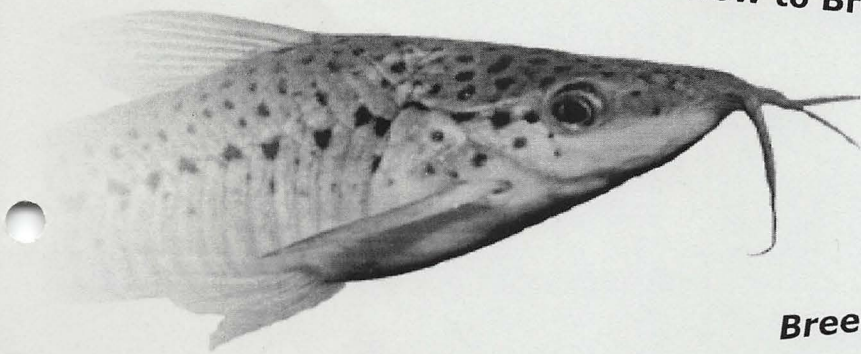


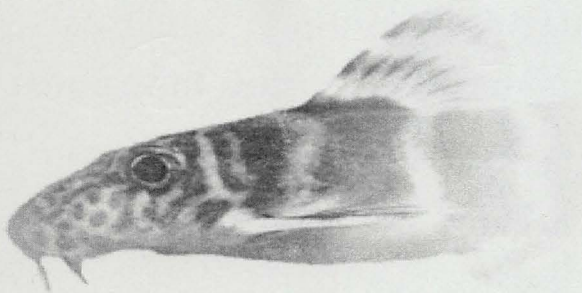
# **CAT CHAT**

**The Journal of the Catfish Study Group**

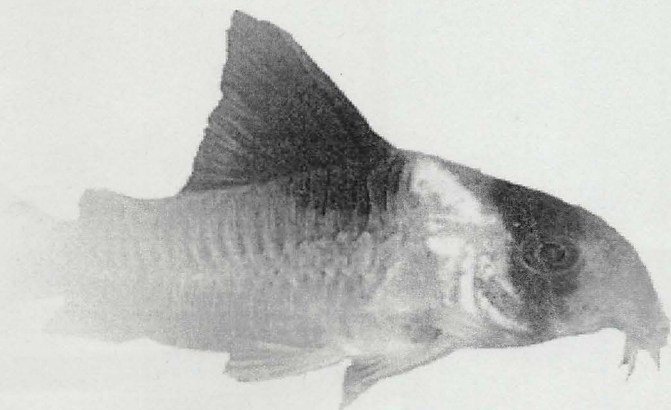
**How to Breed Every Species of Catfish**



**Breeding Aspidoras sp C119**



**Catfishes of Asia, Part Two**



**Answers to Aquarist's X-word Puzzle**

**My Trip to Peru - Part 3**

**Volume 11 Issue Number 1  
February 2010**

## Honorary Committee for the

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### Where We Meet:

The Group normally meets at the Highfield Working Men's Club, 1 Ratcliffe Street, Darwen, Lancs, BB3 2BZ on the third Sunday of each month from 1pm. The exceptions are the December meeting, which is held on the second Sunday at the usual place, and the annual Convention weekend, held in the Spring at a Hotel.

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## From the President

Ian Fuller

Hello everyone, I bet you thought you had heard the last of me! No chance!

Well I thought it only right and proper that as the groups outgoing Chairman and new President I should introduce you to the new Chairman Mr Bill Hurst.



Bill has been in the aquarium hobby for many years and, as his carer in the Army permitted, has been an active member of the Catfish Study Group. His involvement goes right back to its early days as the Northern Area Catfish Group, which, when started, was a regional body of the now defunct Catfish Association of Great Britain.

For many years Bill has served on the committee, taking up several important positions and has been the Treasurer, Secretary and Cat Chat editor. Over the years he has played a very important part in bringing the group to where it is today and I am certain with his past experience and attention to detail he will play a big part in Catfish Study Group's future.

## Membership Notices & Notifications

Questions were raised pertaining to the taking of photographs of exhibits at the 2009 Open Show, although the rules state that photographs can be taken after judging. The Committee, after due consideration, has decided that anyone entering Catfish into its show(s) do so with the direct understanding that their catfish will/may be photographed.

-----

### Election of Officers at the 2010 AGM:

The following people have been elected and/or appointed onto the Committee.

- |                      |                    |
|----------------------|--------------------|
| President:           | Mr Ian Fuller.     |
| Chairman:            | Mr Bill Hurst.     |
| Assistant Secretary: | Mr Mike O'Sullivan |
| Lay Member:          | Mr Tony Pickett.   |

-----



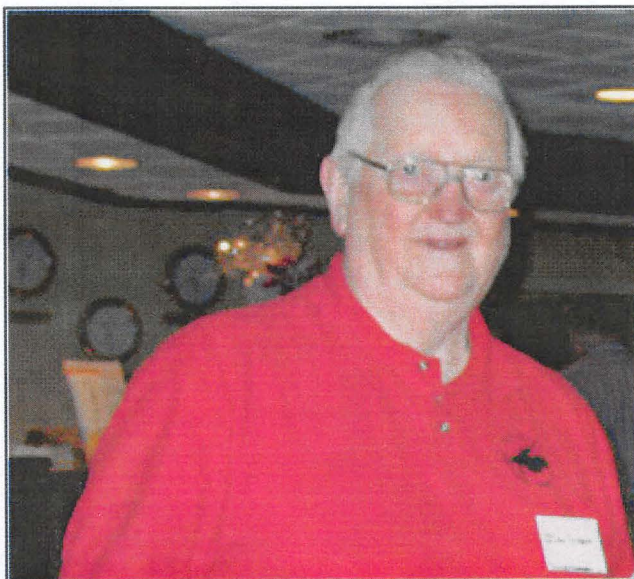
### Increase of Membership Fee.

After recommendations made by the treasurer to the members at the AGM, it was agreed by the membership that, due in part to increases in postal cost accrued in 2009 and in part due to new postal charges which are due to come into force in 2010, there will be an small increase in membership fee for the year commencing 2011.

-----

It is with deep regret I have to announce the death of fellow aquarist and renowned Livebearer fanatic Ivan Dibble (Aug 1937 to Dec 2009)

Our deepest sympathy's go out to Ivan's relatives.



**Ivan Dibble (Aug 1937 to Dec 2009)**

Tributes to Ivan can be found at:  
[www.britishlivebearerassociation.co.uk](http://www.britishlivebearerassociation.co.uk)

## Editorial

Keith Jackson

Happy New Year! Here's hoping that 2010 brings you everything you wish for. Unfortunately, it's seen a change in my circumstances which means that I cannot be a very active member of the Group this year. I had intended to see out this year before handing over the Editor's Blue Pencil but I feel that it will be best for the Group to co-opt a new Editor until the 2011 AGM. This is likely to be my last issue as moves are already afoot for a smooth hand-over. I sincerely hope that you'll see no delay as a result and I'm confident that the quality of the journal won't be affected.

This issue sees the publication of the last part of Kim Matthiasen's trip report on his visit to Peru. Thank you very much, Kim. The text was very entertaining and the photos really gave a sense of the place. Please take a trip somewhere soon, Kim. Cat Chat needs the copy, whoever is the Editor....! :)

By the time you receive this, the Convention will be upon us and another year of Ian's hard work for the Group will come to fruition. The next issue -

scheduled for publication in April - will contain a report of the Convention and of the first Auction. March is a busy month for the CSG.

As you should have seen from the back of your 2010 membership card, the schedule for the meetings has been finalised and it has been reproduced on the back page of Cat Chat. Do try to attend some of them. As I've said before in these pages, they're always value for money and it's disheartening to have to speak in front of only a few people - who are often the same faces every month. It also makes it difficult for the CSG to bring in external speakers because the costs don't justify the benefits. The Convention and the Auctions do well but other meetings are disappointing. If you have any ideas how to attract more people to meetings please put your suggestions forward.

So, that's probably the last you'll see of me as Editor. I have to thank everyone who's sent in copy and hope that you'll support the incoming Editor as well, if not more. All the best!

# Catfish Study Group

## Spring Aquatic Auction

**Sunday 21 March 2010**

**Highfields Working Men's Club**

**Ratcliffe Street, Darwen, Lancs**

Normal entry rules apply  
Any fish other than painted accepted  
Name & Tel No on electrical goods  
Suitable containers for livestock, etc.  
[ If unsure of the rules ask when booking in ]

**CSG Commission 15%**

Booking in:

**Auction Manager: David Barton 01942 248130**

*Or from 11.00 on the day - Auction to start 13.00*

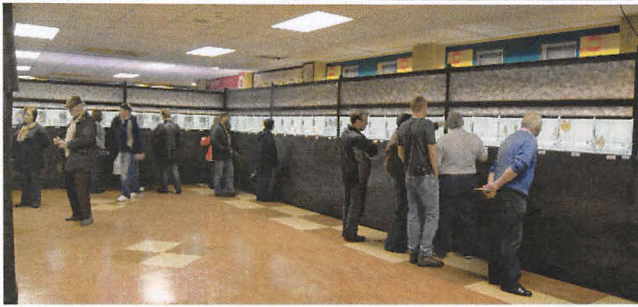
CANTEEN

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# The British Discus Association Show

Roy Barton

(Illustrations by Danny Blundell)



Had we had more time to set this up we could have had members' fish on sale. As it was, we sold the *C. trilineatus* and also CSG glasses and cups. A lot of fliers and membership forms were given out as the locals did not know anything about us or that our meetings are held in Darwen. Maybe we'll see some of those people at our meetings next year.

All in all, it was a great event and I'm looking forward to their next event.

## Discus Show Tanks

The CSG was asked to put on a stand at the Show, which we did. Bob Barnes, David Barton and myself went along after a lot of running around! David and I had to go to Adrian Taylor's for the merchandise and Group banners. Bob went to Aqualife to ask Steve Spencer if we could borrow a tank. Not only did Steve lend us a tank but also fish for the display. Thanks very much, Steve and Julie.



*C. davidsandsi*



## The Club Stand

On the Thursday before the Show we travelled to Haydock Park to set up, where we were met by the enthusiastic Paul Butler and Mike O'Sullivan. We were offered all the help we needed so the stand was quickly made ready for the fish to be put into the tank on the Saturday morning. We had cardinal, rummy-nose and crystal tetras, swordtails, *Corydoras trilineatus*, *sterbai* and *davidsandsi* and even a zebra plec. Aqualife did us proud.



Zebra Plec

It was good to meet old friends, make new friends and answer the questions as well as we could. Naturally, we pushed the CSG at all times! Bob should have a special mention for manning the stand alone on Saturday. One of the *New Era Aquaculture* staff asked us to try their products and let them know how we got on with the two samples they provided.



Wild-type Discus in the Show

## How To Breed Every Species of Catfish That Ever There Was

Ian Watson

OK, that may be a bit of an exaggeration but, at least, this article should get you started on the task and maybe enable you to clock up a load of BAP points.

Over the last few CSG Conventions, it has been clear that a lot of keepers are trying to breed catfish but are hampered by a lack of information on even the most basic requirements for spawning. There is a lot of information out there, but it is not always easy to find and there are a lots of traps for the unwary. This article will guide you through some options for finding the information you need.

Breeding catfish can be a frustrating business. I have kept the porthole cat (*Dianema longibarbis*) on two occasions and both times males have gone into a state of great excitement, coloured up and blown bubbles. In one case, a male even built a proper bubble nest and guarded it for a few days and then.....nothing happened! Breeding *Sturisoma aureum* was not that difficult; all I had to do was provide an aquarium put a pair in it and they took care of the rest. When it came to *S. robustum*, it was a very different story and they never showed the slightest interest in spawning. Spawning *Ancistrus* was easy; indeed, stopping them would have been a challenge. My *Corydoras melini* spawned in a community aquarium with no more prompting than a water change, more than trebling the population with no effort from me. So, if it is so easy in some cases, why are some catfish so very difficult to breed? There is no quick answer to that and the answer may lie in missing triggers, wrong habitat or even wrong diet. Whoever figures that out in on their way to a lot of BAP points. And before anyone gets too downhearted, just remember that there will be some catfish which will, for various reasons, never be bred in the aquarium.

### What species have I got?

That is not such an easy question to answer. In my collection of aquarium literature, I have pictures of what appears to be the same species, but with different names applied and catfish which look quite different and yet are labelled as the same species. In some cases, the differences even seem to apply at the generic or sub-family levels. Referring to the original description for the species can be useful but older literature often gives such a vague description that it will be of little use. Illustrations may be lacking from older works or may be rather poor, giving little indication of what the species really looks like. Luckily, newer works tend to give much better descriptions with anatomically accurate drawings and even photos.

You can find some photos on FishBase (<http://www.fishbase.org/search.php>) and there are some photos, including some of type specimens on the All Species Catfish Inventory which might help

(<http://silurus.acnatsci.org/index.htm>) takes you to the Main Page and then follow the "Quick link to specimen images"). Knowing which species you have is the key to finding out a lot of information about its ecology and spawning habits. It is a good idea to check the species on the Catalogue of Fishes (<http://research.calacademy.org/redirect?url=http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp>) so that you can run through its taxonomic history to see if there are any alternative paths you could follow to find additional information. Checking out the information in descriptions of synonyms might provide vital information. One very useful and free publication is the list of catfish species compiled by Ferraris (2007) which lists all the primary types and can be downloaded free of charge from Zootaxa 1481

(<http://www.mapress.com/zootaxa/2007f/zt01418p300.pdf> and <http://www.mapress.com/zootaxa/2007f/zt01418p628.pdf> - the article is very long and there are 2 files to download) and which rather handily also has notes on the type location and distribution of species.

Do remember that not only does taxonomic opinion vary over time, leading to fish acquiring new names from time to time, but fishes may also have their identities revised over time. That might be a simple case of putting them into synonymy but the problem can get very complicated. For example, a paper on the spawning and ecology of catfishes may contain a list of species. If no specimens have been deposited as voucher collections in museums, that may be the end of the story. However, if voucher specimens have been deposited, sooner or later, someone will come along and re-examine them and maybe determine that they were incorrectly identified or maybe that the collection actually contains several taxa rather than a single taxon. Fortunately, where specimens are deposited in museums, there will be some museum accession numbers listed and you can check those using FishBase or ASCI to see if the original identity still stands.

### Where does it come from?

Again, I tend not to trust aquarium literature on this as there is so much incorrect information. Fish often end up getting shipped across borders before being exported and collectors often provide misleading information about collecting sites to protect their business so you may end up with a supposed location which is hundreds of miles away from the actual site. For example, I have just seen an exporter from Colombia offering *Corydoras* "asher" for sale (i.e. *C. tukano*) which is so far only known from Brazil. Does that mean it occurs in Colombia, or did the Brazilian

collectors just find is easier to sell to buyers over the border? Older literature may also give very poor location data such as “South America” which is of no use. Precise location data is very important as this is the key to getting good data on ecology, hydrology and climate, all of which play an important role in spawning cycles. Newer taxonomic literature usually has very good collection and distribution data which should give you all you need. However, if you cannot find this you can try a number of other routes. The Search Collection facility on FishBase is especially useful for this. Go to the bottom of the Search Page of

**Tools**

<input type="radio"/> Identification	<input type="radio"/> Match names	<input type="radio"/> ISSCAAP Troph	<input type="radio"/> Fish collections
<input type="radio"/> Identification keys	<input type="radio"/> Disease diagnosis	<input type="radio"/> FAO aquaculture	<input type="radio"/> Collection history
<input type="radio"/> Adverse introductions	<input type="radio"/> My Fish Page	<input type="radio"/> FAO catches	<input type="radio"/> Trophic pyramids
<input type="radio"/> Global introductions	<input type="radio"/> Life-History tool	<input type="radio"/> Catch analysis	<input type="radio"/> Ecopath parameters
<input type="radio"/> Invasiveness	<input type="radio"/> L-F Analysis	<input type="radio"/> ICES catch	<input type="radio"/> AquaMaps
<input type="radio"/> Species by ecosystem	<input type="radio"/> Information gaps	<input type="radio"/> Fish statistics	<input type="radio"/> New species
<input type="radio"/> Charts	<input type="radio"/> Sea Around Us	<input type="radio"/> World records	<input type="radio"/> New photo
<input type="radio"/> SeaFlood Advisory	<input type="radio"/> FishBase for Americas	<input type="radio"/> Country codes	<input type="radio"/> Web Stats
<input type="radio"/> Skiffing Baselines WP2 - Online Toolset	<input type="radio"/> FishBase for Africa	<input type="radio"/> Catalogue of Life 2008	<input type="radio"/> Top 100
<input type="radio"/> Preferred alignments of mitochondrial fishes			<input type="radio"/> Coastal Taxonomic Analysis Model (CTAM)

Note: Tools without radio button are available from the Species Summary page.

FishBase and you will find this set of buttons:

Click on the “Fish collections” button at the top of the 4<sup>th</sup> column and that takes you through to here:



In this case, I put in “*Corydoras elegans*” in “Scientific Name” as the search terms but there are many more options available. It is a good idea to check synonyms of the species so you can also try searching for those under “Name used in collection”, but the “Scientific Name” should get you the information you need. You will see a list of which museums hold collections of the species and where the specimens came from. If you then click on one of the collections, you will get details of where and when it was taken. Here is a sample of

**Occurrence Record of *Corydoras elegans***  
Gazetteer

<b>Main Ref:</b> Swedish Museum of Natural History, 1999 (Ref. 31402)	<b>Museum:</b> NRM
<b>Name used:</b> <i>Corydoras elegans</i>	<b>Sex:</b>
<b>Catalog No:</b> NRM 14991	<b>Picture:</b>
<b>Locality:</b> Amazon Basin, Rio Yavari drainage: Atalala do Norte area, Caño Buraco de Lucia	<b>Gazetteer:</b>
<b>Station:</b> THO-VIT09	<b>Date:</b> 14/09/1971
<b>Year:</b> 1971	<b>Salinity:</b>
<b>Water depth:</b> - m	<b>Temperature:</b> 24.5 °C
<b>Altitude:</b> - m	<b>Accuracy:</b>
<b>Coordinates:</b> 4 12 S 70 17 W In decimal -4.20, -70.28	
<b>Geog. area:</b>	
<b>Country:</b> 604 - Peru	Loreto
<b>Length:</b> cm	<b>Range:</b> -
<b>Collector:</b> Hongslo, T	<b>Identifier:</b> Nijssen, H
<b>Gear:</b> handnet	

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the information you could get:

That is very detailed and accurate collection data. There are some traps to be aware of. If you search of museums holding collections of *C. aeneus*, you will

find it apparently occurs over a huge range in S America. A bit of thought suggests that in fact, some of those identifications will be wrong and that some of the more extreme locations may be incorrect and refer to another, possibly undescribed species so proceed with caution and try to rely on data from near to the type location where possible. Remember that museum collections can lie on the shelf for decades and may not have been looked at since their collection 50 or more years ago so some new species may be awaiting discovery and redesignations may be necessary. If you click on the “NRM 14991” link, you will be taken to the original page on the NRM collection database. You can also search on the museum acquisition numbers which are often listed in taxonomic papers and that will reveal the location data for those specimens.

It is also worth looking at the more reliable aquarium websites such as ScotCat (<http://www.scotcat.com/home.htm>), Planet Catfish (<http://www.planetcatfish.com/>) and Corydoras World (<http://corydorasworld.com/>) to see what information exists on breeding the species you are working with or closely related species.

### Ecology and water

Now things get a little tricky as there is no easy or reliable way of doing this next part. You may be lucky and find some ecological data in a taxonomic paper or you might have a good paper which deals with the ecology of a river, but usually this is difficult to find. Bibliographic databases are the best place to search for information but the problem is getting access to the papers (more on that later). The best way to start is to try a web search using suitable terms such as “Rio Yavari” and “ecology” or “hydrology” but this is by no means guaranteed to bring a result. You could try broadening the search by, for example using “Loreto” as the location. Data for Loreto province will not be specific to the Yavari basin, but it could be good enough. There are some traps to be aware of. For example, there are an awful lot of “Rio Blanco” around so make sure you get the right one. Do not assume that somewhere is “near enough” as there might be a huge difference between the ecology and hydrology of two rivers, even if they are fairly close geographically due to differences in geology, rainfall, vegetation cover and so on. Also bear in mind that you might need to do a bit of a reverse searching from a paper on ecology to work out which species are being dealt with. For example, if the paper gives museum accession numbers for the specimens collected (many ecological studies do deposit a voucher collection for future reference) you could check those numbers on FishBase Fish Collections just to see if any redescrptions or redesignations have occurred. It is difficult to say what data are key to spawning but you should be trying to find out such details as water chemistry (pH, GH, KH, etc) and how that varies over the year, water height, water temperature and possibly flow as well. It is also



worth thinking about what happens in the surrounding area; does the river have a major floodplain, is there a substantial wetland?

**What's the weather doing?**

It might be more accurate to say "climate" rather than "weather" as what you need are details of the annual patterns of temperature and rainfall. These and the association between them can be difficult to predict. Some areas have a cold rainy season and others have a hot rainy season. There may be other complicating factors as well such as there being two rainy seasons and then the question arises of which fish spawn in which rainy season? There are many traps to be aware of when considering climate data. For example, fish may spawn during or after the monsoon rains, but the monsoon arrives in different places at very different times so you need to take that into account. Remember that India gets a south-west and a north-east monsoon in some regions which makes life complicated. It is rather hit and miss, but there is some very good, very local weather and climate details available. The website for World Weather is very useful (<http://www.worldweather.org/>) and has at least weather reports for all regions of the Earth. Much more useful is the information on climate which you can find by simply clicking through to (say) Africa and then Ghana. You get quite a good selection of forecasts for different towns, a map so you can see their locations and the option to click through to the Ghana Meteorological Services Department:



The data for Accra usefully gives temperature and rainfall month by month:

Climatological Information

Month	Mean Temperature °C		Mean Total Rainfall (mm)	Mean Number of Rain Days
	Daily Minimum	Daily Maximum		
Jan	23.4	32.1	10.9	1
Feb	24.1	32.7	21.8	2
Mar	24.1	32.5	57.1	5
Apr	24.2	32.2	96.8	6
May	23.9	31.2	131.2	10
Jun	23.1	29.3	221.0	15
Jul	22.5	28.5	66.0	9
Aug	22.2	28.0	28.0	7
Sep	22.4	29.0	67.8	8
Oct	23.9	30.5	62.4	7
Nov	23.5	31.6	27.7	3
Dec	23.4	31.7	16.1	2

>> Click [here](#) for temperatures in °F

As ever, there are some snags. First and foremost, as many of the meteorological services are based in developing countries, it can be pot luck as to whether the service is actually running at the time you need it so you may just have to settle for the data on the World Weather pages. However, if you can link successfully through to the country's own meteorological data you can find a real treasure trove of information. The trouble is, you might not understand it! While many sites have an English language button, they do not always work and so you may be faced with climate data in a foreign language. That is not much of a problem where the language uses Latin characters as in for example, Spanish as it is not that difficult to figure out what the links lead to and what the data reveals but if it is in Vietnamese or a Cyrillic script, you are well and truly stuck. Still, you are bound to turn up something useful, so it is always worth a look. Do be aware of two major pitfalls. Different places may have the same name and Hyderabad in Pakistan has a very different climate from Hyderabad in India. Remember that just because two places do not look too far apart on the map, there is no reason to assume that they have similar climates. After all, Manchester and Leeds may not look that far apart on the map, but they are on different sides of the Pennines and have their own weather conditions. As ever, it is always worth doing a web search using terms such as "location" plus "climate" or "weather" and seeing what turns up.

The above should give you some basic information about the climate in the habitat in which the species you are trying to breed lives and, if you are very lucky, maybe a paper or two on the ecology and hydrological cycles that species might experiences. Best of all, you might find a paper dealing with the spawning on the species which will at least provide information on timing and which you can then cross-index against the other data you have gathered. It is always worthwhile trying a web search on "species name" plus other keywords such as "spawning" or "reproduction" to see what comes up. That could reveal some papers where vital details of spawning timing, conditions and behaviour are recorded. Even if you have nothing more than some climatic data, you can still make some guesses as to what will trigger spawning.

**When do they spawn?**

There are many ways of finding this out but it is always worth having a look at FishBase to see what that has to offer. As an example, if you search on *Clarias batrachus*, that will take you through to the page for that species. Scroll down and you will find a load of buttons linking to further information. If a button is dead, there is no information, and live buttons do not always lead very far, but it is a good idea to click through and see what turns up. For example, click through on to "Reproduction" and you will see this screen:

Reproduction of *Clarias batrachus*

Main Ref: [Sokheng, W. J., 1989](#)

Male: [Batrachus](#)

Female: [Batrachus](#)

Spawning frequency: [one clear seasonal peak per year](#)

Adult spawning: [fast](#)

Reproductive guild: [aquatic](#)

Description of life cycle and mating behavior: [The pair \(males\) the spawning substrate, which is widely distributed in other cyprinid species \(Sokheng, 1989\). The pair gently nudges each other in the genital region and fish their dorsal fins, male stays behind and the female, then the female releases a stream of adhesive eggs into the nest \(Sokheng, 1989\). In southeast Asia, spawning period is during the rainy season, when rivers rise and fish are able to overcome rivers in numerous small banks and clear of flooded rice fields \(Sokheng, 1989\).](#)

Search for more references on reproduction: [Search](#)

Entered by [Tommy](#) from [US](#) on 14-03-98

Modified by [Gordon](#) ([Change](#)) on 11-03-02

[Comments & Suggestions](#) [Sign your Name](#) [Add to Favorites](#)

That provides some basic information on the reproductive behaviour of *C. batrachus* and links to further information. What you get varies a lot from one species to another. You should also click on the “Spawning” button which will show you:

Spawning for *Clarias batrachus*

Country	Intensity	Reference
Burma	111	
China	111	
India	111	
Indonesia	111	
Japan	111	
Laos	111	
Malaysia	111	
Mekong mainstream	111	
Mekong delta	111	
Myanmar	111	
Philippines	111	
Thailand	111	
Vietnam	111	

That gives you some very useful information about when the species spawns in various parts of its range (the more “1” there are, the greater in the intensity of spawning) which you can then cross-check against climate and ecological or hydrological data to find out what conditions prevail before, during and after spawning. If you click through further, say to “Spawning summary” next to “Mekong mainstream” you get more information, including a really good reference:

Spawning of *Clarias batrachus*

Main Ref: [Sokheng, C., C.K. Chhien, S. Viravong, K. Bouskharmvongsa, U. Surooraratana, N. Yoonon, N.T. Tung, T.Q. Bao, A.E. Poulsen and J.V. Jørgensen, 1999](#)

Data Ref:

Country:

Spawning ground:

Locality: [Mekong mainstream](#)

Season	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
			111	111	111	111	111			111		

Sex ratio: % Ref:

Temperature: °C

Fecundity:

Ref:

Sadly, many of the additional data fields are empty (this only shows a small part of the screen) but the real gem here is Sokheng, et.al. (1999) which should be a mine of information on the spawning habits of Mekong fishes. The rule here is to keep clicking through until you have come to the end of the links and hope you discover something really useful.

It is also wise to consider age as a factor when thinking about when the fish spawn. There is no point getting agitated because your fish will not spawn if the reason is that they are too young and/or too small. Remember that some catfish may need to be several years old before they mature and that goes for fish which do not necessarily reach a great size, not just the real monsters. You might find some useful information on FishBase using the “Maturity” button on the species page but you might find nothing there for aquarium fishes. Otherwise, try looking at growth data to see whether that provides a few clues.

### Look backwards

It is a mistake to think that spawning begins with conditioning the fish; the fish might well have been preparing for spawning months before the event. For example, many of the UK cyprinids lay down their eggs and partially mature them in late autumn and that is a critical time for nutrition of the females and hence of the eggs. In fact, many fish start planning for their next spawning very soon after they have spawned and so may lay down the eggs within weeks of spawning, even if they do not plan to spawn until the following year. It is always worth trying to track down some information on the timing and progression of gonadal maturation as that can give vital clues as to when key events take place so you could, for example, time when extra nutrition may be needed. If you lay data on gonad maturation alongside climate and hydrological data, you get a very good idea of the sequence of events which lead up to spawning, even if these are not necessarily the triggers for the actual event.

If all else fails, it is a pretty good bet that a catfish will spawn during the early wet season so if you have nothing else to go on, work up a scenario based on that. You should be able to make some guesses as to what the water temperature will be doing in the lead up to the wet season and what will happen once the rains arrive and then try to mimic that. There are some real problems which can come up when you consider what happens to fish in the wild in the lead up to the spawning season. Many experience really filthy water conditions in low water periods with high temperatures, high CO<sub>2</sub>, high dissolved minerals, muddy waters, low oxygen, organic pollution and all manner of other threats to survival. It is no surprise that many fish fail to make it through such hard times. So, that raises the question of whether you should put your fish through that regime? If the catfish are rare and expensive, you might not want to risk them in any way. There are also issues of fish welfare to take into account. To recreate such conditions exactly would be a bit of a risk, but there are still some things you can do. For example, it would be quite possible to lower the water level, raise the temperature (if appropriate) and cut right back on feeding, all of which fish would experience in the wild.

The transition from dry to wet season may be no less challenging and fish might experience conditions that you might think would kill them. They may experience changes in pH, conductivity and hardness that no aquarist would dare to attempt and yet the fish not only survive, but then go on to spawn with great enthusiasm. The wet season might announce itself softly with a slow and gentle inundation or it might arrive in a torrent, meaning the fish have to adapt in hours rather than days. It would probably be better to opt for a gentle change for your valuable catfishes and bring in the “flood” conditions over the course of a few days.

Do not ignore the possibility of a rest season for the fishes. This is more common in fishes which experience a cold winter where the fish pretty much shut down for a few weeks, not feeding and hardly moving. However, this can also happen in summer where fishes can go to extremes in order to survive until the rains come. Some catfishes even go to such extremes as burrowing into the mud to survive for weeks or even months at a time. Such extreme events can be very important in conditioning fishes to spawn but are difficult, not to say highly risky to carry out in the aquarium. The get out clause here is that even where a species does have to resort to extreme measures to survive, not all the range will be so affected and so a much less extreme rest period might be good enough.

### Look forwards

Having got the fish to the point of spawning, the next problem to crack is what actually triggers spawning. For some catfish, it is no problem at all as they will spawn readily, but they are not the species which present a challenge. There are a lot of possible factors to take into account:

- Temperature – does the temperature need a rise or fall to trigger spawning? Many fishes respond to a water change accompanied by a small drop in temperature so this is always worth a try.
- pH – a change in water level might bring with it a change in pH so if any data you have suggests this might happen, it is worth a try. It might be that there is a sudden flush of water from leaf litter which would bring with it a sudden increase in the level of humic acids, leading to a sudden and possibly marked drop in pH. I once gave some *Apistogramma bitaeniata* a 5°C temperature drop accompanied by a drop in pH from 6.5 to 5.5 by mistake. They looked a little surprised, but they spawned the next day.
- Water level – obviously there are limits on what can be achieved in the aquarium, but it is a good bet that increased water depth will be a spawning trigger for some catfishes, mimicking the flood conditions they experience in the wild.
- Spawning substrate – this is far more difficult to predict but you could make a guess as to what the fishes will use. Access to suitable spawning substrates may be a spawning stimulus in their own right. It could be inundated grassland, flooded forest, hollow logs, rocks, sand, gravel and so the list goes on. Consider as well that fishes might spawn at the surface and so might like some floating plants to spawn on.

Do not forget that many of these triggers occur at the same time so a catfish might find itself faced with a flush of cool, acid water which raises water levels all of which combine to trigger spawning.

### Look sideways

If all else fails and you cannot find any information on the catfish you are trying to breed, take a look at what other species in the area get up to. You might find that nearly all species breed at the same time in which case you could make the assumption that the fish you want to breed will do so and thus require the same conditions. Looking at other species, and not just catfish can offer up some radical ideas on how to induce spawning. For example, some species of *Gymnogeophagus* from the southern parts of its range have an absolute requirement for overwintering in cool water at 10-15°C, depending on species. It might be that any catfish which share the same range have a similar requirement. It is better to look at other species which occur in the same location rather than just looking at other species in the genus. After all, corys have very different requirements for spawning so you cannot have a single spawning strategy for all.

### The importance of flow

You will get a very good idea of what flow level suits your catfish by watching where they prefer to be. It is a good bet that any catfish from a stillwater habitat will prefer low or no flow, but it is far harder to predict what catfish from rivers or streams will prefer; not all will want a strong current. It is worth bearing in mind that there is no way that you can mimic the currents found in many catfish habitats and that it is just a case of providing them with an area of high flow. As an example, my male *S. aureus* rarely strayed far from the outlet from the power filter; that was his territory except when feeding. When it came to spawning, the only area he would use was the area in the front glass directly in the flow from the air injector. The fact that it was full of bubbles matter not one jot; it was exactly the flow conditions he wanted for brooding the eggs. Even if your filtration system will not provide such an area, you can always use a small water pump or powerhead to create a high flow zone.

Some fish require very specific conditions of flow and turbulence for spawning. For example, the three Chinese carps, silver carp (*Hypophthalmichthys molitrix*), the bighead carp (*Aristichthys nobilis*) and the grass carp (*Ctenopharyngodon idella*) all spawn in major rivers during summer floods, but each requires very specific combinations of current velocity and turbulence. The reason for being so picky is that they lay eggs of slightly differing buoyancy and size which have to be kept in suspension until they hatch and yet must not be washed too far downstream otherwise they may end up in the sea. Such fishes migrate hundreds of kilometres upstream to find their spawning areas and it is a fair bet that many catfish which migrate long distances will have similar requirements for their eggs. For example, many pimelodids migrate a very long way up the Amazon to spawn after which their buoyant eggs and fry drift downstream and into the major nursery area of the Amazon estuary. It is

possible to mimic such conditions, but it is very hard to do this in the aquarium unless the fish are quite small as adults. Generally, such fish are spawned in very large, circular tanks (2m diameter or more) or in spawning basins 5-6m in diameter. If you could persuade such fish to spawn, the best option for hatching the eggs would be in hatching jars, using water, not air to keep the eggs in suspension.

### Spawning substrates

Fish can be quite fussy about the substrate on which they lay their eggs. It may have to be the right colour, the right size, the right orientation (vertical, horizontal, etc), shaded or sunny and have the right texture. In some cases, the catfish will tell you what they want as (usually) the male might choose to guard a good spawning territory such as a cave or a tube, but if the fishes only use the substrate during the act of spawning, it can be very difficult to figure out what they want. Many floodplain fishes, especially those in savannah areas use grass as a spawning substrate. They choose this not just because it provides a suitable substrate onto which they can spray sticky eggs but the flooded grassland provides a real feast for the fry when they hatch. It is like an enormous infusoria culture, first producing protozoa and rotifers and then copepods and daphnia, just at the time the fry require them. Luckily, many fish which spawn on grass are quite happy with a substitute such as polypropylene spawning ropes or even artificial grass. It might be worth trying a combined approach to stimulate spawning by providing an artificial flood, followed by the provision of a grass-like spawning substrate. Some fish like to spawn on tree roots or reeds, either spraying sticky eggs or winding strings of eggs in and out of the roots/reeds. Willow roots, cleaned and washed in hot water to kill off any predators would be worth trying for such fishes.

The use of tubes and caves for spawning catfish is well known, but it is worthwhile playing around with them to see what the fish really want. Some are perfectly happy with a tube open at both ends, but you could also try partially or fully burying the tube in the gravel or sand to provide a burrow. Quite a few fish dig burrows to live and spawn in, but trying to recreate the exact conditions to allow this in the aquarium can be very difficult as the ideal substrates can be the last thing you would want in an aquarium – 15-20cm depth of thick clay/silt for example. An artificial burrow might just be good enough to satisfy the needs of the fish, but providing a spawning chamber could be a far greater challenge. Usually a fish would dig the chamber at the end of its tunnel, but you need a really sticky clay substrate to allow this so you might need to provide an artificial chamber to see if that meets the fish's needs. Just make sure that everything is stuck together firmly to prevent it collapsing on the fish and use only fish-safe adhesives.

Fish which spawn on plants can be quite fussy about what they will and will not use so it is worth using a variety of plants with different leaf shapes, lengths and colours to see what the fish will prefer. Remember that the fish might want other conditions to be satisfied so it might want a long leaf, 10-15mm wide, light green and in a moderate current. Fish do not just use live plants so try some leaf litter if that seems appropriate. Fish which live in very variable habitats such as estuaries or areas prone to oxygen deficiency may like to have a large, dead leaf on which to spawn and which can then be moved around as conditions demand. Just because conditions in the aquarium are perfect, do not assume that the fish will not insist on a portable spawning substrate. After all, they are not to know that the tide will not be coming in or that oxygen levels will not plummet overnight.

### Giving fish what they want

As hinted at above, it can be difficult or just downright impossible to provide catfish with exactly what that would use for spawning in the wild. Does this matter? Some years ago, I went to a talk on pig welfare where the researcher had been offering breeding sows all sorts of bedding materials to see what they preferred. Just like their wild ancestors, domestic pigs like to nest, both to make a comfy bedding area and to provide a safe, warm area for the piglets. Then the researcher had a thought; never mind what materials the sows like, what were they trying to achieve? The answer was that the sows just wanted a bed and when they were provided with a ready-made bed in the form of a suitably pig-proofed mattress, they just snuggled down and ignored all the "natural" bedding. So, do not get too tied up in trying to mimic exactly what the fish find in nature; instead, think through what the fish are actually trying to achieve. uPVC tubes do not occur in nature but they are just the job for many catfish to spawn in and are a perfectly good substitute for the hollow logs they use in the wild. Similarly, bubble-nesting cats might not find many Styrofoam tiles in their habitats, but they are quite happy to make use of them in the aquarium.

### Group sex and the numbers game

Many fish spawn *en masse*, often in groups numbering in their thousands. However, if you watch closely, you will often see that the fish are actually spawning in small groups, typically two or three males with one female. Such fish can be spawned quite easily in small groups. For example, many corys spawn in huge shoals in the wild, but even a pair can be spawned in the aquarium. Unfortunately, there are some fishes which absolutely must spawn in large shoals. The trouble is, we have very little information on which species these are! There are plenty of examples in nature of animals which must be in groups to breed and for a variety of reasons. In some cases, females might like to have a group of males to choose from, selecting a mate which appears to be strong, displaying

vigorously and has a good quality territory. They are quite difficult to replicate in the aquarium and the males' territories can be large demanding a lot of floor space to house even a few males. It is still worth a try but remember the need for territory and the need for females to see a number of competing males and choose an aquarium with a large and preferably square floor area. The really difficult customers are those which spawn in very large groups without any paring off. I have no examples to offer from the catfish world, but the flamingo provides a good example of a bird which will not breed unless it is in large groups. Attempts to breed the flamingo in zoos failed until someone had the bright idea of putting mirrors in the enclosure to fool the birds into thinking they were in a large colony and it worked! If you go to Chester Zoo, you can see lots of mirrors in their flamingo enclosure. It might be worth a try! Do not put mirrors in the aquarium as they would poison the fish, but you could try putting them around the outside.

### Hormones

It all sounds so easy; all you have to do is inject some hormones into the fish and, hey presto, they spawn! If only life were that simple. In fact, while the fact of artificially induced spawning is well established, the trail getting there is littered with failures and dead fish. There are a number of hormone choices for inducing spawning in fishes, both natural and artificial and they do very different things. Some boost parts of the endocrine system and others inhibit the endocrine system, each achieving something quite different in the way of hormone manipulation. Determining which hormone will have the desired impact involves quite a bit of trial and error to work out the dose required and the timing. Some hormones work with a single dose but others require both a priming and a resolving dose and once again, the precise timing of those doses is critical. If that has not put you off trying, just consider what happens if things go wrong. At best, the fish will not spawn and will recover in time, but it is quite likely that the wrong hormone delivered in the wrong dose and/or at the wrong time can mess up the fishes' endocrine system comprehensively enough that they will be unable to spawn again. There is also the risk of infection at the injection site to take into account. Not something you would want to risk with valuable fishes, is it? Even if you do get things right, there is still the problem of getting the eggs and milt out of the fish. With practice, this is quite straightforward but while you are practicing expressing the eggs, you risk internal damage to the fish by applying inappropriate force. There is one more problem; with some catfish, it is not possible to express milt from the males. Female *Clarias* are not too difficult to deal with and the eggs can be expressed from a hormone-injected fish with ease, but you can squeeze a male as much as you like and get no more than a few drops of milt at most. The normal way to deal with this is to remove the testes and homogenise them, using a sort of testes

soup to fertilise the eggs. I hope that is not something you would consider. You should also bear in mind that this is an area where you could fall foul of the law, notably the Animal Welfare Act (2006) so my advice is not to even consider injecting hormones.

There is one class of hormones which can be used for spawning catfishes without much risk and they are the gonadotrophins. They, along with a host of other hormones and pheromones are released when fishes spawn and they encourage others to join in. There are a couple of tricks which can be tried to persuade recalcitrant catfish to spawn. The first is to try putting them in with closely related catfishes which can pretty much be spawned to order. Obviously, that rather limits which species this will work with, but even fish which are not that closely related might be worth a try. Clearly, there is a risk of hybridisation so you need to keep the two lots of fish separated by a divider which will keep the fish apart, minimise the risk of sperm transfer and yet allow the hormones to cross freely. It is also possible to use the synthetic gonadotrophins to give that final push which gets around the need to find a cooperative species to spawn. Just tipping a vial of (e.g.) human chorionic gonadotrophin into the aquarium might just be enough to tip the fish over the edge and get them spawning. Even urine from pregnant women has been used to persuade carp to spawn to order, but I suggest you don't try that at home.

### Photoperiod

For most of the catfish we try to breed, photoperiod is of no concern as they live in the equatorial region where there is 12 hour light: 12 hour dark pretty much all year round. Even by the time you get to the tropics, there is not that much difference between winter and summer day lengths. However, the further you travel from the Equator, the greater that difference becomes and the more important it becomes for fish spawning. You can easily find the times for sunrise and sunset at any time of the year by e.g. using <http://www.sunrisesunset.com/>. As an example, as I type this (17/11/09) sunrise/sunset and day length for various places are:

London 07:21/16:08 9H

Buenos Aires 05:36/19:37 14H (S of the Equator)

Caracas 06:23/18:02 12H (N of the Equator)

Now contrast that with what happens in six months time on 17/05/10:

London 05:05/20:46 15H

Buenos Aires 07:16/18:26 9H

Caracas 06:06/18:42 12H

As you can see, while Buenos Aires and London more or less mirror each other, Caracas which is close to the Equator, remains at 12HL:12HD. Both shortening and lengthening day length can affect fish and their preparations for spawning. Shortening day length is usually a cue for fish to lay down eggs, feed well to

provision them and to store fat for the future. Lengthening day length usually is the cue to mature the eggs and prepare for spawning as the longer days usually coincide with warmer weather. You can see that conditioning catfish which experience a large variation in day length over the course of the year might have to start over six months before the expected date of spawning, probably with a combination of shortening day length and a drop in temperature. Luckily, the standard conditions in the UK will tend to mimic this and, if your fishhouse has natural light, you might well find you need do nothing more. But, could you match the natural day length variations of the natural habitat of the exact species you are trying to spawn?

Theoretically, the answer is “yes” but the whole thing is fraught and liable to go horribly wrong. The main problem is that it is very easy to reset the clock in fishes and even a short flash of daylight might ruin weeks of careful daylight manipulation. You could try an accelerated change of day length to get you to the spawning point sooner if you can find a time clock that will allow you to do this (not so easy!), but you only need to have someone open the door and let sunshine in at the wrong time and all your preparations will come to nothing. It can be done, but it does need a totally light-proof room and very careful planning to get any chance of success.

### Google Earth

If you can find out nothing about where your fishes live, it is always worth trying Google Earth to see what that brings up. The problem is that many tropical forest areas are shrouded in fluffy cloud for much of the year so you may not get to see much of any use. But, in other areas and on clear days you can at least see what the area is like, certainly enough to see whether it is rocky, mountainous, forested or grassland. Remote areas tend to be only available as relatively low-resolution images so don't expect to see a close up image of the place you are looking at, but it might well be enough to give you some vital clues. It might, for example, reveal that the key habitat is tumbling, mountain streams which could prove to be very useful. It is by no means a guaranteed source of information, but you should try and see what you get. Just be warned that, unless you sign up for one of the upgrades, Google Earth images are downgraded to low-resolution images when you save them so you will find much more detail on a live image rather than a stored one.

### Broodstock nutrition

While some catfish seem happy just to get a good feed for a month or so prior to spawning, others will require something rather more targeted to get them into condition. In some cases, conditioning will need to take place well in advance of spawning when the eggs are being laid down and provisioned. The effects of incorrect broodstock nutrition can be quite subtle or

they may lead to a complete failure to reproduce. Subtle effects usually exhibit themselves in the form of small eggs, small fry or poor fertility, but may also have knock-on impacts on the fry, either on their viability and growth or on the presence of deformities. The key time to get the nutrition right is when the eggs are being laid down; male nutrition is far less critical as sperm are much less demanding when it comes to formation and they really require very little fuel. Critical points for broodstock conditioning include:

- *Calorie intake* – feed too much and the fish will lay down the excess calories as fat. Fish vary a lot as to where the fat is laid down. It can be laid down in the flesh or in the body cavity but the worst area for fat to be accumulated is in the ovaries. Fatty ovaries soon become completely dysfunctional and the female will be unable to either lay down new eggs or expel or absorb the old ones, leading to the ovaries becoming completely clogged with fat. The lesson here is to not go overboard on feeding.
- *Fats* – this gets a bit complicated as there are several kinds of fat which serve different purposes. As regards broodstock, the kind of fat to be avoided at all costs is saturated fat, the kind found in land animals, so do not feed catfish on things like chicken or beef heart. All fish have difficulty in dealing with saturated fat and it often gets laid down as store fat rather than being used a metabolic fuel so it tends to lead to rapid development of excess fat, just the same effect as excess calories. All fish need some of the polyunsaturated fats which are needed for essential cell functions such as maintaining cells membranes, nerve function and for the body to manufacture lots of complex compounds such as steroids. An important point to bear in mind is that the polyunsaturated fats required by fish are not the same as those which we require. Fish need long chain polyunsaturated fats of the kind which are found in marine fish oils. There are essential for good quality eggs to be laid down. So long as you feed a good, mixed diet, all should be well and trying to supplement their diet with (e.g.) cod liver oil may well do more harm than good, not to say giving huge water quality problems. You can usually do the job perfectly well by feeding things like brine shrimp, mysis, whitebait, mussel and so on, all of which have some bonus fats in them which fulfil other, vital functions. Marine algae and even some freshwater algae are also good sources of polyunsaturated fats.
- *Protein* – this might seem like a really vital component but the chances are that you will be feeding the fish more protein than they need

anyway so it tends not to be a problem in practice. High quality proteins come from crustacean, “wormy” and fish sources but that does not mean that your fish will not be happy with vegetable proteins. After all, algae grazers do perfectly well on such a diet.

- *Vitamins and minerals* – any mixed diet which contains good quality aquarium foods like flake or wafers will need no further supplementation with vitamins or minerals. Indeed, supplementation may do more harm than good as excesses of certain vitamins can be very damaging. It is best not to meddle with this and settle for a high quality and varied diet.
- *Pigments* – this is a bit of a problem. How do you assess the importance of pigments if the fish do not spawn? If the eggs are orange or green you can make a pretty good guess as to what the fish have been eating. The colour of eggs is not accidental as laying down those pigments carries a metabolic cost for the fish which has to concentrate them and make sure they end up in the eggs. Those pigments perform some important purposes in the egg and can make some important differences to egg viability and how well the fry perform. Fortunately, it is very easy to figure out where the pigments come from; red/orange pigments usually come from crustaceans and green pigments come from algae or other green foods. Just do a little research to find out what the fish eats and, if it includes crustaceans or algae, make sure you include those in their regular feeding.

Do make sure you check the diet of your fishes in nature as that will be the best guide to what they will require for successful breeding. If you are really lucky, you may find details of how feeding varies over the year which will give you a much better idea about what to feed and when.

### Finding the literature

Digging through all those information sources will bring up a lot of leads in the scientific literature and they in turn might give you leads to new papers. The problem that then brings is how to get hold of copies of the papers you need? Your local library may allow you to use the inter-library loan scheme to get hold of copies but this can be very slow and, with tight budgets, libraries may not be willing to let you use the service. University libraries are often happy to let people use

them for personal use, usually free of charge. This used to be a handy way to get access to long journal runs which the library would allow you to photocopy for a fee. This could still work for older references but, some recent changes in the way university libraries subscribe to journals means that you may not be able to access the journal articles you need. Most libraries now have only electronic subscriptions which you need a user name and password to access and they are very unlikely to give you access to the system. At least you should still be able to get access to the searchable, bibliographic databases which can be saved in a variety of formats such as Word, so you can take that away and search it at will. That may well take you back to the problem of how to get copies of the papers so we seem to have gone round in a circle so it is time to think of ways round the problem.

The first thing to do is to find the home page of the journal so just stick the name in full, or abbreviated into a web search and hopefully you will find the journal's home page which you can then search for the article you want. That will then take you to the next problem! While some articles and nearly all abstracts are available free of charge, most journals make a charge for access to their articles and they are not cheap. Expect to pay £15-30 per download for journal articles. That makes it very expensive for more than a couple of articles. If the price puts you off, there are some other ways to find a paper. One thing to try is a web search for the primary author. These things are unpredictable so if that fails, try the secondary author. You can also try “author name” plus “home page” as well to get straight to their home page and see what that brings. It is rather hit and miss, especially for someone with a common name, but it can bring some rewards. If you still get nowhere with that, try searching for the institution where the primary author was based such as “dept of zoology, university of somewhere” and see if he/she is still there. The reason for trying to find the author's home page is that they often post copies of their papers there in pdf format so you can download them free of charge. If there is only a list of papers, you can always try emailing the author to ask for a copy but do not abuse this by asking for a heap of papers. If all else fails, you can try just doing a web search using part or all of the name of the paper, or the authors, e.g. “reproductive biology of *Silurus glanis* in the Danube river.....” or “Burke and Hare, 2005” and see what turns up. It is by no means guaranteed to get you a result, but it is surprising how often a copy of a paper gets posted somewhere.

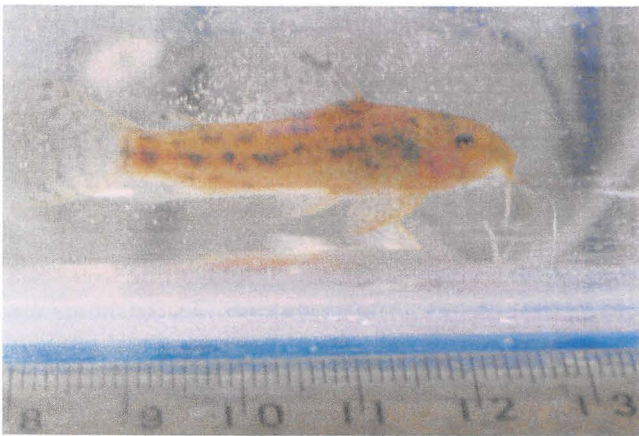


## Breeding *Corydoras* sp C119

Presented for the CSG B.A.P by Mark Walters

I acquired a group of three adult *Aspidoras* from an auction held by Preston Aquarist Society (U.K.) in October 2006. The group was sold by experienced aquarist Mick Wright as a breeding trio and comprised 2 males and a female. The fish were part of a colony of 6 fish which originated from a retailer in the SE of England and had been identified as C119 through expert advice. The variation in *Aspidoras* species is not always obvious and without information on original catch localities, uncertainty remains over the provenance of a number of populations in the hobby.

The first spawning was reported just 11 days after the fish had been introduced to their new home, with a further 9 spawnings during 2006. For the purpose of the Breeders Award Programme, a spawning on 8th March 2007 was documented.



**Male C119**

The trio were housed in a 60cm x 30cm tank, decorated with bogwood, java moss and some java fern. The tank water was quite heavily stained by tannins released from the bogwood. A spawning mop, made from dark green wool, was suspended in one corner of the tank, close to the surface.

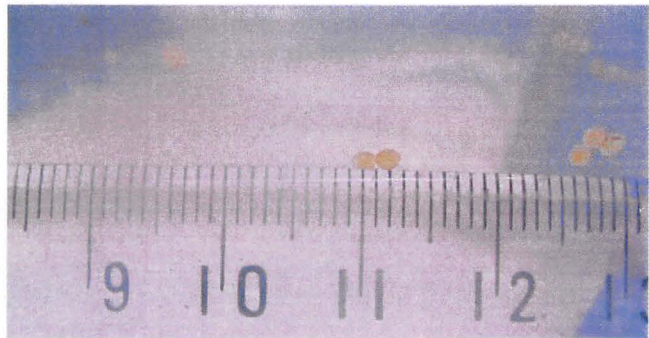


**Female C119**

Spawning was observed 48 hours after a routine 50% water change using rainwater, the water change

reduced the temperature from 72F down to 62F for a short period. Heavy feeding of daphnia had been given, supplementing the regular feedings of Tetra Prima, whiteworm and frozen bloodworm. At the time of spawning, the males were 40mm and the female 50mm.

The female was observed to hide deep within the spawning mop, and the males would occasionally dive into the spawn site for a few minutes. After spawning, the parents didn't appear to show any inclination to eat the eggs and over 40 amber coloured eggs of 1.8mm were harvested from the mop.



**C119 eggs**

The eggs were removed to a one litre hatching tub with tank water and an alder cone to reduce microbial growth. After 4 days the eggs hatched and proceeded to survive on their yolk sacs for the next 4 days. A piece of java moss was added to the hatching tub to provide first food in the form of resident micro-fauna.



**Free swimming C119 fry**

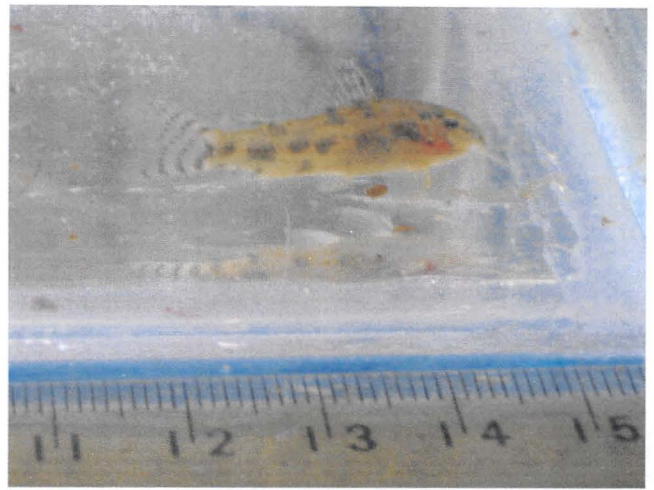
Once free swimming the fry, which now resembled miniature tadpoles, began eating microworm and ZM powdered foods. The fry were quite distinct in profile to *Corydoras* fry and grew at a much faster rate. By 4 weeks old, the fry resembled miniature adults and were big enough (18mm) to be returned to the adult tank with no fear of predation.





One Month old C119

At 3 months old, the youngsters had attained full adult colouration at 28mm and were participating in spawning activities by 5 months. I distributed countless C119 youngsters during 2007/08, before moving the group on to another CSG member in Spring 2008.



3 month old C119

## What's New?

Mark Walters

This article presents information for five recently published scientific papers for which further details are available.

The following uncommon species, have been sighted: *Mystus leucophasis*, *Tatia intermedia* (Scottish bred), *Auchenipteridae* sp. 'Guyana' (new species, awaiting confirmation of new description), *Akysis maculipinnis*, *Ancistrus* sp. L183, *Hypancistrus* sp. L400

**Reis, RE & P Lehmann A, 2009.** Two new species of *Acestridium* have been described. *A. gymnogaster* and *A. scutatatum* have been discovered in small tributaries in the middle Rio Madeira, Amazonas, Brazil. A key to the species of *Acestridium* is provided. The most commonly encountered *Acestridium* in the hobby is *A. discus*, which resembles a small Farlowella (twig catfish) with a disc-like appendage on the elongated rostrum

**Ng, HH, 2009.** *Tachysurus spilotus*, a new species of catfish from central Vietnam has been described. Members of the genus have previously been included in the genus *Pelteobagrus* or *Pseudobagrus* and it comprises a particularly diverse group with over 30 other species. *Tachysurus* species have a wide range of habitats from fast flowing mountain streams to large rivers

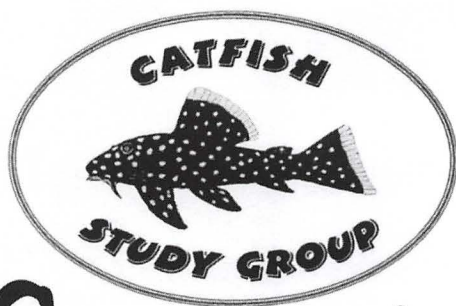
**N. Anganthoibi 1 & W. Vishwanath, 2009.** Following a recent collection, a new Erethistid catfish species, *Hara koladyneensis* has been described from

Koladyne River, Mizoram, India. The habitat, after which it is named, is described as having fast flow and a rocky bottom. It is expected that the region will yield many endemic species considering its isolation from main river drainages.

**Britto, MR, WB Wosiacki & LF A. Montag, 2009.** A new species of Corydoradinae catfish has been described from the Rio Urucu, part of the Rio Solimões basin in Brazil. *Corydoras urucu* is named after the river in which it was discovered and resembles *C. arcuatus*. However, unlike similar species, in *C. urucu* the dorsal band does not run into the snout.

**Willink, P.W., J.H. Mol & B. Chernoff, 2010.** One of the first new species to be described in 2010 is *Pseudancistrus kwinti* a suckermouth *Loricariidae* from the Coppename River drainage, Central Suriname Nature Reserve, Suriname. The location will probably prevent it entering the hobby any time soon. The species is named after the indigenous people who inhabit the area where the catfish was discovered. Images, displaying the males' pronounced odontodes, can be viewed on the species pages of Planet Catfish.

If you have any sightings you would like to share or would like to track down a paper featured, contact me for the full reference: [mark.walters100@yahoo.com](mailto:mark.walters100@yahoo.com). Acknowledgement is made to Planet Catfish, Practical Fishkeeping and the All Catfish Species Inventory (ACSI) database for the original source of information on papers.



# Convention by the Sea

5<sup>th</sup>-6<sup>th</sup>-7<sup>th</sup> March 2010

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## Speakers

*Dr. Peter Burgess - The Fish Doctor*

*Dr. Michael Hardman - Ichthyologist*

*Adrian Taylor - CSG Hon. Secretary*

*Ingo Seidel - Prof. Aquarist/Author*

*Claus Christensen - Planted Aquaria*

*Markos Alexandrou - Bangor University*

*Contact : Ian Fuller*

*conventionmanager@catfishstudygroup.org*

## My Trip to Peru - Part 3

Kim Matthiasen.

After the Pacaya Samiria-trip we took some days off to see Iquitos and the surrounding area. We had decided to do this already when we planned the trip, as Kristoffer was not much into fishing and being in the jungle. Amongst other things, we went to a concert with a Columbian Latin-band along with 7000 local people, which was quite an experience! We also went up the Rio Nanay in Fransisco's speedboat to visit a village and see if any sand banks were visible. If we could see the banks, we wanted to spend a day dragging nets for *Corys* but no banks were to be found. There was simply too much water. Instead we decided to rent a car with a driver and a local fisherman and take the road south to Nauta and fish a few small streams for *Ancistrus* sp. and *Apistogramma*.



Our Car



The Nauta Road

Fransisco arranged a car for us and we met with the driver and the fisherman and drove off. The driver was mostly busy talking to the fisherman and didn't notice much of the traffic around him. When there were children or animals at the side of the road he just

honked the horn. Actually he ran over a chicken and I really don't think he noticed!

After about 80 kilometres of crazy driving we pulled into the side of the road where it crossed a small river. The fisherman led us over a small bridge made of logs and we entered the jungle and followed a narrow path.



The Fisherman at the First Biotope

After a while he turned left into trees and bushes and we came out on a small, sandy beach. The water was gin clear with logs and branches spread around. The technique was to lift the logs into a big net and then, eventually, the *Ancistrus* should just fall off into the net. This was really hard work in the high temperatures so Bard and I took turns assisting the fisherman with the job.



*Ancistrus* species

After a while we wondered if there was no other fish than this one species of green spotted *Ancistrus* there, but then the fisherman started poking a twig into a hole in one of the logs and a *Tatia pegugiae* fell out. I've sort of hoped we'd find some of those as I find them amusing to watch when feeding.



A Typical Catch of *Ancistrus*



*Tatia perugiae*

We ended up with 6 *Tatias* and several *Ancistrus* and decided to move on to the *Apistogramma* biotope.



Video Technique at the *Apistogramma* Biotope



*Apistogramma* Biotope

This was a small canal, where we should be able to find *Apistogramma* sp. "Apache". This canal had an immeasurable conductivity so it must have been below 10 microSiemens! The other places we'd visited had a conductivity that was a lot higher. The tactic was to go into the canal and press the net out against both banks and the crawl through the mud.



*Hyphessobrycon loretoensis*

Eventually we only found very few *Apistogrammas* but Bard took with him a good batch of *Hyphessobrycon loretoensis*. Then we took another neck-breaking drive back to Iquitos.



*Crenucus spilurus*

A couple of days later we rented scooters and took a trip on our own down the same road, just not as far. We found a small pond where we scooped out quite a few *Crenucus spilurus*. Really stunning fish! All gold with orange fins but, unfortunately, they didn't make it all the way back to Denmark. We also had a few unidentified *Apistogrammas*. We tried two other ponds and streams as well, but no luck. The next day we sorted out the fish we'd caught during our two weeks and then we headed back to Scandinavia. I'll definitely return sometime.

*(You clearly had the holiday of a lifetime and I'm quite jealous, though I don't think I'd enjoy the tropical heat and all the insect life that I'm assured becomes very friendly in the Amazon! A great series, Kim.)*

## The Catfishes of Asia

### Family Bagridae, Part Two

by R. Shane Linder

shane@planetcatfish.com

(Taken from Volume 1, Issue 2)

In this article we continue our review of the family Bagridae. The first installment in the series covered the genera: *Batasio*, *Chandramara*, *Rama*, *Pelteobagrus*, and *Hyalobagrus*. This series is not meant to be a comprehensive review of the family Bagridae, but rather a general overview of the genera that are imported for the aquarium hobby with some frequency. The entire series has been updated for the new millennium.

Perhaps a better title for this piece would be "Beauties and Beasts." In this article we look at what are not only some of the most beautiful catfishes in the hobby, but also the hands-down meanest freshwater fishes known. The beauties belong to the genera *Leiocassis*, *Pseudomystus*, *Bagrichthys* and *Horabagrus*. The beasts are members of the genera *Hemibagrus* and *Olyra*.

In Mo's 1991 work he followed Jayaram's 1968 suggestion and divided the genus *Leiocassis* between *Leiocassis* and *Pseudomystus*. This division has been accepted most subsequent authors (Kottelat et al, 1993, Ng & Rachmatila, 1999, Tan & Ng, 2000). That said, there are still some serious problems with this division. Mo, 1991 attempted to define *Leiocassis* as a Southeast Asian genus and stated that Chinese *Leiocassis* examined by him actually belonged to the north Asian genera *Pelteobagrus* or *Pseudobagrus*. Unfortunately, a few Russian and Chinese authors have recently placed some Russian and Chinese catfish in *Leiocassis*. This complicates the topic as now *Leiocassis* is composed of an inter-related group of Southeast Asian species and an inter-related group of north Asian species. However, these two groups, in the same genus, are distantly related to each other. Most of the species familiar to the aquarium hobby have now been placed in *Pseudomystus*.

The genus *Pseudomystus* still needs some serious attention. In the past it has been used to group together nearly all of the "bumble bee-patterned" catfishes of Southeast Asia. The hobby has done the same in that all of these fishes are sold under the name "bumble bee catfish" and nearly always labeled *Pseudomystus siamensis* even though there is more than just this one species imported. It is the same case with the *Pseudomystus stenomus* complex, which usually are found under the common name false bumblebee catfish.

The *Pseudomystus* bumblebee catfishes are all very beautiful. The body is a velvet black highlighted with bands of white or off-white. These catfishes are nocturnal, but with a little patience, they can be

conditioned to accept food when the aquarium lights are on. It is a good idea to condition nocturnal catfishes to do this because it is often the only time that you will see them and be able to observe their health. *Pseudomystus*, like some doradids, have a way of disappearing in a tank only to be found months later when you decide to rearrange the tank.

Like many catfishes, it is imperative that they are fed properly and not left to live off of only what they can scrounge up in the aquarium. The hobbyist should also be aware that *Pseudomystus* are efficient predators and will consume fishes up to half of their size. If your tank is missing a couple of tetras or barbs, the bumblebee catfish is almost certainly your culprit. These fishes do well in a community set up, but each individual will need its own cave as they can be quite territorial amongst their own kind. Aggression is often displayed by biting another *Pseudomystus*' caudal fin. Damaged caudal-fins are a sure sign that there are not enough retreats for all of the fish to live comfortably together. All *Pseudomystus* can be sexed in the typical bagrid fashion and the males' genital papilla is even more distinct than in many other bagrids.

Both the bumblebees and false bumblebees can be found in creeks and rivers throughout Borneo, Thailand, Sumatra, Java, and Malaya. Although they come from normally soft acidic waters they can easily adapt to almost any water conditions provided the extremes are avoided. There have been no recorded spawning successes, but I have come very close to inducing spawning on a number of occasions. The main keys are to separate the sexes, raise the temperature, and feed high protein foods. When the females are gravid simulate a monsoon season with large cool water changes and the addition of a great amount of aeration.

The genus *Bagrichthys* hails from Borneo, Sumatra, Cambodia, and Thailand. This genus is known to the hobby primarily because of the black lancer (*B. macracanthus*). The genus presently contains six species (see table on page ??). *B. macracanthus*, the only member of the genus imported, is truly one of the most beautiful fishes in our hobby. The fish is solid velvet black with a white mid-axial streak that runs from the shoulder to the caudal peduncle. The entire caudal fin is a transparent white and develops flowing extensions with age. The lancer in "black lancer" refers to this fish's disproportionately tall dorsal fin which, when folded down, reaches nearly to the caudal peduncle. These fish can be expected to reach an adult



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standard length of about eight to ten inches but is slow growing and will require a few years to reach this length.

The black lancer is, by nature, very nocturnal. Once again though, with some conditioning, the fish can be taught to eat with the lights on and even to feed from its owner's hand. If the fish is kept in a community type tank be sure that it receives an adequate diet. Wild specimens have been caught with worms on a hook and line. In the aquarium, bloodworms (chironomid larvae) are eagerly accepted. These fish are often territorial among their own kind, but as with most bagrids, aggression can be severely reduced by keeping one male with two or more females. Lancers are very adaptable to changes in pH and DH and will thrive as long as extremes are avoided. It has been suggested that raising the tank's temperature above 80F for a couple of days helps lancers to cope with the stress of being moved. The sexes are easy to distinguish. Not only does the male possess a genital papilla, but the males' nasal and maxillary barbels are more than twice as long as the females'.

The final beauties belong to *Horabagrus*. Mo's 1991 phylogenetic analysis concluded that *Horabagrus* is more closely related to the Asian schilbeids and thus Mo excluded this genus from Bagridae. While the general arrangement of this series has followed Mo's conclusions, I will deviate in the case of *Horabagrus* and follow Pethiyagoda and Kottelat (1994: 112) who state that until clearer evidence is available *Horabagrus* should be retained in Bagridae. *Horabagrus* contains just two species: *H. brachysoma* and *H. nigricollaris*. Both species are restricted to India and have only very recently become available as regular imports. *H. brachysoma* has been imported as the bullseye cat and imperial cat. The coloration is stunning and very reminiscent of *Mystus bimaculatus*. *H. brachysoma* is normally found in brackish estuaries but adapts readily to freshwater aquariums. This fish will reach at least 214 mm SL (8 ½ inches) and is an efficient predator. It is a fish with a lot of "personality" and, like many larger pimelodids and bagrids, soon becomes a true pet. *H. nigricollaris* comes from freshwater rivers and lakes. The coloration is very similar to *H. brachysoma* but the light shoulder markings wrap over the nape (neck) to form a white collar. *H. nigricollaris* remains a bit smaller at an adult length of just under seven inches.

Now that we have looked at the beauties, let's cover the beasts. Most of the larger "Mystus" catfishes were moved to the genus *Hemibagrus* by Mo in 1991. Two of these, the Asian red tail, *Hemibagrus wyckioides* and the crystal-eyed catfish, *Hemibagrus wyckii*, are imported for the hobby with increasing frequency. Asian red tails used to be quite rare and expensive in our hobby. However, many Asian countries have recently begun serious aquaculture programs aimed at keeping their nation fed. The large *Hemibagrus* species have proven ideal for this and are now being farmed in many Asian nations. A byproduct has been

that large numbers of young *Hemibagrus* are now showing up in the aquarium trade. Young Asian red tails in the two to three inch range are becoming a common sight in many pet stores. At this size, the fish's body is nearly black and the tail shows only red highlights. Against the black body, the long white barbels contrast nicely.

*H. wyckioides* will reach a maximum standard length of just over three feet (95 cm) (Ng & Rainbooth, 1999: 569). It is not just their size that makes them beasts, but also their disposition. In nature, red tails over 12 inches are strictly predatory with other fishes accounting for nearly half of their diet. Crustacea and insects make up most of the remaining half. Barb, three spot gouramis, and even snakeheads (*Channa* spp.) are all eaten along with many other fishes. One red tail was even found with the remains of a snake in its stomach. In captivity, specimens over four inches will need their own tank as they will not tolerate tankmates. Captive care is simple, just provide clean water with a good flow from a power head. A couple of large PVC pipes and rounded rocks provide hiding places and complete the set up. Water chemistry is of little concern since these fishes often hunt from the soft acidic waters up-river down to the brackish deltas of the larger Asian rivers.

The crystal-eyed catfish, *Hemibagrus wyckii*, is also quite striking. The entire fish is black with white markings on the caudal and dorsal fins. The eyes are a sky blue much like those of *Panaque suttonorum*. *H. wyckii* is capable of attacking animals of its own size. Sands (1985: 129) claims that it is the "only freshwater fish clearly unafraid of man". In captivity they will reach just under two feet standard length. These fish have tremendous jaw strength. Layley reported that her specimen managed to bite, and nearly flatten, an aquarium heater protected by an aluminum sleeve (1995: 36). A proper set up for a crystal-eyed catfish should be similar to what has been recommended for Asian red tail catfishes. One major advantage that the *Hemibagrus* species have over the large South American catfishes is that they are less skittish in captivity.

The nasty disposition of the *Hemibagrus* species really cannot be over exaggerated. It has been my experience that a fairly small *Hemibagrus* will terrorize even larger aggressive catfishes. I have read accounts of smaller *Hemibagrus* destroying large predatory pimelodids in short order. I even met one aquarist that placed a 12-inch *Hemibagrus wyckioides* in a very large tank (over many THOUSAND gallons) with two two-foot channel catfish (*Ictalurus punctatus*). Even in this large tank both Channel catfish were killed on the first night with the *Hemibagrus*.

This same excessive aggressiveness is found in the members of the bagrid genus *Olyra*. *Olyra* has been considered for many years as the sole genus of the family Olyridae. However, Mo's 1991 phylogenetic

analysis of the family showed that *Olyra* is a highly specialized member of Bagridae. Mo recognized *Olyra* as the sister group of the lineage comprising *Bagrus*, *Aorichthys*, *Mystus*, and *Hemibagrus*. These fish resemble small elongate *Hemibagrus* and are known as fighting catfish. In Asia *Olyra* are placed in small aquaria to battle against each other in much the same way as *Betta*. Money is bet on the outcome of the battle. *Olyra* have been imported on a few occasions, but the results are inevitably the same. Only one fish survives import per bag after killing off the other *Olyra* shipped with it.

This article would not be complete without mentioning the responsibility that a hobbyist incurs when they purchase one of these large predators. Give some serious thought to the long term care of these animals before you purchase one. Are you going to want to keep a 200 to 300 gallon aquarium with only one fish in it? Whether you prefer to keep the beauties or beasts, there is no doubt that this family has a lot to offer any aquarist. Next time we will explore the genus complex genus "Mystus".

**Below are the valid species**, as of April 2000 for the above genera with the exception of *Hemibagrus*, which is currently under revision by Ng Heok Hee at the National University of Singapore.

*Leiocassis* Bleeker, 1858

*Leiocassis brashnikowi* (Berg, 1907) China & Siberia: Amur, Onon, Ussuri, & Sungari Rivers & Lake Hanka

*Leiocassis herzensteini* (Berg, 1907) River Amur, River Onon, River Yalu

*Leiocassis hirsutus* Herre, 1934 China

*Leiocassis micropogon* (Bleeker, 1852) Sumatra, Borneo, Malaya

*Leiocassis poecilopterus* (Valenciennes, 1840) Borneo, Sumatra, Thailand, Java, & Burma

*Leiocassis saravacensis* Boulenger, 1893 Borneo

*Leiocassis ussuriensis* (Dybowski, 1872) China: Hunan, Tungting Hu, Shan-si; Shanghai, Suifu, Yachow, Korea; Russia: Amur, Ussuri, & Sungari Rivers, Khanka Lake

Notes: Jayaram 1968: 338 points out that reports of this species far south of its normal range, such as reports from Shanghai, may represent another species.

*Pseudomystus* Jayaram, 1968

*Pseudomystus bicolor* (Fowler, 1934) Thailand

*Pseudomystus breviceps* (Regan, 1913) North Sumatra

*Pseudomystus flavipinnis* Ng & Rachmatika, 1999 Borneo: Kapuas basin

*Pseudomystus fuscus* (Popta, 1904) Borneo, Sumatra, & Malaya

*Pseudomystus inornatus* (Boulenger, 1839) Borneo

*Pseudomystus leiacanthus* (Weber & Beaufort, 1912) Malaya: Lake Chin Chin, Johore, Kota Tinggi, Malacca, Mawaii, River Plus; Sumatra: Faloek, River Kwantum

*Pseudomystus mahakamensis* (Vaillant, 1902) Borneo and East Sumatra

*Pseudomystus moeschii* (Boulenger, 1890) Sumatra

*Pseudomystus myersi* (Roberts, 1989) Borneo

*Pseudomystus robustus* (Inger & Chin, 1959) Borneo: Kinabatangan River

*Pseudomystus rugosus* (Regan, 1913) Sumatra & Borneo

*Pseudomystus siamensis* (Regan, 1913) Thailand: River Bangpakong, River Chantabun, Menam Chao Phya, Doi Angka, Menam Khan, Meklong, Mewang, Menam Mun, River Nontaburi, Pak Jong, Menam Tadi, Menam Tapi, Trang; Cambodia, Laos

*Pseudomystus stenomus* (Valenciennes, 1840) Thailand, Cambodia, Java, Sumatra

*Pseudomystus* sp. undet Noted by Roberts, 1989 Borneo

*Pseudomystus vaillanti* (Regan, 1913) Borneo

*Bagrichthys* Bleeker, 1858

*Bagrichthys hypselopterus* (Bleeker, 1852) Borneo: River Kapuas, Sintang; Sumatra: Djambi, Palembang, River Mussi, River Rokan

*Bagrichthys macracanthus* (Bleeker, 1854) Cambodia, Thailand, Sumatra, & Borneo

*Bagrichthys macropterus* (Bleeker, 1853) Cambodia, Thailand, Sumatra, & Borneo

*Bagrichthys micranodus* Roberts, 1989 Borneo

*Bagrichthys obscurus* Ng, 2000 Indochina

*Bagrichthys vaillantii* (Popta, 1906) Borneo: Mahakam River drainage

*Horabagrus* Jayaram, 1955

*Horabagrus brachysoma* (Gunther, 1864) Southern India in estuaries

*Horabagrus nigricollaris* Pethiyagoda & Kottelat, 1994 Southern India

*Olyra* McClelland, 1842

*Olyra burmanica* Day, 1872 Burma: Pegu Yomas

*Olyra horae* (Prahad & Muderji, 1929) Burma: Indawgyi Lake & India: Menghayala State

*Olyra kempfi* Chaudhuri, 1912 India: Assam

*Olyra longicaudata* McClelland, 1842 India: Assam

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## Breeder's Award Programme - February 2010

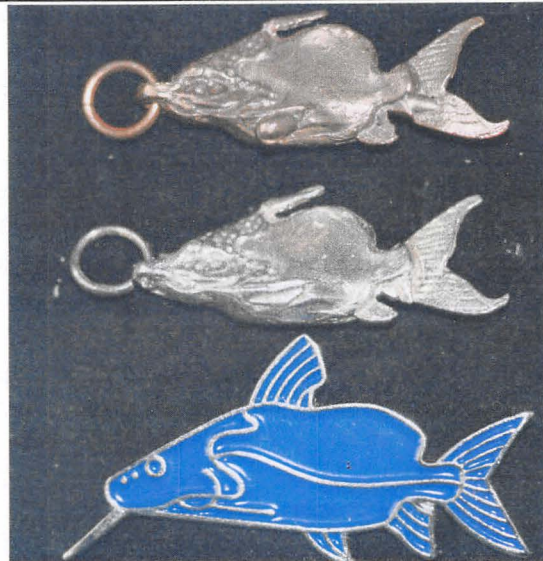
Mark Walters, BAP Secretary

The Breeder's Award Programme was launched nearly three years ago and has seen 134 registrations for catfish spawnings. 87 catfish species from 13 genera have been spawned. 11 CSG members have submitted registrations and 8 have submitted further reports to gain points. 4 presentations have been made at CSG Conventions to reward members with their efforts.

A total of 15 articles of spawning have been submitted to the Cat Chat magazine, providing a valuable source of material to the Editor. The change in the pointing system in 2009, to award points for submitted articles rather than F1 spawnings appears to have provided greater incentive to produce Cat Chat material as intended.

2009 was another successful year, with 37 registrations. 4 members' articles were published in Cat Chat. The BAP Secretary set up a workshop at the Convention with tanks of BAP spawned species, typical breeding set-up's, images of species spawned and video of spawning catfish. The display generated significant interest from members who subsequently registered their efforts.

The bronze, silver and gold awards were cast in 2009, providing a real incentive to achieve the necessary



points. A silver award and certificate (for 1000 points and at least 6 genera spawned) was presented at the Convention, three bronze awards (for 500 points and three genera spawned) were also presented to support the certificates awarded in 2008.

The September Open Show included, for the first time, a class for BAP registered breeding teams. A unique

MW26	10/09/2009	Hypancistrus sp L04	Mark Walters
MW27	16/09/2009	C. cf steindachneri	Mark Walters

Breeder's Points to Date			
	Ian Fuller	1065	
	Mark Walters	2000	
	Dave Penney	440	
	Adrian Taylor	955	
	Keith Jackson	220	
	Eric Bodrock	80	
	Frank Falcone	20	
	Allan James	100	



lapel badge (pictured alongside the bronze and silver awards) was awarded to each entrant in this class.

Other members are close to achieving bronze, silver and gold awards during 2010, if further submissions are made.

Despite the large number of registrations, the majority of reports have been submitted by a small number of members. Although this will continue to provide a significant number of articles for Cat Chat, it would be beneficial to the club as a whole if other members started to share their experience and start to accumulate points towards quite prestigious awards.

During the last quarter of 2009 further points were accumulated for updated records and articles and the two further spawnings were reported, as shown in the accompanying Table.

## Answers to Martin Hutton's Crossword

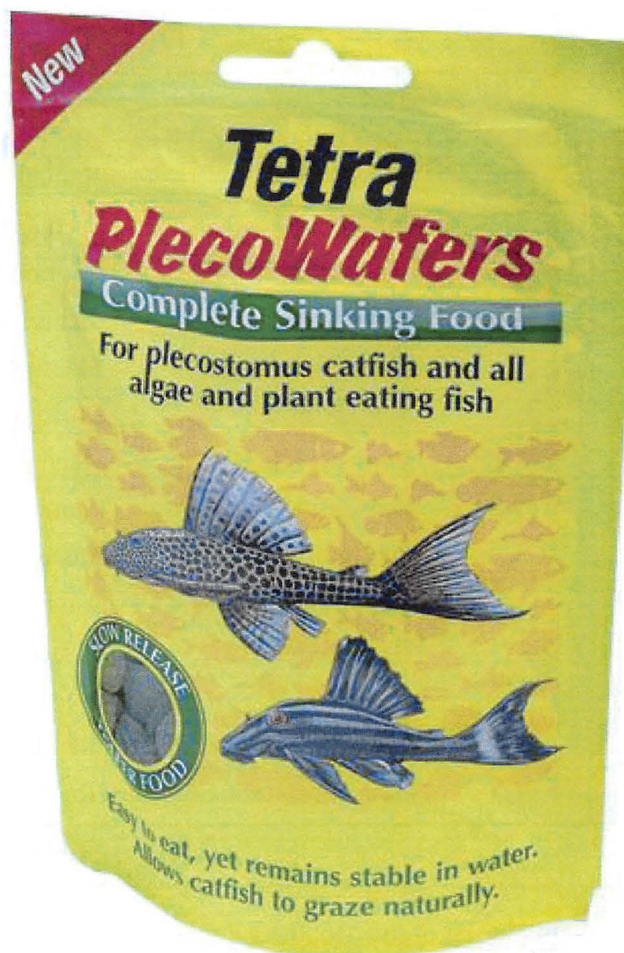
### Across:

- 1 - Planet Catfish
- 4 - Brochis
- 6 - Bulldog Catfish
- 7 - Loricariidae
- 11 - Doradidae
- 12 - Twig Catfish
- 13 - Hastatus
- 14 - Peppered
- 15 - Corydoras World
- 16 - Corydoras panda
- 17 - Habrosus

### Down:

- 2 - Ancistrus
- 3 - Hemiancistrus subviridis
- 4 - Banjo
- 5 - Red Tailed Cat
- 8 - Pygmaeus
- 9 - Barbatus
- 10 - Zebra Plec

*Thanks again, Martin.*



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## Dates for Your Diary

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2010

<b>March 5th-7th</b>	Annual Convention, Prince of Wales Hotel, Southport
<b>March 21st</b>	Spring Auction (Pre booking David Barton 01942 248130)
<b>April 18th</b>	Meeting - <i>Spawning Triggers</i>
<b>May 16th</b>	Meeting - <i>Catfish Companions</i>
<b>June 20th</b>	Meeting - <i>Catfish Health</i>
<b>July 18th</b>	Meeting - <i>The Dietary Needs of Catfish</i>
<b>August 15th</b>	Meeting - <i>Aquarium Lighting</i>
<b>September 19th</b>	Annual Show and Auction
<b>October 17th</b>	Meeting - <i>My Favourite Catfish</i>
<b>November 21st</b>	Autumn Auction (Pre booking David Barton 01942 248130)
<b>December 12th</b>	Christmas meeting - not to be missed :-)

Members are invited to attend any Committee Meeting as observers.

Please contact the Secretary for dates and venue if you would like to attend.

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## Magazine Closing Dates

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Normally the 1st of the Month of Publication. From 2010 (Volume 11) January, April, July and October

*Please note:* When submitting articles, if you supply all the images as separate files it makes them much easier to import into the software so that they display to their best advantage in Cat Chat. Please also avoid the PDF and DOCX formats when submitting copy as they present difficulties in importing them into the publishing software. Earlier MS Word formats, i.e. DOC, are fully acceptable and you can save the document in this format instead of DOCX by choosing *Save As* from the drop-down menu and selecting DOC from the sub-menu.

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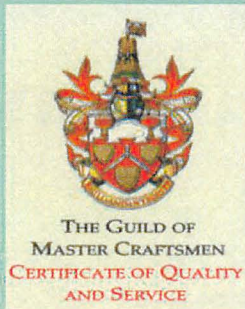


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