivid orange red when excited, green with blue or red bands and even a pinkish form. Young females are brown to light pinkish brown.

Climatic conditions vary within their range and this affects breeding. In the north temperatures and humidity are relatively constant throughout the year so females produce four clutches. In the southern part of their range there are distinct seasons and only two clutches are produced. Panthers are the commonest chameleon in Madagascar and also the most territorial. In captivity males have been known to 'eyeball' each other across a room. Such visual



Male Panther chameleon from the island of Nosy Be - blue green with yellowish lips.

intimidation often leads to one specimen assuming drab coloration, hiding and refusing to feed. We have noticed this visual intimidation occurring even in hatchlings and

have had to devise a method of rearing them separately and unable to see one another. If keeping more than one specimen of this species this factor needs to be borne in mind.



Normal coloration of a male Panther from Antananjivo in the more southerly part of the species range.

POINTS TO BEAR IN MIND

1. Chameleons are more time consuming than many other lizards. They need daily spraying and feeding. Trying to cut corners by placing several days' food in the vivarium usually results in the Chameleon actually stopping eating. Furthermore, crickets roaming on the branches at night can cause damage to the Chameleon's mouth and eyes.
2. Chameleons are not pets. Whilst they get used to a keeper and will eventually climb onto a hand, they become stressed if handled out of the vivarium several times a day. They should not be deliberately stressed to make them change colour.
3. Chameleons are not as long-lived as some other reptiles. Our male Veiled lived for six years and male Panthers for between four and eight years. The life span of females is shorter.
4. If buying a single specimen it is better to opt for a male since females, once mature, will fill up with infertile eggs. For some reason they find it more difficult to get rid of these than fertile eggs.

Desert dwellers

Val Davies explains how to keep your desert dwellers happy.

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EXO TERRA

Make your reptiles feel at home



Without adequate levels of heat, UVA and UVB light many Desert dwellers like this Uromastyx will not thrive in captivity.

When creating a desert type vivarium for Uromastyx and other desert dwelling lizards heating and lighting are both crucial elements. In the wild, whilst basking to raise their body temperature, creatures are also absorbing ultraviolet light of which there are three kinds (UVA, UVB, and UVC). The latter, which is dangerous to all living things, fortunately has an extremely short wavelength and need not concern us. The UVB element activates a chemical reaction in the animal's skin converting the vitamin D in the diet into active D₃, enabling the lizard to metabolise calcium in the gut. This in turn promotes the growth of correctly formed bones and claws. UVA is also important for a lizard's physiology in that it affects activity levels, mating patterns and even breeding behaviour. Desert reptiles such as

bearded dragons, Uromastyx and some tortoises have higher UVB requirements than other species. High percentage fluorescent tubes to provide both light for the vivarium as well as essential UVA and UVB should be installed.

When heating the vivarium heat sources should be placed at one end to produce a thermal gradient thus allowing the lizard to control its body heat (thermoregulate) by moving from warmer to cooler areas and vice versa as in the wild. In a large vivarium two smaller heat sources are often better than one large powerful source. Basking heat can be provided by a thermostatically controlled spot bulb. A wide range of these are now available including types for both day with additional UVA and night (the latter providing infrared heat without light).

Uromastyx only emerge from their burrows when the desert sun has warmed surfaces such as the sand, rocks and logs.

The Repti Glo 8.0 tube is specifically designed to produce high levels of UVA and UVB light which desert dwellers require.



Using a Sun Glo Tight Beam basking spot lamp will create a thermogradient within the vivarium which is ideal for desert dwellers.



The Heat wave rock simulates a stone which has been heated by the sun. It is thermostatically controlled and comes in three sizes depending upon the size of animal which will be using it.



Hides like these Reptile caves should be placed in warm and cool areas of the vivarium to provide shelter.

In addition to basking these creatures utilise this conducted heat to increase their metabolism. For the same reason nocturnal desert geckos often seek out rocks which retain warmth for some time after sunset. To simulate this type of heat in captivity it is possible to install a heating element resembling a rock. Other non light forms of heating can be used which are placed either under the substrate for terrestrial species or mounted onto the vivarium sides for arboreal creatures. It is advisable to position several thermometers in the vivarium to ensure a thermal gradient from side to side and, to a lesser degree, from top to bottom.

Furnishing for a desert vivarium should look as natural as possible. Live plants cannot be used since they increase humidity and would be eaten by Uromastyx. Although most desert reptiles rarely drink, obtaining most of the moisture they need from their food, a small, shallow water dish should always be provided. Too large a dish will increase humidity levels. Hides to allow the lizards to shelter should be placed in both warm and cool areas. Uromastyx are primarily herbivores and suitable foods should be placed in a shallow dish to avoid ingestion of substrate.

For more information on the Exo Terra range of reptile products, contact Rolf C Hagen (UK) Ltd Tel: 01977 556622

...End Point



These two Red Congo tetras are both males. Females have a silver iris.

Derek Lambert unearths an attractive Characin from deepest darkest Africa.

Africa is home to a number of beautiful Characins which are only occasionally reported for the aquarium trade. The Red Congo tetra, *Microrasbora sturmi*, however, has been included on several wholesalers' lists in Europe recently so may turn up in an aquarium shop near you and it is certainly worth looking out for. Males have a red adipose fin and iris, the female's iris is silver.

Wide range of conditions tolerated

In the wild these fish are found in a wide range of water conditions, pH range from

6.0 to 7.6, dH range 100 to 250, so unlike many of the South American Characins, they are tolerant of a wide range in the aquarium. In addition, they are adaptable and can live comfortably outside these parameters: pH values as high as 8 have not only been tolerated but the fish have thrived.

This is a lake dwelling, shoaling species which gives you a good guide to the sort of conditions they will require in your aquarium. A large tank (minimum 120cm) with plenty of swimming room and good filtration should be provided for them. Never buy just one or a pair, buy 6 or more so they can shoal together as they do in nature.

When kept in a group like this, they are peaceful tank mates for a wide range of other fish of a similar size. Barbs in particular make good companions, but other Characins, including Congo tetras are also ideal tank mates.

Obviously when buying a large group of fish like this, water conditions should be carefully monitored. Many quarantine tanks have only limited filtration and this species is one of the first to suffer if any trace of ammonia develops. Even when the quarantine period is over and you move them into their long term home, keep an

eye out for any ammonia or nitrite problems. Other than being among the first to suffer if high water quality is not maintained, this species is a hardy, lively fish which would be a great addition to many large community aquaria.

PROFILE

Name:

Red Congo tetra

Scientific name:

Microrasbora sturmi

Size:

10cm

Aquarium type:

Community with similar sized fish

Distribution:

Central Africa: Congo basin, Chad, Ihuri and also in Tanzania

Diet:

Omnivore, Flake and other prepared foods plus live foods, or their frozen equivalents.

Temperature:

22-26° C