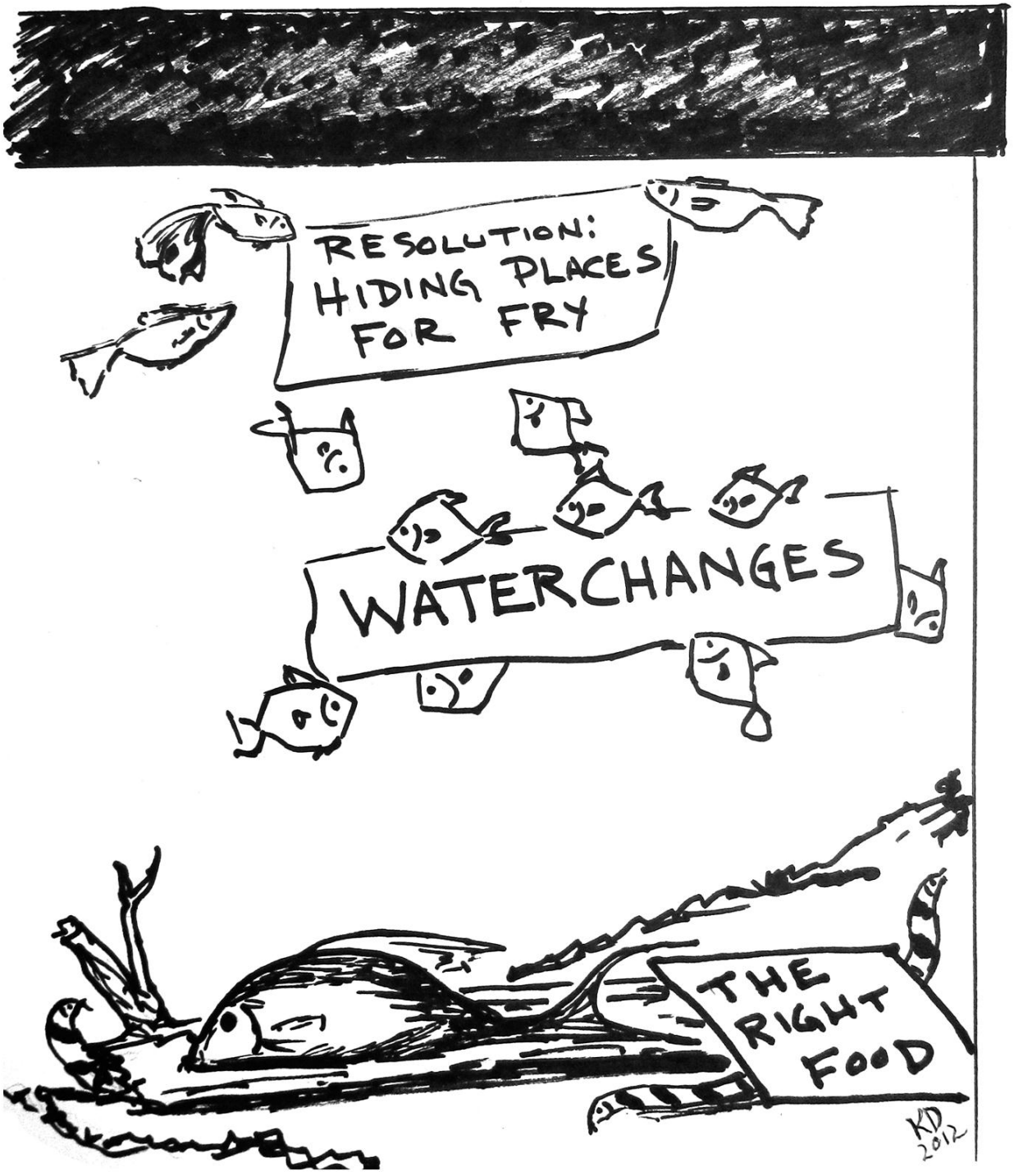
The Darter

January - February 2012



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St. Louis, Missouri

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MASI's official web page: www.missouriaquariumsociety.com

Join the all-new MASI FishHeads Forum. See web page for instructions.

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EXCHANGE AND REPRINT POLICY

The Missouri Aquarium Society will exchange their publication, THE DARTER, with other aquarium societies. Failure to receive three consecutive issues of a society's publication will be considered as a termination of our exchange with that society, unless advised to the contrary.

Please send exchange publications to: MASI Exchange
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Places to Be / Things to See

THURSDAY January 19, 2012
General Meeting, 7:30 PM @ Dorsett Village Baptist Church
Gary Lange – "A Lucky Seven"

SATURDAY January 21, 2012
Executive Council, 7:30 PM, Hosted by Pat Tosie

SUNDAY February 12, 2012
Auction @ Gardenville Masonic Hall

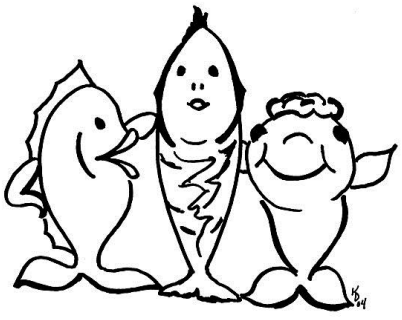
THURSDAY February 16, 2012
General Meeting, 7:30 PM @ Dorsett Village Baptist Church
Juan Miguel Artigas Azas – "Fish of Mexico"

SATURDAY February 25, 2012
Executive Council, 7:30 PM, Hosted by Cory Koch

THURSDAY March 15, 2012
General Meeting, 7:30 PM @ Dorsett Village Baptist Church
Steve Edie - "Keeping Tanganyika's Cichlids"

THURSDAY April 19, 2012
General Meeting, 7:30 PM @ Dorsett Village Baptist Church

April 20-22, 2012
Annual Workshop Weekend and Auction



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 Ron Huck, our membership chair.

Listen & Learn

MASI's Monthly Speaker Program

For the **January 19, 2012** monthly meeting, we will have a talk titled **"A Lucky Seven"** that will be given by our own **Gary Lange**, in this talk Gary is going to tell you about seven brand new and undescribed rainbowfishes that they managed to find in three trips to West Papua, the western section of the island of New Guinea. Gary and his traveling companions had to endure the heat, mosquitoes, leeches and more to find these new rainbows. They had obstacles such as a landslide, a villager's death, dengue fever and a plane crash slow our progress towards finding these new and exciting species. He'll show you photos of these fish along with the areas that they were collected along with some of the other fish they caught that weren't new to science but are new to the hobby.

The **February 16, 2012** monthly meeting, will have a talk titled **"Fish of Mexico"** that will be given by **Juan Miguel Artigas Azas** and as an added bonus, he will give a second talk on Friday, February 17th at the office of Pat Tosie, 3751 S. Lindbergh. Juan Miguel Artigas Azas is an aquarist in San Luis Potosí, Máxico (the very center of it). He has loved fish since he can remember and has kept them steadily in home aquariums for over 30 years now. His main interest are Central American Cichlids and Mexican fishes, but he is also very interested in any other type of fish. He enjoys traveling to the natural habitats of the fish he loves, where he obtains underwater pictures of them. He likes to observe them, trying to understand their natural history and relationships. He has managed to obtain a great knowledge on the biology and geographical distribution of the fishes in Mexico.

Our **March 15, 2012** monthly meeting, will feature a talk by our own President, **Steve Edie,** titled **"Keeping Tanganyika's Cichlids".** Steve Edie has kept fish for nearly 50 years (yikes!). He started in the late 50's with guppies, mollies and danios as most of us did. His Dad got a tank that Steve and his brother took over the maintenance of, and the rest is history. Since that time, he has kept almost every kind of fish available, and some that weren't. He has bred many species, both easy and difficult. In the early 70's he discovered Lake Malawi Cichlids (well, okay, not really discovered, but became interested in them). He kept Malawi's exclusively until the early 80's, when he discovered Lake Tanganyikan Cichlids (well, you know). He then kept Tanganyikan's exclusively into the late 90's, when the evil Mike Hellweg brainwashed him into believing that there were other cool fish that were not from Lake Tanganyika. Steve now keeps about 1200 gallons of freshwater aquariums, split into about half Lake Tanganyikan Cichlids and half everything else. He has had good success in maintaining many different Tanganyikan species and moderate success at breeding them.

The Missouri Aquarium Society, Inc. Horticultural Award Program – The First 20 Years!

By Mike Hellweg

January of 2012 is the twentieth anniversary of our HAP program. Wow! It's hard to believe that it's been over 20 years since then MASI president Kitty Mueller charged me with creating a Horticultural Award Program to encourage our members to keep and propagate aquatic plants, and to help all of us learn more about them. It certainly has been a real learning experience for me and I hope for you all as well. Thanks to input and interest from many members I have been able to keep the program current and due to your participation it has become one of the most robust aquatic plant programs in the country. Way back when there were just a handful of books available and most of the information and pictures were woefully inadequate, if not plain incorrect. Lighting consisted of cool white or aquarium bulbs for most of us. If you were really lucky you had a Gro-Lux bulb in your main tank, but most of us relied on cool white bulbs. There were no commercial fertilizers or special soils so most of us either used older setups with "dirty" gravel or added topsoil under the gravel. In fact, hobby lore of the time said you could not keep Cryptocorynes in a tank until it had been up and running for a year or more. Several of us used the "Reimer Method" (named for the Plant Lady – Dorothy Reimer) and kept our plants in pots or containers (I still do!). Jobe's fertilizer spikes were commonly used to fertilize sword plants, lilies, and Aponogetons. Indoor blooms were rare. CO2 was a gas you added to make soda fizz. In spite of all of this, our HAP prospered and grew (excuse the pun).

I had almost no idea of where to start, so I appealed to other FAAS member clubs, but of the nearly 50 requests for information that I sent out, only THREE clubs responded, and two of them didn't even have any sort of plant program. This was actually a good response at the time, when you could expect a 2 – 3 percent response to a mass mailing. Don't forget that this was in the Dark Ages before most people had computers or had even heard of the Internet.

We had a series of meetings over about a 6 month period and I took the input from that one responding club (the Greater Detroit Aquarium Society) and combined that together with my own and other MASI member's ideas. We decided to model our plant program after our BAP so that the awards and rankings would be similar. With the input of folks like Jim Thale and Ray Schlund we created point levels for various species, and took it from there. Over the years the program has evolved and changed and point levels have been adjusted to keep pace with our knowledge, the level of experience of our members, and the prevailing technology. We added different point levels for getting plants to bloom indoors versus outdoors, and added higher award levels as members progressed through the various lower levels. Now, 20 years on, we have a robust and healthy program and a lot of very knowledgeable plant keepers – both indoor and outdoor. I'd say that our program has been a great success! Here's looking at another 20 years! Well done to all of you, and thanks for making my job so easy!

Here are some interesting statistics:

In January of 1992 we had 29 submissions from 4 MASI members. Two of those members are still active in MASI.

Of the 21 MASI members who participated in the HAP during that inaugural year of 1992, 9 are still active members.

70 participants have submitted 2219 propagations representing over 1500 species/variants/cultivars with 154 Indoor Blooms, 255 Outdoor Blooms, 78 Seed reproductions, and 1731 Vegetative reproductions.

These 1500 plus species represent 74 plant families, with 268 submissions coming from the Araceae (Cryptocorynes, Anubias, Colocasia, Water Lettuce, etc.) followed by 213 from the Alismataceae (Swordplants and Sagittaria) and 136 from the Hydrocharitaceae (Vallisneria, Anacharis, Blyxa, Limnobium, etc.).
The single species most often submitted is *Anubias barteri* – with 59 submissions for its various subspecies and cultivars, followed by *Microsorum pteropus* (Java Fern) with 53 submissions. The most often submitted pond plant is *Eichhornia crassipes* (Water Hyacinth) with 44 submissions. Just because I know someone will ask, Java moss (*Taxiphyllum barbieri*) has been submitted 42 times, Hornwort (*Ceratophyllum demersum*) has been submitted 39 times, and Duckweed (*Lemna minor*) has been submitted 37 times.
The genus most often submitted is *Echinodoras* (the Swordplants) with 137 submissions, followed by 108 *Cryptocoryne* submissions and 95 *Anubias* submissions. The pond genus with the most submissions is the *Nymphaeae* (water lilies) with 84 submissions.
Recently several members have begun to submit marine plant species, and we now have almost a dozen marine species represented already!
Keep 'em Green!

2011 HAP Year End Totals

By Mike Hellweg

42 entries from 8 entrants represent 32 different species (including 4 marine species!) from 20 different families
2 Outdoor Blooms
5 Indoor Blooms
0 Seed Reprodcutions
35 Vegetative Reproductions
The most widely propagated species in 2011 was a marine algae - Caulerpa racemosa, submitted 3 times - This is the first time a marine plant has ranked first!

Participant	Points this year	Submissions 2011	Total Points	Total Species	Indoor Bloom	Outdoor Bloom	Seed
Andy Walker	45	3	520	39	8	0	0
Senior	Needs 1 Seed for Master						
Derek Walker	135	11	3135	237	20	16	13
Exalted Grand Master							
James H. Miller	95	8	310	32	2	0	0
Senior	Needs 1 Seed for Master						
Jerry Jost	15	1	1630	104	22	0	2
Advanced Grand Master							
John Van Asch	40	4	745	61	5	23	6
Grand Master	To be presented						

Kurt Zahringer	10	1	506	0 0	0		
General	To be presented						
Marc & Kathy Daly	15	2	340	32	3	6	0
Senior	Needs 1 seed for Master						
Mike Hellweg	130	12	3160	228	35	15	14
Exalted Grand Master							

HAP Report November - December 2011

Mike Hellweg

Member	Species	Common	Rep	Pts	Total
Mike Hellweg	Caulerpa racemosa	Grape Caulerpa	V	10	3130
Mike Hellweg	Caulerpa serrulata*		V	10	3140
Mike Hellweg	Hygrophila corymbosa Kompacta	Kompact Hygro	V	5	3145
Mike Hellweg	Marsilea sp. Dwarf Water Clover		V	15	3160

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

Member Classifieds

I have bloodworms and brine shrimp. Brine Shrimp eggs $32 for 16 oz. can. I am looking for a 200 gallon tank. Jim Miller, 314-638-1134.

Charles Harrison (314) 894-9761, charles@inkmkr.com –

Thiosulfate crystals (Chlorine Remover)……$3.00 a half pound
OTO double strength Chlorine/Chloroamine test kits - 4 ounce …$12.50
Flubendazole, 10% powder 25 grams …….. $20.00
Lavamisole HCl Powder - 5 grams treats 100 gallons ……...$10.00
Methylene Blue 5% solution (4 ounces) ……$12.75
Acriflavine Concentrate (4%) solution, 2 ounces ……..$12.70
Bromthymol Blue pH test solution, 4 ounces ……$7.00

Wanted: Small Styro shipping boxes - 12 x 12 x 12 or a little bit smaller. If your company uses them and throws them away, save them! Bring to the meeting or I'll come pick them up. Mike 636-240-2443

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 it, in which case it will run as requested.

From the Fishroom

By Ed Millinger

I had the pleasure of visiting Jim Miller's newly enclosed fish room. He's done a great job of including many aquariums without making it difficult to navigate throughout. I also liked the substrate he used in most of his tanks, brown pool sand. I found it at a pool supply store where it costs five dollars for fifty pounds. One pound per gallon works well but it's really up to your personal preferences.

From the MASI way back machine we return to the September/October 2001 issue. The president was Mike Hellweg and the vice-president was Randy Ison. Included in this issue were the results of the October Super Bowl results. There were 42 entries from 15 entrants. First place winners were Marc and Kathy Daly, Pat Tosie, Jim Miller, Gary Lange (3 times), Ron Huck, Ed Millinger, Pat Tosie II, and Noel Roberts. Best in show was a Blonde Betta from Marc and Kathy Daly and the Judges award went to Jim Miller with a Synodontis schoctederi.

Recently we had a some friends over and their son wanted to help me turn on the fish lights. He saw me reach in the middle of the light to turn it on so he tried to reach the same spot on another light but did not find it . Does it ever drive you crazy when there is no symmetry between like items, for instance aquarium lights? I noticed recently the different light knobs and switches on the ones I have. There are push button starters, some are in the middle and some are a third of the way in. There are flip switches, some go left and right some up and down. Some are on the right end of the fixture some, some on the left.

Ray "Kingfish" Lucas mentioned on Facebook that there is a new English version of the Amazonas magazine. It has only been available in German up until now. Check it out at amazonasmagazine.com

Speaking as points tabulator without giving anything away, it has been another great year of participation in keeping this society of fish lovers going. Once again the one hundred point threshold has been broken by more than one person. Don't feel bad if like me you are no where near this threshold. Every person contributes in their own way, and at their own pace. I just like to highlight those who go the extra mile. The service award and bowl show champion will be announced at the workshop banquet in the spring.

Thanks for reading and have a fishtastic day.

An expanded line of MASI Logo merchandise is now available from Café Press. Derek Walker has picked up management of the site and added many new items. Pick from T-shirts, jerseys, caps, tote bags, coffee cups, and more.

Go to www.cafepress.com/MissouriAquariumSociety to view and order the merchandise.

The high-backed pygmy swordtail (*Xiphophorus multilineatus*) from the Río Coy.

By Rich Serva and Gil Rosenthal

Reprinted from the December 2011 Tank Topics of the Greater Akron Aquarium Society

The Genus

The fish in the genus Xiphophorus are members of the family Poeciliidae. Like other members of this viviparous family, males have a gonopodium which is used for the internal fertilization of females' eggs. These fish have been used extensively in behavioral and genetic studies.

These fish were first described as a separate genus by Heckel in 1948. The etymology of the name comes from the Greek words ξίφος (sword) and φόρος (bearer). Most people think the reference to the sword is due to the tail extension of males of many of the species in this group, but it is not. At the time that Heckel named this genus, he was describing three species: Xiphophorus helleri (misprinted as "hellerii" in the original description , Heterandria bimaculata and Poeciliopsis gracilis. The name was given for the modified anal fin, or gonopodium, of the males (1, 2).

Xiphophorus are split into three clades: the platyfish, including X. variatus and X. maculatus, which are broadly distributed from northern Mexico down to central America; the southern swordtails of southern Mexico, and the northern swordtails, restricted to the Río Pánuco and Río Tuxpan drainages of the Sierra Madre Oriental.

In numerous studies, female Xiphophorus have exhibited mating preferences for a variety of physical and behavioral traits of potential suitors: sword (length as well as lack of), color, body size, vertical barring, pheromone cues and courtship behaviors. Some females show preferences for male traits of other species than their own. Behaviors of males are a mixture of those that attract females and those meant to drive off other suitors. With some males, it is a matter of sneaking in at the right time (3).

The dwarf swords

Rauchenberger et al.'s 1990 paper remains the most comprehensive treatment of the northern swords. The nine (9) northern swordtails were split into 3 clades of related species – montezumae clade, cortezi clade and pygmaeus clade. The pygmaeus clade, or dwarf swords, contains two sister species, X nigrensis and X. multilineatus, and a third closely related species, X. pygmaeus (4). The behavior and genetics of dwarf swords has been one of the more active areas of study in recent years.

Xiphophorus pygmaeus was the first member of the pygmaeus clade to be discovered and described as a separate species. The holotype male of this species was collected in the Río Axtla in 1939 by Carl Hubbs and Salvador Coronado. Hubbs and Gordon described it as a separate species in 1943 (5). It remained as the only member of this clade until 1952 when another form of pygmy sword was collected by R T Gregg in a river near Ciudad Valles, less than 100 miles away. In the 1960 paper by Rosen, he described Xiphophorus nigrensis as a new subspecies (2). By the time Rosen's 1979 paper was published, a second population of Xiphophorus nigrensis was known from the Río Coy. Unlike X. nigrensis, some males from the Coy population exhibited prominent vertical bars used in courtship and aggressive interactions. Rosen suggested that further study of the population might lead to the description of a new species (6). In 1990 Xiphophorus multilineatus was described as a separate species by Rauchenberger, Kallman and Morizot (4). The name was taken from the Greek: multi-, many; -lineatus, line.

Phenotypic traits of the male morphs

All three species of the pygmaeus clade are polymorphic for a variety of xanthic (yellowish) pigment patterns ranging from completely yellow bodied to yellow caudal or yellow caudal margins to

no yellow. [the "no yellow" males are a striking iridescent blue especially in the wild]. As in most fish, female pygmy swords keep growing throughout adult life. Males, however, grow until the gonopodium starts to differentiate and then stop growing after sexual maturity. Like mammals, male swordtails have Y chromosomes: When a male matures is determined by a gene on the Y chromosome called the P locus. Depending on which allele, or copy, of the P gene they carry, males mature early and small, and chase after females, attempting to 'sneak' matings; or they mature later, at larger size, and perform courtship displays. In X. pygmaeus, there is only one allele of P, and every male matures early and sneaky. In X. nigrensis, there are three P locus alleles, and in X. multilineatus there are four.

In the table below is a list of some of the genetic and phenotypic traits that are different between the morphs. Because the size ranges overlap, line breeding the males then looking at the traits of the male progeny is the best way to determine what size morph is the male. Males carry one of four size genes on their Y chromosome: Y-s, Y-I, Y-II or Y-L. In addition, some males carrying the Y-s (small size allele also carry the gene for yellow body color. The Small size and Yellow body color gene appear to be closely linked since the body color gene does not does not show up in any other size morph even during breeding experiments. Since the P gene is on the male-specific Y chromosome, the female parent does not contribute noticeably to the male's size genetics.

Vertical barring develops in males at maturity and is considered a secondary sex character. Females will show barring after treatment with androgenic hormones. In the males there is a strong correlation between standard length (snout to caudal peduncle) and number of bars. Although small size males can show barring, there are a lot less bars on average in the small size males and the bars lack in intensity compared to the bars on the larger size morphs.

In many species of swordtails the presence and intensity of vertical barring is both an attractant to females and an aggressive move on other males (a move that 'calls out another male'). Barring is still an attractant for a female's attention but in Xiphophorus multilineatus males, it is a signal that deters rival males. This bears out through experiments. Males with artificially induced bars (additional bars painted on the males) attract females. In addition a male's bars will intensify as he becomes aggressive towards other males, but the bars will quickly fade if he loses a fight (10).

	Small Blue	Small Yellow	Intermediate-I	Intermediate-2	Large
P allele for size	Y-s	Y-s	Y-I	Y-II	Y-L
Size range, mm	22 - 28	22 - 28	25 - 32	29 - 38	32 - 42
Deep body size, larger dorsal &					+
No of vertical bars present	1 – 7, avg. 2.7	1 – 7, avg. 1.7	6.5 – 9, avg. 8.4	7.5 – 11, avg. 9.2	7 -12, avg. 10.1
Blue body color	+		+	+	+
Solid yellow body color		+			
Yellow caudal fin				+	
Yellow caudal fin margins			+		+
Yellow sword					+

Size range for male morphs as reported by Zimmerer and Kallman (7, 8), Vertical barring data reported by Zimmerer and Kallman (9)

Behaviors of the male morphs

There are certain courtship behaviors that are different between the morphs. A male will approach a female, touch her genital pore with his snout, corral her (rapid back and forth in front restricting the female's movements) and swing his gonopodium. After repeated episodes of these movements a receptive female may approach the male making jerking motions. The pair will swim together making jerking movements. The male may then attempt to copulate. Males unsuccessful attempt copulation more frequently then they successfully copulate. Large males appear to communicate more readily with females to a successful end. Studies also found that females may prefer Intermediate-2 males to Large males.

Fish with s alleles can switch between frontal displays to darting in to breed (sneaking) with the females. In laboratory studies s males would perform frontal displays for females when in tanks with no larger males present but would only perform sneaking behaviors when larger males are present. This mating behavior remains even with the Y-s males that are larger than the smallest Y-I males which gives credence to the theory that there is a genetic basis to the behavioral polymorphism (11). Females show a preference for the blue small males over the yellow (small) males; however, the yellow males are more dominate and more successful when breeding with females. Y-L morphs may force copulations with females that do not respond to courtship. (12)

When breeding experiments are set up with both a Large and a small male in a tank with a female, 75% of the offspring are sired by the Large male. (7). There is definitely a mating advantage in the wild (you can tell by looking at the fry that wild caught females have produced and see that most of them are sired by large males) but it is offset by the fact that small males are much more likely to reach sexual maturity. Since it's a genetic polymorphism that is maintained in the wild, the fitness of the morphs has to be equal. If small males had a big advantage over large males, they would spread rapidly to fixation. This seems to be what happens in X. pygmaeus where there are only small males (there are larger males but the cause appears to be non-genetic and certainly not the p locus).

Another experiment studied the multiple paternity of wild caught females. Fish in the family Poeciliidae are capable of storing sperm for up to 6 months which complicates a study of this nature. The experimenters used DNA fingerprinting techniques to determine whether females were mating with more than one male. Multiple paternity was concluded when more than two paternal alleles were found at a locus among the progeny of a family. The impact of multiply mated broods was small. It is far more usual for one male to father a brood (13).

A more recently published study on mating preferences of wild females adds a new dimension to the behavior issue – the size of the female. Since female Xiphophorus multilineatus will continue growing throughout their lives, smaller females are synonymous with younger females. Smaller females appear to be more inclined to breed with smaller males while larger females are more likely to breed with larger courting males. It is common for females preferences to change based on age, experience and condition. It is not necessarily a bad thing for a younger female to be less picky about whom she mates with. (14).

Differentiating the pygmaeus clade

Xiphophorus multilineatus has a single dense midlateral stripe. Males show numerous vertical bars along the flanks. This trait is most prominent with dominant males. The genes for both sword bearing and sword less males are present in this species. Sword carrying males show dark pigment on the ventral edge of their swords. The dark dorsal edging appearing first at the farthest end of the sword is rarely present. The sword has yellow pigment. The sword is usually curved in immature males, but becomes straight as the individual's tail becomes longer. Many populations carry the Cb polymorphism, which produces an oval blot on the caudal fin close to the caudal peduncle. This spot is most apparent with dominant individuals. The caudal fin carries 10-13 rays.

Since the northern swordtails can be difficult to distinguish, and fish can be distributed throughout the hobby with the wrong name, the following traits are some ways to differentiate X. multilineatus from X. nigrensis and X. pygmaeus which are closely related to it. X. multilineatus and X. nigrensis produce both males with and without sword. X. pygmaeus is a sword less species of Xiphophorus. Large and intermediate (I & II) morph Male Xiphophorus multilineatus show numerous vertical bars along the flanks. The bars are more prominent on dominant individuals. Like X. pygmaeus, X multilineatus produces some males that are entirely yellow (small morph); however, this trait is not in the X. nigrensis populations. I find it essentially impossible to tell the yellow OR blue smallest males apart in the three species – pygmaeus look just like small multi and small nigrensis. You don't want

people breeding the smallest morphs and calling them pygmaeus. The females are also impossible to tell apart!

Natural habitat

Xiphophorus multilineatus is found in the Río Coy system, Río Panuco drainage. It is found extensively in Río Coy, Arroyo Tambaque and Arroyo Oxitipa (as far as Octzen).

They are found in fast moving streams with sandy to muddy bottoms with stands of submerged aquatic vegetation.

Personal observations

As luck would have it, I (Rich) was given the opportunity to visit Molly Morris' laboratory at Ohio University early last summer. I was given a tour of the laboratory by her technician Jason Brewer. The lab has over 100 aquariums set up for breeding experiments and long term maintenance of her stocks. They keep lines of all five color/size morphs as well as the other species of swordtails. Besides allowing me to observe her set up, I was given the opportunity to photograph the various morphs.

Gil and I had also taken a trip to the University of Texas - Austin where we visited Michael Ryan's laboratory and outside ponds. Dr Ryan maintains stocks both in the lab and in outside ponds. Students were performing a number of behavior experiments involving the various male morphs during the time of our visit. Mike Ryan also allowed me access to his stocks for photographic purposes.

During a trip from Texas to Centro de Investigaciones Científicas de las Huastecas "Aguazarca", we had gotten the opportunity to visit the Rio Coy and photograph the location as well as some of the male morphs. The main channel cut into the bank making a steep entry into the river. Vegetation grew along the edge of the bank. Water was fast moving but quite clear. GGR and his graduate student, Zach Culumber, seined for fish along the bank and in a small channel cut in the bank while I took photographs. They were able to catch 3 of the 5 morphs for photographic purposes.

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FISHES as DISHES

Patrick A. Tosie, Sr.

We all love our fish! This column will be dedicated to using our fish for something tasty to enjoy. Try it, you may like it. If you have leftovers, bring it to a monthly meeting for others to enjoy.

Baked Tilapia with Tomato and Basil

Ingredients:

Nonstick cooking spray
2 (8-ounce) tilapia fillets
1/2 teaspoon salt
1/2 teaspoon ground black pepper
1 tablespoon minced fresh basil leaves
1 teaspoon minced fresh oregano leaves
1 teaspoon onion powder
1 teaspoon minced garlic
3 tablespoons olive oil
1 large tomato, thinly sliced
1 teaspoon fresh lemon juice

Total Time: 30 minutes, Preparation - 10 minutes, Cook - 20 minutes, Makes 2 servings.

Directions:

Preheat the oven to 400 degrees F. Spray a shallow 1-quart baking dish with nonstick spray. Sprinkle the fish evenly with salt and pepper. Arrange the tilapia in a baking dish and sprinkle evenly with basil, oregano, onion powder and garlic. Drizzle with 2 tablespoons of the olive oil. Arrange the tomato slices evenly over the fish, and drizzle with the remaining 1 tablespoon of olive oil. Bake until fish flakes easily with fork, about 20 to 25 minutes. Squeeze the lemon juice over fish and serve immediately.

American Killifish Association

The American Killifish Association is pleased to announce its **50th National Convention**, which will be held at the **Crown Plaza –St. Louis Airport Hotel** on **May 25th, 26th and 27th, 2012**. The convention is opened to all aquarium hobbyists, both AKA members and non AKA members, and hobbyists new to killifish will find the weekend very exciting and informative. You will have the opportunity to see and purchase more species and varieties of killifish than you will see in any general aquarium show, and will have the opportunity to hear some outstanding speakers on a variety of fish related topics.

Ask Jack Heller – (314) 576-5111, hellerjackl@aol.com if you have any questions about the convention or would like to help in the running of the convention.

Speakers:

There will be seven different presentations and workshops, including programs on collecting in Africa by Holger Hengstler of Germany, a program on collecting on the Gulf Coast of Florida and Louisiana by Charlie Nunziata and Tony Terceira, a program on blue eyes by Gary Lange, a program on live foods by Mike Hellweg, a program on the evolution and genetic relationships of West African killifish by Dr. Glen Collier and a program by the New England Killifish Association on fish room management. All speakers should be interesting and informative.

Fish Show

The show will provide the opportunity to see a tremendous number and variety of killifish from many of the finest killifish hobbyists in the world. This is a rare opportunity to see more species of killifish than will be assembled in one place at one time than almost any other place in the country.

Fish Sale:

The fish sale will provide the opportunity to purchase killifish at a fixed price prior to the giant Sunday auction. There will be available a large selection of killifish and killifish related items for purchase.

Awards Banquet:

The convention always includes a Saturday evening awards banquet with great food and discussion followed by an awards banquet.

Sunday Auction:

The giant Sunday auction is the grand finale of the weekend. This is the opportunity to bid for all of the fish in the show plus many more new and rare fish reserved for the auction. The bidding is fast, furious and exciting and a lot of fun.

Hope to see you there!

What in the world is a TDS meter and why would I care?

By David Ramsey

Reprinted from the October 2011 Fish Talk of the Atlanta Area Aquarium Association

I use a Hanna Instruments TDS - 1 meter. Very economical to purchase, usually for less than $20 or $25. I bought two of them on sale two years ago and they both still work fine. The 'hearing aid' type batteries they use are easy to find in the drug or grocery stores.

http://www.hannainst.com/usa/prods2.cfm?id=003003&ProdCode=TDS%201
resolution 1 ppm mg/L
conversion 1 ppm TDS= 1.56 microS/cm

Without using a lot chemistry, what can I do with one of these meters? Here in north Georgia we all have extremely soft water.

Since I know I start out with basically nothing water, I add a handfull of crushed oyster shells and some oak leaves. The water is initially stored in 2 big garbage cans with an airstone bubbling. After about 24 hours, the water will be up around a TDS of 60 ppm. So this becomes my baseline when I do water changes. I know that the water has some calcium and magnesium for buffering, along with the phosphates that are put into the water to help the ancient pipes of the water system. That is it.

Starting at 60 ppm tells me that anything above that is coming from the tank with the fish and plants. It can be fish waste, food decay, plants dying, additives for the plants, or who knows. Whatever it is, I consider it bad. When the TDS gets up around 300 ppm I know the contaminants are getting to be a lot. So time for a big water change. I have no faith at all in anything smaller than a 75% water change. Doing the math of TDS and water changes rapidly shows that smaller water changes are a waste of time. The bad water has to be removed.

So water changes can end up being every couple of days for a tank of angel fish growing out. Large food consumption results in a lot of waste and the water 'goes bad' quickly. A couple of killies in a 5 gallon tank with java moss and other plants could go a couple of months. The plants consume the waste keeping the water in good shape. I use the meter to determine what I need to do.

I know that is very unscientific because I do not follow the pH or worry about what it is that is in the water. But I know precisely what I start with. Anything after that is variation from what I want the norm to be.

When does this not work? So far it always works. I may have to adjust what my beginning number is, but from that point on the meter tells me as the contaminants build up in a tank.

African cichlids need drastically different water than I have. I have to make up special water for them. For the hard water fish I have another garbage can that I harden up to a TDS between 400 ppm and 600 ppm. After that I can use the same logic. If I start with 400 and after a couple of weeks in the tank it is up to 900 ppm, then there is 500 ppm of 'contaminants'. It is time for a big water change.

Wild bettas want the water very soft with a very low pH. They are difficult for water quality monitoring. I use a lot less oyster shell and a whole lot more oak leaves. A pH of 5 with my water is easy to do. Some wild apistos like low pH also. A couple of crushed big oak leaves per 10 gallons of water will hit a pH around 5 about the same time you notice the tank looking like Georgia sweet tea. Bingo, the bettas will start spawning. When the water gets to this color and pH, I take a TDS reading. This becomes the base for this tank.

How do I keep all this straight? Painters tape is my salvation. It sticks but doesn't stick. I tear off a couple inches and put the tape on the upper left corner of the tank. Here I can write the TDS, the date of last water change, any medications, whatever I need to record for this tank. If you are living somewhere else and have much harder water, these same rules will still apply. The local water department will give you a printout telling you what is in your water. Whatever it is, a TDS reading will tell you what you are starting with. Then you measure the changes. Remember, what you are always working on is finding the TDS of when the water is 'right'. Then measure the differences in total hardness and use that as the guideline of when to do water changes.

This doesn't work for the planted tank people that load up a tank with fertilizers for a week, do massive water changes, and then load up with fertilizers again. They are purposely overloading with chemicals for the plants, pulling them all out every few days or weeks, and restarting with a fresh overload. I know, doesn't make sense to me, but I have seen some absolutely incredible planted tanks that are maintained that way. But for the rest of us, a TDS meter can be the tool to get a handle on your water quality. What can you do with a TDS meter? Plenty. Mostly a TDS meter can tell you when to do water changes and when not to. My water bill is high enough without doing water changes that do not need to be done. And the poor fish that are swimming in the soup? They get the water changes. And it is a lot easier to do than dripping drops of pH test solution into those creepy square test tubes. Keep the water right and the pH will take care of itself.

Correction or Amendment to Camouflage: Avoiding Predators which appeared in the May 2011 issue of the Paradise Press

By Pat Smith

Reprinted from the June 2011 Paradise Press of the Long Island Aquarium Association

[Editor's Note: The original was printed in the Sept/Oct/ 2011 Darter]

I am thrilled! After all this time, it is clear that someone has read one of my articles!!! It has been brought to my attention that a member of the board, whose opinion I respect, reported that the following statements are not totally accurate.

"They rely on camouflage to catch fish, injecting them with their venom. They are often covered with algae and other types of wart-like growths or spiny knobs. They tend to burrow down into the sandy substrate so that only their upper head or eyes protrude. One of the drawbacks to this is that they may end up being stepped on by humans. Their venom is rendered harmless by heat so by placing the foot or affected area into hot water will eliminate the danger."

It should be corrected to state that the venom is not used as a means of killing their prey but is merely a defense mechanism. **1000 Photos of Aquarium Fish** by Marie-Paule and Christian Piednoir, Barron's verifies this by stating *"This weaponry is entirely defensive, as stonefish have no way of actively attacking an enemy. Indeed, pressure on the dorsal spines inflicts the wounds by which the*

stonefish's venom enters the body." The real danger is to humans who may step on them, not noticing them burrowed into the sand. Stonefish do rely on their camouflage to help catch fish, taking advantage of their spiny growths, coloration and body shape to blend in with their surroundings. As fish swim by, they open their large mouths, gulping their prey.

It was also corrected that the venom is not rendered harmless by heat. However, in the **Encyclopedia of Fishes, A Comprehensive Illustrated Guide by International Experts**, consulting editors Dr. John R. Paxton, Australian Museum, Sydney Australia and Dr. William N. Eschmeyer, California Academy of Sciences, San Francisco, Ca.(2004) it is stated on page 180 that "*The venom is denatured by heat, so placing the foot or affected area in hot water will render the venom powerless".* Numerous Internet websites also mention the use of hot water to neutralize the venom. I found it interesting that this book included the fact that in Australia research is being done to see if the venoms can be developed into useful pharmaceutical products.

On the other hand, it is a fact that the venom can cause paralysis or death if not properly treated. **The Aquarium Encyclopedia** by Gunther Sterba, 1977) page 519, states that "*Despite their fairly meagre size, the Stonefishes are among the most poisonous of all fish. A nerve poison flows down the spine grooves and disturbes the musculature of the heart and respiration. There have been incidences of fatalities because respiration has been totally paralysed."* With that in mind, I don't think I would trust the venom being rendered harmless, and would definitely seek medical attention.

I would like to extend my thanks to my fellow hobbyist for submitting the corrections. Spreading correct information is important, and sharing the correction of inaccurate information just as important. I realize that the older the books cited, the greater the chance of finding outdated material.

On the other hand, I am somewhat wary of information gleaned from the internet, since that venue makes errors easier to be missed, repeated and accepted. I did however; suggest an internet search to find more information on the varied and diverse fish that utilize camouflage. Thanks for reading!

Editor's Notes

Steve Deutsch

This starts my eighth year editing The Darter. All the support from those who write the Darter, print the Darter, assemble the Darter, and mail the Darter is appreciated, and essential.

Depending on how you look at it, we either have a lack of our own content this issue, or an opportunity to print a few exchanges. We did have articles from Mike Hellweg, Ed Millinger, Kathy Deutsch, and Pat Tosie, but can always use more. Kathy also provided the cover. I do know of a couple of people working articles for future issues. The low volume of content did force me to catch up on looking through exchanges for articles. We have reprints from EIAA, PCAA, LIAS, AAAS, and GAAS. I also found that Kathy's article on school/flock/group behavior "How Chickens and Fish are Alike" was reprinted in the October 2011 Fin Flap of the Eastern Iowa Aquarium Association.

My next task will be to gather last year's articles for judging for the Ralph Wilhelm Publication Award. We'll learn the winner at the annual banquet. Meanwhile, it is time to start entering for next year's award. How do you enter? All articles for The Darter are automatically entered, so all you need to do is write.

If your New Year's Resolutions involved doing more for the club / hobby, you can start by writing an article. (Anyone sense a theme here?) Deadlines this year will be Feb 15 2012, April 15 2012, June 15 2012, August 15 2012, and October 15 2012.

Club Hopping 2012

Steve Edie

Note: Some dates are tentative.

Jan 8, 2012 - Milwaukee: Milwaukee Aquarium Society – Swap Meet

Jan 14, 2012 – Urbana, IL: Champaign Area Fish Exchange - Auction

Feb 12, 2012 - St Louis: Missouri Aquarium Society – Auction

Feb 19, 2012 - Chicago: Greater Chicago Cichlid Association – Swap Meet

Mar 23-25, 2012 – Hartford, CT: North East Council – Annual Convention

Apr 13-15, 2012 - St Louis: Missouri Aquarium Society – Annual Workshop

Apr 22, 2012 - Chicago: Greater Chicago Cichlid Association – Swap Meet

Apr 26-29, 2012 – Miami: American Livebearer Association – Annual Convention

May 25-27, 2012 – St Louis: American Killifish Association – Annual Convention

May 25-27, 2012 – Chicago – Greater Chicago Cichlid Association – Cichlid Classic

July 7, 2012 - Urbana, IL: Champaign Area Fish Exchange – Auction

July 11-15, 2012 – Indianapolis: American Cichlid Association – Annual Convention

Aug 12, 2012 - St Louis: Missouri Aquarium Society – Auction

Sept 19, 2012 – Everywhere: Talk Like a Pirate Day

Oct 6, 2012 - St Louis: Missouri Aquarium Society – Swap Meet

Oct 18-21, 2012 – Herndon, VA: All Aquarium Catfish Convention

Nov 1-4, 2012 – St Louis: Aquatic Gardeners Association – Annual Convention

Nov 11, 2012 - St Louis: Missouri Aquarium Society – Auction

Nov 16-18, 2012 – Cleveland: Ohio Cichlid Association – Extravaganza

Check with the individual clubs for more details.

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Reflections: Whither the dither?

By Ron Coleman

Reprinted from the November 2011 Cichlid Blues of the Pacific Coast Cichlid Association

Recently I was trying to get two large aggressive fish, namely adult *Parachromis dovii*, also known as the wolf cichlid, to spawn. The male is about a foot in length and the female is about 2/3rds his size and I know from experience that the male can inflict lethal damage in a short amount of time. To prevent this, I placed them in a large tank – actually the large plexiglass tank I purchased at the PCCA auction earlier this year. It is about 170 gallons. To the tank I added lots of rock, wood, some large plastic plants and pieces of ABS black plastic pipe. In case you don't know – and I didn't until I tried it – some ABS pipe floats and some sinks. The straight pieces float at the water surface, while the "Y" connector pieces sink. I wanted both so that the female would have many places to hide. I tried to choose pipe that was large enough for her, but a little too small for the male to easily enter. She spends a lot of time hiding. I am hoping that eventually the pair might spawn.

Another thing I added was a large male convict cichlid as a "dither" fish, i.e., basically he is a fast moving target to divert the male's attention from the female at least some of the time. This got me thinking: where exactly did the term "dither fish" come from? I vaguely recalled that George Barlow had coined the term many years ago, and with a little digging I found the original paper. It was a paper entitled "Dither – A Way to Reduce Undesirable Fright Behavior in Ethological Studies", published in the journal *Zeitschrift fur Tierpsychologie*, now called the journal *Ethology*.

In George's original paper, he talked about using "dither" fish for a somewhat different purpose than I have come to use them for. Basically, he was concerned with the fact that when observing fish in a fish tank (in his case, for experiments on behavior), the fish sometimes seemed relatively "comfortable" and acted naturally, whereas at other times, they exhibited fright behavior, typically sitting motionless on the substrate. This behavior is almost never seen in nature (unless a fish really is frightened, such as by a passing predatory bird).

George suggested that the environment outside of the tank could be critical in eliciting one state or the other. If fish were kept in a busy environment, with lots of activity outside the tank, fish often became used to high levels of activity. However, intelligent fishes, like cichlids, would respond in complex ways to the variety of stimuli, making it difficult to understand in detail. At one point, he even conducted an experiment in which he would kick or bump the tank every 10 to 25 minutes. This actually served its purpose of reducing fright but it had to be done continuously and was not very practical either for him, or for the typical aquarist. Imagine signs on tanks in public aquaria: "Please bang on glass!"

The opposite approach was to keep the fish entirely isolated, perhaps by covering the tank with plastic so that no outside stimuli would bother the fish. The problem with this was that when George went to observe the fish, they were unaccustomed to the presence of a looming giant outside their tank, and so they became even more frightened. Solutions included observing the fishes through narrow slits in the plastic, or using one-way mirrors. The more elaborate the attempt to sneak up on the fish, the more sensitive the fish became to detecting the "intruder". Some studies even showed fish detecting visitors by the vibrations made by walking up to the tank.

The solution was to include small fishes of a different species in the tank. If selected carefully, these fishes would provide continuous motion that seemed to reduce the tendency of the focal animals to exhibit fright behavior. George tried guppies and other livebearers, but true to form, they made more little livebearers that would get all over the place. In one experiment he conducted on orange chromides *(Etroplus maculatus*), he tried using Florida flagfish *(Jordanella floridae*), but the two fish, though not related at all, look a fair bit alike and use space in similar ways, such that the flagfish actually interfered

with the behavior of the chromides. Eventually, as many others have since discovered independently, George found that danios make great dither fish for cichlids. They are constantly in motion and tend to stay towards the top of the tank, whereas most cichlids stick near the bottom. Personally, I prefer giant danios *(Devario aequipinnatus* formerly *Danio malabaricus),* because they are really fast and can manage to stay alive. Be careful with them, however, because if you do not cover your tank, your giant danios will inevitably end up on the floor. Paul Loiselle, who was a student of George's way back when, suggests danios and similar fish for soft to neutral water, and others, such as rainbowfishes for hard, alkaline water (Loiselle 1994). He cautions that some fish that look like they might be good dithers, such as Mexican goodeids, are not good choices because they tend to be aggressive and may interfere (or worse) with your other fish. Similarly, fishes like some of the tetras in the *Roeboides* group look innocent enough, but have the nasty habit of eating fins or scales of other fishes, including cichlids. Paul, in fact, differentiates between "dither fish" and "target fish", the latter name more aptly describing my use of these fishes not to reduce fear but to serve as targets. He recommends silver dollars of the genus *Mylosoma* as good target fish for moderately sized cichlids. The two concepts "dither" and "target" are similar and the overall goal is the same: to make your fish feel "more at home" so that they can act more naturally.

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Fall Fish Festival! -- On the Road With Marti & Dennis

By Carol Sindelar

Reprinted from the November 2011 Fin Flap of the Eastern Iowa Aquarium Association

One of the great things about traveling with Marti & Dennis is that leaving the house at 6 AM to be at the event before the first speaker at 9:30 just seems like normal behavior to them. Marti arrived with only a slight delay, forgot to feed the cat and had to go back. Dennis has had too many cups of coffee and is READY! The anticipation on the road is delightful. What fish will be there? Who will be there? What wlll we hear? What will we learn? The only thing not up for debate was, will we have a good time? Of course we will! That was the whole purpose of this adventure. So down the road we go, into the darkness, heading for Madison, Wisconsin.

Side note: why don't GPS systems that navigate your trip anticipate having to take bathroom breaks. One turn off their selected itinerary and they are barking commands at you, turn left, turn right. .8 miles. Sorry, I just have to find the bathroom, and it is not on this highway.

We made it with minutes to spare and were able to hear all of the speakers: Bob Vang - Fancy Bettas. *Mike Hellweg: Dwarf Rasboras,* Ted Judy - Managing *Corydoras* Eggs and Larvae, Jim Gasior – Introduction to Killifish, *Matt Pederson - Breeding Marine Fish,* Michael Laursen - Vinegar Eels, Bob Borger - Dry Food Nutrition, Charles Harrison - Treating for Parasites, Terry Fairfield - Disease Topic, Jeff Michels - CO2 Injection Systems for Planted Tanks, Randy Peterson - Plants in Bare Bottom Tanks, Phil Salant - Matt-foam Wall Filtration. Awwesome. Short, to the point, slides, pictures, videos … Awesome. We learned things we did not know and saw things we did not what to see. (the youtube video of some sort of fish parasite crawling out of fresh fish fillets at a (people) food market.) Ok, that was creepy but it will sure made us remember the talk on Parasites. Each and everyone of the speakers had some tidbit that we did not know. Great job.

Pete and Beth showed up about mid morning. Yea, some people have to work. So now the vendors are starting to comment on all these Iowa people. We just snicker and smile. Yes we are here!

The vender rooms (2) were diverse. Since we attend a lot of Cichlid events it was refreshing to see the variety, Fish to Frags -- Plants to Plecos. Livebearer, Bettas, Catfish, PLANTS, Halfbeaks, Gudgeons, Killis, Kuhlis, rocks, wood, foam, filtrations, and Frags! And Captian Bob! Heaven!

And if we did not spend enough time and money there, they were having a Box Sale. We are liking this concept although the name makes me think of the movie, Oklahoma where Curly buys Laury's picnic lunch. Ok, they are not selling lunches. Here is how it went. People bring bags of fish to sell, like an auction. But, they place a sale price on it like a swap meet. But, they leave it in the possession if the Club, like an auction. But the club sells it items, like a vendor room. Then the club splits the price (that was set by the seller) 20/80. Left overs are either returned to the seller or held over for the auction on Sunday. We liked it and spent money there too.

We would be remiss if we did not tell about the all day raffles. Every two hours there would be a raffle drawing for items that were displayed on the table. You had to be present, it was pick of the table. Then they would toss out all of the left over tickets, set up a new selection of raffle items and we could put more tickets in for the next drawing. We participated all day. It became a great mixer as the usual suspects would gather for
each drawing and cheer each other on as the numbers were read. About mid afternoon the drawing was about to start and I commented that I really wanted the 10 gallon cube from Marineland. So Randy, our raffle guy, invites me to draw the first number and I reply, but what if I draw my own number? He laughed. I then reached in, shook the tickets around and ….. Drew my own number. The Marineland Cube came home with us. All of us won something, in total, worth way more than we spent on raffle tickets. And we got to know some new folks.

The evening speakers were ***Mike Hellweg & Ted Judy*** from ***The Breeder's Challenge.*** If you are a regular reader of TFH you should know that Mike and Ted had a little contest where they spent 12 months seeing who could breed the most fish. They spoke about what that experience was like for them. The purpose was to get people in the hobby fired up about breeding fish again. It was huge. They originally thought they would breed 50 or 60 fish in a year. Of over 250 attempts, each, they succeeded in having viable, 8 week old fry from, 152 spawns (Ted) and 169 spawns (Mike). And this was different species, not just different color morphs. So I am thinking, can I even name 150 species? Great evening of conversation.

So after an early evening in the Hospitality suite, we retired for the evening, looking forward to the aution Sunday at 11. We knew the hotel had a free (with your room) breakfast buffet waiting for us in the morning so we were worry free until the auction.

The AUCTION! What can we say. Refreshing comes to mind. Just like in the Vender Room and in the Box Room, the Auction had a very diverse selection of fish, and plants. Our original intent was to stay for a short while and then head back to Iowa. But there were somany fish we just don't see in Iowa that all of us, Marti, Dennis, Pete, Beth and I stayed to the end!!! And bought, well, two styros each of fish and plants. We had to buy extra styros. Marvelous selection. Lots of Killis, bags of petrecola, bags of Multipuntatus, livebearers we have NEVER heard of, Rasboras we have NEVER heard of, rice fish, German Boesmani rainbows, Bettas, endlers IN ASSORTED COLORS AND STYLES, livebearers , many, many cory species, lots of Victorian Cichlids, Moscow black Guppies, peacock gudgeons, and on and on. If there wasn't a fish you needed at this auction you were just not trying. And most were bred in the club. BAP!

As we ride back to Iowa and reflect on our outing we are remembering, friendly people, courteous hotel staff, amazing variety of everything (speakers, fish, plants) and Dennis even made it to the hospitality room! The anticipation for the fish to arrive at the microphone was exhilarating. The thrill of winning raffle prices made it fun. We look forward to attending their next auction and we hope they have another Fall Fish Festival, mostly so we can attend! Thanks MAAH!

ARE YOU A FISH NUT?

Reet Thomas Jr

originally published May/June 1982 Darter, submitted by Ed Millinger

1. You have the jawbone of piranha as a doorknocker!
2. You never leave the house without at least two stryo boxes and several plastic bags and rubber bands!
3. Your idea of a romantic weekend is to take your spouse to a fish show!
4. Your spouse won't let you go into a fish store with a charge card or more than $10 in your wallet!
5. You won't go into a fish store without a charge card or less than $10 in your wallet!
6. If there's a management meeting at work and your fish club is having a meeting, you go to the fish meeting!
7. Your wife suggests some remodeling and you tell her your fish room is just fine for the present!
8. You're buying a new car and the only prerequisite is that you can get at least four styro boxes in the trunk!
9. Your favorite T-shirt is one that read 'I LOVE TROPICAL FISH!'
10. Your divorce papers name your fish as co-respondents!
11. You remember the date you spawned a rare fish faster than you remember your spouse's birthday!
12. Your camper has a built- in aquarium!
13. You have an insulated and waterproof piece of luggage!
14. Your vacation pictures are of pet shops you visited!
15. Your favorite pet shop has your beeper number!
16. The pet shop owner invites you to his daughter’s wedding!
17. You have more fish than your fish store!
18. You get a Christmas card from your power company!
19. Your spouse suggests you take a romantic cruise, and you say, "Great! I've always wanted to see the Amazon!"
20. You have a fridge in the basement that is only for fish food!
21. You have a matched set of nets with chrome handles!
22. You're getting married, and when your friends ask where you are registered you tell then the name of your pet shop!

My wife Rosetta and Delores Miller came up with a few of their own.

23. If you're having company, you have to lock up the fish room and she holds the key. This way you can't spend the whole evening showing off your fish!
24. If she overhears you talking sex on the phone, she knows you're talking about hard-to-spawn fish!
25. If she wants you, she knows where to find you-in the fish room!

If she finds a strange phone number in your pocket, she's not concerned - she knows it's just ANOTHER FISH NUT!

Educational Outreach Report - January 2012

By Kathy Deutsch

MASI has a mandate in our by-laws to educate. In the past this has meant sending speakers to schools to set up and maintain fish tanks as well as give talks. We also had knowledgeable people available at our shows, meetings and auctions to "talk fish" with anyone who was interested.

These are still facets of what we do. But with the wide reach of the Internet, MASI has a chance to do much more, to educate people all over the world.

Recently I got an email from a librarian who used our website to help teach children in an after school group about fish. Members of this after school group also suggested websites to us.

I have been thinking about how to approach the task of educational outreach. I have had a volunteer and we will be brainstorming soon.

In order to build an educational outreach program that is self-sustaining, we need:
volunteers, ideas, implementing the ideas and upkeep. "Build" is the defining word; we can't do this all at once. It will take time.

In 2012 my focus is on our website. It is good, and is maintained by volunteer Charles Harrison.
I will be working to make the website a quick reference for people of all ages looking for aquarium/fish/aquatic plant/water information.

WHAT YOU CAN DO:
-if you have knowledge about the above topics, write a short, informative article. If you can write for a younger audience, even better.
Submit it to me. Once I check it out, I will get your permission to publish it on line as part of our MASI knowledge database.

-if you have ideas for topics, let me know and I will find someone to write an article.

-if you know a good educational website (without ads) pass it along. If we can link to it, we will.

-if you have any other ideas about how MASI can educate the public, let me know.

Thanks!

Electronic Distribution Now Available

For those who prefer, the Darter is now available electronically, instead of the paper distribution. To change from paper to electronic distribution, email me at editor@msiiouriaquariumsociety.com. You will get your Darter sooner and the club will save printing and postage.

The Computer Page

Steve Deutsch

MASI's official web page: **www.missouriaquariumsociety.com**
MASI's email group: MASIFishHeads Yahoo Group - see web site for joining instructions

Addresses are only printed with permission of the owner. If you would yours added, please email me at steve@skdeu.com. If you would like yours removed, or if it needs correction, also please email me.

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