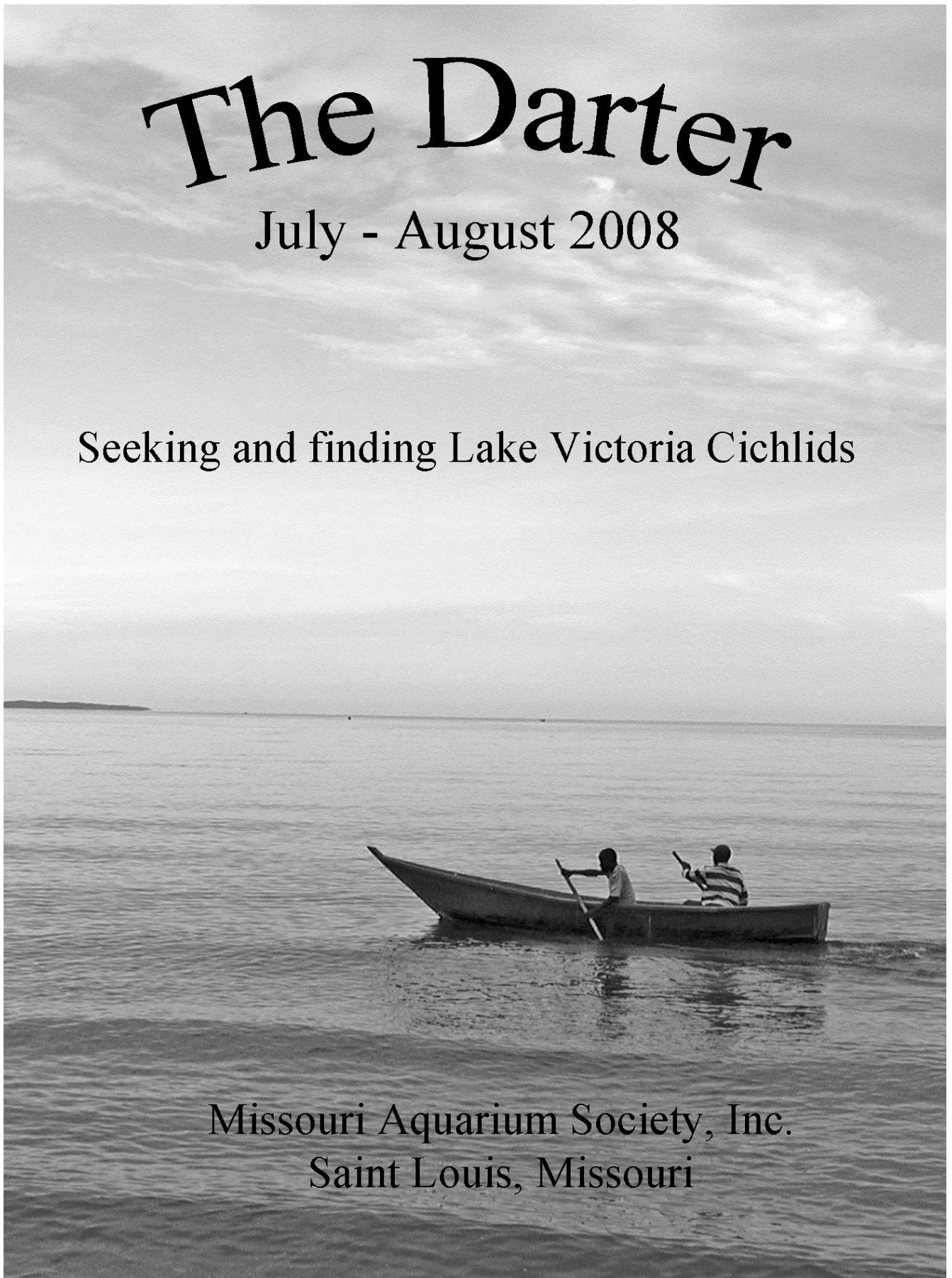


# The Darter

July - August 2008

Seeking and finding Lake Victoria Cichlids

Missouri Aquarium Society, Inc.  
Saint Louis, Missouri



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# Places to Be / Things to See

SUNDAY August 17, 2008

Auction @ the Stratford Inn

THURSDAY August 21, 2008

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

SATURDAY August 23, 2008

Executive Council, 7:30 PM Hosted by Pat Tosie

THURSDAY September 18, 2008

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

SATURDAY September 20, 2008

Executive Council, 7:30 PM Hosted by Steve Edie

SUNDAY October 5, 2008

Swap Meet @ the Stratford Inn

THURSDAY October 16, 2008

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

SATURDAY October 25, 2008

Executive Council, 7:30 PM Hosted by Andy Walker

SUNDAY November 16, 2008

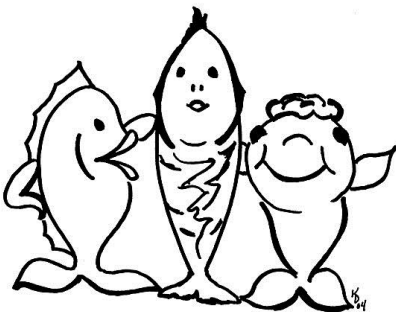
Auction @ the Stratford Inn

THURSDAY November 20, 2008

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

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## *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, [kathy@skdeu.com](mailto:kathy@skdeu.com), or 9 Old Jamestown Ct. Florissant MO 63034

# Presidential Preamble

By Mike Hellweg

Well, you're stuck with me for another year. Thank you all for your support! I would like to take this opportunity to thank all of the volunteers who made the 2007 – 2008 year so successful, especially our Show Chairman Gary McIlvaine (he sure didn't know what he was getting himself into, did he?) and the outgoing members of the Executive Council who served so well over the past year – Roy Brandhorst, Tammy Clemente, and Mark Theby. I hope you all know how much your help has been appreciated!

In addition to their help on the Executive Council, Roy makes sure we have refreshments at every meeting, Tammy helps the auctions to run smoothly and by her careful work there makes our auction reconciliation meetings run much faster, and Mark makes sure the word (and lots of fliers) gets out about all of our society events. I hope you all realize how much they have helped our society run so smoothly. It takes a lot of "behind-the-scenes" work to make everything seem so easy, and a lot of others' hard work to make me look good as the President. Thank you all! I hope we can count on you all to continue to help out in the future.

Welcome to our new Executive Council members: Scott Bush, Kathy Deutsch, and Marlon Felman. I look forward to your input in the running of the society for the next year.

Bart Kraeger, Andy Walker, Steve Edie and yours truly are working on a redesign of our auction system that will hopefully eliminate or at least cut WAYYYY back on the long lines at checkout after the auction ends. We hope to have a test run in the fall, and if all goes well, implement the new system at the November auction.

Speaking of fall, don't forget the October 5<sup>th</sup> Swap Meet is coming up quickly. Contact Bob Buckles (his contact information is on the Masthead page of the Darter) to reserve table space now.

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

## Aquarium Tech Tips pH Meter in a Bottle, Well, Almost

By Charles H. Harrison, Ph D

Keeping an eye on pH in our fish tanks and changing the water may be the two most neglected yet important things we aquarists need to do to keep everything alive and thriving. However, measuring pH, and understanding it well enough to be able to control it with various chemicals are two different things. To say you know what makes pH go up and down often gets you into trouble with certain groups of fish keepers because we all have our own ideas about how to deal with pH.

Education in Chemistry started early for me. As a kid, I had my own bedroom in our house in Wichita Falls. It had been the kitchen of a duplex my parents owned back when I was in junior high. Aside from the usual toys, my first real Christmas present was a chemistry set, a really big chemistry set. I often visited the college in the town and got to know some of the students and professors there, but that is another story. The big thing was the chemistry set, and the instructions and experiments that came with it. I slowly began to fill the cabinets with reagents and glassware instead of dishes and cooking stuff.

Yeah, a really big chemistry set . . . and there was a sink there too.

One of the very first things, which really made an impression on me, was Litmus paper. Yeah, simple blue and red papers that turned the other color when dipped into an acid or base. I had no idea what pH meant at the time. It was an acid or base. It was sour or bitter. It was vinegar or washing soda. I can remember a week in spring of my freshman year in high school picking different colors of flowers and smashing them up in a test tube with wood alcohol to get a colored liquid. I would put a drop or 2 of that alcohol flower extract into the different solutions and WOW, different colors. Mostly like the Litmus paper, flowers are colored red in acid media and blue in basic media. But there were other colors too. Some purple to yellow and some red to yellow.

The color indicator experience has grown into a much different thing over the years. Now there are colored organic compounds, which respond to pH changes by changing color in solution. The chemistry would put you to sleep, so forget that. Suffice it to say that there are some compounds belonging to the Thymol and Phenol complex that make very good acid/base indicators. Their color changes are distinct enough and sharp enough to make them useful to aquarists.

The one that has become most familiar to the aquarists is BromThymol Blue. It is the pH indicator from Tetra, Seachem, Red Sea, and Aquarium Pharmaceuticals, etc., used for simple pH test and KH determinations. The dye is dissolved in ethanol and sold in 1/2 ounce bottles for \$5 to \$8 a kit. Different dyes may also be combined in solution to make color changes more evident at various pH's. The table lists the most frequently offered dyes and their color at various pH values.

BromThymol Blue is most common and covers the pH values seen in most fresh water aquariums.

Compound	Color - pH		
Phenolphthalein	Colorless - 8.0	Red - 10.0	
Cresol red	Yellow - 7.2	Red - 8.8	
Phenol red	Yellow - 6.4	Red - 8.0	
BromThymol Blue	Yellow - 6.2	Blue - 7.2	Purple - 8.0
Methyl red	Red - 4.2	Yellow - 6.2	
Bromphenol Blue	Yellow - 3.0	Blue - 4.6	

One of the good things about pH indicators is that they never need to be calibrated like a pH meter. A bad thing about these dyes is that most aquarists are men, and many men are color blind. Once you are accustomed to the color at the various pH values, it is much easier to see. A little excess dye in the test tube is okay. If the water is very strongly colored though, it is hard to make a determination and you may have to use a meter. The chemicals are cheaper than a meter, but you do use up the drops and will have to buy more.

With a little practice with BromThymol Blue, the aquarists can usually guess the pH with an accuracy of 1/3 pH units between 6 and 8. Sometimes it helps to have a color comparator, which comes with some test kits. So, you need a little straight-sided clear glass bottle that holds about 10 mls. Fill it near the top with water to be tested, leave some shake room. Add 2-5 drops of the indicator solution. Shake it well and take a look against a white background. It's your judgment call.

As far as controlling the pH is concerned, change the water. Nothing does it as well. If you need some BromThymol Blue solution, just ask me.

# Product Review: Whisper In-Tank Filter 3i

By Andy Walker

I went shopping in several local pet stores recently looking for a foam filter for my 10-gallon Cory fry tank. Although none of the stores stocked that type of filter I noticed a Whisper In-Tank Filter 3i on the shelf and it caught my attention because it's an air-driven power filter made for small tanks. Rather than pumping water with a magnetically driven impeller it relies on a tiny air pump (which is provided) to drive water through a mechanical and chemical filter. The principle is the same used to move water through foam or internal corner filters. Air is pumped into the bottom of an intake tube. As the bubbles rise the water that's trapped above the bubbles is forced up the intake tube and into the canister. As the water accumulates in the canister, it flows through a filter element on it's way back to the tank over a spillway, just like the bigger power filters. I measured the head pressure produced by the filter and was amazed that it's capable of lifting a little over one-inch of water. That results in a lot of suction at the inlet. I was concerned about the fry getting trapped in the filter so I used a rubber band to attach a two-inch square piece of filter floss over the intake. This was a much better solution than the DIY foam filter I made using a foam element for a small internal power filter. The pours in the foam were just large enough for the Cory fry to swim into and get trapped. I have no idea how many fry I may have lost due to that design oversight. I know that I saved at least one.

My initial impression is that the filter is a good value at around \$12 for a small tank. The hardware is finished well, snaps together nicely and the suction cups hold the canister securely on the glass. Plus, it's off the bottom of the tank and isn't as unsightly. The manufacturer claims that it can filter up to 20 gals per hour, which seems appropriate for a 10-gallon tank with small number of fry. It gives a little water movement but not enough to disturb the fry by stirring the water too much. Note that the filter element contain charcoal and it can be surgically altered to use other chemical filtering media should the need arise. After a couple of months, I discarded the filter element and replaced it with filter floss. There are other alternatives that are limited only by what you have on hand and your creativity. The fact that you can tailor the filtration to your needs is a huge plus. Moreover, you don't have to stick your hand inside the tank to clean you filer or make a change out. Just flip the cover and remove the element. My hands are in the tank enough as it is.

Feeding time was a concern as well. I feed micro-worms to my fry on the way out the door on weekdays. Since these have a tendency to stay suspended for a while, I've got the air pump plugged into a timer. If the pump is running when it's time for breakfast, I just turn the dial until it turns off. I've got down time set to an hour, which seem to work well enough to allow the worms to settle rather than getting sucked up inside the filter.

I would never claim this filter is a substitute for a foam filter if you have a high bio-load. You may find that this little filter, however, has some advantages if your fish load is small and something less obtrusive and locally available is desired.

# A Cat “Tail”

By Derek Walker

Its three months into the new year and things are starting to warm up. Summer fun is right around the corner. I was outside all day getting the backyard cleaned up so I can take the pool cover off and set up my gazebo.

I started to take off the pool cover working my way around the pool and lifting up the cable that holds the cover down. I noticed all this white, cotton-like fuzz all over. I was thinking that someone had a cotton wood tree around and it was blowing into my yard. As the pool cover was coming off I hit my planter pot that had some common cattail plants in it. Once I hit the plant all the white fuzz was flying in the air like a swarm of gnats on a hot summer night. I didn't really think of anything until I noticed that they had a small seed on the end of the fuzz. I quickly ran inside and grabbed a Zip-Lock bag. Once I put the tail in the bag I did not close it up because I did not want to get moisture in the bag.

The next day the house was getting to be a little buggy. I was in the kitchen when my wife said, “Where all these bugs are coming from?” I replied, “I don't know!” After looking around making sure all the windows were shut, nothing was coming in from the outside. It finally dawned on me. I had left the cattail bag on top of the counter top with the bag open. Once I realized that, I could see tons on tiny bugs walking around the bag like it was a new home for them. I could not leave it open anymore. In two days there were tons of dead bugs all over the bag.

I placed some fuzz in a water bottle and left it in a window to see if I could get it to sprout. I had no luck after two weeks. I was talking to Mike Hellweg about it and he told me to try to put the seeds in the icebox for a few days and then pull them out in the warm air. After the seeds were in the ice box for a couple of days, I started to experiment. I'm sure everyone has done the corn seed in a glass jar with a paper towel wrapped in the inside where you can watch the seed grow. I did not use a jar, I used a paper towel folded up and put it in a Zip-Lock bag and placed it outside. It took about one week for the seeds to germinate. Just a little fuzz allowed me to have hundreds of seedlings.

After a week went by the seedling started to get all tangled up. I could not tell if the seedling had a second leaf to them. Cattail seeds grow very strange. When the seed started to sprout, it curled up about ¼ inch then it stopped and formed the first leaf. After that leaf was ¼ inch, it formed the second leaf and so on. This was all done with paper towel and a Zip-Lock bag. I also took some seedlings from the paper towel and placed them in regular potting soil to see if the growth rate would change. The baby cattail grew very fast.

This was one of the easiest seedlings I have reproduced, because nature does all the work for you. Remember that cattails flower in the mid to late summer months. You need to let the flower stay out all winter long for the seedlings to ripen.



# Ways to Propagate Aquarium Plants

By Harold Walker

Propagation of the aquarium plants can be challenging to the beginner. There are several ways a plant can reproduce. Some species seem to take a long time to reproduce while others other plants overrun the tank in a matter of weeks. Vegetative and Seed propagation are the two common ways of reproducing plants for the aquarium trade.

Seed propagation is done when a new plant is grown from a seed or spore from the parent plant. Vegetative propagation is done by using the plant itself with various methods of reproduction. Here are some of the ways you can propagate the plants in your own tanks.

## **SEED PROPAGATION**

This occurs when a plant produces a flower that has been pollinated. In nature pollination usually occurs with the help of insects. In the aquarium a soft bristle paint brush can be used to manually pollinate the flower.

## **RUNNERS**

A runner is a shoot that is formed from the plant. It will grow along or within the substrate of the aquarium. On these runners numerous new plants can be reproduced. Once the new plant or plants develop some roots you can cut the runner near the plant and move to another location in the tank.

## **ADVENTITIOUS PLANTS**

This process propagation is also called Division. These are plantlets that grow from the mother plant. The mother plant will produce many plantlets that will eventually free themselves and root on their own. They can also be manually removed by cutting away from the mother plant when a suitable size is obtained.

## **CUTTINGS**

This is probably the easiest way to propagate you plants. Once the plant is ready to be trimmed just cut a section from the top of the plant. Leave at least 4 to 6 inches of the original plant. Bunch plants are generally propagated this way. Plant new stem into the substrate about an inch deep.

## **RHIZOME**

Some plants produce a side shoot off of their root system. A piece of the Rhizome that has some leaves and roots can be cut from the main stem. New plant can be transplanted along the substrates surface.

I hope this gives a good idea of how to propagate aquarium plants that you might give it a try. Plants are no different than the fish in an aquarium. If the proper nutrients and lighting are given you too can develop a “Green Thumb”.

# From the Fishroom

By Ed Millinger

On page 108 of the June issue of Freshwater and Marine Aquarium, Lovel and Joy Tippit under their Timeline feature write about Otto Beldt. Just one tidbit is that he originally wanted to be a baker.

As points tabulator I'd like to apologize to Ron Huck for inexplicably leaving his show points off the list in the last Darter. If you're scoring at home please give Ron 51 show points. If you thought Gary Lange's 150 show points was something it is but Gary also had 150 points in the 2004 show! That's pretty amazing!

If you missed the May general meeting, Mike Hellweg presented our show chairman (for 2009?) Gary McIlvane with a poster that Bart Kraeger made with photos he took at our recent annual show. What a great idea, one of the classiest things I've ever witnessed.

When I used to feed frozen food I would break off a chunk and wave it in the water. Occasionally a piece would get away from me and a fish would just inhale it. This couldn't be good for the fish. While visiting the old Siebert pet shop I noticed they would place the frozen food in water and use an eyedropper to feed the fish. When you finish be sure to rinse the eyedropper because if you don't, left over food can spoil by the next day. Dierbergs carries a large one with colorful tops in front of their pharmacy.

## From Seattle to Uganda via St. Louis: Seeking and finding Lake Victoria Cichlids

By Lawrence Kent

I'm writing this article from my hotel room in Entebbe, Uganda, just a hundred yards from Lake Victoria, one of Africa's biggest lakes and home to hundreds of species of cichlids. I am here on a two-week business trip, which luckily included a weekend available to look for fish. This time I decided to travel a hundred miles or so north of Lake Victoria to visit some of the satellite lakes of its basin, rather than visit the Lake itself. I'll tell you why in a few paragraphs, but first let me tell you about my last short trip to Lake Victoria, about six weeks ago.

It was also a business trip, this time to Uganda's capital Kampala to launch a new project to develop drought-tolerant corn varieties for African farmers. On my last day in the country, a Sunday, I decided to hire a car and head down to Lake Victoria to look for some of its famous cichlids before going to the airport that night. Situated at the border between Uganda, Kenya, and Tanzania, the lake is about 240 miles long and 190 miles wide. It is inhabited by an estimated 600 species of cichlids, most of which were originally classified in the *Haplochromis* genus but subsequently were split into several genera, such as *Harpogochromis*, *Lipochromis*, *Astatotilapia*, and *Pundamilia*. Fifty years ago there were an estimated one thousand species in the lake, but some 200 of these are thought to have been extirpated by the Nile perch, which feeds on cichlids and can grow to six feet in length. The Nile Perch was introduced into the Lake in the 1950s for commercial fishing purposes and multiplied quickly in the 1980s. Other cichlid species may have been wiped out by the deterioration in water quality caused by

sediment runoff caused by erosion along the lake's largely deforested banks. The water along the shoreline is pretty muddy.

Once my car reached those muddy shores, I realized my dip net would be useless, and I was reluctant to wade into the lake, because of the reported presence of the parasitic worms that cause a nasty disease called schistosomiasis, or bilharzia. I negotiated with some boys to take me out in their wooden canoe to try our luck with their hooks, worms, and line, which was tied to empty water bottles that served as both rods and reels. We saw some beautiful birds, but caught nothing. After an hour we returned to land and made further inquiries of the locals, showing them pictures of the Haplochromines in my Barron's book "Lake Victoria Basin Cichlids" to facilitate communications. We got a tip to drive to the nearby town of Bugonga where we could find more fishermen. Arriving there and sharing the pictures in the book, I was quickly invited to sit in a larger canoe along with two locals who paddled us hard about a mile into the lake, where they located a home-made buoy to which was tied a jerry can filled with water suspended a meter below the surface. They pulled it up and then pulled from it about a dozen Haplochromine cichlids. They'd been storing them there, live, for later use as bait to catch... Nile perch. These cichlids were dark blue, some with red fins, some with barring – not spectacular, but pretty handsome. It is extremely hard to identify Victorian cichlids to the species level because there are so many, there are so many that are undescribed, and those that are described are often distinguished by bone and teeth structures that are hard to see outside of a dissection laboratory. But most of these guys looked like the *Paralabidochromis* sp. Rock Kribensis pictured on page 44 of that Barron's book. I left some money with the fishermen on the shore and asked them if they could round up a few more cichlids for me while I headed off to Mbamba island for a few hours to visit the chimpanzee sanctuary there.

When I returned to Bugonga later that afternoon, they had a couple dozen Haplochromines to show me. Most seemed to be Rock Kribensis but there may also have been some *Haplochromis limax* and *Astatotilapia* sp. Red Tail. I was able to bring a half dozen juveniles home, giving five to my friend Cory in St. Louis and saving one for my living room tank in Seattle. It'll be interesting to see how they color up as they grow. I'm counting on Cory to breed them and let us know how things develop, maybe in an article in about ten months?

Well, that trip was fun, but I wanted to do better on this second visit, especially after I read the Barron's book more carefully and realized that many of the more spectacularly colored Lake Victoria Basin cichlids aren't easily found in the Lake itself anymore, but are more likely to be found in the nearby satellite lakes. I emailed a Ugandan travel agent and told him I wanted to visit Lake Nawampasa over the weekend, because this tiny lake seemed to be mentioned the most frequently in the Barron's book. The agent booked me an old Land Cruiser and a room in a tiny inn in the small town of Pallisa about five hours northeast of Kampala.

Upon arrival, my Ugandan driver (Sanyo) and I started asking around to get directions to Lake Nawampasa, which the travel agent had said was just 20 miles from Pallisa. But nobody seemed to have heard of Lake Nawampasa. Luckily we bumped into an outgoing young Ugandan from the region who convinced us to visit an alternative lake nearby that he assured us was filled with "nkedge" – the local name for all small cichlids. We asked him to join us, and George Ouze jumped into our car and guided us another 15 miles down a dirt road through a landscape of traditional mud huts and papyrus swamps to a small, reed-lined lake he called "Daraja" but we later learned is more formally known as Gigati.

We negotiated with the locals a fee of 20,000 Ugandan shillings (about \$13) for some help and the right to pull some fish from their lake, mainly to photograph and then return them to their home. A few minutes later, four men were dragging my minnow seine a few yards off shore and catching dozens

of juvenile cichlids for their photo sessions. Many of these were tilapia (probably *niloticus*) but many were Haplochromines, showing eggspots on their anal fins and hints of color, but too young to be identified, except for one that was canary yellow with bright blue lips and a red and blue dorsal fin – the Dwarf Victorian Mouthbrooder, *Pseudocrenilabrus multicolor victoriae*. We realized that if we wanted to see more color we'd need to find adult fish, not just juveniles, so we hopped into one of the locals' leaky canoes and headed out through the reeds into the lake.

We were intercepted on our way by another canoe coming in, its driver holding in one hand his paddle and in the other a plastic bowl filled with cichlids – samples that he'd quickly caught for us once he realized what we were after. Seeing the diverse set of colorful fish in his bowl, I yelped with delight -- this trip was not going to disappoint! Although I couldn't be sure of my identifications, there seemed to be *Xystichochromis phytophagus*, which is called the Christmas Fulu in the hobby because of its bright red and green colors (actually yellowish-green) and *Xystichochromis* sp. All Red and "Haplochromis" sp. Ruby, both of which have bright, bright red caudal and anal fins along with bright splashes of red and yellow on their flanks and dorsals. The local fisherman explained that he'd caught them on hook and line using worms for bait.

Once we penetrated the reeds in our canoe, we paddled over to a series of other canoes, each occupied by a pair of small boys fishing for "nkedge" using primitive fishing poles. As we pulled along side them we'd peer into their canoes to find the floors littered with dozens of freshly caught, dead and dying cichlids, many of them spectacularly colored. The locals explained that they ate these little fish, almost all of them less than 4 inches in length, boiled or grilled, mixed with "G-nut" sauce (groundnuts or peanuts). It was the kids' job to catch them, one at a time, but they were easy to catch and twenty could be hooked in an hour. We "rescued" the most beautiful and interesting and still living ones from the boys' boats and put them in our bucket to bring back to shore for photographing and attempts at identification. The *Astatotilapia latifasciata* (Zebra Obliquidens) were the easiest to i.d. because of their distinct thick black barring on yellow flanks and rosy cheeks. The ones with the classic haplochromine shape and super red dorsal, anal, and caudal fins may have been "Haplochromis" sp. Cherry Fin. The big-mouthed six-inch predator was shaped like the *Harpagochromis mentatus* in the Barron's book and probably belonged to that genus. The five-inch laterally-compressed *Pyxichromis orthostoma* was relatively easy to identify because of its distinct *Altolamprologus calvus*-like body shape and cavernous upturned mouth. According to Barron's, this species is an ambush predator that roams freely through the plants and open, sandy areas. Another species we found among the boys' catch was *Lipochromis* sp. Parvidens shovelmouth, which is distinguishable because of its protruding mouth and concave forehead. Barron's says that this fish is paedophorous, consuming baby fish and embryos by forcibly sucking them from the mouths of brooding Haplochromines. That doesn't sound very nice.

We spent about four hours at that lake, before handing out about \$30 in tips to the dozen or so locals who helped us at our task, and driving back to Pallisa, covered in mud with a half dozen unidentifiable juvenile fish. The inn didn't have electricity or even any coffee, but it had good mosquito nets, and I slept well after looking at the hundred or so new photos of fish stored in my digital camera.

The next morning Sanyo, George and I took off at 6:30 a.m., determined to find someone who could help us find Lake Nawampasa, or at least someone who'd heard of it. It turned out to be an incredible search, full of twists and turns, and I didn't get back to Entebbe until 10:30 that night, sunburned and filthy. I'll tell that part of the story another day. It's time to go to bed. God bless you and your fish.





Fishermen on Bugonga beach near Entebbe on Lake Victoria.



*Pseudocrenilabrus multicolor victoriae* collected at Gigati



Unidentified cichlid caught near Entebbe, maybe *Gaurochromis* sp



George Ouzo, holding Barrons book, joins the author in this canoe



A Ugandan fishman helps collect some cichlids in Gigati Lake



Sorting through our haul from Lake Gigati

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# Club Hopping

Steve Edie

Aug 31 - Indianapolis: Circle City Aquarium Club – Auction

Sept 19-22 – IA: Midwest Cichlid Association – Annual Convention

Oct 5 - St Louis: Missouri Aquarium Society – Swap Meet

Oct 16-19, 2008 – Laurel, MD: All-Aquarium Catfish Convention – Convention

Nov 13-16 – Atlanta: Aquatic Gardeners Association – Annual Convention

Nov 16 - St Louis: Missouri Aquarium Society – Auction

Nov 21-23 – Cleveland: Ohio Cichlid Association – Cichlid Extravaganza

Jul xx, 2009 – Cincinnati, OH: American Cichlid Association – Annual Convention

## Member Classifieds

Charles Harrison (314) 894-9761, [csharrison@inkmaker.net](mailto:csharrison@inkmaker.net) -

Thiosulfate crystals (Chlorine Remover) ..... \$3.00 a half pound  
OTO double strength Chlorine/Chloroamine test kits - 4 ounce - \$12.50  
Flubendazole, 5% powder 10 grams ..... \$5.00, 25 grams - \$20.00  
Lavamisole HCl Powder - 5 grams treats 100 gallons ..... \$10.00  
Methylene Blue 5% solution (2 ounces) ..... \$12.75  
Acriflavine Concentrate (4%) solution, 2 ounces ..... \$12.70

Wanted: Odessa Barb Males, For Sale: Albino Bristle-nose Catfish \$5.00 Each

Contact: Dwayne Peters (618) 219 6524

Wanted Adults albino bristlenose plecos==call Bob [314]428-5133

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.

# BAP Report

Steve Edie

Member	Species	Common	Pts	Total
May 2008				
Charles Harrison	<i>Austrolebias alexandri</i> "San Javier" *		20	1850
Charles Harrison	<i>Danio rerio</i>	Fluorescent Red Zebra Danio	5	1855
Charles Harrison	<i>Epiplatys chaperi schreiberi</i> "Ghana"		10	1865
Charles Harrison	<i>Fundulopanchax cinnamomum</i> *		20	1885
Charles Harrison	<i>Fundulopanchax marmoratus</i> "Mundemba (GS-1)" *		20	1905
Jerry Jost	<i>Aphyosemion ogoense pyrophore</i> (GHP) *		20	310
Justin Lehmann	<i>Mikrogeophagus ramirezi</i>	German Blue Ram	15	25
Gary McIlvaine	<i>Ancistrus</i> sp. "Albino"		10	593
Gary McIlvaine	<i>Tilapia snyderae</i> @		30	623
Gary McIlvaine	<i>Xiphophorus helleri</i>	Albino Lemon Swordtail	1	624
Gary McIlvaine	<i>Xiphophorus maculatus</i>	Micky Mouse Hi-Fin Platy	1	625
Jun 2008				
Charles Harrison	<i>Brachyrhaphis roseni</i> *	Cardinal Brachyrhaphis	15	1920
Mike Hellweg	<i>Betta pulcher</i> *	Pretty Betta	20	2898
Mike Hellweg	<i>Betta rutilans</i> * @	Red Dwarf Betta	35	2933
Mike Hellweg	<i>Poeciliopsis turneri</i> "Rio Purification" *	Turner's Topminnow	20	2953
Mike Hellweg	<i>Xenophallus umbratilis</i> "Arenal Volcano"	Golden Teddy	15	2968
Jerry Jost	<i>Aphyosemion calliurum</i> "Ikorodu" *		20	330
Jerry Jost	<i>Mikrogeophagus ramirezi</i>	German Blue Ram	15	345
Tony McMillan	<i>Danio rerio</i>	Zebra Danio	5	21
Tony McMillan	<i>Poecilia reticulata</i>	Red Flame Guppy	1	22
Tony McMillan	<i>Steatocranus casuarius</i>	Buffalohead Cichlid	15	37
Ed Millinger	<i>Ancistrus</i> sp. "L-144"		10	565
Dave & Laura Wagner	<i>Poecilia reticulata</i>	Green Cobra Guppy	5	5
Dave & Laura Wagner	<i>Poecilia sphenops</i>	Dalmatian Molly	5	10



Dave & Laura Wagner	<i>Telmatochromis dhonti</i>	Orange Scribble	10	20
Dave & Laura Wagner	<i>Xiphophorus helleri guentheri</i>	Swordtail	5	25

\* = First MASI species spawn (5 point bonus)

\*\* = First MASI species and genus spawn (10 point bonus)

\*\*\* = First MASI species, genus and family spawn (15 point bonus)

@ = C.A.R.E.S Species at Risk (Double base points)

## Editor's Notes

Steve Deutsch

At a recent meeting there was some discussion as to whether members would prefer receiving Darters electronically to receiving them in print. We need to know if there is enough interest in this to offer it. The Darter is a file between 4 and 10 MB, depending on the graphic content. If you would prefer to receive by email rather than a printed copy, email me at [editor@missouri-aquariumsociety.com](mailto:editor@missouri-aquariumsociety.com). This would be instead of the printed copy, not in addition. The printed copy would be sent to anyone that does not prefer electronic, so you do not need to contact me to stay the same – just if you want us to add an electronic distribution option. If there is enough interest we will set it up.

For several years Steve Edie was our exchange editor, and provided the exchange articles used to round out The Darter. His help was much appreciated. As of this issue, I am printing articles I am selecting, so if you are looking for more information on any particular range of subjects let me know and I will keep my eye out in the other publications we receive. There are three articles reprinted in this issue in addition to our member's articles. I am also finding articles from our members that have been reprinted. The September 2006 Monthly Bulletin of the Hamilton & District Aquarium Society contains "The Ornate Halfbeak" by Mike Hellweg. The September 2007 Monthly Bulletin of the Hamilton & District Aquarium Society contains "The Black Barred Livebearer" by Mike Hellweg. The September 2007 Fish Tales of the Tri-County Tropical Fish Society contains "What to Do for a Prolonged Power Outage" by Charles Harrison. Congratulations to both. As I finish reviewing exchange publications for articles to use and re-prints to credit, I will bring them to the next couple of meetings for anyone that wants them before recycling them.

I have several plant articles from Harold and Derek Walker, so I am spacing them out, with one article from each in this issue. I also have a product review from Andy Walker, an article from Ed Millinger, and an article with pictures from Lawrence Kent, who is still a MASI member even though he has relocated. He also provided the picture on the cover. Lawrence has already submitted part 2 of the article, which will be in the next Darter. This month's Tech Tip is from Charles Harrison again. Andy Walker is still looking for other members to share their tips so we can keep this going every month.

Deadlines for articles for the remaining issues this year are August 15 and October 15. Remember, all articles of one or more pages are automatically entered for the publication award.

# HAP Report May-Jun 2008

Mike Hellweg

As we move into the summer months, don't forget you can turn in pond plants. It's just as good an idea to move your aquarium plants outdoors for a summer vacation as it is to move your fish outdoors to tubs for the summer. Lots of light, good food, and a chance to get them to reproduce. Give it a try!

I would like to welcome Tony McMillan back to the HAP. It's been a few years since his last submission, and in June he's come back strong with 4 submissions! Welcome back Tony!

Also, welcome to Laura and Dave Wagner, with their first two HAP submissions. I hope we see lots more over the years!

...keep 'em green

Member	Species	Common	Rep	Pts	Total
Tony McMillan	Echinodoras bleheri		V	15	20
Tony McMillan	Echinodoras parviflorus	Black Sword	V	15	35
Tony McMillan	Eichhornia crassipes	Water Hyacinth	V	5	40
Tony McMillan	Pistia stratiotes	Water Lettuce	V	45	
Laura & Dave Wagner	Lemna minor	Dwarf Duckweed	V	5	5
Laura & Dave Wagner	Vallisneria spiralis	Italian Val	V	10	
Andy Walker	Cryptocoryne wendtii		IB	20	275
Andy Walker	Tentative creditus	Susswassertang	V	5	280
Andy Walker	Anubias barteri		V	15	295
Andy Walker	Marsilea sp.	Dwarf Water Clover	V	15	310
Andy Walker	Proserpinaca palustris	Mermaid Weed	V	15	325
Derek Walker	Anubias barteri Ekona		V	15	2150
Derek Walker	Aponogeton crispus x		S	15	2165
Derek Walker	Aponogeton boivinianus		S	15	2180
Derek Walker	Echinodoras angustifolius		V	15	2195

Reproduction Key: V = Vegetative, OB = Outdoor Bloom, IB = Indoor Bloom, S = Seedling

\* = MASI First

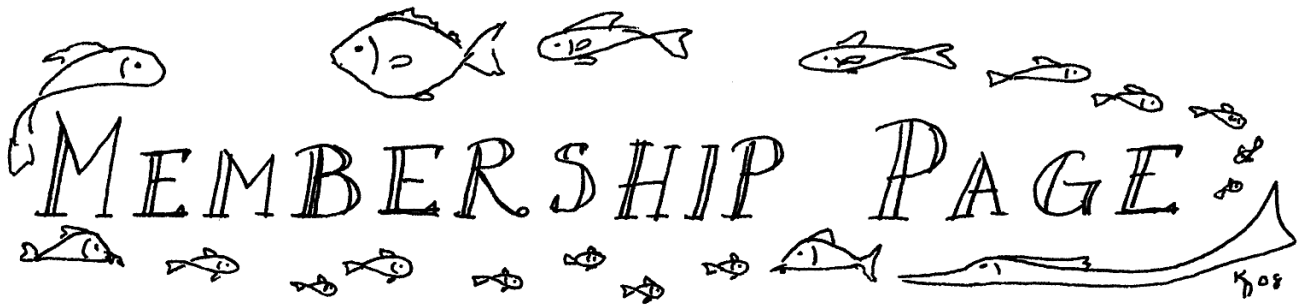


## We've got a place for you!

**Missouri Aquarium Society, Inc.**



Come join us at a meeting, or contact our membership chair, Kathy Deutsch for more information  
 (314) 741-0474 fishfan@i1.net



Justin Lehmann has something to share. On June 10, 2008 his wife gave birth to their son, Brody Wilson Lehmann. He was 5 lbs. 14 oz. and 18.5 inches. Brody, Mom, Big Brother Aaron (who is super proud) and Dad are all doing very well.

Jim and Kitty Mueller welcomed Adalynn Painter on February 11, 2008. Addie is their fourth grandchild (one grandson, three granddaughters). Sabrina Painter, 2 & 1/2 years old, has her own Betta and helps feed Pops and Grams fish.

Mike Hellweg's book, *Culturing Live Foods*, is now available and will be in bookstores and pet shops in July. He also recently was a guest on the internet radio show "The Blue Zoo."

June 26, Phillip Newell gave a lecture at the Sierra Club about conservation in karst areas entitled "Life Beneath". [Karst is the type of topography characterized by caves, sinkholes, and springs. Much of Missouri and some of Illinois is karst containing significant biodiversity.]

From MASI member Jack Heller: Dr. Mark Heller, just completed his residency in emergency medicine at Mount Sinai Hospital in New York City and is now a licensed emergency room physician. For those interested in on-line poker, see Mark's on-line poker site, [VegasPokerPro.com](http://VegasPokerPro.com). You will learn how to play Texas Hold'em, and will find out about the various poker rooms available on line. Also, visit [MyYearBook.com](http://MyYearBook.com) to see articles by our daughter, Becki Heller, who is editor of the teen section of MyYearBook. MyYearBook is the third largest on-line social network in the country.

Pat Tosie's brother, Forrest, was featured in the Post-Dispatch recently. He is a bugler who plays "Taps" for local military funerals. Thank you, Forrest.

Harold Walker was photographed at his job at Anheuser-Busch for the Post-Dispatch. It was featured in an article for the Thursday April 24, 2008 edition. The same picture was also used for another article for the online edition of the Post-Dispatch on April 4

Laura Wagner tells me her sons Will and Alex have passed to the next grade, Alex 4th and William 9<sup>th</sup>, which is high school. Laura started back to college at Maryville to either get the BSN or MSN in Nursing.

Roy Brandhorst has a story:

A tale about my fish keeping and my profound interest in boats.

As far back as I can remember as a child I've had an interest in fish keeping. As a child my mother always had a bowl of goldfish on the window sill or somewhere in the house which fascinated me, watching them for hours at a time. I was mesmerized by how they could so majestically swim around

and glide though the castle arch and past the big red octopus sitting on his rock, with the colored sponges watching from the lower edge of the rock. About this same time I developed an interest in boats. Maybe because most of my male relations had served in the US Navy, also because I had been named after my Uncle, Roy who had been a Chief Petty Officer. I used to love spending evenings sitting on our front porch listening to their sea stories. That's when I decided that my future had to be in some position of the Navy.

By the time I was about 10 years old I had collected quite a collection of model boats, all of them seaworthy. I used to get so perturbed at my mother when we would go to the pond in the park to sail my boats; she insisted that I tie a string on them so I could retrieve them. I had never seen a real boat with a string tied to it!

When my mother was busy entertaining her lady friends I would fill the bath tub and have sea battles with my model boats. After awhile I became bored just sailing the boats around in the bath tub. It dawned on me, what could be more real than having fish swim around with my boats? So I took the goldfish bowl into the bathroom and let the fish loose in my private boat harbor (the bath tub). It was great seeing the fish glide past my sailing yachts and dive to the bottom. This amused me for several hours till I noticed that that my mother's and her lady friends' voices could not be heard. My mother soon would wonder where I was. This meant that the goldfish had better return to their bowl post haste! With only my hands to catch them, this turned out to be a bigger task than I had anticipated (which I never gave a thought to when I released them). After chasing two and getting them back in their bowl I suddenly noticed that the stopper in the bath tub had come loose. The last thing I remember was my mother calling my name and seeing the last goldfish swim down the drain!

## TWELVE QUESTIONS FOR...DAVE WAGNER AND LAURA AUMANN WAGNER

### Dave Wagner

1. What year did you get your first fish tank and what fish did you put in it? (optional) did you name the fish?

*1989, betta's nope never named them.*

2. If you could hire a helper to clean and care for it, would you have a massive indoor tank or a big pond?

*Yes and Yes but would definitely need a helper as keeping up with the tanks now is work.*

4. The fish I want to get fry from is...

*Would love to figure out how to get the Striped Raphael Catfish to breed.*

5. If you could have only one tank of 75 gallons, what would you keep in it?

*Whatever I saw that I liked at the time no real interest in one group to say but I would most likely have livebearers and catfish.*

6. Name your proudest accomplishment in the hobby to date.

*This year was our first show we entered in 5 classes and placed in 4 that is by far the best thing we have done.*

7. Outside the hobby, what accomplishment are you proudest of?

*Our family is the biggest accomplishment I have.*

8. Name an interest of yours that has nothing to do with fish.

*I am a computer techy.*

9. Do you have a fish-related tip to tell the members?

*Water changes, seems you can never do enough of them.*

10. My favorite cichlid is...*Red Devil*

11. My favorite livebearer is...*I like all the different mollies.*

12. My favorite catfish/cory or pleco is...*Striped Raphael Catfish*

## Laura Aumann Wagner

1. What year did you get your first fish tank and what fish did you put in it? (optional) did you name the fish?

*got my first tank approx 3 years ago Feb, Dave bought me a 24 nano cube salt tank with a blue and yellow damsel and a red and white spotted shrimp, not sure why we ended up doing salt I just know we talked a lot about fish, and I knew he had raised them at one time(bettas) and for Valentine's Day he got me a tank. I didn't name the fish but did call him rude names because he was very territorial and made my shrimp hide a lot.*

2. If you could hire a helper to clean and care for it, would you have a massive indoor tank or a big pond?

*Hummm I like both a lot, but would probably do tank.*

3. The dream fish I want to keep is...

*oh my, I have no idea, discus come to mind or altum angels, then again I like all kinds of fishies, so that could change in a year or so as I learn more*

4. The fish I want to get fry from is...

*not sure probably a fish that is hard to breed right now just breeding mollies, guppies, swordtails and other easy egg layers. Guess I could say alright now angel fish, had them breed at one time would like to be able to do it again seriously this time.*

5. If you could have only one tank of 75 gallons, what would you keep in it?

*The only 75 we have has red devils in it, but if I had a choice I would do cichlids from the lakes.*

6. Name your proudest accomplishment in the hobby to date.

*Surpassing the top raffles sales in April for the club and winning 4 awards at my first show.*

7. Outside the hobby, what accomplishment are you proudest of?

*Becoming a Burn/ER/ICU nurse*

8. Name an interest of yours that has nothing to do with fish.

*I sew, embroidery by hand, quilt, cross-stitch*

9. Do you have a fish-related tip to tell the members?

*Still new at this, in my opinion but have fun, don't be too serious about it and take water changes seriously.*

10. My favorite cichlid is...*Cacatoidies*

11. My favorite livebearer is...*my dalmatian mollies so far then again I kinda like my guppies, and my swordtails.*

12. My favorite catfish/cory or pleco is...*right now I could say my new striped raphael catfish, or my peppered corys.*

MASI members, do you have something to brag about? Each issue of "The Darter" will feature a Membership Page. In it, we will have member interviews, information about other things MASI members are doing (this is a good place to tell us about upcoming school plays the kids are in, job promotions, A+ report cards, wedding anniversaries, and the like). We also want to hear what your fish are doing!

Just email ([kathy@skdeu.com](mailto:kathy@skdeu.com)) or call Kathy Deutsch (314-741-0474) with the info and she will write it up and pass it to the Editor.



# Neolamprologus caudopunctatus

By Rolf Mader

From the January/February 2007 Cichlidae Communique of the Pacific Coast Cichlid Association

I confess, I struggle from the "overload the tank" syndrome. My 75 gallon Tanganyikan tank already had too many fish in it. I don't have a fish room so I tend to compensate by crowding the few tanks that I do have in the apartment. The PCCA auction is a dangerous place for a hobbyist like me. I spotted a pair of *Neolamprologus caudopunctatus* "Yellow Fin" that I wanted. I won the bidding on them. The male was about two inches and the female was about an inch and a half.

When I added them to my overpopulated tank, they seemed to be timid and mild mannered. However, I soon noticed that my *Enantiopus* were mostly staying at one end of the tank. As I watched the tank over the next few weeks, the *caudopunctatus* had staked out a large part of prime real estate in the center of the tank. They were not overtly aggressive, but they had no qualms about taking on larger tank mates either. I found them to be interesting fish to observe. They are not really shell dwellers even though they are quite small. The female would occasionally use a shell for cover but the male didn't. They like the open water, rarely hiding in the rock structures. Their colors are subtle, as is their visual appeal. They have a light colored body like so many Tanganyikan cichlids. They are very alert, have beautiful bright blue eyes, a yellow dorsal fin and pearling in the other fins. At times they will show some vertical barring. What is both unusual and attractive about their behavior is that they always have their fins erect, giving them the appearance of constantly displaying. It gives them a very cute and cocky look. With their erect fins and blue eyes, *Neolamprologus caudopunctatus* are eye catching.

Soon it became obvious that that my caudos loved to redecorate. The aquarium has about an inch and a half of fine sand and half a dozen medium sized shells in it. They were always busy moving sand around. Sometimes they would bury a shell, other times they would dig out underneath a shell. I assumed they were getting ready to spawn. One day I decided to rearrange some of my shells and rocks while doing my weekly 40 water change. I removed a couple of shells to bleach them in the sun since they were turning a dingy green (One thing I am very good at growing is algae of all ugly colors and types). After the water change, I didn't see my female *caudopunctatus*. I figured she was hiding in a shell, but after a week it became obvious that she was no longer in my tank. I went outside and looked at a shell I had removed and saw an ant trail coming out of it. Sure enough, I shook the shell and out came my dried up missing female. Hopefully at some point I will be able to spawn fish without killing them first. I now had a beautiful male with no mate.

I called Jim at Mainly Cichlids and he told me that he had some small "yellow fin" *caudopunctatus* that he was growing out. I arranged to buy four of them. They were under an inch in size, so I threw them into a fry tank that I had. They grew quickly and in about eight weeks I moved them into my 75 gallon tank with my male and the rest of my Tangs. Shortly afterwards, I saw that my large male had chosen a mate, and they took over an area with a couple of shells and began moving sand around. I noticed that one particular shell was soon buried about three quarters of the way, with a small opening still visible. The pair didn't really behave differently until my next water change. Suddenly the male was trying to take pieces out of my arm, which he had not done before. My assumption was that they were getting ready to spawn. Two days later I looked into the tank and was I surprised to see a swarm of tiny fry at the entrance to the mostly buried shell. They hung out at the opening and if they felt

threatened they would disappear into the shell. The female was the care taker, but the male was never too far away. It seemed like he was the defender of the territory and she was the caretaker of the fry.

I began feeding them frozen baby brine shrimp five to six times a day. What was fascinating is that with all of the other fish in the tank, the caudopunctatus parents were able to successfully defend their fry. Every day I could see that they were growing and becoming braver. Within a week, the fry didn't even go into the shell any more and began to wander up to ten inches from it. The female and even sometimes the male would swim about five inches up off of the sand, with the fry below them. Their territory was growing by the day and my poor Enantiopus were relegated to a small corner of the tank. When the fry felt threatened, they would not retreat to the shell or even to a parent; they would just get down on the sand and pretty much become invisible, blending in. I have not seen other fry do this before. At this same time I noticed that two of the remaining three caudos were beginning to pair up at the other end of the tank.

This was getting out of control.

When the fry were a week old, I decided to move the parents and fry into a ten gallon aquarium and let my other fish have their space back. I soon discovered how difficult this would be. I coaxed the fry to take shelter in their shell, and I moved the shell to the smaller tank. Next, the male was easy to identify because of size, but the sight of my net in the water was all he needed to take cover in the rocks. There was no way I could catch them without removing all of my rock-work, so the fun was on. I finally caught the male, but now I could no longer tell which smaller one was the female. I had to catch all 4 of the smaller ones and move them all into the 10 gallon tank as well and then I would let them pair up again.

The ten gallon tank was an established tank. The water temperature was 80 degrees and I did a water change that day using tap water. Prime and Sodium Hydrogen Carbonate (to buffer the PH over 8.4). I had a fine sand substrate, a few rocks, two shells, two upside down flower pot saucers and some Hygro that I have discovered grows well in the high PH water. After an hour in the smaller tank, I saw the fry in the opening of their shell. I could see that I had moved most of them successfully. My concern was that the parents no longer seemed to be maternal towards them and within a day, the fry had disappeared. I am pretty sure they were eaten. For the next few days, I watched and waited to see if the male would pair up again. Within a couple of days the male and a smaller one were taking over 3/4 of the tank and the other three caudos were in an upper corner at one end.

I removed the three fish and now I had what again looked like a pair. My suspicion is that it was a different female this time. They undertook major sand moving. Big piles in some places and down to the glass bottom in others. Again I saw that one of the shells was mostly buried except for a small opening remained. I thought they were close to spawning, but things seemed to have quieted down. Then a day later (ten days after I had moved them into the 10 gallon tank), I again saw a swarm of fry in the opening of the shell. They had fooled me again. Again the female was the care taker. She would be right in the middle of the fry and would dart into the shell with them if she felt threatened. The male would patrol the area about eight or ten inches from their shell. With every day that passed, the fry were out of the shell more and more, and within a week, they preferred to hide down on the sand rather than retreat into their shell. There were about 30 fry, which I thought was pretty good since the female was barely an inch and a half and was still very young. The fry grew quickly for the next two weeks but their number was reduced to about a dozen. I think there were a few days that they didn't get enough food. Then after about two weeks, I noticed that the pair had decided the fry needed to go to the end of the tank farthest from their spawning shell. They were not aggressive towards them, but the message was

clear, they could no longer be near the shell. Twenty days after the fry had emerged, a new batch of fry appeared at the entrance to the shell. Wow, these little guys take reproducing seriously!

I removed the parents and the ten gallon became a grow-out tank. The first fry are now five weeks old and are about a half inch. They are perfect little replicas of their parents already, with the yellow dorsal fin, but the blue eyes are not yet apparent. The younger ones are two weeks old and still look like fry, but they also are growing rapidly. I feed them ground up New Life Spectrum "small fish formula" and frozen baby brine shrimp. My method is that I use a small pesto grinder to grind the food in, and then I soak about a day or two worth in a small container and put (hide) it in the fridge. I also use another small container for the frozen baby brine shrimp. I thaw a cube in some water and keep them in the fridge as well. Sometimes I mix both foods together in the same container and I then use an eye dropper to feed the fry. I am sure live baby brine is better, but this is easier and works for me. Hopefully this month I will have my young BAP caudos at the auction.

## Breeding the Dwarf Cajun Crayfish

By: Charles Drew

Reprinted from May 2008 Monthly Bulletin of the Hamilton District Aquarium Society

*Cambarellus shufeldtii* known as the Dwarf Cajun Crayfish is probably the smallest crayfish that you will find anywhere. It comes from the southern part of the Mississippi River drainage and is just now starting to gain popularity in the U.S.A. and Canada. It is very popular in Germany and most of the other European countries. It is very small and seldom grows over an inch and a half long. Its colour can vary; it is found mottled or with stripes and is brown to bluish gray in colour. They are extremely peaceful and do not harm fish or plants. They are often kept with shrimp and small non-aggressive fish. They eat pretty much everything flake, pellets, frozen foods and hair and string algae or a fish that happened to die.

I picked up six last November because I was intrigued as to their small size. When I got them home not knowing what to do with them I put them in a small long shallow two gallon tank. To afford them some hiding places I broke a small clay pot and placed the pieces on the bottom along with some short pieces of half inch plastic pipe. I then put in a generous blanket of Java moss. A few weeks later I spotted a female with a bunch of eggs under her tail section. They can lay up to sixty eggs at a time. After about two weeks depending on temperature the eggs hatch. The fry were very tiny but to prevent them from getting eaten by the adults I caught most of them in a kitchen baster and moved them to another small tank with more clay pot fragments and pipes and lots of moss. They got fed newly hatched baby brine shrimp and micro worms and a speck of finely crushed flake.

After about ten or twelve weeks I decided that their tank needed a good cleaning as it had a good deal of waste on the bottom.. Much to my surprise I found fifty-four crays almost an inch long. In the whole bunch there were only about three that were missing a claw. If well fed and given places for shelter they are much less aggressive toward each other than most crayfish.

To sum things up I am looking forward to placing some in toy lotus barrels this summer. Their temperature range is 70 F. to 80 F but can tolerate temperatures from 38 F to 90 F. Just about what we need for our variable Canadian Summers. I am told that everyone that owns them soon falls in love with them. It must be true because I have.



# Aquarium Temperatures - Just Cool It!

By Darrell R. Ullisch,

Reprinted from the Jan - Feb 2007 SWAM of the Southwestern Michigan Aquarium Society

I was doing a little reading this past weekend in my Spawning Problem Fishes, Vol. I & II, by Willy Jocher, the greatest pair of books ever written on breeding difficult fish. They are full of tips and tricks that can also be applied to other species. While refreshing my memory on the breeding of Cardinal and Neon Tetras, I was reminded that this was where I learned about the different temperature requirements of these two species. Cardinals, which come from the Rio Negro, were maintained and bred at 26° C, which is about 79° F. Neons, however, were maintained at 22° C, which is just under 72° F, and bred around 23°C, or 23.5° F. I still see many novices and even more advanced hobbyists trying to keep Neons at 78° F. Then they complain that the Neons are weak!

I'm not sure when it started, but we keep our tanks far too warm for most of our so-called "tropical" fish. Yes, they come from the tropics, but not all the water there is lukewarm. Killifish hobbyists have been aware for many years that the Diapteron species of West Africa do best in temperatures between 66° and 70° F. I've been telling people about the different requirements for Neons and Cardinals. And Dan Woodland, among other collectors, is always talking about the Cichlids they've seen in 65° water - and guarding fry!

How can you have such cool water when the air temperatures average near 80° most of the time? There are several reasons. Some fish come from higher altitudes. The air temperature isn't so hot in many of these places; even tropical mountains can have snow on them. Sometimes the fish come from fast moving waters, which may have a cooling effect, especially if the stream or river is very deep. And if the sun doesn't hit the water, then it takes on ground temperatures, which is often the case with fish that live in pools under the forest canopy. Finally, some sources of our "tropical" fish aren't really tropical, like southern Brazil and extreme southern Argentina, the closest land to Antarctica!

There are many warm water environments in the tropics, of course. Most Rio Negro species, and many Southeast Asian fish come from waters that average 80°. However, you wouldn't mix Rio Negro fish with Rift Lake fish because the water chemistry is so different. So why do we keep mixing cool water species with warm water fish? It's simple really: we don't know any better! Many folks research the water chemistry and food requirements of a fish they are interested in, yet they often assume that the temperature range for all tropicals is roughly the same. Trust me, it isn't! A lot of books out there aren't much help, either. They are often a degree or two Centigrade high, which is 2-4 degrees Fahrenheit. You may have to check 2 or 3 sources to be sure what is correct.

# The Computer Page

Steve Deutsch

MASI's official web page: [www.missouriaquariumsociety.com](http://www.missouriaquariumsociety.com)

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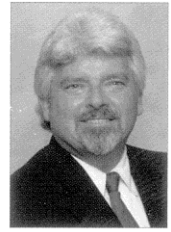
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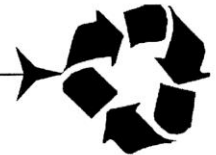
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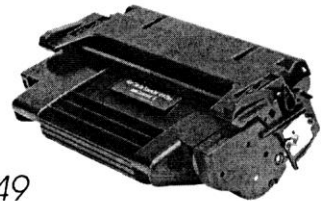
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