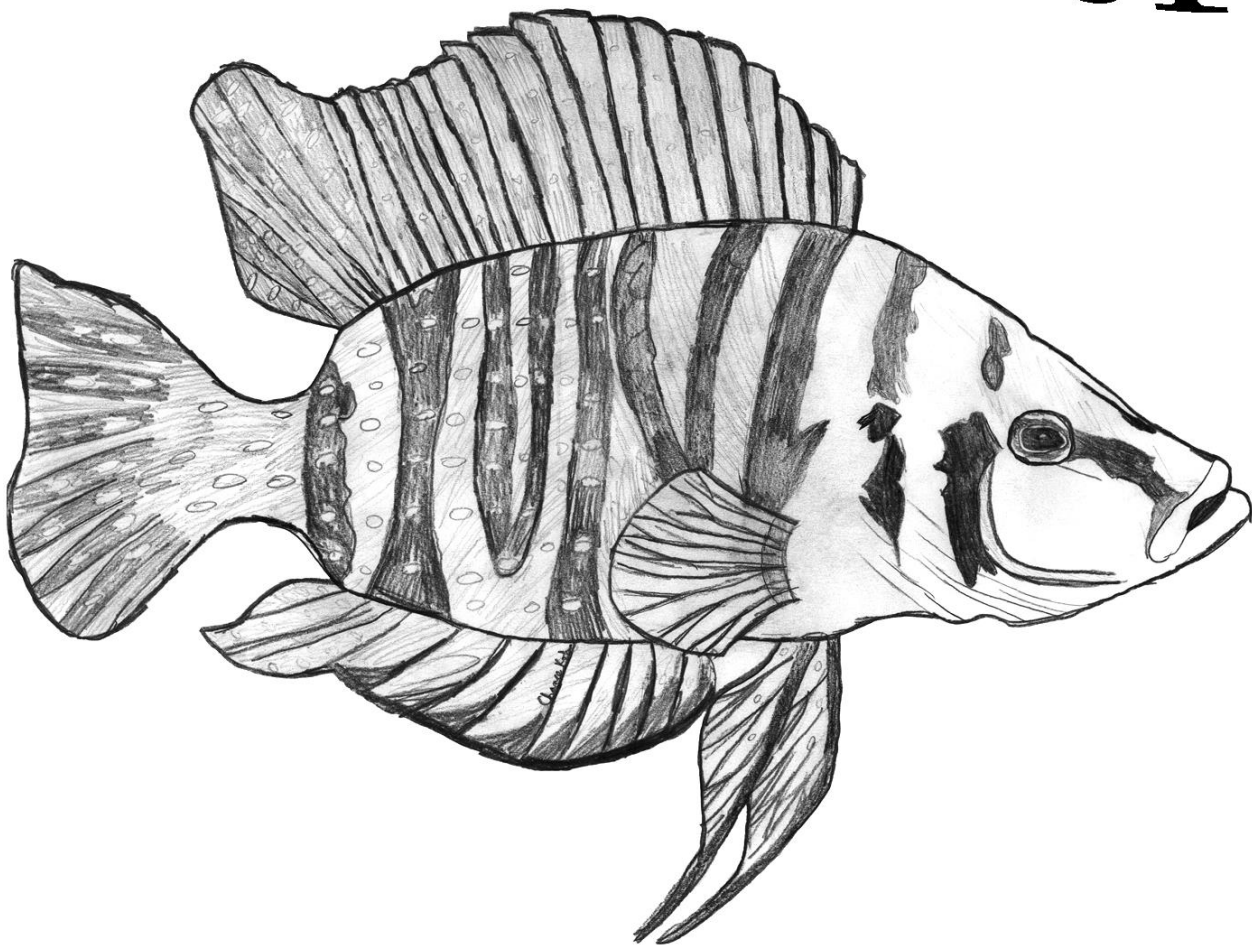


The Darter

May
June
2006



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Saint Louis, Missouri

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Places to Be Things to See

THURSDAY, June 15, 2006

General Meeting, 7:30 PM @ Dorsett Village Baptist Church

SATURDAY, June 17, 2006 (SATURDAY June 24 in case of rain)

MASI Picnic @ Jim and Brenda Thale's

Executive Council following Picnic

THURSDAY, July 20, 2006

General Meeting, 7:30 PM @ Dorsett Village Baptist Church

SUNDAY August 13, 2006

Annual Summer Auction @ Stratford

Contact: John Van Asch – 618-277-6165, johnsfishy@att.net

THURSDAY, August 17, 2006

General Meeting, 7:30 PM @ Dorsett Village Baptist Church

SUNDAY October 1, 2006

Annual Fall Swap Meet

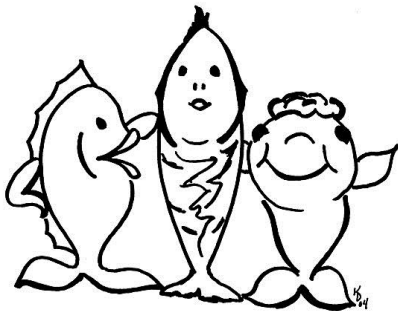
Contact: Mike Hellweg – 636-240-2443, mhellweg511@charter.net

SUNDAY November 19, 2006

Annual Fall Auction

Contact: John Van Asch – 618-277-6165, johnsfishy@att.net

Membership



Yearly membership in the Missouri Aquarium Society, Inc. is \$20 per calendar year. Membership includes the Darter subscription for the year, which is currently 6 issues. New memberships and renewals can be submitted at club functions such as meetings and auctions, or by contacting our membership chair, Kathy Deutsch at 314-741-0474, fishfan@i1.net, or 9 Old Jamestown Ct. Florissant MO 63034

Presidential Preamble

By Mike Hellweg

Well, another club year has come and gone. Our club years run from July through June, just in case you think I missed a few months! It's been a great year. The auctions have been doing so well that we had to change things around a bit to cut back on the number of items being brought in so we could all get home before bedtime on auction night. We held our first Swap Meet, and it was so successful we're doing it again this coming October. Our Treasury continues to be fiscally sound, and we've been fortunate enough to be able to purchase a digital projector, a laptop computer, and a sound system, all to make the meetings more enjoyable for you, and to enable us to bring in top-notch speakers and programs. Gary has some great ones lined up for the coming year already, too.

The Darter is fantastic! It is one of the best publications of any club in the country. Thanks to Ralph Wilhelm's generosity, we've been able to establish the Ralph Wilhelm Memorial Writing Award and had our first winner of the \$100 prize this year – Lawrence Kent with his article *Finding Cichlids in Lake Tanganyika Turns out to be...Not-so-Hard* which appeared in the July-August 2005 issue of the Darter. Congratulations and well done, Lawrence!

Our BAP/HAP mini-auctions at the meetings have been great, with a lot of hard-to-find fish and plants being made available at great prices. The BAP and HAP are thriving! More people are participating in the Fish-Raising contest this year than have for the past several years. Attendance at the meetings is up. Membership is up, and we have several new members. It's taking me a while, but eventually I hope to get to know you all! By the time you read this, we'll have a new Executive Council and possibly some new Officers, too. That's up to you.

We've had several of our newer members get involved in the club very quickly, volunteering to help out with various jobs that need doing. I would like to thank them for that: Gary McIlvaine, as I mentioned in a past Presidential Preamble, volunteered to take over as Post Man when Junior stepped down after doing the job for more than a decade; Mark Theby enthusiastically stepped up to be Advertising Chair for the club; and most recently, Cory Koch has stepped up to run the T-shirt Contest and coordinate sales of club golf shirts. Thanks to all of you!

The only disappointment this year was that we did not host our Annual Show, but instead did a Weekend Workshop (basically a Show Weekend without the Show). The Weekend Workshop itself was great. The speakers were fantastic, and there was plenty of time to just "talk fish". It certainly was much less work, and for me, anyway, it was much more enjoyable. It was a bit strange not having to do layout on Wednesday night, setup on Friday morning, and not having displays to look at after the Banquet. I know a lot of you missed the Show part of the weekend. I even heard comments from several of you such as "where's the show?" and "where are the displays?". At least one person I spoke with was really surprised and upset. I understand that anger and disappointment, but it looks like at least a few of you haven't been listening at meetings or reading the Darter!

We've been talking for two years now about not being able to do the show this year. It's a lot of work to put on a Show, and we need a dedicated committee to organize and run it. Most of you already know the story: the same people have been volunteering for the committee that put it together for more

than a decade and with no new help or fresh ideas they just grew tired; no one stepped forward to volunteer to be the Show Chairman so our Vice President had to do double duty two years in a row, and entries have been dropping steadily. Therefore the Executive Council decided not to do a Show.

Now comes the part where you can help out. We would love to do a Show next spring, but we need someone to step forward and volunteer to be Show Chair. It needs to be someone who isn't already doing something else for the club as it is a big job. So big that we made the Show Chair an automatic member of the Executive Council so we can all be kept up to date on the planning and progress. There will be plenty of hands to help and plenty of us to guide and assist where we can, but someone needs to "lead the charge", so to speak. If you are interested, we need you to step forward by late June or early July at the very latest. The sooner the better. After early July, it will be too late to book the weekend, many potential speakers will already be booking events for next spring, and we'll probably be looking at doing either another Weekend Workshop next year, or even just doing the Banquet and the Annual Spring Auction. If you are interested in the job and want to know more, give me or Gary Lange a call or talk to one of us at the meeting. If you've been looking for a way to really get involved in the club, this is your big chance.

...and for now, 'nuff said...

Altolamprologus calvus - Tanganyikan Funk

By Cory Koch

I suppose some would argue that all of the cichlids of Lake Tanganyika are "Funky" in their own way, however I doubt many will disagree that the Alto lamps are some of the "Funkiest" freshwater fish around. I use the word funky affectionately of course, meaning if Disney were to make an animated film about the fishes of Lake Tanganyika only a guy like Samuel L. Jackson could do the voice of the Altolamprologus Calvus any justice.

Altolamprologus Compressiceps and Altolamprologus Calvus are very similar fish and were once considered a single species. Pierre Brichard had both A. Compressiceps and A. Calvus in the same bucket while collecting and "discovered" a new fish. Brichard noticed that the two altolamprologus in his collection bucket were subtly different and took several specimens to Poll to prove it. Altolamprologus Calvus was recognized as a different species by Poll in 1978. Apparently the word calvus is Latin and translates into "baldy" as the A. Calvus lacks scales on its head and A. Compressiceps does not. The Calvus is in my opinion also a bit sleeker and streamlined than the "Comp", making it the more attractive of the two.

Both fish are laterally compressed, allowing them unique access to crustaceans and the eggs and fry of other substrate spawning cichlids found in the rocky sediment covered shorelines of the lake. Many of these fish seem to recognize the Calvus as an egg thief and will take an aggressive stance towards A. Calvus even when not protecting fry. The Calvus will respond to these attacks by turning its body and arching its back to expose the sharp scales on its flank. Attacking fish lose interest very quickly when faced with these prickly scales and the Calvus is none the worse for wear.

As a roaming solitary fish, A.Calvus claims no territory and is not the least bit aggressive unless spawning, making it a very popular fish for the Tanganyikan community tank (despite its habit of dining on fry!), Calvus will lazily pick at the cracks and crevices of any rock work in the tank looking for food. The fish will form temporary pair bonds when spawning time comes.

While doing some research prior to purchasing these fish I learned that A.Calvus are substrate spawner's. I also read accounts of the fish using caves and crevices as spawning sites so, I set up a 29 gallon tank using several clay flowerpots with 3-4 inch slits I cut out of the pots (using a Dremel rotary tool fitted with a ceramic tile cutting bit) to provide the Calvus access. Two barnacle clusters and several large muffin shells with 3-4 inch openings were also placed in the tank to maximize cave space and provide multiple options. The tank was filtered using a Marineland Bio Wheel 330. The temperature was kept at 78 degrees using a submersible heater. I also used about an inch of black and white sand for substrate; lighting was a single fluorescent strip on a timer for 12 hours a day. My tap water is rock hard with a PH of about 8.5-9.0 so it is very similar to that which the fish came from in the lake.

I obtained a wild caught trio of "ink fin" Calvus through an importer/breeder of African fish, and we arranged to ship the fish via air cargo. I was initially leery of shipping fish via air cargo; however the importer/ breeder assured me that it was actually the most cost effective and fastest way to ship fish. He explained that the fish would only be in bags for 6-8 hours opposed to over night. Sounded good, besides I liked the idea of simply picking the fish up on the way home from work as opposed to having to take a day off and wait for FEDEX or DHL. By the time I was on my way to pick up the wild calvus I was familiar with the entire process as I had picked up a few fish shipments via aircargo. It's always fun to tell non fish people I am going to the airport to pick up live aquarium fish, someone will usually ask if the fish are flying first class, or if it counts towards frequent flier miles!

The plane was scheduled to arrive in St. Louis at around four p.m., meaning I could possibly have my fish as soon as five, however on this particular trip the airline lost my fish, and after waiting around the airport until almost 8pm, I headed home (lesson learned, now I call ahead to make sure my fish arrived on time *before* heading to the airport) empty handed. The clerk at the air cargo desk took my phone number and promised to call me when the fish arrived. My phone finally rang at 1:30 am, the package had arrived! I got dressed and headed down to the airport once again, reassuring my wife on my way out the door that yes I realized what time it was and No I was not *completely* insane.

Once I got the fish home I immediately set up a drip acclimation line and opened the bags into a five gallon bucket. The first thing that struck me about the fish was the size difference between the male and the two females. The male was easily twice as large as the bigger female. He is probably a good six inches while the females are about 2.5 and 3" respectively. Altolamprologus Calvus are monomorphic and the only real indication I had regarding sex was this size difference. The laterally compressed body of A.Calvus, combined with its sloping snout and large powerful jaw line make it one of the more interestingly shaped fish in the lake. Combine this with striking black vertical barring over a creamy dark brown body spotted with small white dots and jet black paired fins make this fish a total knock out visually After acclimating the fish for about an hour I put them in to the 29 gallon tank that I had prepared for the calvus' arrival and went back to bed.

The Calvus trio quickly adapted to their new surroundings, and eat everything that I offered in the way of food. Live black worms, frozen myssis shrimp, and New Life Spectrum pellet foods were all attacked with gusto. Within the week I had my first spawn. The smaller female laid the first batch of eggs in a large muffin shell, the shell was large enough for her to fit into but the male had to lay over the opening to fertilize the eggs as he was much to large to fit inside. About four days later I saw the fist signs of wigglers inside the shell. The wigglers were situated deep within the shell and I only caught a glimpse using a flashlight before the female darted back into the shell and obstructed my view. The normally mellow male also rushed towards the glass gills flared and fins up. Apparently he did not appreciate my big fat head that close to his progeny! I never saw any free swimming fry from this batch and speculate that the female ate them. I saw very little of the larger female during this time and do not

think she could have possibly gotten close enough to the shell do any damage to the fry with parents on such high alert.

About a month later the original pair was again guarding wigglers, however this time the female chose to lay them inside one of the barnacles that I had placed high in the tank. This provided much better viewing for me than the shell, and I was able to see about a hundred wigglers. The wigglers developed into free swimmers over the course of the next few days but remained inside the barnacle. I attempted to shoot some freshly hatched baby brine shrimp towards the barnacle opening, but was unable to get a very good concentration inside. This is when I saw the female eat one of her fry. I continued to watch and saw her eat another! I decided to step in and siphoned water into a five gallon bucket, once the bucket was about $\frac{3}{4}$ full I reached into the tank and removed the entire barnacle cluster, being careful to keep the section that contained fry full of water. I placed the barnacle and fry into the bucket and replaced the original barnacle with another that I had left over from my original purchase. After much initial pouting the male did eventually breed again with both females in the replacement barnacles. He seems to go back and forth between females on a month to month basis, and now I simply trade barnacle clusters as soon as the fry reach free swimming size. This seems to be the best method for fry survival I have found, however sometimes I take a few nips from the male who seems to catching on to my little trick

Raising the fry was another great learning experience. The fry were placed into a bare 10 gallon heated tank with water from the breeding tank and a seasoned sponge filter. Calvus fry have a very interesting approach to survival; they simply lie on the bottom of the tank and do not move. At all. They spend no time whatsoever chasing baby brine shrimp or microworms, the fry wait for food to come to them. The older they get, the more active they become, and after about three weeks I began feeding the fry crushed pellet food. I learned that A.Calvus fry do not care for water changes, after my initial 25% water change I lost about half of my first batch of fry. The water was aged and treated in a 55 gallon drum I keep heated in my fish room. In other words the very same water I use to change water in the other tanks everyday. None of the fish in the other tanks that I performed water changes on that day showed any problems (including *Cyprichromis Leptosoma* and *Lamprichthys taganicanus* fry) whatsoever, and they all got water from the same source. I decided something must be polluting the tank so I performed another 25% water change the following day and got the same results...dead fry. I only had six fry left at this point so I removed the dead and left the tank alone. The remaining six fry did well with only occasional water changes. It seems that the older the fry get the better able to cope with water changes they become because the original six are now up to about 30% water changes per week and doing fine. Subsequent batches have been left in spawning tank water with only minimal water changes for the first month and fry loss has been zilch. *Altalamprologus* fry are very slow growers and it can take upwards of six months to get these fish up to an inch long, so patience is required on the part of the fish keeper.

The variety of A. Calvus I am keeping is called a black "ink fin" by the importer, however there are several other varieties out there, including a white calvus, yellow calvus and several versions of the three main colors that are collection location specific, and more being discovered all the time. With its stunning looks and casual cool attitude I am certain *Altalamprologus Calvus* will remain one of the "funkiest" fish around for quite some time.

The Elusive Freshwater Pipefish *Syngnathus scovelli*

By Mike Hellweg

The Freshwater Pipefish has almost mythical status among livebearer enthusiasts. There are about a dozen species worldwide that are found in freshwater on a regular basis, but only one species in North America fits that bill – *Syngnathus scovelli*. This fish is pretty rare in the hobby and is almost never available commercially except as by catch from some of the Florida collectors of *Hippocampus zosterae* – but those are marine populations.

My good friend BG Granier sent me a group of wild caught freshwater adults and juveniles a couple of years ago. They came from a place on the north end of Lake Ponchartrain known as Bayou Lacombe, which is almost pure freshwater. Lake Ponchartrain is a huge estuarine lake to the north of New Orleans, and is fairly brackish, with some tidal influence via the Rigolets, a strait or canal on the eastern end of the lake that connects to the sea. The salinity drops considerably in the northern and western ends of the lake due to the influx of many streams and rivers.

BG challenged me to keep them going and get them to spawn. With some research and some effort, in addition to his excellent packing and shipping skill, I was not only able to keep all of them alive, but I was also able to get them to grow, spawn, and even raise 2nd and 3rd generations. There was a bit of experimentation and some trial and a lot of error, but these hardy fish not only withstood my mistakes, they rewarded my successes with fry – lots of them!

To save space, I'll skip the mistakes and just get right to what worked for me. Keep in mind that this was specifically a “freshwater” population from one particular area. These techniques may or may not work with populations from other areas. From my research I discovered that they occur from coastal southern Georgia all the way along the coastline of the Atlantic and Caribbean to Brazil. Most of the known populations do not reproduce in freshwater, though they are frequently found there. Only the Louisiana population appears to regularly occur in, and reproduce in freshwater. There is even a rumored totally landlocked population in Louisiana, but there have been no documented collections from that site since the 1960's.

Anyway, I set up a 10 gallon tank with a layer of crushed coral on the bottom. I filled it with hard, alkaline water (pH 8.0, total hardness 450 ppm, about with about 400 ppm of that coming from calcium carbonate). Later, I rotated water changes with 100% seawater, 100% freshwater and a 50/50 mix to mimic the seasonal fluctuations in coastal Louisiana. Whether necessary or not, I don't know. But it did work for me. They really perked up after each water change, whether fresh, marine or somewhere in between. There was no rhyme or reason to the changes; I just made sure each change was different from the last.

The tank was set up outside of the fishroom in a room that received filtered natural daylight – no direct sun. But I noticed without the slow increase in daylight that came from the natural light (such as when in the fishroom under lighting that came on with a timer) they did not perform their morning greeting ritual. Without this ritual, they do not reproduce.

I tried various live grassy plants to mimic the Vallisneria and Turtle Grass beds where they are normally found in the wild. None of them, even the plants from Lake Ponchartrain, did well for me. So I added about 2 dozen plastic Jungle Val plants with an open area left in the front of the tank. This open area is where they performed their morning greeting. I added a group of Olive Nerite snails to help control the algae. They are also found in both full freshwater and full marine water, and they move between the two. When there were fry in the tank, I also added Java Moss from other tanks.

The tank was filtered with a sponge filter, and kept at room temperature which fluctuated between 68 and 78 degrees over the course of the year. No heater was used. 50% water changes were done weekly, as described above.

I fed them almost exclusively live foods. They only went after one frozen food, as described below, and that was only fed occasionally. They need to be fed every day, as their exoskeleton prevents them from storing too much fat, and they have a rudimentary stomach. I fed newly hatched brine shrimp daily, alternated with a second feed of Daphnia, Moina, Grindal worms, and occasionally Mikroworms.

They developed a routine for feeding that showed some intelligence, or at least an ability to learn about the local conditions. Instead of hunting the food, they would gather in the Val around the sponge filter and wait until it brought the food to them! After a few hours, they would again be scouring the tank looking for food. But at feeding time, they always moved to the area around the sponge filter. This gave me the idea to try frozen and freeze dried Cyclops. They went for it as long as it was moving in the current. As soon as it settled down to the bottom, they ignored it.

Mating occurred frequently during the morning greeting ritual. At most times, there was at least one gravid male in the colony. As far as I could tell, only one female spawned with all of the males. She would turn coal black each morning, balancing upright on her tail in the open area, just as it started to grow light. The bright silver "Y's" on her flanks would seem to glow. At other times they are only barely visible. The males would turn lemon yellow and move one at a time into the open area and also balance on their tails parallel to the female, almost looking like the number 11. They would spend a minute or two looking each other up and down, and then rise up into the water. Sometimes they would mate, other times the male would then just swim away.

Mating is a quick affair, with just a brief touch of the bellies. The female inserts several eggs into the male's pouch, where they are fertilized. The male then moves off and another male takes his place. Sometime several males participate, sometimes only a few. But it appears that the greeting takes place each morning. Only the largest female participates. The others just watch from the plants. Every time I was up that early and watched, they did it. Interestingly, the gravid males often participated in the ritual as well. Sometimes they even mated with the female. There have been many males collected in the wild with more than one batch of eggs in their pouch in different stages of development, so it appears that this behavior is not uncommon.

Contrary to popular belief, the male does provide some nutrition to the developing embryos, along with allowing for some gas exchange and some waste removal from the eggs. The mechanisms for this are only now beginning to be studied, so I'm sure more information will come along as the years go by.

Fry are born about two weeks after mating, early in the morning. I always found fry; I never witnessed the actual delivery. Fry are miniature copies of the adults, about 3/8ths to 7/16ths of an inch or so in size. They are ready to feed fairly quickly after birth, and are ravenous eaters. The adults appear to ignore them, and I never had a problem with predation.

Fry feed on newly hatched San Francisco Bay brine shrimp, which are smaller than the Utah brine shrimp. I don't know if they will feed on the Utah right away or not. I have not tried. They will also take vinegar eels, Mikroworms, young Daphnia, young Moina, and one other little tidbit.

The Olive Nerites will lay eggs in the tank. Unlike most other snails, Nerites have free swimming larvae. They swim up to the surface and gather under the lights. With a good sized population of Nerites, you will have their larvae on most days. The young Pipes will find them and spend hours munching them near the surface. This became so common that I left a couple of the Vals floating so they had some anchors near the surface and didn't have to waste a lot of energy swimming.

The fry grow quickly, reaching about 1" after a month, and reaching their adult size in about 6 months to a year, depending on how frequently you change the water. They start reproducing at about 8 months. Batches for young males are usually about a dozen or so fry. Larger males have given me

nearly 100 fry, and some wild collected males have been reported with as many as 190 embryos. A normal batch, though, is about 30.

I've passed out hundreds of these guys to more than two dozen other hobbyists, including some very advanced breeders, and so far NOT ONE has succeeded with getting them to spawn. I've explained everything that I did, even given them copies of articles that I've written about them, and still not one of them has succeeded. Follow up conversations have indicated that NOT ONE of them has followed all of the steps above – most of them have tried to cut corners, kept them in the regular fishroom with lights on a timer and no exposure to daylight (hence no greeting ritual and no spawning!), not fed them live foods every day, not done regular water changes, not kept them with enough (or any) plants for anchors, etc.

These amazing and unique animals require dedicated care. They cannot be maintained long term unless you are willing to go the extra steps to provide for their needs. They are not for the casual aquarist. Success requires planning and effort on your part. If you want to give them a try, by all means do so. But realize what you are getting yourself into and plan ahead.

For more information about these and other livebearers, consider joining the American Livebearer Association. You can get more information, and even join online, at www.livebearers.org or by writing to:

American Livebearer Association

Timothy J. Brady
 Membership Chairman
 5 Zerbe Street
 Cressona, PA 17929-1513
 (570) 385-0573 (H)
 (570) 385-2781 (FAX)

HAP Report

Mike Hellweg

Member	Species	Common	Rep	Pts	Total
March/April '06					
Jerry Jost	Anubias barteri barteri	Common Anubias	IB	20	800
Jerry Jost	Limnophila sp. hippuroides	Redleaf Figwort**	V	10	800
Charles Harrison	Echinodoras sp. bartii	Red Leaf Sword	V	15	395
Jack Berhorst	Bacopa* myriophylloides*	Needle Leaf Bacopa*	V	10	135

*=Temporary Identification pending proper i.d.

**= MASI First

**R&J
FISH
FOOD**

**JIM
314-638-1134**

BAP Report

Steve Edie

Member	Species	Common	Pts	Total
Mar 2006				
Charles Harrison	<i>Ancistrus</i> sp. "Albino"	Albino Bristlenose	10	1301
Cory Koch	<i>Thorichthys meeki</i>		10	85
Gary McIlvaine	<i>Gambusia affinis</i>	Mosquito Fish	5	61
Gary McIlvaine	<i>Gymnogeophagus meridionalis</i>		10	71
Gary McIlvaine	<i>Pterophyllum scalare</i>	Dark Marble Angelfish	2	73
Gary McIlvaine	<i>Pterophyllum scalare</i>	Gold Angelfish	2	75
Gary McIlvaine	<i>Xenotoca eiseni</i>	Red Tail Goodeid	15	90
Gary McIlvaine	<i>Xiphophorus variatus</i>	Blue Parrot Variatus	5	95
Apr 2006				
Jack Berhorst	<i>Xiphophorus helleri</i>	Swordtail	5	120
Charles Harrison	<i>Chromaphysemon alpha</i> , Cap Santa Clara – DNA-01 *		20	1321
Charles Harrison	<i>Archocentrus spilurus</i>	Cutter's Cichlid	10	1331
Charles Harrison	<i>Pseudepiplatys annulatus</i> , Monrovia	Clown Killie	15	1346
Charles Harrison	<i>Epiplatys lamottei</i> , Koule GRL 90/178 *		15	1361
Charles Harrison	<i>Scriptaphysemon schmitti</i> , Juarzon *		20	1381
Mike Hellweg	<i>Apistogramma baenschi</i> *	Inka Apisto	20	2409
Mike Hellweg	<i>Apistogramma macmasteri</i>	McMaster's Apisto	15	2424
Mike Hellweg	<i>Heterandria formosa</i> "Gold"	Golden Least Killie	1	2425
Mike Hellweg	<i>Inpaichthys</i> sp. "Red Fin" *	Red Fin Emperor Tetra	20	2445
Mike Hellweg	<i>Neolamprologus similis</i> *	Big Eye Shellie	15	2460
Mike Hellweg	<i>Poecilia reticulata</i>	Blue Albino Guppy	1	2461
Mike Hellweg	<i>Poecilia reticulata</i>	Japanese Glass Metalhead Guppy	1	2462
Lawrence Kent	<i>Julidochromis ornatus</i>		10	80
Cory Koch	<i>Neolamprologus calliurus</i> *		15	100
Gary McIlvaine	<i>Betta splendens</i>	Red Siamese Fighting Fish	10	105
Gary McIlvaine	<i>Poecilia reticulata</i>	Half Black Red Guppy	1	106
Gary McIlvaine	<i>Pterophyllum scalare</i>	Koi Veil Angelfish	2	108

Gary McIlvaine	<i>Pterophyllum scalare</i>	Double Dark Black Veil Angelfish	2	110
Rick Tinklenberg	<i>Benitochromis</i> sp. "Eseka" *		20	1020
Rick Tinklenberg	<i>Limia melanogaster</i>	Black Bellied Limia	5	1025
Rick Tinklenberg	<i>Pelvicachromis</i> sp. "Blue Dorsal" *		20	1045

* = First MASI species spawn (5 point bonus)

** = First MASI genus spawn (5 point bonus)

*** = First MASI family spawn (5 point bonus)

A Small Package: *Corydoras hastatus*

by Bob Berdoulay

reprinted from Dec 04 *Gravel Gossip* of the Diamond State Aquarium Society

Corydoras hastatus is a diminutive catfish (the smallest Cory attaining a length of about 1 inch as an adult). It has a body color of pale gray-tan dorsally and white on the ventral half. A faint thin black lateral band starts at the head and ends at the caudal peduncle (in juveniles this band is more pronounced). There is a large black spot trimmed in white at the base of its tail. The white and black extends into the tail fin. The male is more slender than the female and a bit smaller; his dorsal fin is slightly pointed when compared to the female's. This Cory was originally found in the Rio Guapore of Brazil and was first described by Eigenmann in 1888.

I came across this small Cory when visiting the Aquarium Center in Randallstown, Maryland. I purchased six of them and brought them home. I set them up in a well-aged 10-gallon tank. The water parameters were a pH of 7.5, a dH of 2, and the temperature was 77° F (25° C). The bottom was covered with dark, smooth gravel, one small flowerpot, and planted with *Anubius* and Java Moss. I had read that *C. hastatus* is a mid-water swimmer but mine spent most of the time sitting on the gravel or the *Anubius* leaves. They ate everything offered from Hikari sinking wafers, brine shrimp nauplii, crushed flakes, and some chopped black worms. I had to cut up the black worms since they were twice as long as the Corys were. The fish grew and filled out nicely, as they matured the size difference in the sexes became quite noticeable.

I must admit that I was a little disappointed when after six months there was no sign of the typical Cory spawning activity. The only activity I noticed was their occasional swimming about the tank and their feeding actions. Other than that they just laid about the tank. About this time I kind of ignored them although they were still fed and water changes were made.

About three months later I purchased some new fish and was transferring the *C. hastatus* to another location so I could use their tank. After moving the six Corys to their new site I noticed some rather small creatures snuggled down at the roots of the plants. What to my wondering eyes did appear but some babies. There were 5 young *C. hastatus*. They were of two different sizes so I assume survivors of different spawnings. The smaller ones were of darkish coloration and mottled with spots. The others were identical to the parents except for their smaller size. I could not believe it. I had carefully looked everywhere for eggs during the previous six months, on the glass, on the pot, on and under the plant leaves...nothing was there. I have no idea where the adults had deposited the eggs.

After this discovery I began watching the *C. Hastatus* adults with a little more care. About a month after the move I noticed one female seemed thicker in the middle and one of the males followed her around the tank. She seemed to be cleaning various sites, glass, plant leaves, and a few stones. This being typical prespawning behavior of Corys I kept an eye on them over the next few days. The behavior abated in 3 days with no eggs in sight. A day later I pulled out one of the plants and did a thorough inspection. There under the rear-most leaves of the *Anubius* were some really tiny eggs (about 1 mm in diameter). The eggs had a slightly milky to clear color. I replaced the plant, eggs and all. If the fry I had originally survived, I figured the adults did not bother the eggs or fry. (Wishful thinking?) Well, it worked. The eggs hatched in 4 to 5 days. About 30% of the eggs failed to hatch. The fry were surprisingly large (5 mm) when you consider the size of the eggs. They were a grayish color with dark spots. I assume at first they fed on the infusoria on the sponge filter in the tank. A few days later I put some microworms in the tank. Within 3 weeks the fry began to resemble the adults in coloration and were growing nicely.

Corydoras hastatus is a tiny but pleasant member of the Cory family but if you're keeping small fish and wish to add some catfish, this one is a good choice.

Editor's Notes

Steve Deutsch

Congratulations go to Lawrence Kent for winning the first Ralph Wilhelm Writing Award, for his article *Finding Cichlids in Lake Tanganyika Turns out to be...Not-so-Hard*. This is a \$100 prize that will be awarded annually. All articles are automatically entered. I'd like to have as many different authors in the running as possible, so that leaves us three issues to get your article in the running.

We have four articles from MASI members this month, and four exchange articles. Hopefully there is something for everyone. We have the first two of a series of livebearer articles from Mike Hellweg, part 2 of Gary McIlvaine's series on angelfish, and a family contribution from the Koch's - an article from Cory and a cover from Chance, both on *Altolamprologus calvus*. Cover art is always welcome, as are articles.

The next article deadline is June 15 for the July August Darter.

Member Classifieds

Charles Harrison (314) 894-9761, csharrison@inkmaker.net -
OTO Chlorine test kit, 4 ounces \$12.50 last for about 2 years, detects traces of Chlorine in tap/tank water, and other "Chemicals for the Fish hobby"

Steve Weissman (314) 77-8263 sweissma@earthlink.net
Moving, free to good home: 3 year old glass tank 36x12x16, hood, light, filter, heater, good condition. You pick up.

MASI Members can place a classified ad in the Darter for free. Ads may be up to 30 words in length. Send your ads to the editor. The ad will run for one issue unless you specify how long to run in, in which case it will run as requested.

The Computer Page

Steve Deutsch

MASI's official web page: www.missouri-aquarium-society.org

Addresses are only printed with permission of the owner. If your address is not printed and you would like it to be, please email me at fishfan@i1.net. If you would like yours removed, or if it needs correction, also please email me.

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Micropoecilia minima - The Dwarf Livebearer

By Mike Hellweg

Swimming in the shallows of the rivers in the Brazilian state of Para is a tiny livebearer only recently described to science (1997) and not often available in the hobby. *Micropoecilia minima* are found in the Rio Guama basin along the northern coastline. It is very similar in color to its close relative, *Micropoecilia branneri*, though it is much smaller. There are some morphometric differences as well, but those would be difficult to distinguish for the average hobbyist. Adult size is the easiest way to distinguish the two species.

Male *M. minima* barely top five-eighths of an inch, and females almost never reach an inch. In contrast, *M. branneri* are double the body mass of *M. minima*, or even larger. Male *M. minima* have a large black blotch at the base of the caudal fin, often reaching as far forward as halfway between the back base of the dorsal fin and the caudal fin. It is usually slightly triangular in shape. There is a bright red color blotch and a bright yellow color blotch above the black blotch, and there are usually 3 or 4 dimly visible bars in the area immediately behind the pectoral fin. At times these really stand out, and at other times they are almost invisible. Males are usually a gray brown color, but they sometimes have an overall golden sheen, and the dorsal fin of the dominant male can trail back to nearly reach the caudal fin. Females have a couple of dim stripes behind the pectoral fin on their gray bodies, and have the same black blotch as the male, but at least my females never showed any of the gold or red coloration.

M. minima are soft water fish, and do best in water with a pH below 7. A few American hobbyists have reported them to be fairly delicate, but I would bet that this is due to their being kept in hard, alkaline water as we often do with most livebearers. I found them to be fairly hardy in my colony, which was a 20 long with a sponge filter and a box filter filled with floss and peat. This kept the pH near 6.4 and the total hardness pretty low at about 60 ppm with almost no measurable carbonates. Their home away from home was heavily planted with *Cryptocorynes* and had a layer of Water Sprite on the surface. The tank was on the top row in my fishroom, with tank temperatures fairly constant in the low 80's. One severe cold snap froze the damper on my fishroom humidity control system open allowing sub-zero air into the fishroom. The room temperature dropped to 50 degrees overnight. Their tank temperature plunged to about 68 before I discovered the problem and I lost the entire colony. So I would suggest keeping them warm, or at least protecting them from severe temperature swings over a short period of time.

The colony was fed on newly hatched brine shrimp, Grindal worms, mosquito larvae (which I no longer collect due to my neighbor's concerns about West Nile), Hikari Micro Pellets, and finely ground flakes. They ate everything ravenously. They shared the colony tank with a group of *Corydoras pygmaeus*, which regularly spawned in the tank. They ignored both the Cory eggs and the Cory fry. Interestingly, while the temperature change killed the *M. minima*, it induced a huge spawn in the Corys. Ah, well...

Like many small livebearers, *M. minima* drop only a few relatively large (in comparison to the size of the female) fry at a time. Fry are about a quarter inch long with the black blotch already prominent.

Considering that their mothers were between three quarters of an inch and just shy of one inch long, those fry were huge. It appeared as though there were only 2 or 3 fry dropped at any one time. Broods were always small, and even with a dozen adult females there were never more than a dozen or so newborns in the tank. A Brazilian hobbyist website reports superfetation in this species, with one or two fry being dropped every couple of days for a week or so. It would not surprise me if this were true, as Costa and Sarraf described finding adult females with fry at different stages of development in their body cavities. I did not witness any births myself, and since I had several females in the colony that

were dropping fry at nearly the same time it was impossible for me to tell how many fry an individual female was dropping at any one time.

If you get a chance to keep this miniature gem, go for it. Just remember that they prefer warm, soft, acid water and you should have a good chance of succeeding with them.

Reference: *Poecilia (Lebistes) minima*, a new species of neotropical poeciliid fish from the Brazilian Amazon by Wilson J.E.M. Costa and Alessandra Sarraf, *Ichthyological Exploration of Freshwaters* Volume 8, no. 2, pp 185-191

For more information about these and other livebearers, consider joining the American Livebearer Association. You can get more information, and even join online, at www.livebearers.org or by writing to:

American Livebearer Association

Timothy J. Brady
Membership Chairman
5 Zerbe Street
Cressona, PA 17929-1513
(570) 385-0573 (H)
(570) 385-2781 (FAX)

Club Hopping

Steve Edie

May 26-28 – Tampa: American Killifish Association – Annual Show

July 19-23 – Chicago: American Cichlid Association – Annual Show

Aug 13 -- St Louis: Missouri Aquarium Society – Summer Auction

Sept 17 -- Chicago: Greater Chicago Cichlid Association – Auction

Oct 1 -- St Louis: Missouri Aquarium Society – Swap Meet

Oct 14 - Cincinnati: Greater Cincinnati Aquarium Society – Fall Auction

Oct 20-22 – Laurel, MD: Potomac Valley Aquarium Society - All Aquarium Catfish Convention

Oct 22 -- Chicago: Greater Chicago Cichlid Association – Swap Meet

Nov 17-19 – Strongsville, OH: Ohio Cichlid Association – Cichlid Extravaganza

Nov 19 -- St Louis: Missouri Aquarium Society – Fall Auction

Nov 19 -- Chicago: Illinois Cichlids & Scavengers – Auction

Nov 26 -- Chicago: Greater Chicago Cichlid Association – Swap Meet

How I Spawn Angelfish - Part II Spawning Behavior

By Gary McIlvaine

In my last article I described how I get Angels into Spawning condition. I want to again say I know there are thousands of ways to do things, and I am just letting you in on what I do. It's not to say that my way is the best way. It is simply the way I do it. If you know of better ways, or some suggestions for your fellow Darter subscribers I urge you to write an article as well.

One of the things that I feel makes for a successful hobbyist is the willingness to "play" with your fish tanks. I do not speak of a game when I mean play, but that's what we call it around my house. I maintain 40 tanks. It is not unusual for me to spend 30 hours with my fish in a weeks time. This would involve doing anything fishy, including writing an article for my favorite publication the Darter. I know a lot of you are thinking wow that's a lot of time, I don't have that much time to spend with my fish. But, I spend 3 hours a day and a couple days I mess with them for 8-10 hours. I also do other things in this time, like laundry., listen to music, or catch a Cardinals Game. Anyway the point of me telling you how much time I spend with my fish is to let you in on one of the major pillars of my fish hobby, and that is time observing behavior.

Angelfish are one of the species of Cichlids that show paternal care from both parents. This paternal behavior was what first allowed me as a 10 year old to talk my parents into letting me have a 7 tank setup. It is fun to watch them guard their eggs. I can not, nor have ever really tried sexing my angels. I really am the patient type and would rather have my fish pair off naturally, or at least as naturally as I can mimic in my home conditions. I do know the difference in the pair once they have spawned and basically the feeding tube on the female is noticeably bigger than the males.

Angelfish will eventually start guarding a territory. I have noticed it is usually what later turns out to be the male that is the real aggressor in this situation. I also have observed in community tank settings the angelfish are not as concerned about the other non-angel inhabitants until it gets close to spawning time. The majority of their aggression is displayed towards the other angelfish in the tank. I also feel it is important to point out that I mostly keep guppies, tetras, corys, plecos, and other species of common live bearer's with my angels. The fry the live bearer's are obviously gobbled up by the angels, but this is on purpose. I have observed that when Angels have some small fish in their diet, it usually triggers spawning. I have had several stubborn pairs over the years and sometimes the thrill of the hunt is what they need to get the juices flowing.

I place several spawning slates in my angelfish pairing off tanks, but I have angels spawn all over. This includes the glass, heaters, filter intake pipes, and various other decorations I have owned. This is also why I use spawning slates, because if you are going to hatch the eggs artificially it is easy to remove the eggs. I get my spawning slates from Angels plus, their price per slate is around \$2.00. I also have found them to be exactly what I want in a spawning slate, they look good, are hard to break, and my angels choose the slate over the glass in the tank. I also like to decorate the tank, and provide live plants for my angels to hide in when the behavior gets a little too aggressive.

Eventually you will notice two angels start hanging out together in the same part of the tank, this is it, you probably have a pair. This is also where I would urge caution with the fish, don't change anything at this point. Don't put them in their own 20 gallon, or drastically change your water changing routine, or feeding plan. Let them spawn in the tank where they paired off. This also helps the other angels out that are in tank. I have had tanks sit with angels ready to pair off and then as soon as one pair starts, so do all the others.

Hopefully at this point your angels laid their eggs on a slate, and you have a male and a female. This is where the hard part comes in. Do you hatch artificially? If you do decide to do this I will share with you what I do. I do frequent water changes and I have tried it two different ways and you are not

going to believe which is better (well some of you might). I take a 10 gallon tank. Fill it about half full with water from the tank the parents were in. I place the slate in and some little rocks I have around my fish room to help get the slate angled how I want it. You want to put an air stone blowing the air bubbles on the angelfish eggs. I always have the bubbles from the air stone going directly on my angelfish eggs! If some fall off the slate I don't worry about them. If they are fertilized they will probably hatch. I also always use a new air stone and use a freshly cleaned 10 gallon to house the eggs. I buy air stones by the gross, it is cheaper that way and after they are used in the angel tank, they are used to replace other old air stones I have around. I don't clean them, I just find it's easier to pay \$10 and get a big box of them and replace them as they get clogged. I also add ethylene blue to my artificially hatching tanks, but I don't think it makes any difference really, as I do NOT add it to my tanks that are parent raising their fry and those pairs usually have better hatch out percents than me when I artificially hatch them. I also keep these tanks around 82, as I have found that keeps the hatching time shorter and gets the fry to free swimming faster.

I had read some things on line and finally got the courage up to try this, but now when I hatch angelfish eggs I start with straight tap water. I clean the tank use a new air stone, get my submersible heater in the tank, set it to 82 degrees, and fill it half way up with water straight from the tap. I usually let this water sit for about 4 hours before I actually add the eggs. I don't dechlorinate the water for my eggs. After I add the eggs to the tank and get the air stone situated. I use some clean medium sized rocks to hold the slate where I want it and position it at about a 45 degree angle facing down. I lean the slate against the tank wall. I also don't worry about transferring the eggs. I grab them right from the tank and put them in their new home for the next 3 weeks. I add methylene blue to the tank, but I have read elsewhere this really does not help, but I bought a big bottle of it and I have enough to turn a swimming pool dark blue, so I keep using it, besides I don't think it hurts anything. I also have all my lights on timers and the 10's sit under florescent shop lights and I don't worry about the light at all, I just leave it on it's timing cycle. Now I leave the tank totally alone until the fry are free swimming, this is huge, do not feed your angels until they are free swimming, we want clean water and you have to wait, or you will destroy your fry. At this point do not worry if a few eggs go bad. They will fall off the slate around the 3rd day. I again just leave the tank alone. I have learned when I mess with them is when I have the most losses. About the 6th or 7th day the fry become free swimming. At this point they start eating baby brine at least twice a day. I rinse my baby brine and use a small medicine dropper to add the fresh baby brine to the tank. On their first feeding I try to make sure they eat all the food in 15 minutes, this helps not foul water. While they are having their first feeding I get a mature, though freshly rinsed sponge filter and add it to the tank with the fry. Shortly after their first feeding is when they get their first water change.

What I do at this point is use a piece of rigid air line tubing and attach a piece of airline to it. I then use this to clean the bare bottom tank really well. I like the rigid tubing, because I can control where I want to siphon and it helps me not siphon out any fry. On their first water change I will take out almost a gallon, but I will remove every speck of dirt and fungus eggs this first change. I always wait until they are free swimming to do the first water change as angelfish have sticky glands on their head that keeps them attached to wherever they fall. The fry will also be in a big ball at times attached to one another. I have not found a good way to collect the bad eggs, before they are free swimming.

I slowly drip two gallons of 1-2 day old aged tap water, that's at room temperature to the tank.. I will usually do one gallon and then come back sometime later and add the second gallon. This is part of my routine as well, doing several things slowly. In between times is when I do other chores in my fish room. For the most part I feed live baby brine 2 times a day and siphon out at least a gallon of water everyday, but get all the sediment out. Angelfish are pigs and they can eat a lot of baby brine, and one of the nice benefits of baby brine is that it will live for several hours after being added to the tank, again though I try not to feed too much as I have learned clean water is very important in this stage of the angels life. The first week I do water changes every day as described gradually bringing the 10 gallon

tank level to the top, at this point I start pulling out 2 gallons of water every day and adding 2 gallons of fresh daily.

I also need to mention after their first water change I add a piece of java moss to the tank. After the first water change the Methylene blue does not stain the moss. I also will pick out a few small snails to clean up the tank at this point. Doing these two things have drastically improved the appearance of my water in the fry tanks. I say appearance as my water is crystal clear, and the fry look healthy though I am not sure of my exact water parameters. I leave the fry in these conditions for about three weeks. I do want to mention again I rely on observation. If I find fry that are not doing well I increase water changes sometimes twice daily. Angelfish lay a lot of eggs. I have seen exorbitant claims about pairs that lay 700 eggs and higher, I never can count my fry, but I usually will raise 100-200 angels from a healthy spawn, and angelfish can spawn as quickly as once a week, and you can do the math and realize I don't save every spawn, it's not practical and I never hatch out more than I have room for safely. I do this, because I don't want sick fish. I want my angels to be the best around with straight fins and low mortality for my fellow hobbyists. I also am surprised at times just how many fry you can pull out of a tank from a healthy spawn, so don't be afraid to cull, the resulting quality is worth it.

After the third week I start moving out angels from their original hatching tank. I have various other size tanks, but my favorites for raising my fry are my 29's and 30 gallon breeders. They are the perfect size and with two sponge filters and frequent water changes I can really keep the water clean. All my 30 gallon tanks have at least two sponge filters and I alternate rinsing the filters. At this point the angels are pretty much where they are until I sell them to pet stores, or fellow hobbyists. I constantly monitor tanks for overcrowding, as overcrowding leads to bad fins on the angels, or for that matter any fish. I have tried with a tank of angels that got lethargic to nurse them back into their old selves and it is much easier to just keep conditions right in the first place. (I tried using salt in my angel tanks, they don't like it!!) This is how I raise Angelfish, and hopefully I was able to share with you a few of my tricks. If there is one huge piece of advice I want to pass along it is to be proactive in your fish keeping. Keep ahead of your water changes and tank maintenance. It makes all the difference and your fish will like you for it.

Why?

by Jeff Clifton

reprinted from Dec '03 / Jan '04 *Tank Topics* of the Greater Akron Aquarium Society

Have you ever asked yourself that question, why? I know I have more than once in my many years on this earth. Usually we ask ourselves the why question when something doesn't go our way or we're mad about something. Too often we ask why we can't be more like so and so or why can't I have so and so's looks. Why can't I have more money, why can't I be more successful or why can't I be like Mike (Michael Jordan commercial, remember?). Most of the time when we ask why, it's because we are envious of something or just feeling sorry for ourselves because in our little minds if things don't go perfect for us, it's not fair. Well all these why questions are nothing compared to the why question I'm about to ask!

If you are reading this article right now, I assume you also are in the aquarium hobby and I want to know why! Have you ever thought about it? That is a why question worth examining, not like all those other petty ones. Ask yourself right now why you do what you do (I'm talking about being in the aquarium hobby...). I have thought about this long and hard, and still trying to find a good reason... Just kidding, but I have given it some thought and it may be for some of the same reasons as yourself that I am into this hobby.

I first want to say that in my life I have had a few different animals as pets (not to mention two kids). I have had and still do have dogs; I've had cats, raccoons, ferrets, birds, turtles, frogs, and a snake for a couple of weeks. So its based on my experience I will try to answer this particular "why keep fish" question.

I am going to compare fish to just a couple of the more common afore mentioned animals to help us answer this question. You can substitute different animals in if you'd like to see the comparison. I don't know how to put things in columns for comparison sake on this small paper, so I'll do it a different way. Sorry. Try to follow along. I will first list the animal and something about it and then the next animal and how that same thing applies to it, etc; this way after it's all done, you'll know "why". :

FISH = come in a wide variety of sizes, shapes and colors, even florescent like.

DOGS = have some variety and different sizes but not nearly the color and are basically the same shape.

CATS = who cares?

FISH = are relatively inexpensive and are readily available for the most part.

DOGS = usually affordable, if not free, except pure breeds which could cost anywhere from \$200.00 to giving up your first-born child.

CATS = who cares?

FISH = only take up as much space in your house as you choose depending on how many tanks you want.

DOGS = need quite a bit of room to run around and exercise depending on the size of dog.

CATS = who cares?

FISH = never ever craps on the floor or pees on the comer of the couch.

DOGS = sometimes do crap on the floor and pee on the corner of the couch if kept in the house. Every dog is different and brain size does matter. Just because it might be a purebred does not mean it is a smart dog! (trust me).

CATS = who cares?

FISH = never makes noises to wake up you or your neighbors day or night.

DOGS = sometimes barks day and night and disturbs your neighbors as well as yourself, sometimes for no apparent reason even.

CATS = who cares?

FISH = when they get sick, they can be treated at home relatively cheap usually.

DOGS = when they get sick, they have to go to the vet and be treated there which is not cheap at all and sometimes require more than one trip.

CATS = who cares?

FISH = If the medicine doesn't work and they die, you can usually flush them with no problem.

DOGS = If they die, you have to go out back and dig a big hole to bury them or find a box and wait till trash day. (burying is preferred).

CATS = who cares?

FISH = when they are in heat, its no big deal and you might even get some BAP points out of it.

DOGS = when they are in heat, it IS a big deal and hide the stuffed animals!

CATS = who cares?

FISH = you don't have to let them outside to do their business or clean up afterwards.

DOGS = you do have to let them outside to do their business and watch your step if you don't clean up afterwards.

CATS = who cares?

FISH = not a problem if you are gone for a weekend or even a week once in awhile.

DOGS = if you're gone you have to find someone to let them outside everyday you're gone. (but what is family for, right?).

CATS = who cares?

FISH = don't have to feed everyday or even up to a week if you are gone without a problem usually.

DOGS = could go a couple days without eating but wouldn't try a week so somebody is going to have to go over and feed them.

CATS = who cares?

FISH = never have to take them to the groomers or bathe them.

DOGS = must be bathed and some dogs have to have their hair cut so you have to take them to the groomers. If you're talented enough, or in my case cheap enough, you may be able to do this at home and avoid this expense.

CATS = who cares?

FISH = hearing the bubbles of the aquarium and watching the fish can actually be soothing to you and lower your blood pressure.

DOGS = can be loud, obnoxious and very disturbing for any number of reasons which raises your blood pressure which in turn could give you gray hair, make you irritable, as well as possibly shorten your life.

CATS = who cares?

I could go on and on and still not hit on everything, but you get the idea. If someone wants a hobby that can fit practically any budget, is low maintenance, relaxing, and easy to get into, then the fish hobby is for them.

Oh, but it too can be frustrating at times, it's not perfect. I was more than a little upset myself not too long ago when I had purchased a pair of zebra plecos and I had big expectations of breeding them but they both died 4 days later! I asked "why?" but that's another story for another day.

This hobby has it's support groups for people like me believe it or not. These support groups meet me first Thursday of every month. It's at these meetings you get reenergized and enthused again and keeps you going. If you are not attending your club's monthly meetings and taking part in the programs given and the special events as well as the raffles we have month after month, you are really missing out!

Don't get all caught up with all the other "why" questions out mere, just know why you have chosen this hobby and never let it go. Promote it and get our young people involved with it so it will continue to grow and it will get even more interesting than it already is now.

The Why and How of Spawning Mops

by Bernard Harrigan

reprinted from Nov 04 *Modern Aquarium* of the Greater City Aquarium Society

Traditionally, spawning mops are used in place of living plants as an artificial spawning site. Hobbyists have utilized them to breed a number of fish, from killies, to rainbows, to goldfish. Spawning mops can also be employed as a protective nursery for fish fry, such as those of livebearers. They can also be used to provide a refuge for females in a breeding setup such as one for bubble-nesting Betta species.

I've even moved a spawning mop from one tank to another, just for its biological filtration properties. Each strand of yarn is loaded with surface area that is colonized by bacteria. There are different bacteria that cut down on the amount of ammonia, nitrites, and even nitrates in the water. I've done this in newly set up tanks, when I had to increase the number of fish in a tank (like when I find I have a leaking tank late at night), or when I have had to completely clean or even replace a filter.

If you want to run out to the pet shop to buy a spawning mop, don't bother. I've never seen them sold commercially. But, I'll tell you how to make one so you can enjoy the "mystique of the mop."

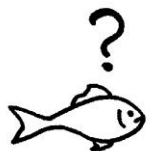
First, buy a skein of yarn made from artificial fibers. Cotton or wool yarn will rot in water. The color of the yarn doesn't seem to matter to the fish. I've seen mops bright yellow, solar orange, cobalt blue, and even fluorescent red. The fish laid eggs in all of them. For my taste, I use browns and greens. I find that they look more natural.

One thing about color that does seem to matter, and that is the shade. Some people remove eggs from the spawning mop and hatch them separately. A darker yarn makes it easier to spot the eggs. The only problem is, it makes it easier for the fish to see and eat the eggs in the mop. I hedge my bets, and use medium shades. This way, I get the best (or maybe the worst) of both worlds.

You wouldn't use the same length mop in a five-gallon tank for killies as you would in a pond for goldfish. Get yourself a book that's about the same height you would like the mop to be. Wrap the yarn around the book 40 - 60 turns for small mops, and 100 or more times for the "big boys." With a pair of scissors, cut the strands along the bottom of the book. Then, cut a small piece of yarn and tie all the strands together in the middle. This will give you equal lengths of yarn on both sides of the tie-off point.

Now you have a sinking mop. To make it float, punch two small holes through a piece of Styrofoam. Leave the tie-off strand long enough to thread through the holes, and tie them together on the other side of the Styrofoam. When you lift the Styrofoam, the strands of the mop will hang down.

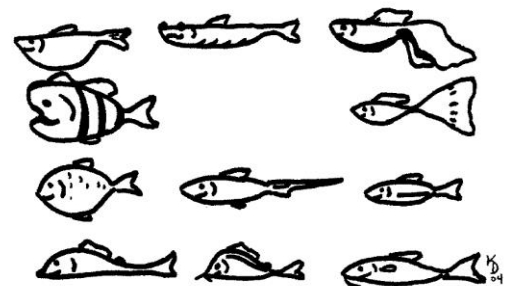
Hopefully, I have peaked your interest in the marvels of the spawning mop. This is nothing more than a beginner's lesson. A craftsman, like our President, Joe Ferdenzi, has taken mop making to an art form. As Joe would say, "Anything worth doing is worth doing well." Just give it a try, and I'm sure you'll agree.



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The Black Tetra

by Bob Berdoulay

reprinted from Oct 04 *Gravel Gossip* of the Diamond State Aquarium Society

I guess I have had a long running love affair with the Black Tetra, *Gymnocorymbus ternetzi*. I have kept them as part of my community tanks since I was a kid (many moons ago). They make pretty good tank mates if kept with fish larger or at least not too much smaller than themselves. Black Tetras will behave better when kept in groups of at least 6 individuals. The Black Widow, as it is known in Europe, originally came from rivers in Southern Brazil (Rio Guapore) and has been in the hobby a long time (1935). The Black Tetra has, since then, adapted to a fairly wide variety of water conditions, although the recommended water conditions for breeding are still a bit more specific. It has been reported that they will often spawn in a range of pH (6.0 - 8.5) and hardness (6-24 d GH). They do not like water that is too warm, preferring about 74° F (23° C). These fish are considered one of the easiest tetras to get to breed. Saying that doesn't always make it so. I know hobbyists who have tried for years to get them to breed and have never had any luck.

To my eye the younger Black Tetras are much more attractive than the older ones. The bodies are basically a silver-gray overlaid with three vertical black stripes. The first stripe runs thru the eye, the second runs behind the gill cover, and the third, midway on the body. The rear third of the body is black to the caudal peduncle. Both the broad anal fin and the dorsal fin are also black; the other fins are clear but most have some black color and are lined in black. The older they get the more the black color fades, the males seem to retain more of the original colors than the females but this may be due to the females growing larger, and broader than the male. Females will grow to over 2" whereas the males attain a little over an inch in length. Besides size, there are a few other differences between the sexes. The male dorsal fin is narrower and less pointed than the female's and the leading edge of the anal fin angles more to the rear in the males. But the best indicator to tell the difference between the sexes is the size. There is a good sexual dimorphism in Black Tetras.

I would assume most aquarists who keep Black Tetras are like me and keep them for their graceful beauty. They do not have the color of some other tetras or killies, they do not respond as some of the cichlids, but they have a sedateness that is calming to watch. To me nothing is prettier than a shoal of a dozen or more of these tetras moving through a well-planted tank with a nice size swimming area in the center. This gives them plenty of room for their sparring among themselves and hiding places if the fun gets too rough. When kept in a tank of their own, or with a couple of *Corydoras* as clean up crew, they are truly neat to look at as they move constantly through their entire environment.

For breeding this type of egg layer I use a ten-gallon tank with water from the original tank about 6 inches deep. There is a plastic needlepoint mat raised slightly off the bare bottom with small half-inch thick plastic pieces glued to the comers of the mat. I usually toss in a wad of Java moss as a substitute for a breeding mop. Add a small, well-aged sponge filter and I'm ready to go. I select what I consider the most gravid looking female and place her in the tank for 4-5 days and feed her some black worms or live brine shrimp if available. If live foods are not available I use frozen food (thawed out, of course). At the end of this period I usually introduce the best looking male. If the pair is in the mood to spawn it usually begins early in the morning and is complete by noon. Here I usually check and see if they have stopped spawning because as with most tetras they are voracious egg eaters. I remove the adults when spawning is over. The eggs can be found in the Java moss but many will have dropped through the holes in the mat. I gently remove the mat and sit back at wait.

This breeding of my Black Tetras was in all measures fortuitous. The fish were in a community tank, the fish were too old, they were only being fed flake foods, and the keeper wasn't paying any attention to these particular fish.

I have had this group of Blacks for over 4 years. With their supposed 5-6 year life span, I just assumed they were too old to spawn. Most publications tell you to use young adults to breed and to feed heavily with live foods. I feed the fish in my community tank mostly TetraMin Pro® with an occasional treat of frozen brine shrimp. A few Hikari Sinking Wafers® are tossed in for the Cory cats. Believe me, nothing special is done. The tank is well planted with a base of small brown pebbles. The pH runs about 7.2 and the water is soft (about 4 d GH); temperature is normally 75°F (23°C). During the summer months the tank temperature gets up to 78°F. Since this spawning took place in August the higher temperature prevailed.

One morning while getting ready to feed the fish I noticed a heightened activity among the Black Tetras. As I watched I saw one female spew eggs towards the top of the tank, a male emitting milt followed this. I, to say the least, was amazed. I quickly siphoned some of the tank water into a spare 5-gallon tank, placed a plastic mat in the tank (bent slightly up) and a handful of Java moss. I netted out the female and placed her in the new setup. It took me a bit to catch the male, but into the new tank he went. Both fish went to opposite comers of the tank and shook for a while. After 10-15 minutes they resumed spawning, spewing eggs and milt all over the tank. This lasted for almost an hour, with the female producing about 10 eggs with every shudder. When they stopped spawning and began hunting for caviar I put the pair back in the original tank. I removed the mat from the spawning tank and could see eggs on the bottom of the tank and in the moss. The eggs were whitish and approximately 1mm in diameter. The water was lowered to a 4" depth and I covered three sides of the tank with paper and put a piece of cardboard on the top. This reduced the amount of light entering the tank. Tetra eggs seem to prefer dark. Six drops of Jungle Egg Guard was added to retard the development of fungus.

The eggs hatched the next morning. Fry were very small, 3-4mm and thin; they were mostly eye and yolk sacs. By the fourth day they were beginning to "hop" around and on day five most of them were free swimming and pecking at the moss and sponge filter. The next day I tried offering them some newly hatched brine shrimp nauplii; most of the fry took up the food as could be told by the orange color of their bellies. Water changes of 20% daily were started at the same time the nauplii were introduced. The fry were now about 6mm in length.

By their 12th day of life the fry had developed a good amount of color. The black showed up as splotches scattered about the body. By the end of the second week the fry were definitely tetra shaped, but not as deep bodied as the adults were, and the black color was more dispersed. This was the time I began introducing them to finely crushed flake food. They were now about 10mm in length. When the fry were 24 days old they were 12mm in length and about 10mm in depth. They really were looking like miniature adults.

At the end of the fourth week I moved the fry to a 29-gallon long aquarium that had been set up a month before. It was aquascaped as an Amazon biotype, well planted, dark gravel, wood branches that were made to look like roots entering the water, and some rock work. The little Black Tetras appeared lost at first but eventually grew into their new surroundings. This is not what I had planned for this aquarium but I must admit they do look good schooling around the tank. Now I have to figure out what to do with over one hundred Black Tetras, as they grow larger.

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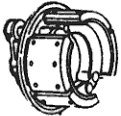
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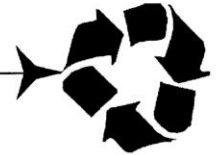
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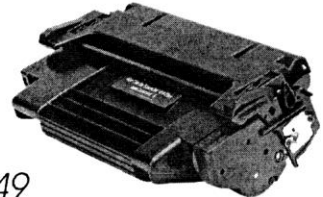
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