

Today's Fishkeeper

DECEMBER 2001 £2.95

PREVIOUSLY
AQUARIST
AND PONDKEEPER

Fishkeeping Answers

We solve all your problems

Prawn Cocktail

Alf Nilsen introduces some ever popular shrimps and prawns

Starting Point

A beginners guide to successful fishkeeping

NEW Fish

Featherfin Tetras and Vaillant's Chocolate Gourami

NEWS

How will September 11th affect fishkeepers?

FROM BEGINNER TO ADVANCED



DECEMBER 2001

Today's Fishkeeper

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Editorial

The events of September 11th still echo around the world. Even in our hobby of fish keeping it looks like it will have a significant impact on the future. Extra security, changed flight schedules and other additional costs will in all probability cause fish prices in aquarium shops to rise. This is obviously not good for any of us, but looking through an old copy of this magazine from 1964 I noticed an advert from Shirley Aquatics advertising Red-tailed Black Sharks at 50p each and Cardinal tetras at 35p each. In real terms that is hugely more expensive than we can now buy them for. So, although the price of our fish may go up, it will probably not damage the hobby too much. In fact it might make us take a little better care of those we already have. For the full story on the September effect read John Dawes's article on page 38 of this issue.

Shows on the up

Much to the organisers' surprise, the number of fish and support of the shows at the Festival of Fishkeeping and Watergardening were much higher than expected. Saturday 120 Goldfish entries and over 90 Catfish were benched. I don't have the final figure for Sunday's general show but they had to set up extra staging for all the entries and the judges had a very hard time finishing within a reasonable time. It was good to see such a large turnout, which included exhibitors from as far away as Scotland, Wales and Yorkshire. Well done everybody. A full report on the event will be in next month's issue.

Until then,
Happy fish keeping,
From Derek and the team at TRMG

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CUT OUT & KEEP

Today's Fishkeeper's monthly gallery builds into a collection of fabulous full-page colour photos, each with useful information

Silver Tetra

KEY TO SYMBOLS:

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

	COMMUNITY		MID WATER
	NON-COMMUNITY		BOTTOM
	CARNIVORE		TEMP.
	OMNIVORE		SIZE
	HERBIVORE		NOT SUITABLE FOR KEEPING IN CAPTIVITY
	SURFACE		

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PAGE 47 GREAT BOOK COMPETITION

Starting Point...

Just beginning in the hobby?

Pat Lambert writes especially for you...



I have been keeping fish for more years than I care to remember. I've kept and bred hundreds of species, founded a specialist livebearer group, travelled down jungle tracks in search of fish and given lectures at home and abroad but I still think there's nothing like those first exciting, heady days of keeping fish.

CHRISTMAS IS JUST AROUND THE CORNER and at this time of year we are all very busy trying to do too much, thinking of other things, so it's very easy to neglect the fish. They don't cry out when they need feeding, or when they are sick, or if they need a refreshing water change. Neglect the feeding, tank cleaning and daily observation and your fish will go downhill, some faster than others. Have a great time but remember the fish still need your care and attention to make it a happy Christmas for them.

TWO LIVEBEARING FISH FOR YOU

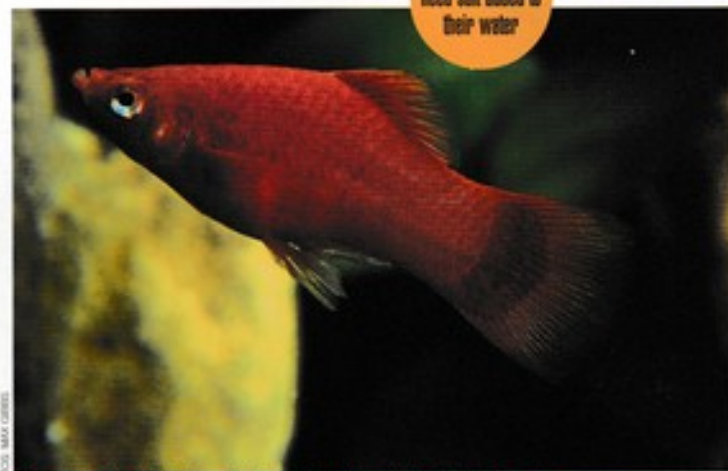
This month I feature two livebearing fishes that have been favourites with fishkeepers and named in the top ten of the most popular fishes. The sexes are easy to tell apart, for males have an elongated extended rod like anal fin that is very easy to spot.

What a great beginner's fish the cultivated Platy is. Peaceful, undemanding and colourful, this fish is a perfect community fish. Available in most aquatic

Male Guppies are particularly vulnerable to fin-nipping.



These fish do not need salt added to their water



A beautiful Red Platy. This is the result of hybridisation between at least two different species.

outlets in a wide range of gorgeous colours this is definitely a winner in a community of small fishes.

The guppy has been a long-time favourite and is very well known even to those who have never kept a fish. The Deltatail guppies, like those pictured, come in a wide range of colours, some of which are quite spectacular. However, the beautiful tail can create problems for them. These fish should only be kept with species that will not tear their lovely tails to shreds. This long, wide-spreading tail is very tempting to some fish, or it could possibly be annoying when it's waved in front of them all the time, for male guppies are very lively fish and always on the look-out for mates. Good specimens have the colour of the tail in their dorsal and anal fins. Look carefully before you make your choice. There are also swordtail guppies available that are harder, live longer and are not so subject to tail damage as the Deltas.



Guppies have been widely used in many parts of the world to control mosquitoes. Ann Weir shows in her cartoon the rigid training programme they had to undergo to do this job.

POSSIBLY A FISH FOR YOU BUT WITH A WARNING

The adult Red tailed black shark is a very striking fish. This fish is aptly named with its velvety black body and brilliant red tail. It has, however, been the bane of many a beginner fishkeeper's life. It can, and frequently does, cause mayhem in a peaceful community tank, for these are territorial animals that stake their claim to their own area of the tank and will see off all comers, particularly their own kind. They are not VERY aggressive, just protective of their own space and can adapt well in a larger community aquarium. Having said this they tend to harrass their tankmates but little serious damage is done unless the fish are stupid enough not to take 'no' for an answer. This does not make life easy for the other fish. This having been said, it is undemanding in its requirements, eats

Be fully aware of the problems associated with this fish and only keep one in a tank



A fish for you, but with a warning. A full grown well coloured Red-tailed Black Shark.

all foods and adjusts to normal water parameters. If you are tempted to buy one (they are attractive aren't they?) a 4' community tank of robust species suits them best. Young are poorly coloured and do not show their brilliant potential. This brilliant colour will develop later if you feed colour-enhancing foods that are available from good fish food manufacturers, otherwise you could be disappointed and you could miss the full glory of having this beautiful fish cruising around in the lower regions of your tank.

A PLANT FOR YOU

The Amazon sword is a great plant. It's easy to grow and it really does grow! Its large, broad leaves extend upwards towards the surface as well as having a wide spread. One will probably suffice in a 2' tank but don't have more than two. When you plant it the top leaves tend to die off but new green shoots soon spring up from the base and they don't take very long to grow.

THIS AND THAT

The following are small, inexpensive items of equipment that have proved useful to me and really should be added to your box of fish equipment.

Scraper and planter stick

This is a long plastic stick, at one end is a plastic scraper useful for scraping algae from the sides of the tank. At the other end is a planting fork for bedding down new plants into the gravel or replanting plants that have been dislodged.

Don't buy half a dozen for a 2' tank they just grow too BIG



Amazon swords grow large and make excellent aquarium plants. This is Echinodorus pterocarpus but there are many species available.

Nets

You need two to catch a fish out as this causes less stress than chasing it around with one net. It takes a bit of practice to catch fish but you'll soon get the hang of it. The most practical size is the 4", very small nets are not much use in most situations.

Siphon tube

You will need a piece of non-toxic plastic tubing for emptying water and siphoning the surface detritus of the gravel when carrying out your weekly water changes. Half inch diameter is best. Siphon tubes are available with a starter that start the suction action for you and are probably best for a beginner.

Stick on temperature gauge

These come in circular or strip form and stick on an outside corner of your tank. I have found these very useful. They indicate the normal range for tropical tanks and show you the unsafe zones at a glance.

Ammonia reader

This is a small disc that fixes on the inside of the tank and warns you of the presence of ammonia in your tank. A very useful gadget that also comes in small figures as well.

Test kit for ammonia, nitrite, nitrate and pH

Several manufacturers produce good quality test kits. You can test the water for many things but these four are the vitally important ones.

Whitespot treatment and aquarium salt for treatment

Whitespot is fairly common in new fish as any fish under stress is likely to succumb →

Starting out with fishkeeping

Naturally... AQUARIAN

and a move can be quite stressful. Treat according to the manufacturer's instructions. Never use different treatments at the same time, try to stick to the same manufacturer's products whichever one you decide on.

Spare heater-stat

These do break or malfunction and they always seem to do it when the shops are closed. A spare one is an essential piece of equipment.

Battery operated pump

These are very useful if you have a power cut when the normal source of power is cut off. A power cut is not such a problem in this way if your tank is not overstocked.

Airline and airstones

It's always useful to have these for you may need to rig up an airline to a quarantine tank or isolation tank. ■

Not all big fish are carnivores. Pacu such as this one are primarily herbivores.



PHOTO: STEVEN LAURENSEN

Lost for words

Standard length: The length of a fish from the snout to where the tail joins the body (caudal peduncle). This is the measurement usually used in books for giving the length of a fish.

Total length: The length of a fish from snout to end of tail fin (caudal fin).

Herbivore: A plant eater.

Carnivore: A meat eater.

Omnivore: Eats all kinds of food.

Barbels: Paired sensory 'whiskers' situated near the mouth on some fishes eg. Catfish and many Barbs, they give these groups their common name.

Species: A group of individuals that share common characteristics, interbreed and are easily identified as a member of that group eg. species *Poecilia reticulata* recognised as a guppy.

Hybrid: The results of the inter-breeding of two species eg. *Xiphophorus variatus* and *Xiphophorus helleri*. Cultivated varieties of Platies and Swordtails are hybrids.



Many Carnivores have significant teeth with which to catch and eat their prey.

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 70-80°F
Marines 75-78°F
Coldwater 55-70°F
Some delicate species have very specific requirements, read up on them before you purchase.

3 **Filtration** cleans 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 tropicals, coldwater and marines require larger filtration systems.

THE FISH

4 **Stocking levels:** For *freshwater tropical* we recommend 12" of surface area per 1" of fish.
Marines 1" of fish for 6 gallons of water is safe for reef tanks.
Fish only systems can house more fish but safe stocking level depends on the filtration system.

For your free beginners guide please call: 0845 677 6770 or visit our website: www.aquarian.com

AQUARIAN



Ponds to a maximum of 100" of fish per 1000 gallons. 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

- 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.
- Water changes:** *Freshwater tropicals* 10-20% weekly
Marines no more than 20% every two weeks.
Pond fish also appreciate an occasional water change. Keep an eye on ammonia, nitrite and nitrate levels. They should be zero in a mature pond.
- 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: Daily observation is the key to successful fishkeeping. Look for any abnormal swimming patterns, bullying or listlessness. See that the fish are eating well and that all are getting their share. If fish are in difficulties test the water.

SILVER TETRA

Tetragonopterus argenteus



PHOTO: AREND VAN DEN NIEUWENHUIZEN

TODAY'S FISHKEEPER

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Fishkeeping Answers: Tropical



Male mollies like this one use their modified anal fin to mate with the female

Natasha wants to know if her mollies are mating?

I am very new to keeping Fish and virtually don't know anything about them apart from the fact that I have very much enjoyed having them for the past four weeks. I have tropical fish that include two white mollies that have turned out to be a pair. I have noticed two days ago that one of the mollies is getting fat so I thought it is overeating and decided to keep an eye on it but last night I saw what I can only presume the mollies mating or the male fertilising the eggs. So now I am panicking as I don't know what to do.

Natasha via e-mail

Mollies are livebearers and your female will give birth once a month. The male mates with her using his gonopodium (modified anal fin) that is probably what you

saw last night. The fry are usually born at night and any fish large enough to eat the babies will do so. If you want to rear some babies you need to set up another tank and place the expectant mother in it when she is looking fat. The nursery tank should have gentle filtration (bubble-up sponge filters are best for this) and some plant cover (particularly at the top) for the fry to hide in. As soon as she has given birth she should be returned to the main tank. Feed the babies on proper fry foods as these have higher levels of protein than normal staple diets used for adult fish. They grow quicker and better if you can feed some live foods such as newly hatched Brine shrimp or Grindal worms as well as dry foods.

Derek Lambert

Cloudy water is a problem for Peter

I have a recently set up aquarium in that I can't seem to get crystal clear water even though I have

Buenos Aires Tetras are an easy fish to breed as your first egg-layer



PHOTO: M.F. A.C. PEREIRA

Having problems? Then let our panel of experts solve them for you. *Fishkeeping Answers* is our free reader service. Just send your question by letter or e-mail and we will forward it to our panel of experts. Everyone receives a reply regardless of whether we publish them or not.

done the 1/3 water change as advised in the aquarium shop. I use aqua safe and blackwater treatment. What is happening?
Peter via e-mail

Nearly all fishkeepers, in their early stages, overfeed their fish. This means there is too much food and waste in the tank for your filter to cope with. The simple solution is to cut back on how much you are feeding your fish. Two feeds a day and only as much as the fish can finish off in five minutes is all that is required. It is important to time your fish once you have put the food in and make sure all of it has gone (including what falls into the gravel). It is not just the solid waste that you can see that is the problem but the invisible waste such as ammonia that is the real danger. If this builds up it can kill your fish. You can buy a testing kit to check this, or better still there is a sticker that fits on the inside of the front or side glass. This constantly monitors ammonia levels and changes colour if you have a problem. It is called Ammonia alert and is produced by Seachem. If your local shop does not normally stock them contact Casco on 07000 39 39 40 for your local stockist.

Either way the solution at the moment is to do more water changes - 20% every 3 days until the tank clears. This will dilute any pollutants and help remove solid

wastes as well. You might need to increase your filtration but that will depend on what you already have, your tank size and your stocking levels. Use Aqua safe when you do these water changes. Good luck with your fishkeeping and keep in touch to let us know how you are getting on.

Derek Lambert

Mat wants to try breeding egglayers

I am new to fishkeeping and have managed to breed platies. I know that they are livebearers and would like some info on breeding egglayers, in particular Tetras and Dwarf Gouramis.

Mathew O'Neill via e-mail

To breed your egglayers you will need to set up a breeding tank. This should be about 2' long and set-up in different ways depending upon which fish you want to breed.

Since most species of Tetras kept by aquarists are typical egg scatterers, a general breeding set-up should include something that the pair can lay their eggs into. For most species a 60cmx30cmx30cm (24"x12"x12") aquarium is ample. A large clump of Java moss works well as do artificial spawning mops. Personally, I like to use water-logged peat as a substrate in these breeding set-ups. This has

the dual action of providing a dark substrate that will help reduce light levels reaching the eggs and also makes it more difficult for the adults to find any eggs to eat. I also include several artificial spawning mops suspended from the water's surface.

These are large enough to reach right down to the substrate. Set the temperature at 77°F (25°C).

Very soft water is a must and I use pure rainwater that has been filtered through activated carbon. Peat is then sprinkled on the surface and allowed to sink through the water column (this takes about a week) producing ideal water for breeding most Characins.

For most egg scatterers it is a good idea to separate the sexes for a week or two and feed lots of live foods during this period. This allows the females to build up a batch of eggs prior to spawning and bring the males into spawning condition. They are then added to the breeding set-up late one evening and will usually breed the next day.

For more detailed information on breeding fish Interpet have just published my new book entitled *Breeding Your Freshwater Fish*. It is part of the Tank master series and costs about £6. Your local shop should be able to obtain a copy for you or contact Interpet on 01306 881033 for your local stockist.

Derek Lambert

How can Scott reduce the nitrate in his aquarium?

I have had my fish tank up and running for a month now but the nitrate levels don't seem to be going down at all. Is there anything I can do to get the levels of nitrate down, I am using a Fluval 2 filter system and my tank is two and a half foot long. I have 10 small fish in the tank. Please let me know of any products or anything I can do to get the levels down.
Scott Via e-mail

Compared to ammonia and nitrite, nitrate levels are not as critical because fish can tolerate relatively high concentrations in the aquarium. You do not mention what your nitrate reading is, and you may be concerned about a problem that does not pose a threat to your fish. Ideally, nitrate should be as close to zero as possible, but freshwater fish can typically safely tolerate nitrate up to 50ppm. →

Fishkeeping Answers Expert Panel

All Stalsberg - Cichlids.

Pete Liptrot - General questions on tropical fish and oddballs.

Andrew Caine - General questions on Marines.

Ben Helm - General questions on Coldwater plus equipment and technical advice.

Lance Jepson - Health.

Tony Sault - Discus.

David Armitage - Anabantoids.

Derek Lambert - Livebearers, Rainbows & Breeding fish.

Ian Fuller - Catfish.

Andy Gabbott - Killifish.

Stephen Smith - Goldfish.

Bernice Brewster - Koi and Ponds.



Please indicate clearly on the top left-hand corner of your envelope which person you wish your query to go to. All letters must be accompanied by a SAE and addressed to: Fishkeeping Answers, Today's Fishkeeper, TRMG Ltd., Winchester Court, 1 Forum Place, Hatfield, Hertfordshire, AL10 0RN.

Internet service

Fishkeeping Answers is also available via e-mail. Most of our experts can be contacted via the internet. A few are still not on-line so we will have to pass your messages on to them by snail mail (we will tell you when this happens) but otherwise you should receive a reply to your questions in a few days rather than weeks. Send your e-mails to: askap@btinternet.com



tropical marine coldwater & ponds plants regulars

Fishkeeping Answers: Tropical

I have a heavily planted aquarium that readily consumes nitrates, with its capacity for removing nitrates increasing with age. New aquaria, such as yours, are not as effective at removing nitrates especially if your nitrate was introduced via tap water (rather than being a product of nitrification which will take months for nitrates to accumulate). I suggest you test your tap water for nitrate as you may be surprised how high the levels are in tap water (if that is what you are using). If you have a safe supply of rainwater (which is naturally nitrate-free) then use this to dilute away the nitrate in your aquarium. Do this periodically as your nitrates will continue to creep up naturally through biological processes in the aquarium. Add some plants and adequate lighting and these will help to reduce nitrates.

Ben Helm

Kevin asks about joining the Anabantoid Association

I have just returned to keeping Bettas and would like to know if you have a current address for the Anabantoid Association?
Kevin, London

The Anabantoid Association of Great Britain can be contacted at: Mrs C. Clark, 19 Chiltern Crescent, Sprotborough, Doncaster, DN5 7PE or by e-mail at c.j.labyrinth@virgin.net



Betta scholierii are just one of the more unusual Bettas available in the hobby

Murdo wants to know which is easier to keep, Marine or Freshwater Tropical fish

I have never kept fish before and would like to start. I bought September's issue and would like to know which is easier to keep marine or freshwater tropical fish.
Murdo Via e-mail

It is impossible to generalise about the relative "easiness" of freshwater or marine aquaria. They both

require a degree of dedication and responsibility to ensure that the organisms can receive optimal care. It is probably true that marine aquaria are somewhat more demanding, as the preparation needed for water changes is greater and also there is usually less margin for error, marine water holding less oxygen at a given temperature than fresh water being one reason. The organisms usually purchased for marine aquaria often come from reef environments where conditions are very stable and they are far less tolerant of aquarium mismanagement. The ultimate expression of this is probably the reef aquarium with a large population of invertebrates,

many of which are far less forgiving than are fish when it comes to maintenance errors.

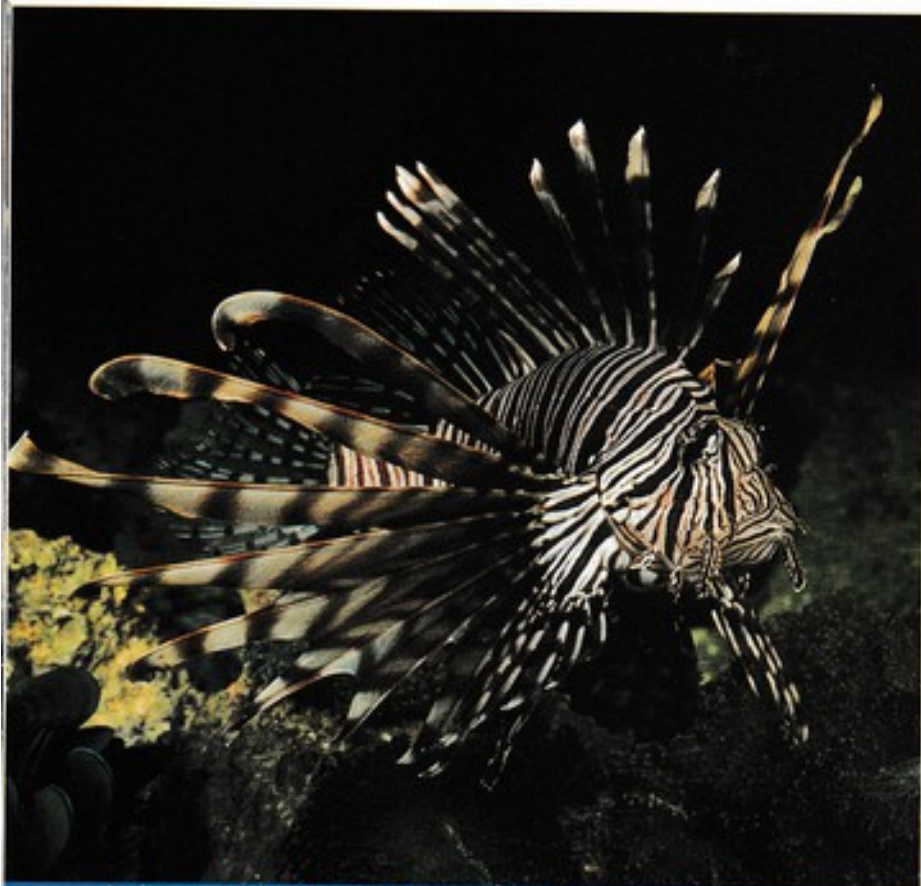
Many freshwater species experience widely varying conditions over the course of the seasons, from flood to drought that makes them more adaptable. This does not mean that they should not be given the best conditions possible in our aquaria, it simply means that in the event of a mishap they are more likely to survive. I would suggest that you purchase or borrow from your local library some books on setting-up and maintaining aquaria.

Pete Lightfoot

Heavily planted tanks like this one, will naturally reduce nitrate levels



Fishkeeping Answers: Marine



Part of Dave's problem is caused by the sort of fish he has. Large predators like this Lion fish produce a lot of waste

Dave has a nitrate problem

Could you please tell me how big Angler fish grow, and can you also give me some advice on why my nitrate is so high. It is about 100mg/l. My system consists of two fluval 404 power filters, 1 seacone skimmer, 1 maxi skimmer, 1 25 watt uv steriliser, 1 ozoniser. There are no traces of ammonia or nitrites. My pH is 8.4, my tank is 48" x 24" x 24", my fish consist of 1 Lion fish, 1 Dog faced puffer, 1 Angler fish, 1 Porcupine puffer, and 1 Panther grouper. I do a 10 gallon water change every two days.

Dave Peterson, via e-mail

I am not surprised you have this problem and the cause of it is your fish, and what a wonderful sight they all must make, however, they are all dirty pigs and have no table manners what so ever. Firstly your aquarium is too small for all these fish as when fully grown you will have at least 70" of fish, requiring an absolute minimum 72"x24"x24" aquarium. There is a very large amount of waste created at meal times when food is ripped to shreds and spread over the aquarium, this rots down causing a massive nitrate production. We cannot stop this pollution as any cleaner animals would soon be bitten to pieces within the aquarium. The two best ways to remove nitrates is to buy a very

big skimmer, this removes organics before they turn into nitrates and secondly purchase a nitrate remover which creates an anoxic bacteria laden environment ideal for nitrate removal. As to your Angler fish, you have not given me the species name, some exceed well over 48" long whilst others remain only an inch and would be eaten by their tank mates.

Andrew Caine

Peter wants to introduce an anemone

I would like to introduce an anemone into my reef aquarium, it is quite heavily stocked and I am worried about it damaging my

corals if it moves too near them. Is there any way to stop an anemone from moving in an aquarium.

Peter Ball, Leicester

I find a six inch nail normally does the job! Seriously there is only one place an anemone will settle in an aquarium and that is exactly where the owner does not want it. If you introduce such a beast then you must accept the consequences. As to damage caused, it can be serious or harmless. An example is an anemone *Heteractis magnifica* smothering an *Acropora* sp for sixteen days. It moved off and the coral bloomed back into life as if nothing had happened, the polyps had retracted into their skeleton. The same anemone then moved towards a bubble coral *Pterogyra sinuosa* and caused serious damage, you just cannot tell. As a rule the one anemone that has a habit of staying put is the carpet anemone *Stichodactyla gigantea*, most will stay exactly where you place them. The draw backs? It can grow very big and any animal touching it will end up a meal, full stop. All other anemones will walk, however, some remain a good size whilst any animals touching it have a good chance of escape.

Andrew Caine

There is only one place an anemone will settle in an aquarium and that is exactly where the owner does not want it



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for all your marine keeping answers

star letter



Mike wants to know if Yellow Tangs are tropical or marine fish

Mike wants to know about Yellow Tangs

I am new to the keeping of fish apart from a few goldfish that I have had in the past. I would like to start my first aquarium and so have bought some books and your magazine hoping that these will give me a good start to my new hobby.

My question is about the Yellow Tang. I have fallen for this fish after visiting my local aquarium and so would like to include it in a community tank. This is where I thought that the books would help. I bought one on setting up an aquarium, one on community fish and an all round beginners book. None of these mention the Yellow Tang. Am I lost before I start. The only thing that I can think of is that it is a Marine fish and not a Tropical one. Is this right? If so, then what is the difference between the two. If it is a Marine fish does this mean it is out of my league with it being my first attempt at the hobby.

Mike Hoyle, Guernsey

The Yellow Tang, *Zebrasoma flavescens*, as you state, is indeed a marine fish, you have already solved your first puzzle, welcome to fish keeping. But why would they be out of your league? If you have fallen

for such a fish, then you can keep such a beast.

Countless millions of pounds has been invested in research over the last decade to make the marine aquarium accessible to the novice. Personally it gives me the greatest of pleasure to see a complete beginner successful in reef keeping. So what we have is a situation where we have the hardware for a beginner to keep good water quality, and provide the other correct physical parameters for the marine aquarium at hand, what we need to do is educate ourselves on the principles of the hobby and also the livestock.

What you must do is read up on the hobby, only books under two years old are good. Information soon becomes dated, read magazines, always on the cutting edge, and you will tend to read articles over and over again.

It won't be trouble free, even the best of us have problems at some time, but nowadays, you can do it. Read a bit, don't skimp on equipment, be patient and the end result is more than worth it.

Good luck on your new adventure, and remember we are here to help.

Andrew Caine

Alison wants to increase her water circulation

I would like to improve my water circulation within my reef. It is 48"x24"x24", I have two returns from power filters and two 1500 litre an hour power heads, to improve this what would be the best purchase, two more power heads or a surge control?

Alison Fairhead, Woolwich

I notice you state circulation, not water movement, from this I must deduce that your water movement is generally flowing one way around the aquarium. My first improvement would be to change the way your power heads are positioned. Place each one on the back glass, at each end of the aquarium, at the same height, with the jets aiming at the centre of the front so they oppose each other. This will create the most important word in the subject of water

movement - turbulence. That's what you want, turbulence, the corals will love it. As to your next purchase, it will have to be the surge control, you will be able to turn your power heads on and off in such a sequence you will create unidirectional flow in both directions, a period of calm as both power heads are turned off, and turbulence when both are on at the same time. Not an essential piece of kit but one that should be high on the extras list.

Andrew Caine →

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Fishkeeping Answers: Coldwater

Joe needs help

Please help me! I filled my 15gallon aquarium on July 22nd. On August 7th I put in my first Oranda. I have changed four gallons of water (stood for 24hrs and treated with water conditioner) I have added midweek bacterlife to activate the filter. I gradually added two Ryukins, two Black moers and one more Oranda making a total of six fish (I've probably overstocked). About a fortnight ago my Oranda became mopey and appeared to have a swim bladder problem, it died and all the other fish died one by one with the same symptoms, now they are all dead. The only thing I did wrong was to accidentally turn off the filter for about eight hours, however the fish seemed OK after that and I added bacterlife to the filter. I have set up a tank for tropicals and the plants seem to be growing well. I am not putting any fish in it until I hear from you. I enclose a sample of my water and would you please check it for me.

Joe Gunn, Norfolk

Thanks for your letter relating the problems you have experienced with your new aquarium and fancy goldfish. The water sample seems fine (but I suspect is quite old - no date on your letter which may have given time for any nitrite to degrade).

From your details it sounds as though you may have suffered

from New Tank Syndrome, where the large number of (frail) fish stocked over an apparently short period has led to a slight deterioration in your water quality. Fancy coldwater fish can prove difficult to keep in an immature aquarium. They demand good, stable water conditions and do not tolerate poor water quality. I think you may have discovered this to your cost.

You mention you are contemplating a tropical tank. I suggest that you convert your aquarium by adding a heater as tropical fish are far easier to keep in an aquarium.

Don't be put off by the teething troubles you have experienced, but try the tropical approach. Many first time aquarists try the coldwater route in the belief that it is easier than tropicals, in fact they are more demanding. I hope this answers your queries and sets your mind at rest.

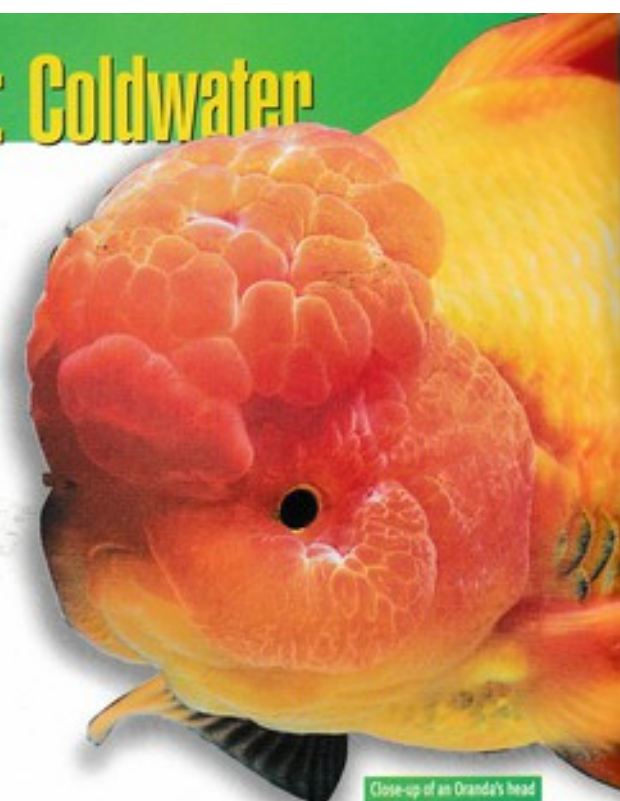
Best wishes and good fishkeeping

Ben Helm

John wants to keep Orandas

I would love to keep Orandas and I am told that a healthy tank will support four. Do these fish have any special requirements? Can you put me in touch with anyone who keeps these beautiful fish successfully? Perhaps there is a local society that I could contact although I may not be able to attend their meetings.

John, Crimpfesham



Close-up of an Oranda's head

The size of your tank will dictate how many Orandas you can keep in it. A tank at least 3'x12"x12" with good filtration is what you would need for four of them. As you live in Norfolk I suggest you contact Thorpe & D.A.S. who meet in Norwich. Alex Stephenson is a member of this society and is a goldfish specialist and has written many articles in the past for this magazine. Contact Thorpe on 01953 605394.

Derek Lambert

Peter has a murky pond

I need help and advice about my pond. I need to clear the mucky look and to keep it looking clear and good to be able to see the fish. It is a raised pond, size 10'x6'x22" to 28" deep (about 1000 galls). It has a black butyl liner and no plants. It has a pump, UV filter and air pump. It has a waterfall. The pond faces east and has sun until midday. I keep koi of various sizes.

Peter, Sheerness

As you have a UVC the murkiness is not likely to have been caused by algae (unless the bulb is due to be replaced). Murkiness is caused by the continued resuspension of very fine solid particles. These particles should be being removed by your filter (that may be in need of a clean; or may be undersized for the job). Check that your filter media is not full of debris, as UVC's are notorious for blocking up filters with the dead algae they produce. Check also that there is no debris on the pond bottom, you can improve its ability to remove any solids from the pond and send them to the filter (if adequate, should cope with the workload). I hope this answers your queries and sets your mind at rest.

Ben Helm



Red and White Ryukin

WHILE THE POPULARITY OF SOME aquarium fish may come and go, Barbs have been popular almost from the beginning of the hobby itself. Many barb species fulfil the criteria that make for ideal aquarium inhabitants - general hardiness, small size, a lively but peaceful nature and a splash of colour. There are dozens of barb species that fit that description. Looking at them in your dealer's tanks may not reveal this fact. However, once acclimated to their new homes, barbs exhibit qualities that make them worthwhile considering.

WHICH SEX?

Sexing of young barbs is difficult and it is best to buy a group of six or so young ones. As adults, sexing is much easier, the body shape is usually the best indicator. Females are generally much fatter and deeper bodied than the males. Males have much brighter colours that become really intense when they are sparring with other males or showing off to the females.

Barbs belong to the largest family of fishes in the world, Cyprinidae, with approximately 1600 species documented so far. Many of the species of barbs available in the shops attain a size of approximately 2" (5cm) when full grown but larger species are available. The most common of these is *Barbus schwanefeldi* the Tinfoil Barb that easily attains a length of 8" (20cm) although there have been 14" (35cm) specimens in the hobby.

Identification of some of the rare species is very difficult and many aquarists in their early fish keeping days make the mistake of buying unidentified fish. One of the biggest mistakes often turns out to be *Leptobarbus hoevenii* that grows to 20" (50cm) and requires a very large tank to be happy, so it is wise not to buy barbs for your community if you cannot identify them for sure.

FIVE OF THE BEST

The choice has been very difficult but here are five species of widely available small, colourful Barbs that would add colour and life to your aquarium.

Aquarium conditions

Most barbs like warmth, light, space and plenty of oxygen in the water. Many species are shoaling, riverine fish that are much happier in groups of six or more. When kept singly or in pairs, some of the more robust and lively species can become quite a nuisance. This is particularly true of the Tiger Barb. Lone specimens can become quite a nuisance in a mixed community aquarium but a shoal of this species rarely, if ever, causes any trouble.

Barbs are omnivorous and eat all foods with relish. Although they are quite tolerant of a wide variety of aquarium conditions most barbs prefer a temperature range of 75-82°F and water that is slightly soft and acidic. The water should be well filtered with a good flow rate as barbs love to swim into the current and play in the bubbles of an airstone and are happiest in spacious aquaria.

A Splash of Colour

Today's guide to Barbs for beginners



PHOTO: MARK GREEN

CHERRY BARB *Barbus titteya*

When you see the males of this species in their full breeding colour of deep cherry red you will realise why they have been given their common name. Females are chunkier and less brightly coloured. It's a small Barb that grows to about 2" (5cm) and is rather shy for a Barb. Happiest if provided with some dense planting in which to reside. They need a water temperature of about 76°F and a neutral pH. Slightly softer and more acidic water is needed for breeding.



CLOWN BARB *Barbus everetti*

This is a beautiful barb that grows to 4" (10cm). The females are more rounded particularly when ready to breed. Upper body is light brown with an iridescent green sheen. The sides are a lovely golden colour with dark blotches aligned like transverse bars. Females have the same coloration but it is less brilliant. A lively, peaceful species that enjoys the company of other species. Warmth loving 79-82°F and needs well oxygenated water.

ROSY BARB *Barbus conchoni*

One of the most beautiful of the Barbs with a lively, peaceful nature. In the wild they can grow to 6" (15cm) but they are never seen at that size in the hobby. They mature at about 2 1/2" (6.5cm) and are unlikely to exceed 4" (10cm) in the aquarium. The upper part of the body is a shining olive green and the lower part is suffused with deep red with a large black blotch on the caudal peduncle. Females are less brightly coloured, chunkier and smaller. They need plenty of swimming room and a slightly lower temperature. 72°F suits them best. This is a truly undemanding species that is readily available. It is difficult to imagine the beauty of an adult specimen when you see them in the aquarium shop. These are a superb addition to a community tank of fishes that require slightly cooler conditions.



GOLDEN DWARF BARB *Barbus gelius*

This is a very small Barb species that is happier in cooler temperatures around 72°F. Though only 1 1/2" (4cm) it is a peaceful, lively community dweller. It is silvery white underneath, olive green across the back but it appears golden in reflected light. There are numerous, irregular dark blotches on the sides. This one prefers quieter areas of the tank, as its natural habitat is still waters. Small foods should be fed to this tiny fish. Keep with other small fish that prefer cooler temperatures.

CHECKERED BARB *Barbus oligolepis*

Not brilliantly coloured but quite attractive. The black edge to each scale on the upper half of the body gives this fish its checkered appearance. When in good condition the black edged dorsal becomes brick red the coloration of the other fins is also enhanced. It grows to 2" (5cm) and is best kept in a group at a temperature around 74°F. A peaceful fish, males show off at times and can be quite boisterous.



Sea view

Andrew Caine takes a close look at Arcadia's new pendant light and has another fish and invertebrate for you to keep



Arcadia have produced what initially looks like a very good looking, high quality metal halide range, with a very reasonable price tag to suite.

FOR MANY YEARS THE ONE NAME THAT IS synonymous with aquarium lighting is Arcadia, they produce a vast range of tried and trusted fluorescent tubes, mercury vapour and metal halide pendant lights.

Pendant metal halide light units were initially bulky and, let's face it, not that good looking, which is a big factor when they will hang in your living room. The marine aquarist was faced with a choice, big and bulky light unit with a great light or a hood with tubes and not so good light, the latter normally won due to pressure from the wife and who could blame them? During recent times the design and quality of pendants was greatly improved with many innovations coming from Europe. This led to a greater consumer choice and range of prices to match. So now we have the good looking, high tech, higher price units and the less expensive lower tech units.

BRIDGING THE GAP

Arcadia have bridged the gap between the two, by producing what initially looks like a very good looking, high quality metal halide range, with a very reasonable price tag to suit.

The slimline range comes in three colours, black, white and silver, and four models. A single metal halide lamp only, then a choice of single, twin or treble metal halides with twin actinic tubes along the whole length of the unit. Halide bulb choices are 70, 150 and 250 watts with an output of either 5,200 or 10,000k. The models with actinic tubes come with a choice of timers both analogue and digital. If you don't want built in timers the units can be constructed with a four-core twin live cable for external timers that the customer supplies. Arcadia has produced a very good looking piece of kit with great thought and attention to detail within the design. They are manufactured out of corrosion resistant aluminium and stainless steel. The suspension wires are fixed to the unit with a sliding clamp ensuring that the wires hang vertically. Analogue timers have a condensation cover for protection, while digital timers are located in the end of the unit. The metal halide lamps are housed in a unique reflector system and protected by UV absorbing covers. Two fixing bolts are removed to replace the lamp and there are no difficult long sheets of glass to remove as in other units. The actinics are covered in UV stabilised acrylic that does not darken or go

brittle over time with the intense light penetration. The design allows penetration of the actinic wavelength while the viewer looking into the aquarium is spared the view of glowing fluorescent tubes - a nice touch.

I will be testing a treble 150w, 10,000k with twin actinic unit over a period of six months and will report on its progress in due course.

The price tag

The units start at a RRP of £239.99 and go up to £899.99 for the treble 250w unit. The most requested units are the single 150w halide, twin actinic with analogue timers at £319.99 with digital timers £369.99 and twin 150w halide, twin actinic analogue timers at £599.99 with digital timers £649.99.

PHOTO: MARK GIBBS

Black cap basslet (*Gramma melacara*), this little beauty avoided scientific naming until 1963Sea
view

BLACK CAP BASSLET (*GRAMMA MELACARA*)

This little beauty avoided scientific naming until 1963 so you could say, it is a relatively new discovery. However new ones are popping up all the time and the Brazilian gramma, *Gramma brasiliensis* was only discovered in 1998 and you can be sure there are more avoiding us humans and let's face it, who could blame them? It is estimated that there should be over 450,000 species of animals living in the world's coral reefs, with less than 10% being named and documented... oh what wonders await us.

During recent years we have seen an explosion of regional aquariums, that is those creating a specific habitat with inhabitants to match, so we have aquariums along the Red Sea theme, the Indo Pacific theme and any Western Atlantic aquarium is not complete without a Black cap. This new discovery is an excellent addition, very hardy and soon adapts to aquarium life, it is

a pig and will eat any meaty food, however always give a varied diet with added vitamins, to ensure its vivid coloration is at its best. If you can get a pair they are quite easy to breed laying eggs in caves. As always, the hard part is stopping fungal infection on the eggs and if they hatch having the means to remove them and provide the proper food for the larvae.

In the wild it lives quite deep down the reef wall at depths between 20 and 60m, so strong illumination is not required, but under halides the fish seems to suffer no side effects. It is essential to provide plenty of caves, ledges and hiding places. At first it can be quite shy, so if it is constantly exposed you will kill the fish due to stress.

The down side to this fish is that it has been reported that large individuals have harassed fish and killed some delicate shrimps. However this is the exception and NOT the rule. The other big downer to this fish, however, is its price tag, expect to pay no less than £50.00 for one, a true pair can be quite expensive, but worth it

PROFILE

Family	Grammidae
Name	<i>Gramma melacara</i>
Location	Tropical Western Atlantic
Feeding	Meaty foods
Reef compatibility	Excellent
Tank mates	Peaceful fish
Difficulty	Easy



tropical marine coldwater & ponds plants regulars

Trumpet or candycane corals (*Caulastrea furcata*) are a relatively easy hard-coral to keep



Sea
view

TRUMPET OR CANDYCANE CORAL (*CAULASTREA FURCATA*)

Someone says, "I have a good reef tank but there is no way I will try a hard coral. To be quite honest I am scared I will kill it, after all it is an animal and trying a hard coral is not something to be taken lightly".

May I congratulate that attitude! The person is quite right and these are animals we are looking after. If your reef aquarium is running well, however, there is no reason why you can't make a hard coral addition, with the right research. This time we are not looking at species compatibility, but aquarium compatibility. In other words is your hardware correct for the intended addition?

Your basic water conditions should be the same for hard and soft corals, so that should not be an issue. Some hard corals do NOT like intense water flow, so two power heads should be enough and believe it or not some hard corals will behave normally under a three tube lighting system. Corals from the genera *Caulastrea* fit this bill. This shouldn't come as a surprise because in the wild they are very common and normally found in areas protected from intense water movement. They also extend down the reef to areas that are also colonised by lower light corals. So here we can mimic their requirements in your soft coral reef.

If you have a three tube lighting system, place them near the top, with the addition of more tubes they will live happily further down your reef. The polyps should be puffed up constantly while subjected to light, if your piece starts to recede into the corallite then move the coral or return it before it is too late. I have been given pieces that have been receded for two months and have returned to normal behaviour with the right conditions.

The two most common species you will find in shops are *C.furcata* in which the polyps are normally spread open and *C. echinulata* in which the polyps are normally more compact or squashed together. ■

PROFILE

Phylum	Cnidaria
Name	<i>Caulastrea furcata</i>
Location	Indo-Pacific
Feeding	Moderate light levels and liquid suspension food
Size	Colonies grow to over 4 metres in the wild, but pieces over 8" in aquariums are rare
Water flow	Moderate
Lighting	Metal halide or tubes
Difficulty	An easy hard coral to keep, but water quality has to be high - watch the polyps behaviour, they will tell you if you have a problem

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TROPICAL: BREEDING FISH

Highly RECOMMENDED

Linda Lewis tells of her experiences with one of her favourite fish, the Harlequin



As mature fish Harlequins are very beautiful.



Pair spawning on the underside of a Cryptocoryne leaf.

THERE ARE SO MANY LOVELY FISH TO tempt me that I often find myself longing for the room to accommodate different species but one of my favourites is the Harlequin *Trigostigma heteromorpho*. Why? Because they are stunningly beautiful, hardy, long-lived and have style!

To see a Harlequin at its best, don't look in a pet shop unless they have Harlequins displayed in a show tank. When offered for sale, harlequins are very often immature; this, small, pale and timid and are easily passed over in favour of other more ostentatious species such as Cardinals. Look instead at a good photograph of a mature fish. The difference is enormous. The body is now deep and full, the colours rich and striking.

You will see a silvery background diffused with metallic pink and coppery hues. The trademark blue / black wedge is dark and well defined. Its upper edge tinged with gold. The dorsal fin will be a deep salmon pink and in some fish, decorated with a thin black line

Sexing Harlequins

Various means of achieving this are described but, frankly, most are not foolproof. To be sure, it is best to watch the fish's behaviour. As the markings on the fish vary it should soon be possible to recognise individuals and determine what sex they are. One physical feature that I have found to be a good pointer is the golden line found along the top edge of the distinctive wedge. This is of a deeper and more lustrous hue in males.



down its front edge. A mature fish in good condition moves with a stately elegance and grace. Not too fast, not too slow.

SORTING OUT THE HIERARCHY

Harlequins positively thrive in each others company and I would suggest that five be kept as a minimum. Once they have grown a little and settled in, the fish will begin their displays. These enable individuals to sort out their place in the group's hierarchy so that one male eventually becomes dominant and gains first access to ripe females. The displays are delightful to watch.

The subtle pink tone on the body intensifies to near red. Two protagonists pull up alongside each other and begin to swim in a tight circle. Then they put on a burst of speed and dart away together, breathing very fast and with fins held out stiff and straight. Normally, the dorsal fin is held at a slightly oblique angle. This changes to a vertical mast. As if at a hidden signal the two fish slow down and move in close together, then beat their bodies hard towards each other. The force of the current of water generated gives each fish vital information regarding the strength and fitness of his opponent.

Chasing, circling and beating may continue for an hour until one fish concedes. When involved in these "battles" the fish are unaware of their surroundings and may accidentally knock into other fish. Once a hierarchy is established, displays decrease in frequency, only occurring when a lower ranking fish tries to improve its position.

PREPARATIONS FOR BREEDING

If, like me, you enjoy breeding fish, be warned, Harlequins are not easy. Having found a pair, you then need to get them into breeding condition. It is probably best to do this in the breeding tank. Moving the fish distresses them so there is little point in conditioning the fish and then moving them as your good work will be largely undone. Also, it is harder to condition the fish while they are still in the community tank. Although they can and do, eat all kinds of food, they are not fast eaters. This means that if they share a tank with pushy, greedy fish they will not get their fill. So try moving them first. Withhold food for one day and then begin to condition the fish using a diet rich in live food and / or frozen bloodworm.

Harlequins will live quite happily in a wide range of water temperatures and pH, but for breeding purposes the pH should be just on the acid side (around 6.5) and the water, soft. Aim for a temperature in the range of 78-82°F. Some aquarists advocate filtering the water through peat although spawning has been achieved without this. Often breeding attempts fail simply because the fish are not mature enough, so it is probably best to wait until they are about eighteen months old.



While most pairs choose a broad-leaved plant to spawn on, fine leaved plants will also be used.

COURTSHIP AND SPAWNING PATTERN

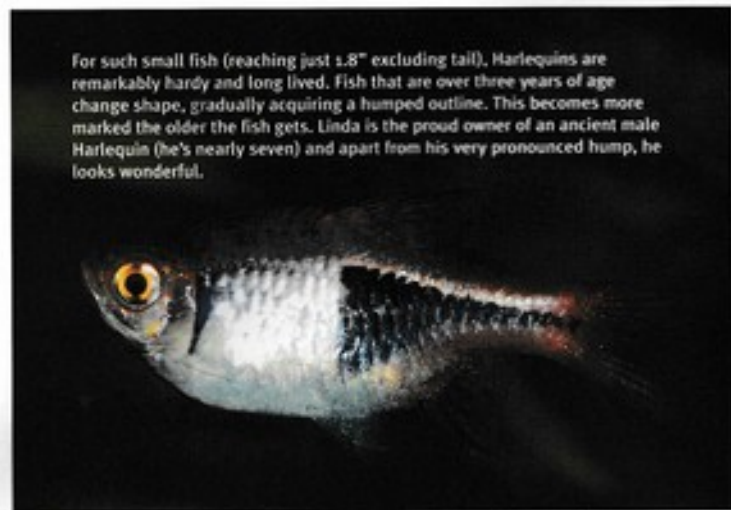
The male courts a female by displaying, with fins spread. He will swim just above her and every now and then nudges her downwards. If she is receptive the female will, eventually, begin to search for a suitable site on which to deposit her eggs. Strong broad-leaved plants are what she usually seeks, such as Cryptocorynes. Eggs are placed on the underside on a leaf. The male wraps himself around the female and fertilises the eggs as they are deposited. Around ten eggs are laid each time, then the courting is repeated until more than fifty eggs have been laid. Sometimes fine leaved plants are used instead, but then the fish still turn upside down to spawn. The parent fish should be removed once spawning is complete.

The eggs will hatch in about 30 hours, according to temperature. Once fry are free swimming it is time to begin feeding, but not before. They will need infusoria for the first day, before going on to newly hatched Brine shrimp. At first fry are extremely sensitive to water quality: it is essential to keep their tank spotlessly clean and to carry out frequent part water changes if any young are to survive. Care must be taken to top up the tank with water of similar pH and temperature. Once fry are past the critical first few days, they begin to grow rapidly, then, providing the water quality is carefully maintained and monitored, they should do well.

PROUD OF YOUR ACHIEVEMENT

If you succeed in breeding the Harlequin, then you can be very proud of your achievement. However, I feel that there is sufficient reward to be gained just from buying a small shoal and raising them to the full bloom of maturity. Try Harlequins and you too may find that not keeping them becomes impossible to contemplate. ■

For such small fish (reaching just 1.8" excluding tail), Harlequins are remarkably hardy and long lived. Fish that are over three years of age change shape, gradually acquiring a humped outline. This becomes more marked the older the fish gets. Linda is the proud owner of an ancient male Harlequin (he's nearly seven) and apart from his very pronounced hump, he looks wonderful.



An Aquarist's dream

Jack Jackson goes exploring in the Red Sea

PLUNGING WALLS BLAZING WITH COLOUR, purple and orange soft corals, red and yellow sea fans, red squirrelfish and goggle-eyes, angelfish, anthias, butterflyfish, fusiliers, parrotfish, surgeonfish, triggerfish and the more muted colours of pelagic species. Add warm, clear water, invertebrates from turtles to the smallest nudibranch and it would seem like an aquarist's dream, but this is no dream. It is the Red Sea where the offshore diving compares with the best in the world.

Since the 1970s European divers have been flocking to the Red Sea. Most headed for the Gulf of Aqaba, Southern Sinai and Sudan while some French, German and Swedish divers headed for Port Safâga, Italian divers for Ethiopia and French divers for Djibouti. However things never remain the same: The Yemen was opening up to diving when attacks on tourists closed it again. War closed Ethiopia and its sea outlet is now in Eritrea, which is difficult for organised diving. Sudan's new politics and unreliable flights now make its diving difficult to reach. Egypt made it difficult for foreign live-aboard boats to work and replaced them with boats that put good looks and air-conditioning before stability

and Egypt has developed purpose-built tourist resorts at Sharm el Sheikh and Hurghada, that are serviced directly by cheap charter flights. The result is a concentration of divers from Hurghada to the Sinai where the stony coral at many dive sites is looking decidedly worn though diver pressure is not the only cause; sediment from resort construction is also involved.


FINDING THE JOYS OF SAFÂGA

The diving in Djibouti and Jordan is still good and Saudi Arabia has recently opened up to tourist divers but travelling costs to these destinations are relatively high and there have been attempts to improve some Egyptian reefs by designating marine parks with fixed mooring buoys. However, the

restrictions on The Brothers Islands (El Akhawein) and Dædalus Reef (Abu El Kizan) are so draconian that few boats now visit them and some dive guides' interpretation of new regulations in Israel mean that divers cannot get close enough to the coral to observe small creatures. More importantly divers are finding the joys of little dived sites along the Egyptian coast south of Safâga.

I have been diving this area from live-aboard boats since the early 1970s. An improved coast-road opened up camp-based dive operations in the early 1990s and a new airport being constructed north of Marsa Alam is due to open in 2002 so resort hotels are being built from El Quseir to Marsa Wâdi Lahami. Fortunately these hotels are well strung out along the bays so there should not be a repeat of the overcrowded construction found to the north.

Few British divers realise that Safâga has had large Scandinavian, German and French diving resorts since the early 1970s when nearby Hurghada was the only tourist hotel



Diving in the Red Sea opens up a whole world of fascinating fish and invertebrates. A Large Sea Cucumber, *Thelocoele anones*, can be seen moving over some stony corals at Fury Shoal.



This Coral Trout (Grouper), *Cephalopholis miniata*, was photographed at Elphinstone Reef.

and did not have a dive operation. The reefs seaward of Geziret Safāga (Safāga Island) are exposed to the full force of the prevailing wind so day-boats only dive these in good weather but live-aboard boats dive them regularly. In strong winds, day-boats find shelter on the fringing reefs, some of which have sea-grass beds where Dugongs have been sighted.

Panorama Reef is a large circular reef with walls dropping to over 200m. There are many good dives with caves and overhangs, healthy stony corals, *Dendronephthya* soft tree corals, sharks, turtles, dolphins and countless Egyptian reef fish. The East Face has Gorgonian Sea Fans and a huge Anemone City with hundreds of clownfish that is as good as anywhere in the world.

The northern end of Middle Reef slopes to 30m and then drops into the depths as a wall. The east and west sides have *Acropora* and *Porites* corals while the south side has caves, tunnels and gullies. The fish life includes sharks, turtles, jacks, groupers, Napoleon Wrasse and sweetlips.

THE BEST DIVING

Possibly the best diving off Safāga, Abu Gafan, is a narrow, 300m-long reef with walls dropping below 100m and plateaux at the northern and southern ends. It has great stony and soft corals, turtles, a myriad of reef fish and dolphins and Hammerhead Sharks are found in open water.

East of Hyndman Reef Sha'b Shear (Shi'b Shear) is an elongated reef with a shallow

lagoon on its southern side and coral gardens on its east and west ends. Healthy stony and soft corals abound together with a myriad of reef fish.

Either side of Marsa 'Alam there are 100km (62 miles) of diveable fringing reef with an underwater topography of coral and coral pinnacles sloping down to sand at 30-40m (100-130'). Two such reefs are in front of the Kahramana Resort Hotel at Blondie Beach north of Marsa 'Alam, that is also good for night diving and Sha'b Marsa 'Alam itself.

Fury Shoal is an expanse of reefs, the largest of which is often called Dolphin →

Tragic wreck

There are several dives on Hyndman Reefs but the wreck of the Salem Express is now the best-known. A Roll-on Roll-off ferry built in France in 1964, she was heading for Port Safāga when on 15th December 1991 she hit a small reef. Her loading doors burst open and she sank too quickly to give out a mayday call, the alarm was only raised when a survivor managed to swim to the mainland. Crammed with Pilgrims returning from the Hajj, the annual Muslim pilgrimage to Mecca, the official passenger list was less than 700 and the approved death toll under 200 but in fact she was heavily overcrowded and the real figures were considerably higher. At 4695-tons and 115m-long, she now lies on her starboard side in 30m of water with her port side at 12m. The authorities have sealed the ship's interior.

Fantasy or fact?

Elphinstone Reef (Sha'b Abu Hamra) is an elongated patch reef in the middle of nowhere. With sharks all around it, the south point has Scalloped Hammerhead Sharks and resident Oceanic Whitetip Sharks. Down in the depths of nitrogen narcosis a legend has grown around a rectangular section of reef that some claim to be a sarcophagus, the 'Tomb of the Pharaoh'.



PHOTO: JACK JACKSON





Male Steephead Parrotfish, *Scorpaenopsis gibbus*.

Reef. It has the largest anemone that I have ever seen and the reef's outer edge has a reputation for sharks including Silvertip and Oceanic Whitetip Sharks.

WRECKS AROUND

Part of the Fury Shoal group, Abu Galawa has a wreck of a tugboat leaning on the south side of the reef at its western end. Listing to starboard the bow of the wreck is on the reef and breaks the surface while the stern is on sandy bottom at 18m (60'). The holds and western style toilet, harbour shoals of sweepers, the propeller is still attached and the hull is the substrate for prolific growth of stony and soft coral including some large *Porites* indicating that the wreck has been there for a long time. No one seems sure of the name of this wreck though 'Tienstien' or 'Tienstin' have been mentioned.

The Island of Geziret Zabargad with its 234-metre peak, was called Topazos in ancient times and more recently Saint John's

A huge Anemone City with hundreds of clownfish that is as good as anywhere in the world

island. No longer inhabited, its Olivine mines were excavated for 3,500 years. Live-aboard boats use the island as a sheltered overnight anchorage for forays to Rocky Islet and the island abounds with turtles during the nesting season.

The island is a wreck graveyard with the *Neptuna*, a diving boat sunk in April 1981, an unidentified Russian freighter in the western side of the south bay and the *Maldan*, a British steamship, that sunk in June 1923.

Comparable to the diving at the Brothers Islands and Dædalus Reef, Rocky Islet is a haven for sharks and large pelagics. Bare rock rising from very deep water the northern face is open to the full force of the prevailing wind so divers are dropped here then swim east and round to the calmer waters of the south face to be picked up. The narrow sandy shelf that surrounds the islet is widest at its eastern end where at 25m (80') on the southeast corner it has become the place for observing sharks among a wide selection of pelagic species.

St. John's Reef covers a huge area at the Sudanese border with many coral heads that are separate dive sites, some have plateaux as shallow as 8m (25') while others slope below 70m (230'). ■

Want to go?

The diving in Southern Egypt is a good introduction to the more prolific waters further south. South of El Quseir the water is noticeably warmer than that to the north and is known for its shoals of reef fish. Humphead Parrotfish (Donkeyfish) are seen from St. Johns south but not further north. Diving in this area is how the diving was off the Sinai in the 1970s, large fish and small sharks still approach divers out of curiosity and larger sharks are found on offshore reefs.

June to September are the best months for offshore reef diving and it is well worth a visit before the new airport opens and cheap charter flights bring in the crowds.



Masked butterfly fish, *Chaetodon semilarvatus*, are a common sight around Rocky Islet.

Two bar anemonefish, *Amphiprion bicinctus* with its anemone, *Gyrostoma helianthus* at St John's Reef.



The Big Sleep!

Ever wondered what happens to all the pond animals during the winter? **Bernice Brewster** has the answer

WINTER! SHORT DAYS AND LONG NIGHTS, when most of us are grateful to be enjoying the warmth and comforts of our homes but what happens to all the creatures that are associated with the garden pond? For many of us, the pond is a garden feature that we stock with different species of fish but there is also an assortment of wildlife that also live there, including frogs, toads, newts and an assortment of insect larvae. The winter can be very challenging to these creatures, especially if it is a cold, harsh season.

AUTUMN TIME

Through the autumn, the fish become less active as the water cools down, their appetites also decrease until at about 8-10°C (46-50°F), they stop feeding altogether. Although the fish may still move around the pond, they tend to swim slowly and spend time quietly lying in one place, close to the bottom. While the fish might seem to be lying on the bottom, they are actually floating just above the substrate, using the air contained in a special organ called the swim bladder. During the coldest periods, the fish lie tightly packed together in the warmest area of the pond, in a torpid condition. At this time of the year, the fish use very little energy for growth and this is reflected in the scales, where rings are laid down according to the speed with which the fish are growing. In the summer,

the rings are widely spaced as the fish grow rapidly but in the winter, the rings are tightly compacted. This gives rise to growth rings similar to those that are used to age a tree and indeed, the rings on the scale can be used to calculate the age of the fish. Koi are rather pampered pets and in many instances, the water is heated and they are fed throughout the year, so the growth rings are not as conspicuous.

HOW CAN POND FISH SURVIVE SUCH A WIDE RANGE OF TEMPERATURES?

Pond fish are able to survive quite a wide range of water temperatures, from 2-3°C (35-37°F) in the winter to about 20°C (68°F)

A&P Jargon Buster
Torpid condition = the fish still breathe and all bodily functions are normal but they are very sluggish and slow

in the summer. The reason they are able to tolerate such a wide temperature range is through the activity of special proteins called 'enzymes'. Basically enzymes act as catalysts to carry out chemical reactions within the cells of the body. The results of these chemical reactions are various but they also include the release of energy to fuel cells. Most enzymes operate within a very limited temperature

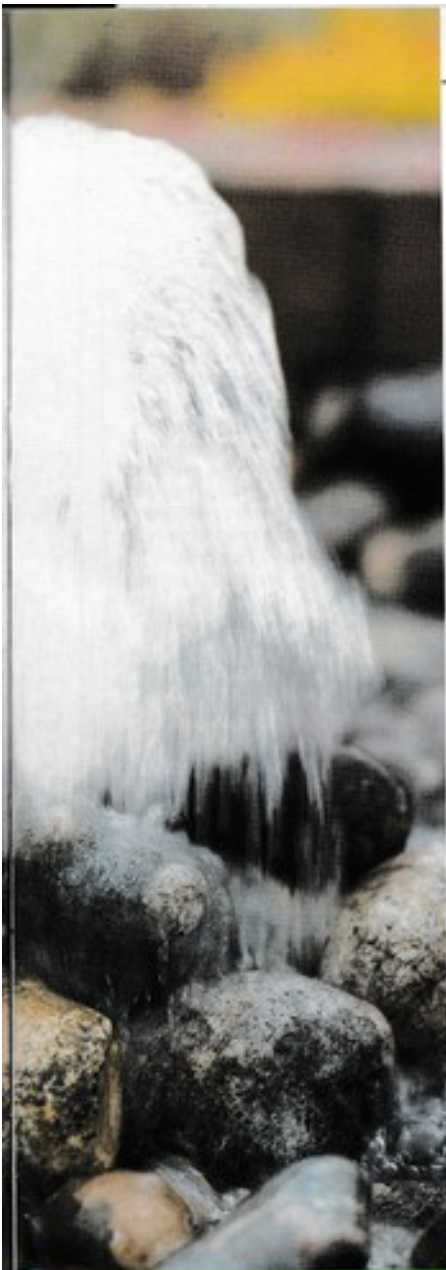
range. We mammals are very fortunate in being warm-blooded as the body temperature maintains the ideal temperature for these enzymes to work. In the temperate regions, coldwater fish have to survive in a range of different



PHOTO: DAVID BRUNN

Juvenile and female frogs tend to seek shelter in compost heaps, old logs and stone walls where they will escape the coldest temperatures





An area of water can be kept free of ice by keeping the pump running, to circulate the water



The nymphs of dragonflies and damselflies can take from between one to five years before they moult into the exquisitely beautiful adult form

temperatures so they have duplicate sets of the vital enzymes that operate at the different temperatures the fish will encounter. Cold water fish such as found in the pond have a vast array of these duplicate enzymes, whereas fish that are found in the tropical regions have enzymes that will operate only within a limited temperature range of a few degrees!

It is better to keep an area of the pond free of ice, should there be an intense cold snap. While gases such as oxygen are

COLDWATER: PONDS

readily soluble in cold water, when ice covers the pond, carbon dioxide, the waste gas from respiration is trapped in the water. High levels of carbon dioxide (in excess of 12mg per litre of water) become increasingly toxic to the wildlife and fish. An area of water can be kept free of ice by keeping the pump running, to circulate the water. The pump motor relies on the water to keep it cool and while it is running it will very slightly heat the water, helping to stop it freezing. If there is no pump running on the pond, warm water or even standing a hot saucepan on the frozen pond surface can be used to melt a small area of ice.

Never break or smash the ice as the noise and vibration will startle and frighten the fish, the effect is rather similar to someone busting a balloon next to your ear while you are sleeping, it would make you jump!

FROGS AND TOADS

So, in the depths of winter, the fish in the pond are inactive. In addition to the fish, the pond is also home to a number of other animals such as frogs, toads and newts. The term 'hibernation' is strictly applied to →

A natural garden pond in January



COLDWATER: PONDS



The unmetamorphosed larvae of newts will over winter in the pond and these will be found on the bottom in the sediments

mammals like squirrels, hedgehogs and bats where the body functions such as heart rate, breathing and body temperature are dramatically reduced, some bats take a breath from between 45 minutes to once every 2 hours, during hibernation! However, most people are familiar with the term hibernation and so while not strictly true for frogs and toads, it is used here in the context of these amphibians.

Like most species of fish, frogs and toads are cold-blooded, which means they are unable to regulate their body temperature, so are affected by the seasonal temperatures. For the tiny little frogs and toads that are in their first year, September is a very important month in which to feed heavily on the gnats, daddy long legs and other insects that are still abundant. This month of heavy feeding should help the immature frogs and toads to build up enough reserves to see them through the coldest winter. Just like the fish in the pond, as the air temperature drops through the autumn, the frogs and toads become less active and when the nights are frosty, they seek refuge from the cold. Unlike mammals in hibernation, the body functions of frogs and toads are not affected by the cold, indeed on relatively mild days in the winter, they will come out and hunt for food.

WHAT'S IN THE HEAP?

Juvenile and female frogs tend to seek shelter in compost heaps, old logs and stone walls where they will escape the coldest temperatures. Some of the male frogs will also find shelter on land but a number will over winter in the pond, although it may not be the pond in which they will spawn. These male frogs burrow into the mud and sediment on the pond bottom, where they breathe through their skin and although cold, the water temperature is usually constant. Oxygen is readily soluble in the

cold water of the pond in winter and the hibernating frog is inactive and its demand for oxygen is very low, so it does not need to use its lungs to breathe. Staying in the pond for the winter months does have a risk, if the cold snap is especially severe or prolonged the frogs will die in the pond. If the winter is severe enough for the entire depth of the pond to freeze, then the frogs cannot escape and will also become frozen. In the event of a very prolonged cold spell, where the water surface remains frozen, the oxygen level becomes depleted and the poor little frog dies of suffocation.

The skin of toads is dry and unsuitable for hibernating in the water, so all toads must over winter on land. The refuge for toads is varied and includes logs, stones, cracks, crevices, compost heaps and burrows but they can also over winter in holes in the ground with a shallow covering of soil and grass. It is also quite common to find large numbers of toads hibernating together, interestingly these mass hibernation areas also include newts, lizards and snakes!

NEWTS AND OTHER ANIMALS

Hibernation in newts is not well understood and information may be reliant on studies of local colonies. In one area of southern England, Smooth Newts are found in refuges of stones but they disappear when the temperature drops below 2°C. The unmetamorphosed larvae of newts will over winter in the pond, as will some young adults that will breed for the first time in the following spring. Like the frogs, these will be found on the bottom of the pond, in the sediments.

Many forms of insect larvae are associated with the pond, such as mayflies, dragonflies and damselflies. In some species of mayfly, the eggs hatch soon after

Don't forget the plants

In the winter, many of the pond plants look rather sad, the leaves of the marginal plants look very brown and dead and little activity can be seen by submergent or oxygenating species. Through the autumn the leaves of many of the marginal species will die back, strictly these should be removed otherwise they will rot in the pond and contribute to the oxygen depletion that can kill those animals that over winter in the pond sediment. During the hours of daylight, the plants will continue to produce sugars as nutrients, using the energy from sunlight and carbon dioxide, producing oxygen as a waste gas, in a process known as 'photosynthesis'. However, in the winter months the days are short, so there is little time for much production of sugars, some days are very dark, when the weather is stormy, either with rain or snow. This means on these days there will be little activity from the plant life. Although the temperature may have some effect in terms of the activity of enzymes, the plants are not especially active due to the low light intensity.



Through the autumn the leaves of many of the marginal species will die back and these should be removed

they are laid and the nymphs over winter in the pond, whereas in others the eggs are the over wintering stage. The nymphal stage of dragonflies and damselflies can take from between one to five years before they moult into the exquisitely beautiful adult form. During the nymphal stages, the dragonflies and damselflies are entirely aquatic, when they are fearsome animals consuming young fish, other insect larvae, tadpoles and newt larvae. The activities of these nymphs are restricted through the winter because there is less food available. ■

Today's guide to ideal Christ

No idea what to give the fishkeeper in your family? Here are a few suggestions

CHRISTMAS IS COMING and the problem of just what to give a fishkeeper looms large. Another tank is always appreciated but that may not be high on your personal agenda, after all, a pond in the garden, a coldwater tank, two tropical tanks and now the marine tank means the house is already beginning to resemble the local aquarium shop! So what else can you give the fishkeeper?



Testing kit

Fishkeepers always need to check their fish's water quality (this is when they look like they are doing a scientific experiment). Hagen's Master Test Kit is one of the best complete testing kits on the market. It comes in a handy plastic case and comprises Ammonia, Nitrite, Nitrate, pH Low range, pH High range, Carbonate & General Hardness, Iron, Phosphate, and Calcium test kits. Each one comes with its own instruction book that explains why you need to test for each substance and what the results mean.

A new filter

For those of you with a fair bit of cash to spend, what about a new external filter? The Eheim Professional II Filter was launched at GLEE 2000 and is a simple and easy piece of equipment to use (which is very important on Christmas morning). Don't forget to buy the media to go in it (stocking fillers) and you will need some over sized wrapping paper for the box.



Making life easy

Maxijet powerheads are designed with several functions in mind, from driving a subgravel filter to pumping water out of an aquarium. In either role it has proven to be an excellent sturdy pump well up to the job. The water pump role is probably the most useful since it makes the fishkeeper's life a whole lot easier. No more carrying heavy buckets of water. It comes complete with a strainer and fits on a normal garden hose without any problems.



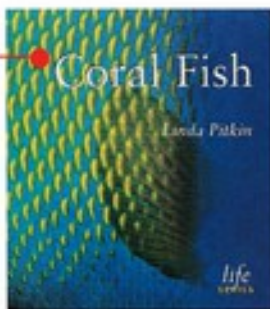
TetraAqua Easy Balance is designed to remove the chore of water changing on freshwater aquarium fish tanks. All your fishkeeper needs to do is add Easy Balance to your aquarium each week. Doing this they will only need to top the aquarium up when water has evaporated and conduct a very large partial water change every 6 months. This only works if they have lots of growing aquatic plants and low stocking levels.

Christmas gifts for the Fishkeeper

A book to curl up with by the fire

Coral Fish by Linda Pitkin is a major new publication from the Natural History Museum, London. In Coral Fish, Linda Pitkin, a biologist at the Museum and award winning underwater photographer, provides an accessible, comprehensive and explorative look, at the fascinating and varied lifestyles of the fish that inhabit the coral reef and how they find food and shelter, and their complex interactions.

Beautifully illustrated throughout with Linda's excellent pictures this book is a real feast for the eyes. Whilst aquarium care is not included in the text (a good idea or you may end up with more tanks), this is still a book all marine fish and reef tank owners should add to their shelves. This is because it opens up the world of marine life in a way few other books have managed to do and adds a dimension to our knowledge which most marine books for the aquarium hobby totally lack. To order contact Customer Services, Plymbridge Distributors Ltd., Plymbridge House, Estover Road, Plymouth PL6 7PZ, or telephone your credit card order on 01752 202 301.



Most important Christmas Gift of all

You are looking at it! A subscription to Today's Fishkeeper is an absolute must for all fishkeepers. It saves them money, means they never miss a copy and they even receive their copy before all their fishkeeping friends. This month we also have an extra special offer from Aquarian. Check out page 70 for all the details.



Something for the fish

Vitakraft Vita premium Soft food is a great addition to any fishes diet so why not buy a tube as a stocking filler. A great hit with all bottom dwelling fish and even the mid-water and surface feeders will rush down to grab their share. This should produce hours of fun for the fishkeeper who likes to watch his fish eat.

Something for the pondkeeper

Fed up with your pondkeeper always moaning about free floating algae in the pond (that's when it looks like pea soup)? Hozelock Cyprio's Vortron UV Clarifier has been spinning its way to success all over the country this year. Hozelock Cyprio claim the Vortron UVC is up to 50% more efficient than other UVC products thanks to its 'turbulating' effect and it will certainly solve the 'Pea soup' problem.



The September Effect

John Dawes reports on how September 11th has affected the aquatic trade

THE CONSEQUENCES OF THE horrific events of 11 September in New York, Washington and Pittsburgh are still reverberating around the world, and will continue to do so for years. Our lives have been dramatically and irrevocably changed; so has that of the international business community. The ornamental aquatic industry, being an integral part of that community... and one that relies heavily on the airlines for its survival, has, of course, not escaped unscathed. So what long-term effects will 11 September and the subsequent escalation of hostilities have on our hobby?

The short answer is that we don't know...at least, not with absolute certainty. However, a number of significant developments over the past month can allow us to make some educated guesses. I have also just returned from SIZoo, the Spanish pet industry show held in Barcelona, and - having spoken to all the aquatic exhibitors (including the major importers) - have formed a pretty good idea of the current mood.

What follows is a brief summary of my views on the subject, based on reports, phone calls, conversations, e-mails, faxes, etc., that I have exchanged with my contacts around the world over the past weeks. These views are purely personal, though, and must not be taken as representing an official statement on behalf of the industry or any of its trade associations.

More security

Not surprisingly, security has already been significantly tightened at all airports and inspections of shipments are more thorough than before. It is therefore possible that these inspections will result in fish boxes once more being opened, even though the latest International Air Transport

Association (IATA) Live Animals Regulations recommend that boxes should not be opened in transit. Wider use of X-ray inspection of

shipments is also being carried out. Another consequence of heightened security measures is a requirement for fish consignments to be delivered earlier for processing at exporting airports. In fact, I hear that some airports are demanding that shipments must arrive some 8-10 hours before departure of the flight in question. Such 'lengthy' lead-in requirements, which, before the attacks, applied to relatively few airports, is therefore now likely to become widespread.

As extensively publicised, some airlines have reduced, not just their number of flights, but also the number of 'planes they maintain in service. Virgin Atlantic announced that it would be laying off around 1,200 members of staff and would be grounding several of its aircraft, at least for six months, while BA announced layoffs of between 5-7,000 people. Swissair ceased its operations and Sabena may follow...and so on.

More expensive

Reduced cargo-carrying capacity, as a result of both fewer flights and fewer 'planes, means greater competition for whatever space remains available and this, in turn, leads to higher freight prices. Add to this increased insurance premiums and fuel prices and we have the perfect recipe for higher costs throughout the supply chain... all the way through to the consumer.

These increases are likely to be further influenced by the disappearance of a number of existing air routes and the replacement of some of these with longer routes that may be deemed to be safer. In addition, some airlines may well pull out of certain airports from which they have traditionally handled fish exports...or may not use certain airports as stopover points. For example, a Sri Lankan contact of mine, Vibhu Perera of Lumbini Aquaria Wayamba Ltd., told me: "The present scenario is very bleak. Sri Lanka has been declared

a war risk zone. Hence shipping insurance has been increased. Due to the increase, some of the airlines that have decided to bypass Sri Lanka include Emirates, Gulf Air, Kuwait Airways and Israel Airlines. With British Airways and KLM not operating in Sri Lanka for quite some time, we are now left with Singapore Airlines, Lufthansa and Sri Lankan Airlines."

Higher prices for fish

From both Europe and the US, I have received reports that - in the immediate aftermath of the attacks - customers were staying away from shops (probably remaining at home watching the constantly-evolving news stories on TV), as a result of which some businesses experienced as much as a 50% drop in trade. The latest I have on this is that some recovery is being witnessed as people, once more, begin returning to other activities

In Barcelona, everyone I spoke to believed that, 'things stay as they are', i.e. if the active war zone remains centred around Afghanistan, then there may not be any further increases in costs of freight, fuel and insurance. At the same time, there may not be too many further decreases in numbers of flights or loss of routes. Should this be the case, there is likely to be a gradual establishment of a new equilibrium with steady prices and, while these will probably be higher than those that existed prior to 11 September, they may not escalate any further.

The range of species available to hobbyists is expected to remain pretty much unchanged overall and, although some decrease in total stocks available in shops at any one time may (or might not) result on an occasional basis, no-one appears to believe that any such decreases (should they come about at all) will be significant. Such fluctuations are also likely to vary from country to country, while, on the exporting side, some countries like Sri Lanka, are likely to feel the



pinch (in terms of total cargo availability) more than others.

Still be able to enjoy the hobby

The ornamental aquatic industry has, undoubtedly, received a major shock. However, this particular industry is renowned for its resilience and adaptability. I therefore feel (though I stress that this opinion is strictly personal) that the hobby and industry will survive the present crisis, just as they have done when faced with other crises in the past. There may be some changes...but this must not be equated with a downturn of any sort. Indeed, if the determination of all those I've spoken to since 11 September is anything to go by, I have little doubt that we will all still be able to enjoy our hobby for the rest of our lives...or for as long as we choose to be in it, which, for many of us, is exactly the same thing.

Trade talk

Kent Marine® introduce a new range of Cichlid additives and Aquarium Pharmaceuticals have two new products designed for Siamese Fighters

Something for Siamese fighters

Splendid Beta™ Complete Water Conditioner is like six water conditioners in one. It removes chlorine and chloramine from tap water, instantly detoxifies deadly ammonia from fish waste and uneaten food, and it adds essential electrolytes for better health and vitality. Plus it contains the proven healing power of Aloe Vera to help stimulate the natural protective slime coating on bettas and repair fins and tissue damaged from stress, handling and disease.

The 1-1/2 oz. (37 ml) bottle treats up to 15 U.S. Gallons.

Splendid Beta™ BetaFix™ Remedy uses the natural healing power of Melaleuca - a variety of Tea Tree. Use whenever bettas show signs of bacterial disease, such as red ulcers, slimy patches, cottony growths or ragged fins. BetaFix Remedy is also ideal to heal and rapidly repair open wounds as well as fins and tissue damage from stress, handling and disease.

The 1-1/2oz. (37 ml) bottle treats up to 15 U.S. Gallons.



Malawi & Mixed Cichlid pH Regulation System

Kent Marine® produce far more than just marine products. One of their more recent introductions is a liquid pH buffer and alkalinity or carbonate hardness (KH) adjusting system designed for Malawian and Victorian cichlids. This also works well for many American cichlids whose native waters have high pH's of above 7.8. It is designed to provide a stable pH environment and is compatible with and designed for use with Liquid A F Cichlid Chemistry and A F Cichlid Rift Lake Trace Elements also by Kent Marine®. They have also produced a Tanganyikan Cichlid pH Regulation System along similar lines.

These products are particularly useful for people living in soft acidic water areas who want to keep Rift lake cichlids. They have been scientifically designed to create the perfect environment for your Cichlids and despite the added cost are well worth using in your setup.

Today's Postbag



Share your news, views and experiences through *Today's Postbag*. Every month the star letter wins a prize worth £25 – all for the price of a 27p stamp or an e-mail

Local shop or local club?

When I was a kid and bought my first tank, I bought the fish and tank from my local aquarium shop. Here they offered me good advice and helped me a lot as I made many mistakes in those early days. The shop was of modest size and they did not have the wide variety of species that you see in large outlets, but it was big enough for me then. I still buy my fish food there and with all the experience I've had since I can help others as I was helped all those years ago. I go down there most Friday nights and meet other fishkeepers and discuss the trials, tribulations and joys of fishkeeping with tea on the house.

Ken Brent, Bristol

Does anyone else have a local shop that turns into a club meeting house? - Ed



Web site for Today's Fishkeeper?

Have you any plans to launch a website in the future?

Graig Mason via e-mail

There are plans to launch a website in the future. (our sister title *Water Gardener* already has one - check out www.watergardenermagazine.co.uk) but it will be some months before we go online. Before we do set-up the website, however, we would like to have some feedback from our readers as to what sort of thing you would like to see on it. So, write in with your opinions and we will create the site our readers want to see. Send your e-mails to aandpeditor@btinternet.co.uk



Can you keep Discus and Goldfish together?

star letter



I could not resist writing having seen in *Close Encounters* the piece about keeping Discus and Goldfish together. You do not have to go far to see things like this. A local Chinese takeaway had, not too many years ago, fancy goldfish. Black Moors, Oscars, a very deformed Angelfish and large albino aquatic toad... enough to put you off your dinner!

At a large show not many years back one enterprising dealer had small black lace angels and freshwater crayfish in the same aquarium. As the day went by the angels were reduced in numbers and not because he was selling them.

Some years ago I had a 4'x2'x2' tank, I had a partition dividing its width and you were able to fool people with Discus, Cardinals and Corydoras in the front and Axolotls in the rear. It had to be seen to be believed.

If that's not bad enough my 7'x2'x2' was once home to *Marmoratus* catfish over 36" long, a 2' Arrowana, a 16" Giraffe catfish, a shoal of 10 3" barbs and 10 large *Synodontis* catfish. Sounds like a recipe for disaster being "too big and too many" is an understatement but they all got along fine as long as they were well fed.

Gordon Davis

This is definitely a case of well-overstocked and we obviously don't recommend it. - Ed

A walk on the wild side

I have read many articles about cultivated angels and Discus but I really like the wild ones. I very much enjoyed Oliver Lucanus's account of collecting Discus in the wild. Horst Linke's article on Angels gave me a fresh insight into why the eggs of my Angelfish fail to hatch and fungus. I will be paying much closer attention to my water quality in future. It seems to me that we have to learn to look after the water before we can have real success with many fish.

Sam Long by e-mail

Up the Amazon

Having read of Derek's exploits up the Amazon in the February issue of the magazine I decided, enough is enough, it was about time I went on my own fish safari. Derek and I used to be in the same fish club 25 years ago so I rang him up to ask for advice about the trip. He kindly gave me some helpful tips and information about the company he went with. I managed to book a trip on the same boat and have been lucky enough to obtain Dudu as my guide. Derek sent some A&P polo shirts and a few copies of the magazine for Dudu and everyone out there and now my suitcase is packed and everything is ready to go. I will let you all know how I got on when I return.

Ricky Saxton, Merseyside



Panda Dwarf Cichlid

PHOTO: JAMES COOPER



86°F
▲
73°F

2 1/2"

MALES

1 1/2"

FEMALES



Today's Diary Dates

December's show, auction and club meeting dates

Copy for Today's Diary Dates

Copy for Today's Diary Dates should be sent to Today's Fishkeeper, Winchesser Court, 1 Forum Place, Hatfield, Hertfordshire, AL10 0RN Telephone 01673 885352, fax 01707 269333 or e-mail andpedford@btinternet.com copy deadline 6 weeks before publication date.

Sat 1st	
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Fri 21st	
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Mon 24th	
Tues 25th	Happy Christmas to all the fish clubs from Today's Fishkeeper
Wed 26th	
Thurs 27th	
Fri 28th	
Sat 29th	
Sun 30th	
Mon 31st	

Mr Fish

Today's Fishkeeper visits Mr Fish in Bedford



Alf (on left) discussing some unidentified Apistogrammas in Alan's

Our verdict

A very well laid out shop with a good range of species of fish for sale. Alan really knows his subject and despite being very busy always has time to help his customers with their problems. One to visit when you want more than just the "bread and butter" fish.



Parking out in front of the shop is very limited but he has a large car park to the rear



Alan has a very well laid out shop

Shop details:	Mr Fish, 77 Tavistock street, Bedford, MK40 2RR. Tel: 01234 359333 Fax: 01234 268941. www.mrfish.co.uk
Shop opening hours:	Tues, Wed, Thurs, Fri 10.30 - 7pm. Sat 9.30 - 6pm. Sun 10.30 - 4pm.
Proprietor:	Alan Hinds
Number of tanks:	78
Specialities:	All South Americans but especially Dwarf Cichlids, L numbers and Corydoras. Otherwise all Cichlids.
Brands stocked:	All major brands.
Show tanks:	1 freshwater 3' Rift tank
Which groups of fish do you sell?:	Marines, Coldwater & freshwater

WHAT DO YOU DO AFTER collecting Alf Stalsberg (one of the speakers for the Festival of Fishkeeping at Bracklesham Bay and Today's Fishkeeper's expert on Cichlids) from Stanstead Airport? Simple, head in the opposite direction to the way you should be going and visit Mr Fish in Bedford. Why? Well the owner of Mr Fish, Alan Hinds, has a passion for South American Dwarf Cichlids and so has Alf. Since Alan's shop is very much a one man band, he certainly couldn't take time out to visit the weekend convention, so this was the next best thing.

The contents of Alan's shop reflect many of his personal interests. South American Dwarfs, including a number of rare Apistogramma species rub shoulders with some very nice Corydoras. There were a smattering of L number catfish and plenty of other South American fish to whet the appetite. A reasonable range of Rift lake cichlids were also on sale and the 3ft long display was filled with these. A few interesting Asian species were also to be found. One of our editor's personal favourite little cyprinids *Chelo dodiburjori* were lurking in a tank near the back

door. All the usual "bread and butter" fish were on sale as well.

Alan started keeping fish when he was 12 and by the age of 14 he was working part time in an aquarium shop. After leaving school he went straight into the aquatic trade and has never looked back. 27 years on his interest in and passion for the subject is just as strong as ever. As a keen aquarist himself, Alan stocks a good range of aquarium literature and on the 1st & 2nd December will be hosting a book signing session by Ian Fuller. This great new book on Corydoras will bring you bang up to date with

this lovely group of Catfish.

At the present time all the aquariums are being stripped out and new ones installed. So it is going to be really busy times at Mr Fish's shop during November. ■

Alan's verdict on the manufacturers

Which manufacturer has the best range of products in your opinion? Tetra
Which company gives your customers the best service? Eheim

West Yorkshire Marine Aquatic Group meeting



From left to right, David Saxby, Roy Meeke, Alf Nilsen & Richard Musgrove President of WYMAG

WYMAG try to hold a convention every year but earlier this year it looked like they would have to skip 2001 and concentrate on 2002. Then David Saxby of D&D aquarium solutions stepped in and helped organise for Today's columnist, Alf Nilsen, to come over and present an evening lecture on their usual Wednesday club night. David acted as host and chauffeur escorting Alf from London up to the meeting venue just outside Leeds.

Well Supported

Obviously with such a well known speaker lecturing, all the regular WYMAG members made the effort to come along to the meeting but their numbers that evening were swelled by people from hundreds of miles away. This really was an event not to be missed. Andrew Caine, Today's other regular marine writer jumped at the chance to meet his colleague and snatch a few minutes conversation with him. Then it was take your seats please for Alf's lecture.

This was broken up into segments and covered all aspects of the Coral reef environment and reef tanks. Within a few minutes of starting it was obvious Alf is a real 'pro' at this sort of thing. Not only were his slides of excellent quality (you only have to look at those we

publish in Today's fishkeeper to see the standard of his photography) but the presentation as a whole was innovative and included slides of the many microscopic creatures that you rarely see in such detail

Questions asked

After each segment of Alf's lecture there was a break for questions (and to refill glasses at the bar). At most lectures of this kind there is usually an embarrassed silence at this stage, but this didn't happen at this meeting. Some really probing questions were put to Alf and answered by him in depth. Then we moved on to the next section. By the end of the meeting everyone had learned a little or, in most cases, a lot more about the marine world and reef keeping.

All in all, it was clear those who attended this meeting were enthralled by

Alf's presentation. Well done Alf, and well done everyone involved with WYMAG and David Saxby for giving us a chance to meet one of Europe's foremost marine experts.

From the editor

This year I have visited numerous clubs, given talks and met many enthusiastic aquarists. Clubs vary from a few friends informally meeting together in each other's homes to well organised club nights with varied and interesting programmes. At some of these clubs membership runs at about fifty or more. Many of them produce club magazines which are circulated to their membership. On my visits I have been made very welcome and I would like to thank you all for your hospitality. During the closed season it would be interesting to hear from some of you about your plans for 2002. I look forward to visiting more of you in the coming year.



Product review

Shirley Aquatics are launching two new marine products – PSR and PUB



Pieces of *Acropora* are being grafted onto Pacific Ultra Branch

PSR - PACIFIC STORM ROCK IS A live rock guaranteed not to be cut from the reef, instead it is collected from the ocean floor and lagoon areas after storms or hurricanes, so as not to harm the reef. PSR originates from a small chain of islands in the Pacific, somewhere in between the North East coast of Australia, Guinea and Fiji. It is collected in up to 10 metres of water. Due to the high wave action in the area coupled with the frequency of storms and cyclones, a lot of rock pieces and coral fragments are naturally broken from the reef. The rock is left until

any areas that may have become exposed after the storm are covered in coralline algae. This also offers an opportunity for any other organisms to settle. Due to the depth and amount of wave action in the farming area very little of the rock is unexposed to the sun providing an average 90% coverage rate.

Another factor that makes PSR so good is that it is less dense than either Red sea or Fiji rock, so you get more for your money! An average size box takes 20kg of Fijian or 25kg of Red sea rock but you can only get an average of

15kg of PSR into such a box. Such a conservation friendly product well deserves the Gold Star Today's Fishkeeper are awarding them.



Pacific Ultra Branch

The latest from sustainable reef supplies, Pacific Ultra Branch has all the advantages of PSR but has a number of different uses. Its origin is that of long since dead

Stag horn coral that has been encrusted over many years by coralline and macro algae alike.

Its shape offers something completely different and Shirley Aquatics say that just a few pieces can rejuvenate old displays, giving them an edge! It is also being used to graft small pieces of *Acropora* onto. Over time the live coral tissue grows back over its ancestor forming impressive show pieces in a relatively short period of time. Today's Fishkeeper is awarding PUB its Silver star award.



New Tetra

Pete Liptrot profiles Boulenger's Featherfin Tetra, *Bryconaethiops boulengeri*



As youngsters, like these 3-4" fish, this new Tetra is not going to immediately attract your attention.

PHOTO: CLAUDE LUCAS

ANY FISH THAT CARRIES AS PART of its scientific title so distinguished a name as that of G.A. Boulenger, formerly of the Natural History Museum, has to be worth a good look and in this case the more advanced fishkeeper is sure to be rewarded.

Another member of this genus, the Small-mouthed Featherfin Tetra, *B. microstoma* has appeared a few times over the past decade, always at quite high prices and only in small numbers. This one,

however, has only appeared in the past two or three years in the few outlets willing to bring in new and exciting fish.

Unremarkable as young fish

The first specimens I saw were three to four inches in length and at this size do not really show the potential of this species as a display fish. They were still very interesting to me, as are all African

Characins and following a quick check of the available literature it was clear that these would become a spectacular adult fish. At this small size they were not particularly expensive.

They do not have any remarkable colours, having simply a bold spot followed by a stripe down to the tail, but they do show a pleasing iridescence under the correct lighting. (To see all African Characins in their full splendour it is best to see them in sunlight).

They do have other features, however, that make them highly desirable aquarium fish.

Adult males would put a Congo tetra to shame

Once near adulthood, male fish develop an extended dorsal fin that would put a Congo Tetra to shame. Bear in mind that this dorsal is on



Congo tetras would be put to shame by adult males of the new tetras.

a fish potentially reaching 25cm in length. Just imagine what a sight a shoal of these would be. Females tend to grow about 25% smaller than males and do not develop the dramatic finnage, but a mixed shoal will ensure that the males put on their most enthusiastic displays as they compete for the attentions of the opposite sex.

They are quite an aggressive species and so it is desirable to have a group of at least five fish, to avoid one fish being the target of too much unwanted attention. There are no breeding records that I have found, but it is likely that they are egg scatterers as are many other African Tetras. Given good conditions and space, breeding should be achievable in captivity and is well worth the effort. ■

Diet

Feeding should be varied and often. A fish like this is likely to feed throughout the day on anything brought to it by the current. A mixture of good quality, dry foods (both flake and pellets), frozen foods and clean live foods would be a good basis. Smaller fish would relish fruit flies, half-grown fish as well and would quite easily deal with crickets and other similarly sized insect foods. The good standby of chopped earthworm would be an excellent conditioning food.

Aquarium conditions

These are not small fish and their actively swimming nature means that an aquarium of at least 100 gallons, preferably larger, would be required to maintain a group. They come from the Congo basin, so a pH of about 7 and fairly low hardness will suit them. Temperature of 22-27°C is acceptable, though it's best to avoid the higher part of this range for routine maintenance. These are a river fish and require high oxygen levels to thrive and this is easier to maintain at lower temperatures. Very good filtration and large regular water changes are required, for these fish are unlikely to tolerate poor water quality.

The body shape shows that they are powerful swimmers and jumpers! (Cover their aquarium securely!) There should be a moderate flow in the tank for them to swim against. An extra airstone or two would not go amiss either to help maintain oxygen levels.

Tankmates should be chosen carefully, they are likely to eat anything much smaller than themselves, but in a very large aquarium a shoal of these fish would look fantastic combined with other comparably sized fish from the same area.

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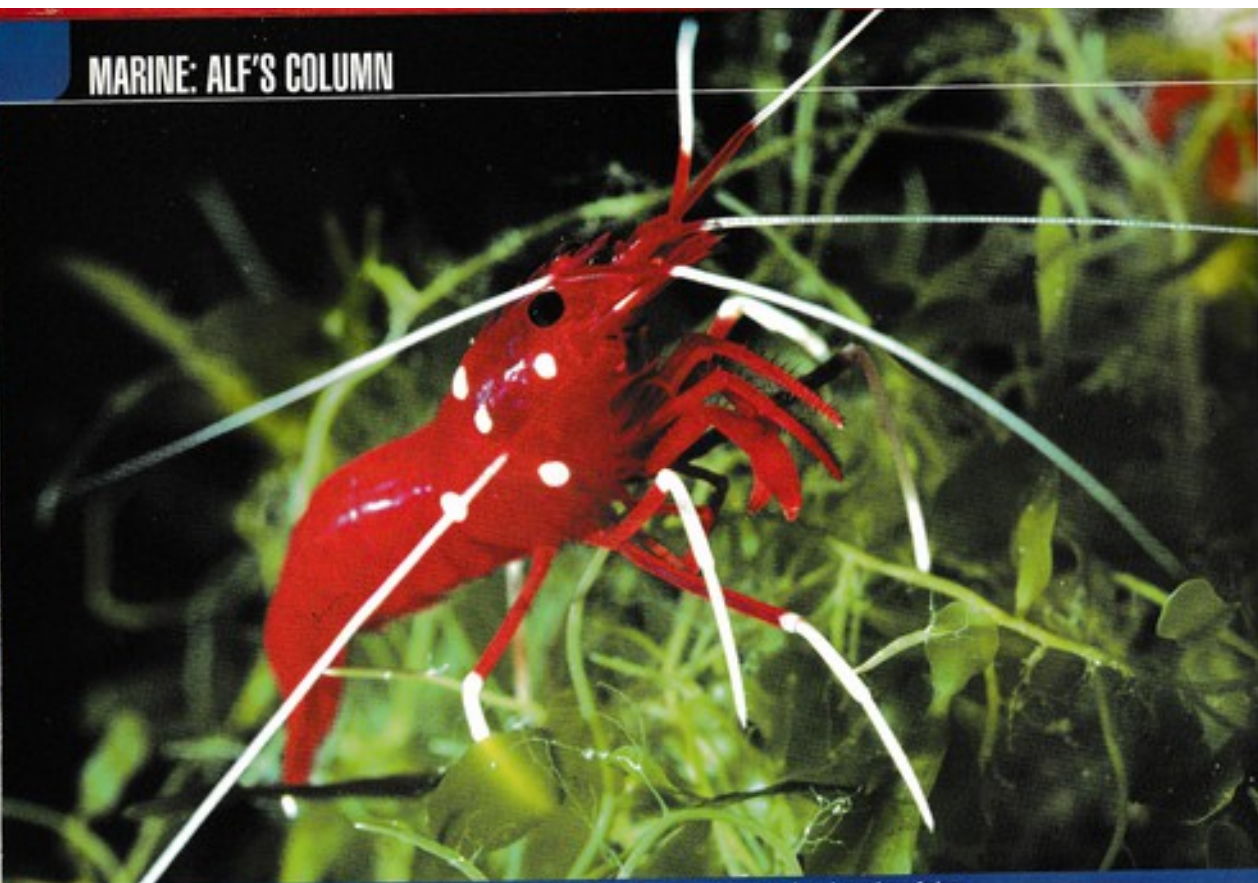
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LATEST NEWS . . . Well . . . the Botia Sidthimunki came and went so fast we hardly had time to admire them . . . but more are due, so if you missed them . . . check back. Still got some of the beautiful Emerald River Gobies and Sulawesi Blue Lightning Gobies . . . good algae eaters and very easy to keep too. Crossochellus langeli due in . . . brilliant algae eater for community tanks. Rare Dwarf Puffer due in . . . very limited. Plus . . . Wild Clown barbs (not farm bred fish) . . . rare true wild fish. More Australian & New Guinea fish just arrived. Lots of nice rare Bettas still coming through as well. Just too many nice fish to mention here . . .
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Lysemota debellus is a magic and most beautiful but rather shy cleaner shrimp from deeper waters, here photographed in a reef aquarium resting on *Caulerpa*

Prawn Cocktail

Alf Nilsen introduces the ever popular shrimps and prawns



WHAT ARE SHRIMPS actually? Not exactly an easy question to answer. To the people of southern Norway 'shrimps' are the red

deep-water species (*Pandalus borealis*) caught by local trawlers and much beloved in gastronomy. In Norway alone more than 50,000 to 60,000 tonnes of this species is caught every year. To Italian people I believe 'shrimps' are, just like in Norway, most often associated with seafood such as 'Scampi' - also known as 'king prawns' or 'tiger prawns' - large shrimps from the genus *Penaeus*, which are beloved for their taste. To many Norwegian kids 'shrimps' are the almost transparent species (*Palaemon elegans*) living in shallow water and easily caught by the kids' hands when they are playing near the shore in the summer time. This species is also common along the Italian coasts. The Aboriginals of the Australian outback think of shrimps as the 'river prawns' (*Metapenaeus* spp.), caught in streams and lakes. Species of this genus

are common on sandy or muddy flats in the sea and on the coral reefs also. To divers of the coral reefs 'shrimps' often mean the 'banned cleaner shrimp' (*Stenopus hispidus*), that cleans parasites from big fishes along the coral reefs. There are about as many ways to think of 'shrimps' as there are shrimp species... and there are a lot!

A GLIMPSE AT THE ANATOMY

Phylum Arthropoda is the largest phylum in the animal Kingdom, containing more than one million known species and probably just as many that are still not discovered! They are found in the Sea, in freshwater as well as on land and have their evolutionary history back to the Cambrium period (500-600 million years ago), when they most likely evolved from segmented worm-like ancestors. Along with the subphylum Crustacea, Arthropoda also contain subphylum Unikramia that among others contains 75% of all living creatures in the class Insecta (Insects) and subphylum Chelicerata, enclosing the Class

Arachnida (Spiders) and the Trilobites that are now extinct.

Crustacea alone contains at least 32,000 species, probably many more, where most are marine and rather small in size. They all have an external, calcium carbonate based skeleton (exoskeleton) that can be divided into two different regions; the cephalothorax (head and chest) and the abdomen. The body contains a number of appendages such as antennae, pincers, walking legs (Pereiopods), swimming legs (pleopods) and a tail (telson). The antennae and compound eyes found on the head are important sensory organs.

All Crustacea grow by moulting. The body grows almost continuously and eventually becomes too big for the skeleton, which is stiff and rigid. In order to cope with the situation the Crustaceans from time to time shed their skeleton and grow a new and bigger one. Moulting is a traumatic event for the animals! During the process, which normally (but not always) lasts for a period of only 3-4 days, they become easy prey for fishes and hide away.

The scientific data

Biologically speaking 'shrimp' is the popular term used for the species included in three infraorders of the subphylum Crustacea; Penaeidea (popularly called 'prawns'), Caridea and Stenopodidea (both popularly called 'shrimps'). This leads us to systematic and puts shrimps and prawns into the following system:

Phylum Arthropoda
 Subphylum Crustacea,
 Class Malacostraca
 Order Decapoda,
 Suborder Dendrobranchiata,
 Infraorders Penaeidea ('Prawns')
 Suborder Pleocyemata
 Infraorder Caridea ('Shrimps')
 Infraorder Stenopodidea ('Shrimps')

The Suborder Pleocyemata does also include five other infraorders (reef lobsters, ghost shrimps, lobsters, hermit crabs and true crabs), but the term 'shrimps' is never used on these groups. 'Shrimps' and 'Prawns' are popular names of two groups of animals in a common Order of Crustaceans, but are systematically of little value. Is this important? Yes and no! 'Yes' if you want to study the species, learn about their biology and ecology, place them in an evolutionary context and really get around to know this marvellous group of aquatic invertebrates! 'No' if you are merely interested in viewing shrimps and prawns as colourful invertebrates that are good for eating.

Lysemata ambolnensis posing on the stem of a soft coral.



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FOOD AND FEEDING

The feeding behaviour and food selection among Crustaceans is diverse. Some species are food specialists feeding on one food source only, while others accept most types of food. Crustaceans are also valuable food-organisms for other animals. Planctonic species are very numerous in most oceans, at least for a part of the year and play a vital role as food for fish larvae and even adult fishes of many kinds. The Antarctic Ocean during the summer time is filled with planktonic 'krill' (members of the order Euphausiacea), which is the vital source of proteins in these waters. Many species of whales depend totally on this nutrient and 'krill' is now even being harvested as food for humans. The more than 800 species of Mysilids (order Mysidacea) is another group of small crustaceans that migrated from deeper waters to the shore in the summer time where they reproduce and at the same time serve as food for other organisms.

Normally Crustaceans have separate sexes, but hermaphroditism occurs, which means the animal possesses both male and female sex organs. Some species, especially among the shrimps, are protandrous hermaphrodites, changing their sex during the lifetime - beginning as males ending up as females.

The order Decapoda (ten-footed Crustaceans) includes all those species where the three first pairs of thoracic appendages have been modified into 'jaw feet' (maxillipeds). It is definitely the best known group of Crustaceans, containing more than 8,500 species. Most species are found in the sea, some live in brackish water (like the beautiful and endemic *Halocaridina rubra* from Hawaii) a few live in fresh water and a very few on land.

Now we are closing in on 'our' groups, on the three infraorders, so let us move on to the reef.

'SHRIMPS' AND 'PRAWNS' ON THE CORAL REEF

The best time to see shrimps on the coral reef is during the night. Many species are nocturnal hiding during the day, but leave their burrows during the night searching for food. Take a night dive in a shallow bay or along a shallow reef wall after dark and you will be surprised by the number of shrimps that are present. Some live associated with other animals, such as fishes, corals, anemones and echinoderms, some live inside hollow sponges, others have burrows in the sand where they are associated with fishes, while yet others live freely.

Shrimps that attract divers and aquarium enthusiasts are 'the cleaner shrimps' that live from picking parasites off fishes. The group includes a number of species. Best known is a tramp species of the coral reefs of the Indo-Pacific, with a tropical and even subtropical distribution - the Banded Cleaner Shrimp, *Stenopus hispidus*. With its long, white antennae, huge claws and a body coloured white and red, the species is a spectacular →



Stenopus pyronotus

sight. The species gathers in pairs along the reef and sets up cleaning stations for fishes. The fishes come up close, pose and the shrimp searches them for parasites. Divers that approach the shrimps can even get cleaned themselves. It is just like the fishes know that this is a most valuable friend and "a do not touch" animal. In nature this does indeed show us a true 'peace' between big and small animals. The species is also a beloved and easy shrimp for the coral reef aquarium, but for some unknown reason the cleaning behaviour seems to vanish in captivity. A strange and rarely seen courtship dance was observed by Debelius (1999) who writes: "...the partners faced each other with their claws spread wide. Gradually the smaller male began to sway slowly from side to side. Once the male increases its tempo and begun to make proper sideways dance steps, the female also began to move its claws as if it wanted to impress the male...". This behaviour was followed by mating. In the reef aquarium *Stenopus hispidus* often breed and larvae are commonly seen, but must be given special treatment in a separate aquarium to be raised successfully. Unfortunately the Banded Cleaner Shrimp is very aggressive towards specimens of its own sex and keeping more specimens than a pair in a small or medium sized aquarium is difficult.

There are many other species in the genus *Stenopus*. *Stenopus pyronotus* is a huge species reaching more than 10cm in length. In contrast to most other species of the genus, the body is not banded in red and white, but is translucent white with a bright red longitudinal band on the abdomen. *Stenopus tenuirostris* is small, only 3cm long and beautifully coloured in red, white and blue. The Caribbean *Stenopus scutellatus* is bright golden yellow and also a small species.

Stenopus spp. are not the only shrimps that clean. The genus *Lysmata* also show this remarkable behaviour and contrary to *Stenopus* the cleaning behaviour is often kept in captivity. *Lysmata ambolensis* is perhaps



Urocardiella sp. Picking parasites from the eye of a big grouper (*Plectrobranchius chaetorhynchus*) in a deep cave in the Maldives

the best known of all coral reef shrimps. With a distribution throughout the Indo-Pacific, including the Red Sea, it can be spotted on most reefs. The long white antennae, pale yellowish body and red and white longitudinal stripes along the entire dorsal body side make this shrimp truly spectacular. Normally living in pairs, but not at all as aggressive towards members of its own species as The Banded Cleaner Shrimp and in a coral reef aquarium more specimens can easily be kept together. *Lysmata ambolensis* was also the first shrimp to be successfully bred in captivity. The species is a protandrous, simultaneous hermaphrodite, which means that it is first a male and then changes sex becoming both male and female at the same time. What is the biological advantage of such a way of living? Most likely it secures an efficient reproduction of the species.

If *Lysmata ambolensis* is beautiful, The Scarlet Cleaner Shrimp, *Lysmata debelius*, is nothing but absolutely spectacular! The legs and antennae are white while the body is bright red with a few white spots. This coloration is a camouflage in deeper water where *L. debelius* normally lives. The



The minute *Holocoridina rubra* exist only in brackish-water pools along the shores of Hawaii

species is usually found deeper than 20 metres and in shady habitats. As red light does not reach very deep in the ocean, red becomes an 'invisible' colour, an answer to why so many deep-living shrimps and other invertebrates are red. Red is simply the colour of survival in deeper waters.

Although *L. debelius* is widely distributed in the Indo-Pacific, from the Maldives to Japan and the Society Islands, divers seldom see it. It was not scientifically described until 1983 by Bruce and named after the German author and Crustacean-enthusiast Helmut Debelius, who has succeeded in breeding the species in captivity. It is interesting to notice that the colour varies slightly from location to location; the Western Pacific specimens have white dots on the carapace only, while the specimens from Indian-Ocean show spots on the abdomen also. Most extreme is specimens from the Line Island in the Central Pacific, where the legs are red, (Debelius, 1999). For aquarium lovers this species is really interesting, but is really shy! It should be given a small or medium sized aquarium with lots of caves and shelters, not too strong light and kept in small groups.

Lysmata californica is endemic to the Eastern Pacific and is very similar and closely related to the Peppermint Shrimp, *Lysmata wurdemanni* found in the Caribbean. The transparent body covered with red longitudinal stripes and bands. Here we have two closely related species of cleaner shrimps found on each side of a continental barrier. Similar coloration's are found in other *Lysmata* species such as *Lysmata intermedia* (Eastern Pacific) and *Lysmata multisocia* (Gulf of Aden). The Peppermint Shrimp, often associated with sponges from the genus *Aplysina*, lives alone or in pairs.

Other cleaner shrimps resemble *Periclimenes* spp. and are often mistaken for such. These are *Urocardiella* spp. It is funny to study how huge groupers tolerate these tiny shrimps crawling all over them and even pick parasites from inside the gills or mouth. ■

The Modern Coral Reef Aquarium

The Book by Alf Jacob Nilsen & Svein A. Fosså

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Spot the difference



Corydoras auratus



Ian Fuller, Chairman of the Catfish Study Group, explains how to spot the difference between the tail spotted species of *Corydoras*

TOWARDS THE END OF 1999 NEW *CORYDORAS* appeared in several of the aquatic shops that I frequent. This proved to be a new species that had in fact just been described by Joachim Knaack, in the German Journal 'Aktuel' and had been given the name *Corydoras spectabilis*, Knaack, 1999.

MILLENNIUM CORY

Although the fish was actually described in 1999 the publication issue was dated for 1/2000 but was actually available in December. This gave rise to the fish being nicknamed 'The Millennium Cory'. The fish comes from the upper Rio Guapore in the area of Vila Bela, Mato Grosso, Brazil and

joins a small unique group of six *Corydoras* species that all possess a large dark blotch covering the area of the caudal peduncle, each of them are quite distinctive in their own right.

The smallest of these species are *Corydoras guapore*, Rossel, 1961, *Corydoras caudimaculatus*, Rossel, 1961 and *Corydoras panda* Nijssen & Isbrücker, 1971. The size that these species would be expected to grow to in the aquarium would be just under 2" (45mm) for males and a little larger at around 2" (50mm) for the females. The body shape of the first two species is quite different. *Corydoras guapore* has a fairly slim body with an almost even dorsal and ventral profile. It prefers to spend a

good deal of its time swimming in mid water or searching amongst the upper leaves of plants for morsels of food.

Corydoras caudimaculatus has a body shape far more suited to spending its time on the bottom grubbing around the substrate in its pursuit of food. It has a far deeper and chunkier looking body with a rounded head shape and curved ventral profile. *Corydoras panda* is distinctive in its own right. Its body shape is similar to that of *Corydoras caudimaculatus* but a lot slimmer. Where it is completely different from all other known tail spot *Corydoras* is in its body colour that is a rich tan, it has a black broad band running vertically through the eye and a large black blotch in the base of the dorsal fin.



Corydoras similis

MOVING UP IN SIZE

The next species we come to is *Corydoras similis*, Hieronimus, 1991 and this one can be expected to grow to about 2 1/2" (56mm) for a male and a little larger for a female. It has an almost identical body shape to *Corydoras caudimaculatus*, although it does tend to look a little slimmer. The difference is in the caudal blotch itself, instead of being jet matt black with well defined edges, like that of *Corydoras caudimaculatus*, it is a very dark blue / black and has a fading edge that will often

there was yet another unknown species that arrived with it that shows almost identical body markings



Corydoras spectabilis

display a metallic sheen. Because of the ill-defined appearance of this blotch it has given rise to the fish being called the 'Smudge Spot Cory'.

Moving up in size again we have *Corydoras aurastigma*, Nijssen, 1972, this one belongs to the long snouted group of species and has a potential adult male size of 2 1/2" (62mm), with an adult female growing a little larger. There should be no confusing this one with any other known *Corydoras* species, with its long snout and the dark grey to black blotch at the caudal peduncle. The shape of this blotch is a laterally compressed oval when compared to the shape of the other five species. This is also a species that prefers cooler water and temperatures, somewhere in the low seventies Fahrenheit 70-73 (21-23°C) would be ideal.

LARGEST IN THE GROUP

The largest member of this group of six brings us back to our 'Millenium Cory', *Corydoras spectabilis* that I would expect to grow to just over 2 1/2" (65mm) for a male



Corydoras panda



Corydoras caudimaculatus

and 2 1/2" (70mm) for a female. When these fish were first imported early in November 1999, it was first thought that they were in fact a hybrid cross between *Corydoras caudimaculatus* and *Corydoras haraldschultzi* Knaack, 1962, or even *Corydoras maculifer* (Nijssen & Isbrücker, 1971) and *Corydoras haraldschultzi* because of the variation in body markings and the caudal peduncle blotch in some specimens being almost non-existent. It was even thought that there may actually be two hybrids. Both of these so-called crosses were actually being advertised in some areas as hybrids. In fact, if it were not for the black blotch at the base of the caudal fin it would be extremely difficult to separate them.

The two main differences between *Corydoras haraldschultzi* and *Corydoras spectabilis* are the yellow orange colouring in the dorsal, pectoral and ventral fin spines and a golden sheen to the body. My own six specimens are only a little over half grown

at just under 2" (45mm) and show no signs of any golden body colour but it may be a little too soon to say whether or not it will develop with age or when they are in breeding condition.

ANOTHER NEW ONE

When *Corydoras spectabilis* arrived, there was yet another unknown species that arrived with it that shows almost identical body markings. This one carried the trade name of 'Brazil Sharp nose' a name that could be given to at least a dozen species coming from Brazil. This particular species is almost identical in body markings to *Corydoras haraldschultzi* and seems to be less variable in body markings than *Corydoras spectabilis*. However instead of having a large black blotch on the caudal peduncle, this species has a large black blotch in the top third of the dorsal fin, as far as I am aware it is as yet another undescribed species. ■

Where does your garden grow?

Not all plants sold for aquariums are truly aquatic, John Tate explains

IT MIGHT COME AS A SURPRISE THAT NOT all aquarium plants available from aquatic retailers are truly aquatic, that is to say that they may not thrive or multiply in a fully submersed situation, long term.

Aquatic retailers have always had to contend with the fact that the natural beauty of true aquatic plants for many customers is not ornamental enough. With the intention of giving satisfaction to the customers, aquatic retailers, often use decorative, bright or variegated marginal / marsh plants to meet the public desires.

Marginal plants (those that are happier growing with just their feet in water) are fine to use in your aquarium and undoubtedly provide excellent variation in a predominantly 'Green' environment. You will find, however, that these plants have a shelf life underwater and will need to be replaced after time.

If you are unfamiliar with what will or will not do well in the aquarium, here are a few things that might help guide your choice.

ASK

Always ask if you are not sure about a plant or its needs, there are usually staff who can help you or find what you want to know!



Pilea is often sold as a house plant but can still be found for sale in aquatic retailers



Ophiopogon japonicum is a marginal plant rather than a true aquatic

VARIATION

If a plant is strongly variegated i.e. *Ophiopogon japonicum* 'variegatum' or *Chlorophytum bichetii* (Wheat Plant), they are unlikely to be truly aquatic. A few true aquatics, like *Hydrophilis polysperma* 'Sunset' have a white or pink veining giving them a variegated appearance. ...

STIFFNESS TEST

Truly aquatic often depend on the water for support. When removed from water they

become floppy, whereas plants such as *Dracena*, *Fittonia* or *Syngonium* varieties are rigid when out of water. This would indicate that they're not truly aquatic. Often you may find combinations of stiffness and variegation go together. There are exceptions to this rule such as *Anubias*, some *Crypts*, *Microsorium*, and *Echinodorus* species, again ask if you're not sure. As a general rule it works well.

Often, having an aquarium predominantly planted with true aquatic plants, with the occasional accent marginal plant to give the tank a lift works well. ■



Discus PROBLEM SOLVER

Tony Sault offers helpful advice to Discus keepers

Disaster strikes Rachael's Discus

I am a Discus keeper and two years ago I bought some Discus that were originally from Asia, of course the obvious happened, I introduced the Discus plague into my tank. They developed all the usual symptoms that I have read about and all the Discus turned black and began to secrete mucus. They were literally piled into a corner on top of each other and I subsequently lost 3/4 of my fish. More recently one of my remaining Discus suffered environmental stress and again the symptoms of the plague re-surfaced and this fish died. My question is this; can I ever restock with Discus or is my tank forever 'blighted'? Do I have to wait until the disease burns itself out or are my present Discus permanent carriers? Also what is your view as to keeping Angels with Discus?

Rachel Eells, Richmond, N.Yorks

I am very sorry to hear of your disaster and there is no easy answer to your question as in my experience the Discus disease quite often does burn itself out. Just as often, however, some of the fish seem to develop immunity to it and others become carriers of it. If you come to see me I will give you a Discus to introduce into your tank. I have done this for others in the past who have had similar experiences to yours. This will tell you whether the disease is still present or not and dependant on the outcome will answer your question for you. I have never had any problems keeping Angels and Discus together. In fact, I used to breed both species in the same tanks. Again I think it is more to do with the quality of the fish that you buy. I think someone obviously in the dim and distant past did have a problem keeping the two species together and ever since the much maligned Angel has been shunned by the Discus keeper.

Tony Sault

Which fish can Jamie keep with his Discus?

I have recently set up my first tank for Discus, these will be the main fish in the tank but which other fish can I keep with them, also just as importantly are there any fish that I should avoid.

Jamie Robertson, London

To answer your second question first, as a rule of thumb if it grows too big or is aggressive then it does not belong with your Discus, but there are many species that can be kept successfully with Discus. Many of the Amazon Tetra family, Cardinals, neon's, lemons etc., many of the dwarf cichlids such as Rams, many of the Corydoras family are excellent cleaners and a welcome addition to a Discus tank. Of the Loricorids the smaller members of the family are excellent cleaners such as the Ancistrus and the Peletoia, even though in one of my tanks I have a 25" Acanthurus it is not to be recommended. Finally, a wonderful addition to any Discus tank is a small shoal of clown loaches. Besides being a beautiful looking fish it is also an excellent early warning system of anything about to go wrong as it is a scaleless fish and very sensitive.

Tony Sault



Kevin asks about keeping and breeding heckels

I have been keeping Discus for just over three years now and a few months ago I added some wild caught fish to my collection. These have thrived and are doing very well. I have been advised to avoid the heckel Discus as these are very hard to keep. Is this true as I would dearly love to buy some but I need to know if they need any special conditions. Are there any different varieties of heckel available and finally are heckels any harder to breed than other wild Discus.

Kevin Richards, Sheffield

Congratulations as you have definitely served your apprenticeship and done it in the way that I always recommend that is tank bred fish first then wild fish that are a little more discerning.

Wild *Symphysodon discus* heckel I would like to assure you are certainly no harder to keep than any other wild Discus, so go ahead and try them. They need exactly the same conditions as your other wild fish that is soft acid water of good quality. There is, in my opinion, only one heckel Discus, but you may be able to come across some regional colour varieties as I have done over the years. I have enclosed some photographs of different types that I have had.

As for breeding heckels HELP!!!! no seriously, as many of my friends and customers can attest, I have been trying to breed wild heckel to wild heckel for a good portion of the 35 years that I have been interested in Discus and to date have failed. This, however, does not deter me from trying again. Many breeders have managed to breed heckel to turquoise but this does not interest me but heckel to heckel certainly does. The only tip I am qualified to give you is try and find out, when you buy some, the conditions that they were in, in the wild. You may be surprised as all the wild heckels that have graced my tanks over the years would not even 'turn on' until the pH was as low as 4.0 I wish you every success in the future.

Tony Sault



Heckel to Heckel Discus are an almost impossible challenge to breeders

LYNNE HOLE, GLOUCESTER



Once the two nets had been set any submerged trees and logs were removed

The Red Discus of the Rio Coari Region?

Wild red spotted Discus are well known and much sought after, but just where do they come from?

Oliver Lucanus has been finding out their true range

THE BEST RED SPOTTED GREEN DISCUS come from the Rio Coari. That's been the accepted wisdom for a number of years now, but I think you can forgive a cynic for wondering if it was true. Red spotted Discus are well known and much sought after, but if their location was wrong, it wouldn't be the first time the name or collecting location of a fish in the hobby had been misrepresented.

WHERE DO THE COARI FISH FIT IN?

A trip to the westernmost area of the Coari region was in order, to clear up the mystery of the naming and distribution of several wild Discus forms. Our question was where the Coari fish fit in the great scheme of things, and what forms could be found in

the many igarapes (sidearms or streams) in the extensive Coari river system.

The town of Coari itself has only a few thousand inhabitants, and an airport that accepts planes with fewer than twenty passengers. There is no established regional aquarium fish trade, and therefore, the local fishermen have no special expertise in catching Discus. The Rio and Lago Coari are whitewater habitats which feature large numbers of both freshwater dolphin species, as well as their favourite food - pirhanas.

DISCUS HABITATS

As is the case in other Discus rivers, the main channel does not have any Discus in it. They are found in sidearms deeper back in the forest, where fallen trees, branches

The known distributions

The area around Tefe (west of Coari) is known to have beautiful red-spotted green Discus. We know that the range of the green Discus stretches from the Rio Putomayo, at the border of Peru and Colombia, to rivers farther east near the area of the Rio Purus in Brazil. Generally, Discus from more easterly rivers (the Rios Manacapuru and Madeira) are classified as blue, although there is no set line of demarcation between the blue and green forms.

and slow moving water make for ideal habitats. In these forested, hilly regions, we also found a number of small lakes or lagoons, cut off from the river. These are ideal habitats for dwarf cichlids (we found *Apistogramma agassizii* and *A. biteniata*), killies of the Genus *Rivulus*, and small Characins such as pencilfish.

Late in the year, when the water is lowest, the riverbanks are often wide beaches kilometres away from the forest. The region has a sparse human population, but the riverbanks are rich in the tracks of jaguars, caimans and wild pigs.



Sorting through the net had to be done quickly. Caiman, Piranha and other predators were trapped together with the Discus

During the rainy season, the river swells and covers the beach areas in a shallow flood plain. At low water, only a narrow stream winding through the beach indicated the presence of a Discus stream farther back in the trees. Once you've anchored your boat on the beach, the walk to the Discus areas can take hours. The estuary of such an

Igarape contains fish like *Crenicichla lugubris*, *Geophagus proximus*, *Satanoperca daemon*, *Serrasalmus rhombeus*, *Pygocentrus nattereri*, *Osteoglossum bicirrhosum* and *Leporinus fasciatus*.

Away from the beach, the stream chosen for this report passed through a flat grassland. The water became clearer, and →

A beautiful Royal green Discus - just the sort of fish which makes all this effort worthwhile





A very beautiful *Crenicichla lugubris* type from this area.



One of the larger Black Caiman caught in our net.

small fish could be observed. Smaller cichlids like *Hyselecara temporalis* and *Aequidens* sp. were seen with their young.

Following the stream inland, the next area has some low shrubs and trees, usually about six to eight feet higher than the beach, with steep muddy banks. It may take you hours to get to this zone from the beach, but you are rewarded with the sight of the first trees and branches in the water. The clear streams are teeming with many species of fish. You soon get into higher forest, with trees overhanging the streams which at almost every curve begin to form into a series of small lakes. This is classic Discus territory.

CATCHING DISCUS

Two nets are strung above and below such a curve in the stream, to close off escape in either direction. Now, the team of twenty

men has about 30 hours of work ahead of it. All the trees are removed from the cordoned off water. Branches are removed by divers, who attach ropes to larger pieces of wood. At times, the entire team has to drag a single piece of wood out. The nets need to be constantly checked for caimans, piranhas and other predators.

The next exhausting stage is the removal of overhanging branches with machetes. After nearly 48 hours, a large net is strung and slowly pulled in towards the shore. Things begin to move very fast, as large caimans and agitated piranhas threaten to damage captured Discus and destroy the nets. The net contains hundreds of large black piranha, *Acesterohynchus batracudas*, *Prochilodus*, *Leporinus*, *Metynnis*, and *Myleus*. There are dozens of bright red Oscars, arrowanas and severum, along with several large caiman and nearly 3000 Discus. The most colourful Discus are rapidly

placed in plastic vats for further selection, while the many predators are tossed on the bank or into a canoe for dinner.

WHAT WE FOUND

Out of all the Discus taken from the location discussed, only five young animals had an unexpected red spotting differing from the red-green spotted pattern found in the aquarium forms. These would grow out to be royal green Discus. There were also some magnificent adult royal greens, with nearly perfect horizontal lines across their entire bodies. 150 Discus are packaged to make the trip to Manaus, and export.

We caught no traditional red-spotted Discus in any of the western Coari region rivers we visited. It seems safe to assume things would be the same on the eastern side of the Coari region that we have not yet visited. Therefore the dividing line for the distribution of green and red-spotted green Discus must lie somewhere between the western Coari and the eastern Lago Tefe. ■

Thanks due

I would like to thank wild Discus experts Dirk Ottlik (Germany), Roger Hermann (Luxembourg), Kelsuke Onoda (Brazil) and Peter Bachmaier (Austria), all of whom were on the Coari trip. Some of the best fish from our Coari collection are now residing in Roger Hermann's tanks, and I hope to publish photos of the beautiful Discus in the near future.

Predators such as Piranha and Oscars were thrown on the bank or in this canoe to be eaten by the fishermen later.



The 'European' Fishing Pool

Ann and Grant Weir find some beautiful fish in Nigeria.



Aphyosemion bivittatum, like this one, usually occur in rain-forest habitats.

A PICTURESQUE, NIGERIAN RAIN-FOREST habitat, of the non-annual, *Aphyosemion bivittatum*, is a small river that provides a water supply, both for the large town of Ijebu-ode and for a nearby Brewery. The water pumping station, constructed in British Colonial days, lies alongside the

road from Ijebu-ode to the renowned fish market town of Epe.

PERFECT FOR PICNICS

The river, just below the pumping station, was dammed over 60 years ago, to provide

a swimming pool for the, exclusively European, Ijebu-ode Club, 3 miles (5kms) away. The grassy river bank was an ideal picnic spot. It attracted European families from Ibadan and Lagos, both over an hour's drive away. It was especially popular in the 1950's. When the Nigerian Civil War broke



Water lilies and reed beds by the side of the pool. Steps for the original diving board can be seen to the left. The pool has silted up over the years and the depth reduced, a fact appreciated by today's fish population.

out in 1967, the pool fell into disuse and the forest attempted to consume it. Long before then, however, the Club had become accessible to both expatriates and Nigerians, provided they could afford the membership fees. The picnic area and the pool were reclaimed in the 1980's.

A young Nigerian, Godwin, performed part time grass-cutting duties there. Godwin had a problem with alcohol and this caused him to be absent more often than not. There are reed beds, well endowed with water lilies, along the riverside, above and below the containing dam for the pool. These beds play host to many, soft and slightly acid water loving, rainforest fish species, including *A. bivittatum* and small, prominently six striped, *Epiplatys sexfasciatus*, that have a lamp-like glow spot on the top of their heads to attract insects.

TEAMING WITH FISH

We stopped at the picnic area by chance one day, to top up the radiator of our ailing car. Swimming along on the clean, pool bottom was a small, pink coloured fish, that we surmised was an unwanted goldfish that somebody had liberated in the pool, prior to leaving Nigeria for good. We asked Godwin, who had introduced himself to us, to catch it for us. He did so, and proudly presented us with it when we next visited several days later. The fish, unfortunately, was wounded during the catching exercise. On that particular visit we caught several *A. bivittatum* and Lampeyes, watched closely by Godwin, who had never seen anything remotely like our fishing equipment before.

We decided that Godwin's problem was an absence of job prospects so we decided to teach him how to catch fish, gently and to keep them alive. Godwin was an eager pupil. He was soon earning money and supplying us with *A. bivittatum*, Lampeyes and the fast moving Epanran (*Alestes longipinnis*) that the locals nicknamed Cha Cha as well as several other varieties.

Godwin, once his income and prospects had increased, sobered up, ate better and attacked the forest-like bush around the pool with considerable vigour. In fact, he made such an impression on subduing it that the Ogun State Government, having just designated the tranquil location a

The pool hosts some fabulously pretty Lampeyes with sparkling eyes and shimmering sides of unbelievably incandescent blue

'resort area', gave him a full time job looking after the pool surrounds. (The job included accommodation in a small bungalow on the compound.) As soon as his official duty ended, at 3.30pm, Godwin was free to go live fishing to supplement his income. He said that he really enjoyed fishing. We gave him Wellingtons, nets, plastic buckets and two 200 litre plastic water butts, with lids that we had drilled beforehand with hundreds of tiny holes. Godwin partly immersed the butts in eddies at the side of the small river before putting his fish in them.

We collected the fish twice a week and they were always in excellent condition.

SHINING EYES

The pool hosts some fabulously pretty Lampeyes (*Apocheilichthys macrocephalus*), with sparkling eyes and shimmering sides of unbelievably incandescent blue. We have also collected rare (as far as the West African

A shared picnic

Godwin supplied us with Red Fin Barb (Barbus collipterus). We initially found a shoal of them underneath an old Bread Fruit tree, just below the original changing rooms on the far bank of the swimming pool. We were sitting on the bank eating a picnic lunch when we tossed some boiled rice into the water. As the rice sank below the surface, we noticed that unidentifiable fish were attacking and scattering the grains. We ran to our car, collected a net with a long handle and threw more rice into the water. We were rewarded with six beautiful little Red Fin Barbs, *Barbus collipterus*, less than 2" (5cms) long. By the time that the remnants of our lunch were exhausted, we had caught over 60 fish.

Rainforest is concerned) Pipe fish under the bankside, just below the water intakes to the pumping station and a larger cousin of the normal Lampeye – *Procatopus oberrans* – among the water lilies in tranquil water in the pool itself. This is a lovely fish, though much more delicate and slower moving, with pink edged fins and a pink sheen to its body. It has large sparkling eyes. Apparently, the fish was thought to be extinct in the 1960's by the Natural History Section of the British Museum. That is until the aquarist, Roman Smykala, provided them with specimens caught in Eastern Nigeria, in a rainy season induced stream, close to the border with Cameroon. (Source: E R Smykala, Pszczyna, Poland).

Today, during the dry season, the picnic area and the pool are very popular. Crowds of deliriously happy children congregate there, especially at weekends. The fish don't seem to mind the shouting and splashing, especially as they confine their spawning to the wet, out of picnic favour season. The cosmopolitan mix of the visitors, not to mention the variety and magnitude of the racially impartial fish, would have surprised those pioneering Europeans who created the pool and picnic area so many years ago for their European Club. ■



Procatopus oberrans was apparently thought to be extinct, in the 1960's, by the Natural History Section of the British Museum, however, Roman Smykala re-discovered this species.

Today's Surgery



Our resident vet, **Lance Jepson**, has some helpful advice on how to keep your amphibians healthy



There are many very beautiful amphibians on sale in the shops today but they all need proper care if they are to survive in captivity. This is *Dendrobates quinquevittatus*

OVER THE LAST FEW YEARS THERE HAS been a gradual increase in the number of 'non-fish' available in aquatic retail outlets. In particular the numbers and variety of aquatic amphibians has increased. Typical examples are the Axolotl *Ambystoma mexicanum*, Fire-bellied Newts *Cynops pyrogaster*, Spanish Sharp-ribbed Newts *Pleurodeles waltl* and the clawed toads typified by African Clawed Toad *Xenopus laevis* (in both wild and albino forms), Nigerian Clawed Toad *X. tropicalis* and the Dwarf Clawed Toad *Hymenochirus boettgeri*. Despite the fact that I would

consider the majority of these unsuitable for inclusion in fish setups, that's not what we are going to discuss here. As ever we'll look at aspects of their health.

VIRUSES

Viral diseases are well recognised in wild amphibia, although how common they are a cause of death in captive amphibia is uncertain. In mass deaths of wild amphibia including our native frog *Rana temporaria*, Iridovirus infections are one virus that is often implicated. Iridoviruses can be found

in fish and there is at least one case where it is thought that this virus crossed a species barrier from sticklebacks into tadpoles.

BACTERIA

Bacteria such as *Aeromonas* and *Pseudomonas* are common inhabitants of the skin of healthy aquatic amphibians. In stressed or otherwise unhealthy animals bacterial numbers can get out of hand and invade the skin and body. In these cases we see reddening of the skin and ulceration. Often sudden death is a feature - these



Fire salamanders make excellent long-lived pets and are happy at normal room temperature

Infections trigger blood clot formation throughout the body irreparably damaging the blood supply to vital organs. *Aeromonas* spp in particular is associated with a condition known as 'red leg' - an apt description of the inflammation and ulceration which is seen particularly on the underside of the hind legs. However, these signs are only part of a more generalised septicaemia and other obvious signs include loss of appetite, lethargy, convulsions, swelling of the body (either with fluid or gas) and obvious eye abnormalities. *Flavobacterium* spp can also cause major epidemics in groups of amphibians. Treatment is with antibiotics either by injection, by mouth or as a bath.

Mycobacteria tend to cause a wasting problem where infected amphibia will lose weight in spite of having an apparently good appetite. Long term ulcers may be seen, or swellings either at the skin or deeper can be a feature of these infections. Treatment is rarely effective and so euthanasia should be considered in these cases.

CHLAMYDIA

This bacteria-like organism infects individual cells. In *X. laevis* it produces a disease that looks very similar to 'red leg'. It may infect other amphibians too and only certain antibiotics (consult your veterinary surgeon) are effective.

FUNGI

Saprolegnia is a common fungal infection of wounds in aquatic amphibia. It appears as a characteristic cotton wool-like growth on the skin. Spores are present in the surroundings, especially if there is a poor standard of hygiene. Also removing visible hyphae and swabbing the affected area with a 10% povidone-iodine solution once daily is recommended. Salt water baths at a concentration of 10 to 25mg sea salt per litre, given once daily for 10 to 30 minutes



Spanish Sharp-ribbed Newts, *Pleurodeles waltl*, are found with increasing frequency in aquatic outlets

is usually beneficial.

The more serious fungal infection of *Chromomyxospora* is occasionally seen in frogs. This fungus is highly pigmented and usually presents as dark, raised nodules in the skin. This infection spreads internally quite readily and infected frogs may become debilitated and show marked weight loss. Treatment is very difficult - euthanasia may be the kindest act.

PROTOZOA

Oodinium pillularis is probably one of the most significant protozoal ectoparasites of aquatic amphibians and of the aquatic stages of terrestrial forms. It is irritant in large numbers and affected amphibia develop a greyish covering due to excessive mucus production over the skin and gills. The gills are particularly targeted and if severe then breathing is impaired. Affected individuals become debilitated and may die. Treat with metronidazole at 10-14mg/l.

Environmental

All aquatic amphibia excrete ammonia into the surrounding water and so create the same sort of waste problems as fish do, although they are often more tolerant of higher levels than fish can cope with. However, I recommend keeping ammonia, nitrite and nitrate values at similar levels to those recommended for fish. These apply especially to the larval (tadpole) stages where high stocking levels can lead to serious levels of ammonia production.

In larval amphibia gill damage is a likely consequence of high ammonia levels with secondary infection of these organs, plus skin irritation in both adults and tadpoles. Abnormal behavioural signs may be seen at high levels.

Temperature is also important. Like fish, these animals are ectotherms that cannot generate their own body heat. However, they do have a preferred body temperature that is the optimum for their metabolism (including their immune system) to work. In general the newts that are available are happiest at room temperature; the axolotl will definitely become uncomfortable at temperatures above 20°C, whereas the Dwarf Clawed toad will prefer standard tropical temperatures of around 25°C. *X. laevis* appears to be the most commonly available species. Unfortunately I most often see it incorrectly displayed in the coldwater section.

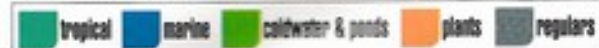
Although they appear to have a wide temperature tolerance, the correct temperature range is often said to be 20 to 25°C for their optimum health - in fact studies have shown that the preferred body temperature of *X. laevis* is around 25.5°C!

Ciliated protozoa can also trigger skin disease including ulceration, cloudy patches (due to excess mucus) and gill disease. In the first instance treat with proprietary fish ectoparasite remedies. Ciliated protozoa found in the bowel are occasionally linked to disease although this has not been definitely proven.

Pathogenic amoebas such as *Entamoeba ranarum* can be a source of trouble. They particularly target the lining of the large intestine and can cause wasting, loss of appetite, diarrhoea and bloody stools. As for *Oodinium*, treat with metronidazole at 10-14mg/l.

WORMS

The worm *Pseudocapillaria xenopi* causes skin lesions in African clawed toads. Both eggs and worms can be seen on skin scrapings. Treatment is with standard wormers such as fenbendazole (50 to 100mg/kg by mouth). ■



Close encounters of the fish kind



Dragon Fish have a special place in Asian culture.

John Dawes explains some of the myths behind them and has an update on the progress being made towards a new 'clean list' for Brazil

EVERY TIME I VISIT THE FAR EAST, I AM struck by the special place that the Dragon Fish (*Scleropages formosus*) occupies in many Asian cultures. This majestic fish is believed to bring its owner health, wealth and luck. As a result, it is often treated with a deep sense of reverence by owners and non-owners alike.

It is therefore much sought after, not just by aquarists, but also by Oriental business people all over the Far East and wherever southeast Asian communities exist around the world. Even where I now live in southern Spain, some of my local Chinese restaurants have their resident 'lucky charm' in the form of large aquaria containing Dragon Fish (usually Red Dragons - the most valuable variety).

Not surprisingly, the Dragon Fish is steeped in mythology and legend regarding its origins. Links between Dragon Fish and 'real' dragons abound, although none - as far as I can make out - tell us with any certainty how the name 'Dragon Fish' actually came about. Over my years of travel in southeast Asia, I have come across many of these myths and legends, along with a fair sprinkling of interesting anecdotes. All are fascinating in their own way and provide insights into this unique bony-tongued fish.

For example, in Chinese mythology, dragons are mostly of the benevolent kind (unlike many of those from other cultures). Among the many attributes that these ancient dragons had was the ability to arise from fish. More remarkable, perhaps, was their ability 'to go the other way' and disguise themselves as fish. However, you



Dragon Fish (*Scleropages formosus*) in many Asian cultures is believed to bring its owner health, wealth and luck. As a result it is often treated with a deep sense of reverence by owners and non-owners alike

could always detect such fishy dragons because they either emitted a five-coloured light or... more dramatically... they would speak out in a human voice while they were being cooked!

One particularly interesting legend arose in the jungles of central Sumatra and tells of a fishing eagle that swooped down from the sky and mated with a fish. The result was

"Buy an Ornamental Fish, Help Save the Rainforest"

the magnificent Dragon Fish. According to this legend, proof of the bird / fish mating can be found in the large, yolk-rich eggs that Dragon Fish produce and that nourish the fry during the many weeks that they spend in their father's mouth (this species is a paternal mouthbrooder).

While I cannot really comment on the 'cooked dragon' legend, the second one is more easily explained... at least, I think so. If a fishing eagle were to swoop down on a Dragon Fish, the fish's armour-plated scales would present the bird's talons with an

almost impenetrable barrier. This attack would be accompanied by much splashing as the eagle flapped away... and the fish thrashed away, with the hunter eventually flying off wet, frustrated and fishless.

Such an 'explosive' encounter could, of course, easily be interpreted as a mating encounter. Further, if this sequence of swoop / attack / splash / flap / thrash and eventual failure to fly away with the Dragon Fish impaled in the eagle's talons were to be observed many times over a period of years (as is likely to have happened), it is possible to see how the legend of a bird / fish mating could have arisen, especially when the aforementioned large yolk-rich eggs are taken into account. Feasible? Perhaps... perhaps not!

AMAZONIAN 'CLEAN LIST' IN LIMBO

Is the Cardinal Tetra (*Paracheirodon axelrodi*) an ornamental fish species or is it a food fish? This, of course, is an easy question with an equally easy answer. After all, who in their right mind, would consider the Cardinal as a food fish? Here's another one: Is the trout (*Salmo trutta*) an

ornamental or a food species? Again, the answer is easy... it is a food fish, of course.

But, what about the Oscar (*Astronotus ocellatus*) or the Silver and Black Arowanas (*Osteoglossum bicirrhosum* and *O. ferreirai*)? Or how about the Pike Cichlids (*Crenicichla* spp.) or the Uaru (*Uaru amphiacanthoides*) or the Pacu (*Colossoma* spp.) or the Tucunares (*Cichla ocellaris* and *C. temensis*)? How do you classify these?

Well, in these and numerous other cases, the answer is far from clear. To aquarists, they are all ornamental or aquarium fish. To the governments of most South American countries that export tropical fish, they are also ornamentals. But, to the Brazilian government, they are food fish. Have a look at the accompanying photo that I took during one of my trips up the

Rio Negro. Recognise the species? It is an Oscar harpooned by one of the caboclos I was with... and destined fairly and squarely for the cooking pot! The Oscar is therefore a 'dual purpose' fish that can just as easily be regarded as an ornamental or a food species.

WHO IS RIGHT?

So who is right and who is wrong? Is any one right... or wrong? That depends largely on your point of view, because the fact is that there is no strict definition of what constitutes an ornamental fish and what constitutes a food fish. Therefore, we could just as easily say that the

Brazilian authorities are as correct as those of any of the other countries.

The problem though - both for us, as aquarists and for the Brazilian exporters - is that, as a result of the current classification, only a small fraction of the Brazilian Amazon's incredibly rich fish fauna can be exported from the country. In fact, the current 'Clean List', i.e. the

list of fish that can be legally exported from Brazil, contains only around 180 species. When you consider that there are well over 2,000 fish species in the Amazon basin, this number appears very small indeed.

The unfortunate consequence of the restrictions is that everyone is affected, from collector, to exporter, to importer, to wholesaler, to retailer, to aquarist. Not surprisingly, Manaus-based collectors and exporters have, for years, been very keen for this situation to be resolved, especially since many of the species that they cannot, at the moment, export, also occur in neighbouring countries from where they can be and are being, legally exported. They therefore feel that they are at a disadvantage.

NEW 'CLEAN LIST'

In order to knock some sense into this anomalous situation, Professor Ning Labbish Chao - the leader of Project Piaba, based in the Rio Negro - produced a new 'Clean List' in 1998. In proposing that the former list of round 180 species be expanded to about 400, Prof. Chao emphasised that the increase would not just reduce pressure on some of the other species - particularly the 'bread and butter' ones like Cardinals - but would also be likely to reduce pressure on the rainforest itself by providing an alternative source of income for local communities, thus slowing down local deforestation.

Everything looked promising for a time, as the list was first circulated to relevant parties for comment before being passed on to the Brazilian authorities (IBAMA). Then everything went quiet... and nothing happened.

THREE YEARS LATER

Three years later, we are still in the same position. In fact, the latest news I have from



This Oscar - harpooned for the pot - illustrates the impossibility of defining a fish as an ornamental or food species

Prof. Chao (received only a few weeks before I prepared this Encounters item) informs me that IBAMA has not yet processed the 'Clean List'. He is obviously most frustrated and disappointed about this, since the 1998 list arose out of a recommendation agreed at a workshop organised by IBAMA itself two years earlier. Whether or not IBAMA will eventually take action and adopt the 1998 list is anyone's guess. At the moment though, things don't look too optimistic.

This is a considerable blow for Prof. Chao, Project Piaba and its 'parent' organisation, Bio-Amazonia Conservation International, whose very mottoes emphasise the intimate relationship between aquarium keeping and rainforest conservation. The 'short' version of these mottoes states: "Buy a Tropical Fish, Save a Tree in the Amazon". The longer version goes a stage further by stating: "Buy an Ornamental Fish, Help Save the Rainforest".

I await further developments with great interest. ■

NOTE

Any readers wishing to see the full 1998 'Clean List' can check it out on the Ornamental Fish International website (www.ornamentalfish.int-org). Click on the 'Journal' icon on the Home Page. This will take you to a list of selected articles published in the OFI Journal. Among these, you will find Prof. Chao's report originally published in Issue 23 of the OFI Journal (May 1998). Click on the article title and this will take you to the text section of the report. At the end, you will find a 'click-on' instruction that will then take you into the full list.



Crenicichla regani - a beautiful aquarium fish or a tasty dinner? Yes!

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Koi World

Are your fish gasping for breath? **Bernice Brewster** suggests a 'must have' Christmas gift that every koi enthusiast should have in their Christmas stocking



It is important to monitor your pond's oxygen level as well as ammonia and nitrite levels



CAN I REALLY BELIEVE THAT A YEAR HAS now passed since taking over the pages of Koi World and Christmas is nearly upon us once again? So in view of the onset of this Season of Festivities I thought I might just list a few 'must haves' in the Christmas stocking. At number one, is a dissolved oxygen test kit. We busily test for ammonia and nitrite but completely ignore the fact that koi must have oxygen to live and most of us are blissfully unaware the pond system is teetering on the verge of crashing through lack of this vital gas. There are a few on the market and most people are familiar with the TetraTest Dissolved Oxygen Test Kit but New Technology has produced an excellent version as well. It is slightly more complicated to use

but the final reagent is counted in dropwise, each drop being the equivalent of 0.5mg per litre dissolved oxygen, to give an accurate oxygen concentration in the water. Possibly the dissolved oxygen test kits may appear to be expensive but their cost is trivial compared to the loss of the koi through lack of oxygen.

SOME MORE GIFTS

Gifts two and three feature ammonia and nitrite test kits, it is better to be vigilant with water quality. It is surprising how many people telephone me to say they have a problem with their koi and when I ask what concentrations of ammonia and nitrite are present in the pond, they must admit to not having tested the water recently. There are numerous test kits available and all make a very useful stocking filler.

Perhaps gift number four may seem extravagant but a microscope is a handy tool to have for most koi keepers. Aside from the identification of fish parasites that certainly is a help in applying the correct treatment, spend some time taking drops of water from the filters and the pond, you'll be amazed by the weird and wonderful creatures that share

the pond with the koi. There are a couple of companies who advertise regularly and are aware of the needs of the average koi keeper. It is possible to buy toy microscopes but you pay for what you get and these are after all, toys and not working tools.

Finally, my number five is a decent book, covering water chemistry, fish biology and health. There are a few around but the classic book is 'The Interpet Manual of Fish Health' by Chris Andrews, Adrian Exell and Neville Carrington. An excellent all round book that covers the above and includes information on using a microscope and other useful snippets of information. Knowledge is the most powerful weapon we have to promote the health of our koi.

It remains for me to wish everyone a Happy Christmas and successful New Year! ■

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...End Point

David Armitage introduces Vaillant's chocolate gourami - the largest and most attractive species found so far



THERE ARE AT LEAST FOUR SPECIES OF chocolate gourami. The latest to reach Europe in numbers is probably the largest and most beautiful species, *Sphaerichthys vaillantii* mainly through the efforts of Singapore exporter, Patrick Yap.

A REPUTATION FOR BEING DELICATE

The Common chocolate gourami has the reputation of being extremely delicate, possibly because it only has eight pairs of chromosomes, the lowest recorded for fish and one-third the usual number for other labyrinthfish. This and the high number of chromosome abnormalities, suggest it has a reduced ability to undergo adaptive change but providing they are correctly conditioned they can do well and even breed in the aquarium.

Vaillant's chocolate gourami were named by Leon Pellegrin, who had specimens from Sobroeng from a Mr. Chaper. Initially he thought they were *Crenops nobilis*, so it was not until 1930 that Pellegrin described them, noting they would be "ravishing" aquarium fish.

MORE RECENT COLLECTIONS

Live specimens were first brought into Europe in recent times by a Parisian, Olivier Perrin who was also successful in breeding them and to whom I owe thanks for most of the following information. He caught them in Semitou, Kalimantan in the Kapuas drainage in 1995 and 1996. The tributary where he caught them varied in width between 3 and 50 m and was 3-20 m deep and he was only able to catch juveniles sheltering along permanently floating trunks of trees that acted as bridges. The water here was clear but amber, of pH 5.3, 20 micro S / cm and 29.5°C.

The male is a typical brown to beige-coloured chocolate gourami with a spot on the caudal peduncle and a line that runs from the eye to the snout.

It is the female of this species that's the real beauty though. The body is a rich red-brown with vertical stripes beneath a green sheen.

FIRST SPAWNING

Olivier noted that in his small group, one pair was territorially dominant, with the female taking the lead and initiating the spawning which took place in the evening, after 'lights out' in the aquarium and took 1/2-1 hour. The pair display face-to-face and after flank touching, they begin to circle, flank to flank. The male places the female in the 'u' curve of his body only briefly, before the female drops her cream-coloured eggs on the tank base where they are fertilised by

of 3 days and the young are mature after 8 months while the adults are ready to breed again after 8 days rest.

I came across these fish in Singapore, en-route from Indonesia where the first shipment to BAS, Bolton was being arranged. Much to my surprise, 3 months later, both my fish and those left in the tanks at Bolton, remain in good condition, and even take flake food, thanks to the initial care of Patrick Yap.



the male and taken into his mouth. The eggs are incubated for 18-23 days by the male who initially periodically visits the surface to refresh the air in a pocket in his mouth while the female guards him. 19-60 eggs are released eventually over a period

Sphaerichthys vaillantii is the largest and possibly most attractive of the Chocolate gouramis but colour is dependant upon the fishes mood and background

A female *Sphaerichthys vaillantii*



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