FISHKEEPERS' AND WATER GARDENERS'

BULLETIN

VOLUME 6 ISSUE 8 PRICE £1.95 (UK)

Some of the top winners at the Supreme Weekend

London Shubunkin (Best in GSGB Show) owned by Don Smith
Size 6 Sanke (Laguna Koi Supreme Champion) owned by Alan Archer
UK Discus Champion owned by Chris Arnold
***Vieja zonata* (FBAS Supreme Champion) owned by John Egan**
L128 Blue Spot (British Open Champion) owned by Allan Finnigan

JOURNAL OF THE FEDERATION
OF BRITISH AQUATIC SOCIETIES

www.fbas.co.uk

Greetings to All OUR READERS,

Yet another year has passed, every effort was made this year to let Clubs & Societies share their news and successes. But alas only 2 Societies bothered to reply, HADAS & Ryedale Thank You to Peter & David for their efforts HADAS report will appear in the March issue.

Reports not included in this issue ie. The Hagen Masters will be reported at the AGM and will be available when the minutes are sent out. If you feel you have been left out don't moan, put pen to paper and lets have your article.

Compliments of the season to you all.

Regards,

Peter Furze

Editor.

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FISH BLOOD

Dr Peter Burgess
Senior Consultant to the Aquarian® Advisory Service Email: AquaticsDoctor@aol.com

The subject of fish blood may seem rather dull, however there is more to this red liquid than meets the eye. A single drop of blood can tell us so much about our fish's health, its stress level, and even the various diseases that it has faced during its life.

A complex liquid

Fish blood is fairly similar to that of mammalian blood. It contains cells and various chemicals that are immersed in a liquid medium, the plasma. One important function of the blood is gaseous exchange: as the blood passes through the gill capillaries it picks up oxygen from the water and off-loads carbon dioxide waste. Blood also delivers energy-rich nutrients to the fish's cells and organs, providing them with the power to perform their various functions.

Fish blood contains two basic types of cells: the red cells and the white cells. The red blood cells (known as erythrocytes) are by far the most abundant, with a million or more per millilitre of blood. These red cells contain a special protein, haemoglobin, that transports oxygen and gives the blood its characteristic red colour. Less abundant are the white blood cells (leucocytes): carp blood, for example, contains about 30,000 to 140,000 white blood cells per millilitre. There are various types of white blood cells that are involved in immunity – helping to protect the fish against infections. Some white blood cells patrol the blood, in preparation to attack or engulf any invading pathogens. The "aggressiveness" of some of these cells is indicated by their names, such as Natural Killer Cells!

In addition to cells, the liquid plasma transports hundreds of different chemicals including hormones and vitamins. The plasma also contains defence molecules such as interferon which combats viruses, and small proteins known as antibodies. Antibodies attach to invading pathogens (such as bacteria) and by doing so they signal the blood's white cells to attack these invaders. A fish's immune system is so complex that we don't exactly understand how it all works.

Blood tests: a clue to fish health

Using special laboratory techniques it is possible to tell whether a fish has a current or recent infection simply by testing a drop of its blood. These so-called "serological" tests have been developed for diagnosing various bacterial, viral and protozoal infections of farmed food-fish but so far have not widely been applied to ornamental species.

One notable exception is the recent use of serological tests (such as the "ELISA") for screening koi for the serious viral disease known as Koi Herpes Virus (KHV). Serological tests are currently quite expensive and can only be performed by special fish health laboratories that have the necessary equipment and reagents. This situation may change in the future as the tests become cheaper, more accurate, and simpler to perform. We may even see a time when simple strip tests come on the market (similar to those for checking blood-sugar levels in diabetics), enabling the fishkeeper to test his own stock for certain diseases. A simple but accurate blood test would enable us to properly diagnose the disease, enabling the most appropriate treatment to be selected. It may all seem futuristic, but the technology is already out there. Of course, one limitation to these tests is the small size of many ornamental fish which makes it difficult to take enough blood to test.

Stress

In addition to disease screening, blood tests can also reveal whether a fish is stressed. This is because the blood carries "stress hormones", such as cortisol. In general, the more stressed the fish, the greater the levels of these hormones in the blood. The measurement of blood cortisol has been widely used for experimental studies on stress responses in fish and also for assessing the stress of farmed stock (e.g. food fish species). Incidentally, high levels of stress hormones are known to impair the fish's immune defences, which explains why stressed fish are more prone to infections.

Diseases of the blood

Despite its sophisticated defence systems, the blood may sometimes be overwhelmed by invading pathogens, such as bacteria or viruses. Aspects of blood function can also be damaged by certain adverse water conditions – such as nitrite damage. Some common and not-so common blood disorders of ornamental fish are given below:

1) Brown blood disease

Cause: Nitrite poisoning. This potentially lethal disease may arise when nitrite accumulates in the aquarium or pond. This can happen if the biological filter is not functioning properly or cannot cope with the quantity of fish kept. Nitrite damages the fish by preventing its red blood cells from carrying oxygen. As a result, badly affected fish will suffer from hypoxia (= lack of oxygen to their tissues).

Diagnosis: In severe cases, the normally red gills appear light tan to brown in colour. This is due to nitrite entering the blood and binding with haemoglobin (red), converting it to methaemoglobin (brown) which is poor at carrying oxygen. The blood of badly nitrite-poisoned fish will also appear brown. Affected fish develop signs of oxygen starvation such as fast gill beats and/or gasping at the water surface.

The fish may become listless. Obviously, many other conditions (such as low oxygen levels in the water, or gill parasites) can cause similar respiratory problems, so perform a nitrite test to confirm that you are dealing with a nitrite problem. Also test for ammonia.

Treatment and prevention: Ensure the aquarium or pond is adequately bio-filtered and maintain the filter in good order. Periodically test the water for levels of nitrite (and ammonia) using commercial water testing kits. For freshwater fish, sodium chloride (0.1 gram per litre) can be added to the water to reduce the toxicity of nitrite – this should only be done as a short-term emergency measure while the underlying cause of the problem is identified and corrected. (Note: most types of fish, including catfishes and tetras, will tolerate this low level of salt.) Largish water changes are a quick-fix method for reducing high nitrite levels, and there are efficient chemical filtration media, such as NitraZorb™ (produced by API laboratories), which will remove both ammonia and nitrite from the water.

2) Blood infections

Causes: Usually bacteria or viruses are to blame.

Diagnosis: Not easy. Generally, diagnosis is based on outward symptoms associated with the particular virus or bacteria involved. Badly affected fish are likely to appear very ill and lethargic and may exhibit laboured breathing (fast or pronounced gill beats).

Treatment and prevention: The provision of good water quality and a well-balanced diet will go a long way towards preventing blood infections in fish. Promptly treat any skin wounds or skin infections (such as deep ulcers) to limit the chances of pathogens breaching the damaged skin and entering the blood system. Antibiotics (e.g. given by injection) generally offer the best hope of curing bacterial infections of the blood, provided the infection is not too advanced. Antibiotics will not combat viral infections.

3) Blood-dwelling protozoa

Causes: Some protozoal parasites take up residence in the fish's blood. Notable examples are the trypanosomes (*Trypanosoma* and *Trypanoplasma* species) that are not much bigger than the fish's blood cells. These rarely encountered parasites are transmitted by fish leeches.

Diagnosis: Trypanosomes are more likely to occur in wild fish. Low level infections may cause no obvious symptoms hence these parasites often go undetected. Heavy infections may render the fish listless and anaemic. Trypanosomes are detected by examining a freshly taken sample of blood under a microscope (400-1000 x magnification).

Treatment and prevention: Trypanosomes can only spread from fish to fish if fish-parasitic leeches (notably *Hemiclepsis* and *Piscicola*) are present. Fortunately, such leeches are uncommon in garden ponds and extremely rare in aquariums. (Note: the types of leech that you are most likely to encounter in ponds are harmless species that prey on aquatic invertebrates such as snails). Leeches are difficult to eradicate, except by drastic methods such as draining the pond and allowing it to dry out thoroughly. There are no chemical remedies in general use for treating trypanosome infections in fish.

4) Blood flukes

Cause: In carp, a largish parasite known as *Sanguinicola* resides in the blood-filled chambers of the heart, hence is known commonly as the blood fluke. To date, it is very uncommon in the UK but has been recorded in shipments of koi from abroad.

Diagnosis: Symptoms are vague. Suspected cases should be examined for the presence of fluke eggs in the gills. The eggs of *Sanguinicola* are characteristically triangular in shape.

Treatment and prevention: In the unlikely event that *Sanguinicola* is detected, the fluke's life cycle can be broken by eliminating aquatic snails (*Lymnaea* pond snails) that are capable of harbouring the juvenile flukes. This can be done using molluscicides (= snail killing chemicals), as sold for pond use. Treatment of affected fish is difficult.

5) Nutritionally related blood problems

Feeding a well balanced diet is very important for maintaining healthy blood. Fish foods that are deficient in certain micro-nutrients may cause various blood disorders. For example, dietary iron is important for manufacturing the oxygen-carrying haemoglobin molecules that are carried within the red blood cells ("haem" = iron). A lack of iron can result in your fish becoming anaemic. It makes sense to pay that little bit extra for a quality brand of fish food.

6) Loss of blood from the gills

Occasionally, a fish may bleed from the gills following removal from the water. This is not uncommon in large fish, such as koi and other carp. You may see a small plug of clotted blood ejected from under the gill cover. Although this looks alarming, it should not give cause for concern, provided the bleeding stops within a couple of minutes (fish blood generally clots quite quickly). However, if the bleeding continues, seek professional advice.

Footnote:
Peter developed blood tests (ELISAs) during his PhD studies on fish immune responses to parasitic infections.

FILTRATION AND THE NITROGEN CYCLE

Les Pearce

It is very important to understand the Nitrogen Cycle in order to set up and maintain a healthy and safe environment for your fish. To understand the nitrogen cycle, it is also important to first have a good understanding of how your filter works.

Filters work in three main ways - ***MECHANICAL, CHEMICAL AND BIOLOGICAL.***

MECHANICAL FILTRATION

Mechanical filtration is the perhaps easiest to understand, it simply means that solids are filtered out of the water by straining through the filter medium - sponge, filter wool, etc. In doing this, however, the filter becomes clogged up with the solids it is straining out of the water and will require cleaning at regular intervals to remain effective.

CHEMICAL FILTRATION

Chemical filtration generally means any type of filtration which will alter the chemical composition of the water and remove harmful chemicals within the water. Within the aquarium this usually refers to activated carbon or, less commonly, some resins. Activated carbon removes harmful chemicals from the water by chemically absorbing them. The carbon will eventually become saturated and will need replacing or re-charging.

BIOLOGICAL FILTRATION

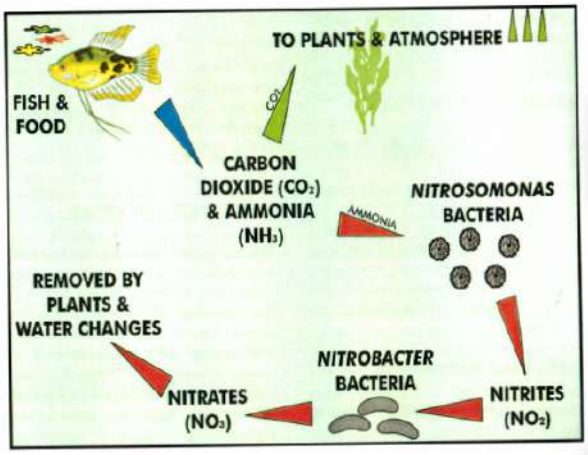
Biological filtration is, arguably, the most important of the three main types. Harmful chemicals deposited in the water by the livestock in the aquarium are converted biologically into less harmful chemicals by 'friendly' bacteria. This action is what is known as the 'Nitrogen Cycle'.

THE NITROGEN CYCLE

When you first introduce fish to a new aquarium, the main problem is not the solid waste produced by the fish, it is the ammonia(NH_3) released into the water. This is very toxic to the fish. The first of our friendly bacteria to spring into action are the *Nitrosomonas* bacteria. These bacteria derive all the energy they need for growth and reproduction from converting ammonia into nitrites. They live in several places such as soil, sewage, fresh water, etc. and they thrive in places where there are high levels of nitrogen compounds. These bacteria need large amounts of energy to divide

and multiply and, because of this, it takes a while for them to develop in the aquarium in such numbers as to be of use. It is, therefore, very important that you do not stock a new tank to capacity immediately it is set up. Patience is a virtue and a minimal stocking level is needed to begin with (one fish or maximum two or three fish depending on the size of the aquarium and the size of the fish).

aquarium by decaying matter such as solid fish waste, uneaten food and dead plant matter. *Nitrosomonas* bacteria present in the water will begin to convert the ammonia into nitrites (NO_2) and, in doing this, will begin to multiply. As the numbers of *Nitrosomonas* increase and the ammonia levels correspondingly decrease, nitrite levels in the water will rapidly start to increase.



Once your fist fish are installed and begin to feed, they will produce toxic ammonia and carbon dioxide (CO_2) from their gills and solid waste matter. Ammonia is also introduced into the

Nitrite is almost as dangerous to fish as ammonia and this is where the second batch of 'friendly' bacteria come into action - the *Nitrobacter*. These microscopic rod-shaped bacteria begin

to colonise the filter and feed on the nitrites (NO_2) produced by the *Nitrosomonas* bacteria. They convert them to nitrates (NO_3) which are far less harmful to fish and other animals. In doing this they, too, begin to multiply their numbers until a balance is achieved.

The byproducts, then, of this cycle are the carbon dioxide exhaled by the fish and the nitrates produced by the bacteria. Both of these are used up to some degree by any aquatic plants present. The carbon dioxide is used up by the plants in the action of photosynthesis which produces oxygen back into the water and the nitrates are consumed by the plants as fertiliser to aid their growth.

In an ideal world, there would be nothing further to say but, because we have aquariums primarily to keep our fish, the stocking level of fish in relation to plants is almost always too high on the side of the fish - there is nothing wrong with this but it does mean that there will be more nitrates produced than the plants will need. Also, in some cases, people set up aquariums without plants or with plastic plants as decoration. This means that gradually, over a period of time, nitrates will build up in the aquarium to unacceptable levels. It is for this reason that we perform partial water changes on our aquariums at regular intervals.

As a final thought, when you clean out the filter in your tank to remove the solid wastes that build up and clog it. It is vital that you use water taken directly from the tank to do so. This is obviously best achieved at the same time as you do your partial water change, thus utilising the old water taken from the tank to clean your filters out with. The reason for this is that if you use tap water to clean out your filter, the chlorine and chloramines added to the water by the water board are deadly to the colonies of bacteria in the filter media. The obvious conclusion to this is that when you replace the filter media, not only have you killed all the bacteria in it and disrupted the all-important nitrogen cycle, you have also introduced a large quantity of dead bacteria into your aquarium which will decay and add to the chemical imbalance caused by the disruption.

For the same reasons, it is most important when performing a partial water change to ensure that you never use new untreated tap water. Always de-chlorinate the water you use, either by letting it stand for 24 - 48 hours with aeration or by using a proprietary tap water conditioner / de-chlorinator available at all good aquatic shops. It is worth noting that leaving the water to stand will remove chlorine but not chloramines and in this instance, a tap water conditioner is advised.

2006 FBAS FESTIVAL OF FISHKEEPING

Dick Mills

After the thoroughly miserable weather during setting up, the sun, the fish and the crowds came out for two fabulous days at Mill Rythe Holiday Village, Hayling Island.

The Leicester boys made sure of their British Open Championship victory on Saturday but it was a different story without them on Sunday when Port Talbot's John Egan almost swept the board in the Supreme Championship, only John Smith from Mid-Sussex A.S. prevented a clean sweep.

As expected, the Discus Show attracted enormous attention. The thousands of day visitors missed seeing them at their best - in the evening when they simply glowed with colours in the darkness of the marquee.

Elsewhere, Koi and Goldfish strutted their stuff whilst if you thought that *Corydoras* were just a few species scurrying around the bottom then Ian Fuller's tremendous display of 32 pairs of species would have made you think (and there's another 120 or species to consider after those!)

When they said there'd be a Bowls Competition, everyone thought they meant Goldfish Bowls (with all the usual derogatory remarks!) but no, it was a real Bowls tournament held on the outside Bowls Rink, and which attracted great support.

Many people took the opportunity to walk along the sea wall or through the grounds of the Holiday Village during the sunlight days, but all managed to retain some energy for the evenings' entertainments too. The Fancy Dress Competition brought out the usual participants - well done, Jayne for taking the top (and nearly 'topless') Award!

And what can we say about the professional presentations, the Blues Brothers and ABBA Time? Absolutely top notch. Equally well received (if anyone can remember after such a late night!) was the adult comedian Mickey Zaney operating in the select atmosphere of Hudson's Bar.

Aquatic 'entertainment' centred around the programme of talks and discussions in the lecture area. Ian Fuller, Rupert Bridges, Peter Burgess, the Waltham Centre team, Brian Walsh and the PFK team all ensured a whole range of topics were covered. Your Society will be able to see some of these once they're added to the FBAS Aquatalk Videos List or you can buy a DVD copy for yourself.

Lots to see on the various aquatic Stands, but the one display everyone was talking about was the one featuring

photos from past FBAS aquatic events which formed a backdrop to the refreshment area. Did you spot yourself? One particular photos - a black and white one - was of Joe's Mum, May Nethersell, proudly displaying the Supreme Championship Trophy she won at one of the Alexandra Palace Shows. Ah, takes you back, doesn't it?

Any problems? Well, the car parking was limited as it turned out due to the sheer numbers of people attending during the day (Joe loves problems of crowds!) and some latecomers found themselves parked in the nearby School.

To summarize:

a superb weekend and a great 'send off' for Rolf C Hagen, our principal sponsor for many years. It remains to be seen how things will turn out next year but, on the evidence, there should be a steady stream of wouldbe trade participants already beating a path to Joe's door.

Once again, Grace Nethersell mistress-minded the accommodation side of things and was Goody-Bag Distributor-in-Chief too. Fabulous effort, Grace, have a good rest before it all starts up again.

Thanks to all for coming, whether you were an exhibitor, resident, Judge, Trade representative, Guest Speaker, Day Visitor or Steward - you made it all worthwhile.

British Open Championship winner Allan Finnigan said:

"I would like to thank everybody who made that Saturday one of the best days ever for myself. A good day was had by all who came from Leicester and I can only apologise that due to work commitments we could not be there in support for the Sunday.

"I look forward to defending my British Open Award next year! Many thanks for a great day."

Bookings are already pouring in for the 2007 Festival of Fishkeeping (October 12th-14th).

Ring Grace on 0208 847 3586 or email her at:

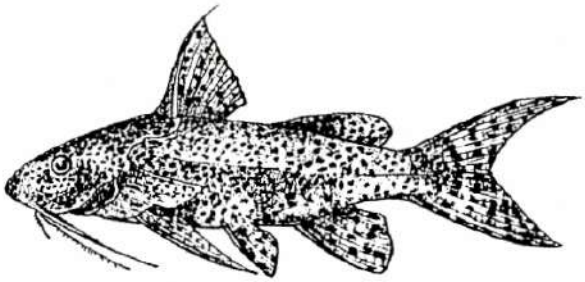
grace@the-nethersells.fsnet.co.uk

NOTE: The price for next Year's Festival of Fishkeeping has been increased by £5.00 per person for all new bookings, but pre-bookings made during the 2006 Festival Weekend are unaffected.

See you on the 12th October 2007!

KNOW YOUR FISH

Blackspotted Synodontis - *Synodontis nigromaculatus* (Boulenger, 1905)



Common Names:	Black Spotted Synodontis, Black Spotted Squeaker
Scientific Name:	*Synodontis nigromaculatus*
Synonyms:	*Synodontis colyeri, S. Melanostictus, S. Zambezensis.*
Habitat:	Africa: Luapula system, Bangwelo, Lake Tanganyika, Moero, upper Kasai, upper Zambezi, Okovango, Cunene and Limpopo. Also found in the Zambian Congo.
Characteristics:	Body and fins shaped as illustrated. Basic body colour varies from light brown to almost black, shading darker towards the dorsal contour, lighter on the belly. Fins are the same colour as the body. The whole (body and fins) are covered with scattered black spots, those on the head and the anterior of the body being smaller than those on the rest of the body and the fins.
Remarks:	*Synodontis nigromaculatus* carries three pairs of barbels and is another one of the *Synodontis* genus that has the habit of swimming in an inverted position.
FBAS Show Class:	'G'

FBAS SUPREME CHAMPIONSHIP & BRITISH OPEN CHAMPIONSHIP - 2006

Held at the SUPREME WEEKEND OF FISHKEEPING
At Hayling Island on 6 - 9 October 2006

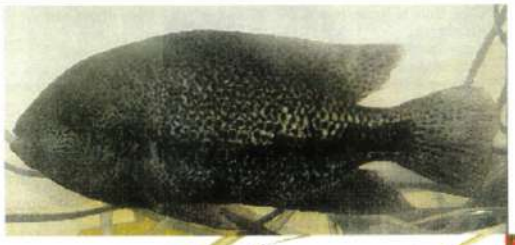
This year's Supreme Championship was very well supported with 45 entries though 6 were withdrawn. Many thanks to everyone who entered their fish. The judge was Mr K Doswell.

We are grateful to Keith for providing notes on some of the entries. Bear in mind, when looking at the points achieved, that many of the entries were 'reserves' and so were not necessarily of the same quality as the eventual winners.

1	**Vieja regani**	**84**	**4th**	**Very nice fish**
2	**Vieja zonata**	**90**	**1st**	**Very, very nice fish!**
3	**Scobiancistrus aureatus**	**82**	**6th**	**Nice fish**
4	**Botia histrionica**	**86**	**3rd**	**Nice fish**
5	**L018 Gold Nugget Plec**	**87**	**2nd**	**Very clean fish**
6	Fantail	79		
7	Betta splendens	60		
8	Betta splendens	73		
9	Betta splendens	74		Not showing very well
10	Betta splendens	74		
11	Pangio pangio	81		Nice fish
12	Poecilia reticulata	- withdrawn --------		
13	Corydoras gossei	- withdrawn --------		
14	Brochis multiradiatus			
15	Brochis multiradiatus	- withdrawn --------		
16	Brochis multiradiatus	- withdrawn --------		
17	Goldfish	75		
18	**Poecilia chica**	**83**	**5th**	**Nice fish**
19	Nannobrycon eques	73		
20	Nannobrycon eques	75		
21	Goldfish	75		
22	Neolebias trilineatus	81		
23	Cheirodon insignis	79		
24	Limia melanogaster	76		
25	Microrasbora erythromicron	77		
26	Erethistes maesotensis	79		
27	Pterophyllum scalare			
28	Danio dangila	72		Fin damage
29	Pterophyllum scalare	- withdrawn --------		
30	Xiphophorus maculates (Pintail)	75		
31	Danio kyathit	74		

32	Paracheirodon axelrodi	77	
33	Mesonemacheilus triangularis	77	
34	Variabilochromis moori	77	Split tail
35	Limia nigrofasciatus	79	
36	Yasuhikotakia sidthimunki	- withdrawn --------	
37	Melanotaenia boesemani	79	
38	Poecilia sphenops (Black)	75	
39	Brochis splendens	76	Poor finnage
40	Corydoras davidsandsi	78	Fin damage
41	Corydoras seussi	80	Nose damage
42	Pterophyllum scalare	75	
43	Trichogaster trichopterus (Gold)	71	
44	Apistogramma hongsloi	79	
45	Microgeophagus altispinosa	74	

Winners: John Egan, Port Talbot A.S. — 1st, 2nd, 3rd, 4th and 6th
John Smith, Mid-Sussex A.S. — 5th

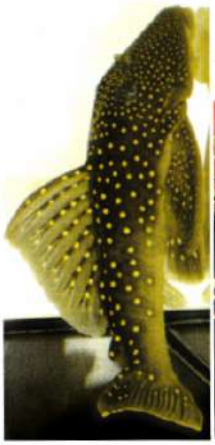


Above: Supreme Champion *Vieja zonata* Owned by John Egan

Right: John collecting his award

This year's British Open was very well supported with 21 entries - all previous Best in Shows or Reserves. Many thanks to everyone who entered their fish.

The judges were Mr C. Pannell (FBAS) and Mr B. Walsh (FNAS). Points from both judges were totalled and divided by two, hence the half points in some cases.



Above: - British Open Winner Allan Finnigan collecting his award

Left: British Open Champion - L128 Blue Spot Plec. Owned by Allan

1	**Vieja regani**	**88.5**	**2nd**	
2	**Vieja zonata**	**87**	**4th**	
3	Scobiancistrus aureatus	83.5		
4	**Botia histrionica**	**86.5**	**6th**	
5	**L128 Blue Spot Plec**	**87.5**	**3rd**	
6	Variabilichromis moori	85		
7	S.ornatus	85		
8	Barbus cumingi	80		
9	**L128 Blue Spot Plec**	**91**	**1st**	**BRITISH OPEN CHAMPION**
10	London Shubunkin	83		
11	Pearlscale	72		
12	Brochis multiradiatus	82.5		

Continued overleaf:

13	**Poecilia chica**	**86**	**5th**
14	Danio kyathit	81.5	
15	Zoogneticus quitzeoensis	81	
16	Neolebias trilineatus	80.5	
17	Aphyosemion marmoratum	83.5	
18	Barbus odessa	82.5	
19	Pseudoepiplatys annulatus	83	
20	Synodontis angelicus	83.5	
21	Limia nigrofesciatus	84	

Winners: **Alan Finnigan, Leicester A.S.** **1st**
John Egan, Port Talbot A.S. **2nd, 3rd, 4th, 6th**
John Smith, Mid-Sussex A.S. **5th**

OTHER SUPREME WEEKEND RESULTS

BEST IN GSGB SHOW - London Shubunkin Don Smith, GSGB

BEST IN HAGEN MASTERS OPEN SHOW - *Betia fusca* Keith Sollitt, Bracknell AS

ORGANISER'S TROPHY - John Egan, Port Talbot A.S.

HIGHEST POINTED SOCIETY - Port Talbot A.S.

UK DISCUS COMPETITIONS

HOBBYIST OVERALL
1st & 2nd - Chris Arnold
3rd Paul Butler

OPEN OVERALL
1st - Mark Evendon
2nd - Chris Arnold
3rd - Paul Lucas

UK DISCUS ASSOCIATION CHAMPIONSHIP 2006
SUPREME WINNER (judged over 2 days)
1st Chris Arnold, 2nd Mark Evendon, 3rd Paul Lucas,
4th Paul Lucas, 5th Chris Arnold, 6th Mark Evendon

LAGUNA KOI FESTIVAL
GRAND CHAMPION Size 6 Sanke - Alan Archer
JUMBO Alan Archer - Size 6 Kohaku
BABY CHAMPION: Tony Pittas - Size 2 Kohaku
MSB CHAMPION:Frank Chalk - Size 6 Kohaku
SOUTH EAST CHAMPION: Alan Archer - Size 6 Kohaku
WORTHING CHAMPION: Mike Murray - Size 5 Kohaku
SOUTH HANTS SECTION CHAMPION: Trevor Childs - Size 6 Non-Metallics

UK DISCUS ASSOCIATION CHAMPIONSHIPS - 2006

Dougall Stewart

The 7th & 8th of October saw the 2nd the UK Discus Association (UKDA) Discus Championships.

The UKDA Championships formed part of the highly successful **FBAS Festival of Fishkeeping Weekend** which was held on Haying Island, Havant, UK and was once again very well attended. In addition to the 5000 day visitors this year, the show was attended and supported by the presence of the world renowned discus breeder, exhibitor and international show winner Mr. Chen-Huan-Kai of Fish King Discus, Taiwan. The UKDA would like to publicly thank Mr. Chen and his party for his attendance and congratulate him on taking 2nd Place in a highly contested battle for best 'Solid Red Discus'; we would also like to thank Chris Ingham of Plymouth discus for chaperoning Mr. Chen during his stay in the UK.

This year saw the inauguration of the UKDA 'Hobbyist Championship', Festival of Fish Keeping 'Peoples Award' and the UKDA "Presidents Award" trophies. Out of the 60 tanks of magnificent discus on display, over 50% were from UK hobbyists. The UKDA would like to congratulate Chris & Graham Arnold, 'Hobbyists Extraordinaire' for their magnificent successes during the show and for their noted win in the UKDA Supreme. The Peoples Award was won by Mick Minns for his magnificent 'Red Discus' and Jeff Cannons took the Presidents award for his contribution to the club over the last 3 years and his sterling efforts during the 2005 & 2006 UKDA Championships.

The UKDA would like to thank all those that supported the competition and would like invite hobbyists, professionals, traders and international exhibitors, from around the globe, to reserve their entries for the forthcoming 2007 Championships which will take place at Hayling Island on the 14th & 15th October 2007. We have already allocated 70 tanks this year and are expecting in excess of 100 tanks of discus to be on display. Pre-registration may be made at:

http://discusshow.com/show_register.htm

Finally, I would like to say a special thank you to Joe & Grace Nethersall, for their mammoth hospitality and help – once again they certainly made all of the UKDA members feel welcomed and part of the show!

Dougall Stewart
UKDA President & Founder

UKDA
UK Discus Association

Right:
Supreme Winner
(Tank 53)

Below:
Chris & Graham Arnold (centre) collect their award from Joe Nethersell (left) and Dougall Stewart (right)

Sponsored by **RO-MAN** **and** **Tetra**

UKDA Hobbyist Championship 2006
Sponsored by Sid Adam - of Scottish Discus

Tank	Score	Category	Type	Name	Place
2	75.95	1	Solid Red	Paul Butler	1
17	73.475	1	Solid Red	Chris Arnold	2
57	69.95	2	Solid Blue	Mick Minns	1
39	67.5	2	Solid Blue	Chris Arnold	2
16	67.1	2	Solid Blue	Chris Arnold	3
8	75.85	3	Spotted	Chris Arnold	1
23	75.6	3	Spotted	Kim Reed	2
56	73.05	3	Spotted	Mick Minns	3
1	80.3	4	Striped	Chris Arnold	1
53	78.65	4	Striped	Chris Arnold	2
15	75.45	4	Striped	Steve Ryall	3
58	67.9	5	Wild	Mick Minns	1
55	72.4	6	Open	Mick Minns	1

UKDA Open Championship 2006
Sponsored by Dougall Stewart President of UK Discus Association

Tank	Score	Category	Type	Name	Place
2	75.85	1	Solid Red	Paul Butler	1
44	75.35	1	Solid Red	Mr. Chen	2
36	74.75	1	Solid Red	Mark Evenden	3
42	75.95	2	Solid Blue	Chris Ingham	1
57	69.95	2	Solid Blue	Mick Minns	2
18	69.45	2	Solid Blue	Mark Evenden	3
32	76.7	3	Spotted	Paul Lucas	1
8	75.95	3	Spotted	Chris Arnold	2
23	75.6	3	Spotted	Kim Reed	3
51	81.25	4	Striped	Mark Evenden	1
1	80.3	4	Striped	Chris Arnold	2
13	79.5	4	Striped	Paul Lucas	3
58	67.9	5	Wild	Mick Minns	1
55	72.4	6	Open	Mick Minns	1

UKDA Supreme Championship 2006
Sponsored by Joe Nethersall - FBAS President

Tank		Category	Type	Name	Place
53	*	4	Supreme	Chris Arnold	1
51	*	4	Supreme	Mark Evenden	2
5	*	4	Supreme	Paul Lucas	3
13	*	4	Supreme	Paul Lucas	4
1	*	4	Supreme	Chris Arnold	5
25	*	4	Supreme	Mark Evenden	6

UK Discus Association Presidents Award
Sponsored by TropicalWorld & Discus Society of Malaysia

Jeff Cannons

Festival of Fishkeeping People's Award
Sponsored by Paul Lucas - Discus South

Mick Minns - Tank 55

Mike Murray
Worthing & District Section
Worthing Champion (Size 5 Kohaku)
Second Size 3 Sanke
Third Size 5 Kohaku

Matthew Pearson
South East Section
First Size 5 Non-Metalics
Second Size 3 Kohaku
Second Size 1 Non-Metalics
Third Size 4 Non-Metalics
Third Size 3 Non-Metalics
Third Size 2 Showa

Tony Pittas
MSB Section
Baby Champion (Size 2 Kohaku)
First Size 4 Showa
First Size 3 Kohaku
First Size 2 Kohaku
First Size 1 Non-Metalics
Second Size 3 Utsurimono
Second Size 2 Kin Gin Rin
Third Size 4 Sanke
Third Size 1 Non-Metalics

Jenny Pope
Worthing & District Section
Third Size 4 Metalics

Peter Pope
Worthing & District Section
Third Size 2 Metalics

Bob Potter
South Hants Section
First Size 4 Sanke
Second Size 5 Non-Metalics
Second Size 4 Metalics
Third Size 4 Showa
Third Size 2 Kin Gin Rin

Chris Reilly
MSB Section
First Size 5 Sanke
Third Size 6 Kohaku
Third Size 5 Utsurimono
Third Size 3 Showa

Ken Taylor
MSB Section
First Size 5 Kin Gin Rin
Second Size 5 Kohaku
Second Size 5 Utsurimono
Second Size 2 Non-Metalics

Terry & Lynne Wells
South East Section
First Size 5 Showa
First Size 3 Sanke
First Size 2 Sanke
First Size 2 Showa
First Size 1 Utsurimono
Second Size 4 Sanke

PRAISE FOR THE FBAS WEBMASTER

Text from an email received from John Powell

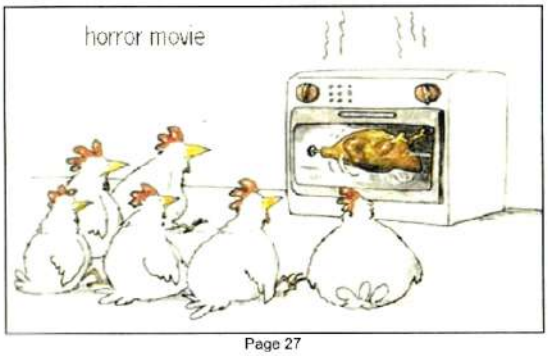
Hello,

I would like to thank you for the most informative and best laid out site I have seen for a while, with so much information available to help us with our fish problems.

Thank you very much, we are delighted, regards

J Powell & Co

VISIT: www.fbas.co.uk



FISH ANATOMY IN DETAIL

Reproduced from *www.floridafisheries.com*

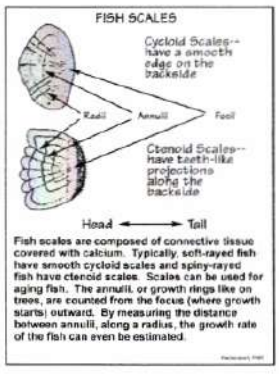
EXTERNAL FISH ANATOMY

The illustration of a largemouth bass (***figure 1*** on page 30) shows some of the common external features that are used to describe the differences between fish that are described in more detail below.

Fish are animals that are cold-blooded, have fins and a backbone. Most fish have scales and breathe with gills. There are about 22,000 species of fish that began evolving around 480 million years ago. The largemouth bass illustrated above has the typical torpedo-like (fusiform) shape associated with many fishes.

Fins are appendages used by the fish to maintain its position, move, steer and stop. They are either single fins along the centerline of the fish, such as the dorsal (back) fins, caudal (tail) fin and anal fin, or paired fins, which include the pectoral (chest) and pelvic (hip) fins. Fishes such as catfish have another fleshy lobe behind the dorsal fin, called an adipose (fat) fin that is not illustrated here. The dorsal and anal fins primarily help fish to not roll over onto their sides. The caudal fin is the main fin for propulsion to move the fish forward. The paired fins assist with steering, stopping and hovering.

Scales in most bony fishes (most freshwater fishes other than gar that have ganoid scales, and catfish which have no scales) are either ctenoid or cycloid. Ctenoid scales have jagged edges and cycloid have smooth rounded edges. Bass and most other fish with spines have ctenoid scales composed of connective tissue covered with calcium. Most fishes also have a very important mucus layer covering the body that helps prevent infection.



In many freshwater fishes the fins are supported by spines that are rigid and may be quite sharp thus playing a defensive role. Catfish have notably hard sharp fins that you should be wary of. The soft dorsal and caudal fins are composed of rays, as are portions of other fins. Rays are less rigid and frequently branched.

The gills are the breathing apparatus of fish and are highly vascularized giving them their bright red cover. An operculum (gill cover) that is a flexible bony plate protects the sensitive gills. Water is "inhaled" through the mouth, passes over the gills and "exhaled" from beneath the operculum.

Fish see through their eyes and can detect colour. The eyes are rounder in fish than mammals because of the refractive index of water and focus is achieved by moving the lens in and out, not distorting it as in mammals.

Paired nostrils, or nares, in fish are used to detect odours in water and can be quite sensitive. Eels and catfish have particularly well developed senses of smell.

The mouth's shape is a good clue to what fish eat. The larger it is the bigger the prey it can consume. Fish have a sense of taste and may sample items to taste them before swallowing if they are not obvious prey items. Most freshwater fishes in Florida are omnivorous (eating both plant and animal matter). Some are primarily piscivorous (eating mostly other fish). The imported grass carp is one of the few large fishes that are primarily herbivorous (eating plants). Fish may or may not have teeth depending on the species. Fish like chain pickerel and gar have obvious canine-shaped teeth. Other fish have less obvious teeth, such as the cardiform teeth in catfish which feel like a roughened area at the front of the mouth, or vomerine teeth that are tiny patches of teeth, for example, in the roof of a striped bass's mouth. Grass carp and other minnows have pharyngeal teeth modified from their gill arches for grinding that are located in the throat.

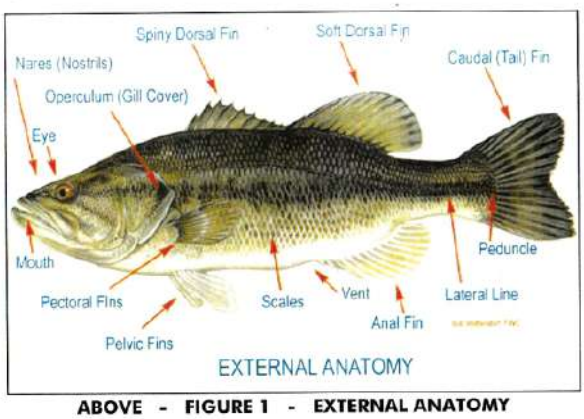
The lateral line is a sensory organ consisting of fluid filled sacs with hair-like sensory apparatus that are open to the water through a series of pores (creating a line along the side of the fish). The lateral line primarily senses water currents and pressure, and movement in the water.

The vent is the external opening to digestive urinary and reproductive tracts. In most fish it is immediately in front of the anal fin.

INTERNAL FISH ANATOMY

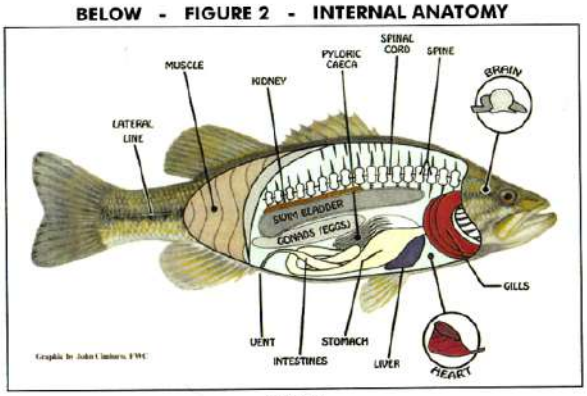
The illustration of a largemouth bass (***figure 2*** on page 30) shows some of the common internal features that are used to describe the differences between fish that are described in more detail below.

As different as a man may be from a fish, both creatures share some fascinating similarities in basic structure and function. And the closer one looks, the more complex life becomes. The smallest units of life are microscopic cells, and some organisms such as an ameba are no larger than a



ABOVE - FIGURE 1 - EXTERNAL ANATOMY

BELOW - FIGURE 2 - INTERNAL ANATOMY



single cell. In larger multicellular creatures, individual cells that are similar in structure and perform a specific function are grouped into tissues, and tissues may be grouped into even more complex and specialized structures called organs. These organs perform the basic bodily functions such as respiration, digestion, and sensory reception. Man and fish share such organs as the brain, stomach, liver, and kidneys. Other organs appear in different forms in different organisms; for example, the lungs in humans and the gills in fish are very different but both provide the same basic function of respiration. Finally, some organs (such as the fish's swim bladder) are simply not present in man. Below are descriptions of some of the organs identified on the above diagram, along with their functions. A number of other vital organs, such as the spleen and pancreas, may also be present but are smaller and more difficult to locate.

SPINE:

The primary structural framework upon which the fish's body is built; connects to the skull at the front of the fish and to the tail at the rear. The spine is made up of numerous vertebrae, which are hollow and house and protect the delicate spinal cord.

SPINAL CORD:

Connects the brain to the rest of the body and relays sensory information from the body to the brain, as well as instructions from the brain to the rest of the body.

BRAIN:

The control centre of the fish, where both automatic functions (such as respiration) and higher behaviours ("Should I eat that critter with the spinning blades?") occur. All sensory information is processed here.

LATERAL LINE:

One of the fish's primary sense organs; detects underwater vibrations and is capable of determining the direction of their source.

SWIM (or AIR) BLADDER:

A hollow, gas-filled balance organ that allows a fish to conserve energy by maintaining neutral buoyancy (suspending) in water. Fish caught from very deep water sometimes need to have air released from their swim bladder before they can be released and return to deep water, due to the difference in atmospheric pressure at the water's surface. Species of fish that do not possess a swim bladder sink to the bottom if they stop swimming.

GILLS:

Allow a fish to breathe underwater. These are very delicate structures and should not be touched by hand.

KIDNEY:

Filters liquid waste materials from the blood; these wastes are then passed out of the body. The kidney is also extremely important in regulating water

and salt concentrations within the fish's body, allowing certain fish species to exist in freshwater or saltwater, and in some cases (such as snook, tarpon, salmon, etc.) both.

STOMACH AND INTESTINES:

Break down (digest) food and absorb nutrients. Fish such as bass that are piscivorous (eat other fish) have fairly short intestines because such food is easy to chemically break down and digest. Fish such as *tilapia* that are herbivorous (eat plants) require longer intestines because plant matter is usually tough and fibrous and more difficult to break down into usable components. A great deal about fish feeding habits can be determined by examining stomach contents.

PYLORIC CAECA:

This organ with finger like projections is located near the junction of the stomach and the intestines. Its function is not entirely understood, but it is known to secrete enzymes that aid in digestion, may function to absorb digested food, or do both.

VENT:

The site of waste elimination from the fish's body.

LIVER:

This important organ has a number of functions. It assists in digestion by secreting enzymes that break down fats, and also serves as a storage area for fats and carbohydrates. The liver also is important in the destruction of old blood cells and in maintaining proper blood chemistry, as well as playing a role in nitrogen (waste) excretion.

HEART:

Circulates blood throughout the body. Oxygen and digested nutrients are delivered to the cells of various organs through the blood, and the blood transports waste products from the cells to the kidneys and liver for elimination.

GONADS (REPRODUCTIVE ORGANS):

In adult female bass, the bright orange mass of eggs is unmistakable during the spawning season, but is still usually identifiable at other times of the year. The male organs, which produce milt for fertilizing the eggs, are much smaller and white but found in the same general location. The eggs (or roe) of certain fish are considered a delicacy, as in the case of caviar from sturgeon.

MUSCLES:

Provide movement and locomotion. This is the part of the fish that is usually eaten, and composes the fillet of the fish.

WATER QUALITY - SOLID WASTE

TETRA CLUB WEBSITE - DECEMBER 2002

Whilst the negative effects of high ammonia and nitrite, incorrect pH, or low oxygen are reasonably clear, the effects of solid waste are often far more subtle. Indeed, much is made of the importance of biological filtration, but solid waste removal is equally as important for the maintenance of a healthy aquatic environment.

WHAT IS SOLID WASTE?

The term "solid waste" can be broken down into a number of components, generally relating to the size of the particle. Technically, dissolved wastes are solids that are very small, and which could not be physically filtered out of the water (in the range of $10^{-4} - 10^{-6}$ mm, or 0.00000001 – 0.000001 mm), but when we talk about solid waste we are usually referring to larger particles. Suspended solids are those that do not settle out easily (around 0.001 -1mm), and settleable solids are those that usually accumulate on the floor of the pond or aquarium (around 0.01 – 1mm). Flow rate and water movement play a big part in determining whether a particle will settle or remain suspended, with greater turbulence favouring suspension of particles.

In fish tanks, solid waste is principally made up of uneaten food and faeces, although decaying plant matter may feature to some extent. The same is true in ponds, but leaf litter, aquatic compost and material washed in from the garden also adds to the solid load.

Because faeces and uneaten food make up the majority of fish waste, the diet you give to your fish will play a major part in controlling solid waste production. For example, a poorly digested food will result in much of it being excreted as faeces. It is advantageous to reduce solid waste production through feeding a good quality diet. For example, TetraPro Crisps are produced using a patented technique that means they produces less waste than flakes.

EFFECTS OF SOLID WASTE

The effects of solid waste on the pond or aquarium environment are numerous. These include:

- **Reduction in water clarity:** Suspended solids cause a physical reduction in water clarity, whilst excessive solids in the substrate can lead to cloudy water.
- **Release of pollutants:** As solids are broken down, they release ammonia, nitrite and nitrate, and in some cases hydrogen sulphide. They therefore increase the workload for the filter and reduce the quality of the environment.
- **Physical clogging:** Excessive solids will clog filters and pumps, causing their performance to decrease, and increasing the amount of maintenance needed to operate them.
- **Oxygen consumption:** As solid waste is broken down, it consumes oxygen and releases carbon dioxide. Any reduction in flow rates caused by clogged equipment will exasperate this situation.
- **Increased Disease Risk:** Many potentially harmful bacteria can multiply on solid waste, making health problems more likely in dirty aquaria or ponds.

- **Reduction in filter performance:** If filters are allowed to get too clogged with solid waste, their ability to remove ammonia and nitrite will be reduced. This is because the bacteria that break down ammonia need a good flow of water, and a rich supply of oxygen.
- **Increase in algae:** Solid waste release nitrates and phosphates as it is degraded, which in turn encourage the growth of algae.

The deleterious effects of solid waste will tend to manifest themselves faster in aquariums, where the stocking level of fish is higher, and the volume of water smaller than in ponds. However, eventually an excess of solids will have some negative effects, whatever the situation.

MANAGING SOLID WASTE

Implementing an effective procedure for managing the build up of solid waste will dramatically improve the quality of your pond or aquarium. This should start with the selection of a good quality fish food, and a sensible stocking level of fish. Aquarium fish should be fed no more than 2 to 3 times a day, with as much as they will consume in a couple of minutes. Pond fish should be treated the same way for most of the year, except for in the winter when they may eat less.

On a day to day basis, your filter will sieve out the majority of solid wastes. Regular cleaning of the filter is important, ideally before it has the chance to become clogged. In pond filters and large external aquarium filters, there may be separate "mechanical" media for filtering out solids. This can be cleaned under the tap or hose, making sure not to get any water on the biological media. In aquarium filters, where the sponge acts as both a mechanical and biological filter media, it is necessary to do any cleaning in a jug of water from the tank.

In addition to the waste sieved out by the filter, some will invariably accumulate on the floor of the tank or pond. In an aquarium, this is easily removed using a gravel siphon, such as the TetraTec GC HydroClean.

This can be done at each water change, or when the gravel begins to get dirty. Bear in mind that this will vary from one aquarium to another. In a pond, sediment will accumulate throughout the year, particularly in the summer when the fish are feeding heavily. Pond vacuums are available, which make sediment removal fairly easy, and are preferable to once-yearly clean outs. Again, the frequency with which this is needed depends on the individual pond. Other materials, such as leaves and soil, that enter the pond should be treated in the same way, and removed when possible.

Where the build of solid waste is occurring rapidly, and frequent maintenance is required, it may be worth upgrading the filtration equipment. In unplanted aquariums, it is also worth thinning out the substrate to around 2-3cm, as this makes it easier to keep clean.

Although not as directly dangerous as some other water quality parameters, solid waste is equally as important to the long term health of an aquarium or pond. Managing its accumulation will go a long way to providing a suitable environment for your fish.