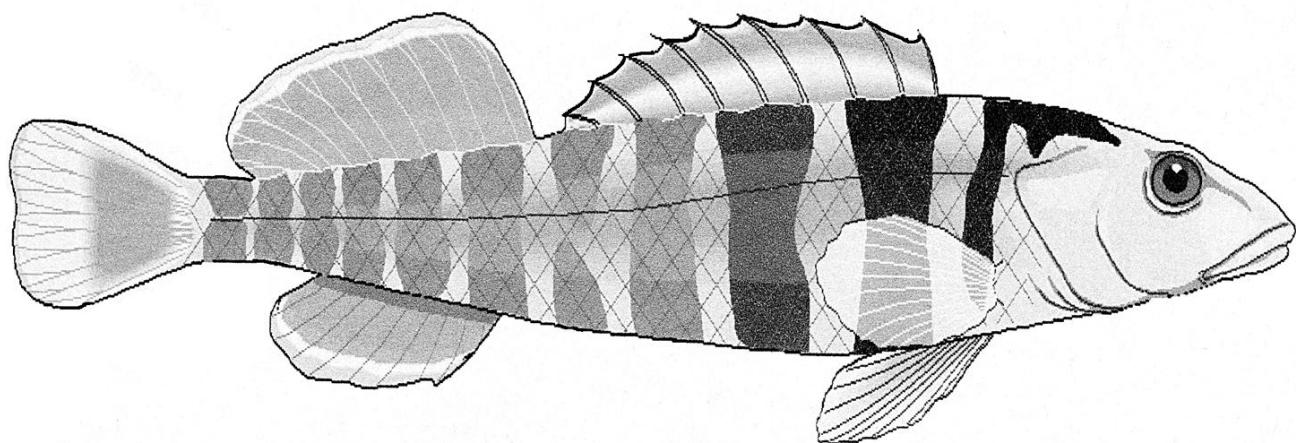


The Darter

September - October 2012



Missouri Aquarium Society, Inc
St. Louis, Missouri

2012-2013 MASI OFFICIALS

PRESIDENT:

Pat Tosie
1813 Locks Mill Dr
Fenton, MO 63026
314-616-4316
pattosie@yahoo.com

VICE PRESIDENT:

Kathy Deutsch
9 Old Jamestown Ct.
Florissant, MO 63034
314-741-0474
kathy@skdeu.com

TREASURER:

Marlon Felman
1570 Candish Ln.
Chesterfield, MO 63017
636-536-4809
marlon.f@charter.net

SECRETARY:

Cory Koch
22 Briarcastle Ct.
O'Fallon, MO 63366
636-278-0736
sithlid@gmail.com

EXECUTIVE COUNCIL:

Damon Cartmell	damon.cartmell@att.net	314-565-6815
Charles Harrison	charles@inkmaker.com	314-894-9761
Nick Scarlatis	nscarlatis@sbcglobal.net	314-808-5965
Mark Theby	markrehabber@yahoo.com	314-428-3536
John Van Asch	johnsfishy0731@att.net	618-604-7228
Andy Walker	awalker02@sbcglobal.net	636-443-1440

COMMITTEES:

Advertising & Promotions	Mark Theby	314-428-3536
Auction Chairman	Mike Hellweg	636-240-2443
Breeders' Award Program	Steve Edie	636-922-4232
Corresponding Secretary	Kathy Deutsch.	314-741-0474
Editor	Steve Deutsch	314-741-0474
editor@missouriaquariumsociety.com	9 Old Jamestown Ct.	Florissant, MO 63034
Exchange Editor	Steve Deutsch	314-741-0474
Horticultural Award Program	Mike Hellweg	636-240-2443
Historian	Cory Koch	636-278-0736
Librarian	Dave Rush	314-291-8932
Membership	Ron Huck	314-481-2915
Monthly Bowl Show	Rose Sonderman	314-291-5881
Points Tabulator	Ed Millinger	573-883-9943
Postman	Patrick A. Tosie, Sr.	314-616-4316
Printer	Charles Harrison	314-894-9761
Publicity	Kurt Zahringer	573-289-7595
Refreshments	Amber Koch	636-278-0736
Social Events Coordinator	Cory Koch	636-278-0736
Swap Meet	Derek Walker	636-461-2312
Webmaster	Charles Harrison	314-894-9761
Welcoming	Ron Huck	314-481-2915
Workshop Chairman	Scott Bush	314-486-8872

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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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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.

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Opinions expressed by the contributors are their own and do not necessarily reflect the opinions of the Missouri Aquarium Society, Incorporated.

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Places to Be / Things to See

THURSDAY September 20, 2012

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

SATURDAY October 6, 2012

Swap Meet, Gardenville Masonic Hall, 11:00 to 3:00

SATURDAY October 6, 2012

Executive Council

THURSDAY October 18, 2012

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

SATURDAY October 27, 2012

Executive Council

SUNDAY November 11, 2012

Auction, 11:00 AM @ Gardenville Masonic Hall

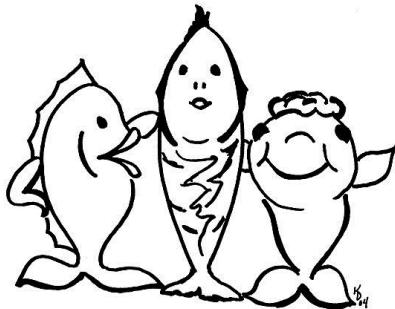
SATURDAY December 1, 2012

Executive Council

THURSDAY December 20, 2012

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

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.

From The President's Tank

Pat Tosie

Thank you for allowing me to be your next President and help to guide our club into the future with some new and old Executive Council members and club Officers. Changes are happening in MASI and it looks to be an exciting year. I would like to welcome Marlon Felman as our Treasurer, Kathy Deutsch as our new Vice-president, and returning as secretary, Cory Koch. We have some new council members as well; Damon Cartmel, Nick Scarlatis, and Andy Walker plus some who are returning; Charles Harrison, Mark Theby, and John Van Asch. Our Editor Steve Deutsch has agreed to stay on for one more year, Scott Bush has agreed to take over the duties of Show/Workshop chair and Mike Hellweg as Auction Chair. Thank you, in advance, to all these hard working volunteers that make MASI run smoothly.

Feel free to voice an opinion if you have one, on where you would like to see the club over the next year and beyond. You can talk to any of the officers and council members or e-mail me to: PatTosie@yahoo.com.

MASI is a social club that does have an agenda as spelled out below from our bylaws:

The corporation is formed and shall be operated exclusively for charitable, educational and scientific purposes as set out in Paragraph 501 (c) (3) of the Internal Revenue Code or any subsequent corresponding provision of the Internal Revenue Laws of the United States; more particularly, for the propagation and care of tropical and marine fishes; the instruction and dissemination of information on the propagation and care of tropical and marine fishes to the public; the purchase of supplies and equipment for the maintenance and operation of aquaria for educational, charitable and scientific purposes, and to promote the keeping of aquaria for purposes of occupational therapy.

We are a volunteer organization and please remember that we as the members of the council can only make MASI a better club for you, if you tell us what you want MASI to be. Get involved, help out, participate with club activities, bring a fish in for the monthly bowl show, bring a snack or soft drink to share at the meeting. Buy a raffle ticket. BRING A FRIEND and help us grow.

In the upcoming year we have a lot coming up and will need many people helping out as we prepare and hold activities for the betterment of the club, members and the public. We have an Auction on August 12, our 2nd Annual Swap Meet on October 6, and we are hosting the Aquatic Gardeners Association Convention November 1-4. Lend a hand, get involved!

YOU get the most out of MASI the more active you are in our activities! E-mail me anytime with your questions, concerns, ideas, suggestions, and to volunteer. Keep looking below water....

Remembering Jim Thale

Jim Thale was one of our family's first big influences in the hobby, both through MASi and Gateway Guppy. He was always generous with his knowledge, his time, and his hospitality (along with Brenda). He was involved in local and national shows, auctions, running the club, hosting our picnics, and water gardening. He always had time for a member who wanted to learn something. And he made a pretty darn good hamburger. Jim will be missed in the hobby. Mike Hellweg and Ed Millinger have provided their remembrances of this long-time friend to all in the hobby.

From Mike Hellweg:

It's hard to contain all of my memories of Jim Thale in just a couple of paragraphs, so I'll just hit the highlights. I met Jim at the first MASi show that I attended in 1986. He was the friendly, VERY talkative guy who came over and said hello to Angela and me as we looked at the displays in the show. Okay, Angela looked – I was probably drooling! Anyway, before we left the showroom we spent an hour or more talking to Jim about the club, the show, and the fish. Jim found out I was interested in fancy guppies and the next day at the auction, he handed me a pair. I was hooked! We joined the club that weekend.

Over the next few years Jim patiently answered questions, introduced me to other MASi members and national figures in the Livebearing fish hobby like Vern Parrish, Pat Hartman and Joanne Norton, and got me into showing fish. When he found out I was into breeding fish, he introduced me to then BAP chair Peggy Scott and the rest, as they say, is history. He taught me about judging fish, and eventually helped me to become a judge in my own right. Jim always was there to help, guide and with a story or two.

Jim was an auctioneer for many years. Along with Ralph, Jim taught me how to auctioneer. When I joined the MASi Executive Council in 1989, Jim was there to help me figure out what I was doing.

When I became president for the first time a few years later, Jim was there to offer help, guidance and support. Jim and Brenda hosted the annual club picnic for more years than I care to remember. It was an annual fixture that we all looked forward to. Their daylily garden, koi pond, and those huge *Canna* (which were taller than the house many years!) were sights to behold. And Jim always made it even more enjoyable and memorable with great stories.

Jim was always there to help with the show. He was usually the first one on the show site, ready to unload the trailer and get things set up. He helped with the 1988 and 1998 ACA conventions. I wasn't able to attend the 1988 convention due to being the rookie at work, but by 1998 I was there and Jim was seemingly everywhere – setting up racks, driving the truckload of tanks from Beldt's to the show site, unloading, setting up, etc. Not only was he always working, but he was always cheerful, and always had a great story to tell.

Jim was always there to help, offering to help even with the upcoming AGA convention, although his health was in decline. I can't remember ever leaving Jim's fishroom without fish, and I've tried to carry that on whenever possible when people visit my fishroom. The last time I saw Jim was at the 2012 Spring Weekend. He looked great, had a big smile, and was, as always, there with a great story. I'll miss you Jim!

From Ed Millinger:

Jim Thale has had a huge impact on the success of MASi. He has served in many capacities (president, vice president, auctioneer etc.) over the years but none more important than the year he stepped up and volunteered to become show chairman when no one else would. Jim saved the show and for that we are all grateful. Jim was always willing to answer any questions you had and always had a positive attitude and a great sense of humor. He and Brenda hosted the annual MASi picnic for many years and we had some great times there enjoying not only each others company but Jim and Brenda's beautiful gardens with I believe had over 50 different types of Hostas.

Auction Chairman's Message

Mike Hellweg

The Annual MASi Summer auction is now history. It was a very successful auction. The average sale price was the highest we've ever recorded, which means the sellers all did well with their items. We had several donations, too, that helped the bottom line. The 11:00 am start time was very popular, as was the auction ending at 4:00. It seems everyone enjoyed the extra silent auction items, too.

I'll post a note on the Forum around October 1st to let you all know when registration is open for the November auction. I'll have bags and take registrations at the October meeting.

The Annual MASi Fall auction is coming up fast. It is on November 11th and it starts at 11:00 am.

Thanks to our many volunteers who helped make the auction run as smoothly as possible. I hope you all enjoyed it!

And for now, 'nuff said
Mike
auction@missouriaquariumsociety.com

HAP Report July - August 2012

Mike Hellweg

Member	Species	Common	Rep	Pts	Total
Derek Walker	Bucephalandra sp. lamandau*		V	20	3170
Nick Scarlatis	Limnobium spongia	Frogbit	V	5	5
Marlon Felman	Spirodela polyrhiza	Giant Duckweed	V	5	120
Marlon Felman	Utricularia sp.	Bladderwort	V	5	125
Charles Hoppe	Bolbitis heudelotii	African Water Fern	V	10	115

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

* = MASi First

From The Fish Room

By Ed Millinger

We had another nice auction on August 12th. However the noise, acoustics and the size of the crowd has necessitated we look for a new larger venue. Auction chair Mike Hellweg and show chair Scott Bush are leading the search. Our auction rules have been updated so be sure to read them before the next auction on our web site.

Apparently Aquarium Fish International has published their last issue (October 2012). My subscription runs through 2015, but there was no word in the last issue as to how any subscribers will be compensated if at all.

This issues way back machine takes us to the Nov./Dec. 1989 Darter. Our president was Jim Thale, Pat Tosie was vice president, I was the secretary and Al Anderson was the treasurer. Council members were Jim Brodack, Bob Huels, Jim and Kitty Mueller, Bob Riech, Noel Roberts, John Van Asch and Ralph Wilhelm. Super bowl results were published and Jim Miller won best in show with a *Synodontis nigiventris*. The super bowl judges were Jim Amsden, Elvis Bryant, Rich Crabtree, Cliff Gebhart, Bill Keller, Bill and Ginny Macrum, Larry Schwent, Jim Thomerson and Ray Winkler. Boy if that doesn't bring back memories!

Betta macrostoma, Success At Last

By Ed Millinger

Rather than wait until the end of the article I'd like to mention up front the sources of information that I used as they are all great books..Bettas Gourami's and Other Anabantoids by Jorg Vierke (1988) Labyrinth Fish by Horst Linke (1991) Gouramis and Other Anabantoids Hans-Joachim Richter (1988) Aquarium Atlas volume 2 Hans A. Baensch (1993)

Betta macrostoma was first described by Regan in 1909 or 1910 (depending on your source). They are found in the Sarawak State Borneo. Horst Linke reports that T. Schulz was the first person to import them to Europe and carry out detailed observations in 1984. Baensch notes that Herbert Axlerod brought them to the U.S. in 1980. The male has a large mouth (in which he broods the eggs) and thus Regan named them "macro stoma"= "larger mouthed". When you see a picture of the male you understand why this fish is so desirable. Both sexes max out at a little over four inches.

These fish have not become readily available until the past few years. With some regularity now you can find them on Aquabid. Earlier this year Mike Hellweg was the first in MASi to turn them in for the BAP (breeders award program).

My first experience began in November of 2000. Mike Hellweg found someone in Hawaii who had a brother in Southeast Asia that could find some macs. On the 30th of that month I met Mike under the Dove at west county mall and paid \$272 for three one inch fry. I thought these fish would have the same needs as the Betta splendens but Mike told me that the macro stoma actually prefer cool water. This eliminates one problem all aquarists have had in their fishy lives, keeping the water warm.

Upon arriving home I placed them in an unheated tank. After a couple of weeks one jumped out and I lost a second some months later. The one that survived was a beautiful male but I had no luck finding a mate.

In 2003 the IBC (International Betta Congress) held their annual convention in Kansas City, Missouri. I went there and put the male up for sale but failed to find a buyer. I ran into a fellow from Indy (Harrison Storm). He knew a gal who had a female so I gave him the male in hopes that maybe his friend would have some success breeding them.

Last year (20011) I purchased a pair on Aquabid for a rather large sum of money. At the same time there were six juveniles up for bid and there have been many times when I wish I had bought those. The pair I bought were not misrepresented. The seller stated upfront that the male had never held eggs to term. My plan was to use an egg tumbler if the male insisted on eating the eggs. I found an egg tumbler on Aquabid and upgraded from the lesser model I had at the time. I placed the pair in a twenty high with a bare bottom. Bare bottom tanks are highly recommended for mouth brooders. Retrieving eggs is much easier during spawning. I added some hornwort, a floating hollow log and a sponge filter. I used regular tap water at first and later switched to reverse osmosis water with a TDS (total dissolved solids) of 75. They readily accepted flake, frozen and live foods. The fish spawned fairly often but after two or three days the male was eating again which is bad news since the brooding has been reported taking anywhere between 14 and 22 days.

The next time I noticed the male was holding a mouthful of eggs I pulled him out and stripped the eggs. I gently gathered him up in a net and then placed the net in an empty 10 gallon with the egg tumbler. I stroked his chin and was able to get about 20 eggs. My disappointment grew as every day one or two more would fungus. After three days all the eggs were shot. Some months later Mike Hellweg gave an excellent program on wild betas and one of the things he said really floored me. He said that you couldn't hatch out macro stoma eggs in an egg tumbler due to their makeup. Well this was when I started regretting not having bid on the juvenile macs. I usually think it's more fun to watch the young ones grow up and pair off naturally, If I had done a little research I would have found out that macs mature at six months which is pretty quick.

So I was now forced to stick with what I had and come up with a different plan. I kept an eye on Aquabid and saw a seller who had an extra female but no one had an extra male. The next spawn I removed the female but once again the male only held for a few days. Some people think the reason the male eats the eggs is because something isn't right. I'm not sure what that means. Others say it has to do with the water quality. I should mention that I didn't notice a difference in spawning frequency when I used soft water and tap water. The male still didn't hold the eggs long enough.

The next thing I decided to try was removing the female and covering the tank with a blanket for two weeks after they spawned. This way he would realize even if he did not hold to term at least he would realize that he could. Well you probably guessed how successful this little trick was. When I removed the blanket there were no fry and he was hungry.

It was at this point that I threw in the towel so to speak (the one I had covered the tank with). These two fish which I had spent so much time and money on (don't ask I'm not telling), were driving me crazy. I decided it would not be a good idea to sell them. I didn't feel like giving them away so I just decided to feed them and ignore them. When I felt like it I would change their water. This meant instead of every week maybe every two to three weeks. It was during one of these water changes I saw something move. It had to be debris disturbed by the vacuum right? No, actually what I had seen was a very small fry. I had to ask myself where did that come from? I couldn't remember adding any other fish to this tank, it had to be a baby mac right? There is no way I told myself. I had been putting in enough food for two adults because I never saw them spawn again and surely this unreliable (no Maytag repairman here) male when seeing food would have given up the eggs. Imagine my surprise when I discovered a total of ten fry altogether. This by the way is a small number but are you kidding me, I'll take it! I called Mike Hellweg and asked if I needed to separate the fry from the adults. He said no that they will get along just fine. The parents occasionally swim close to the fry which scares the little ones who then swim away but the parents show absolutely no interest in the fry. They can take baby brine shrimp right away and they grow fast. What a pleasant surprise that is. After just a few weeks the parents spawned again but the male only held for a few days. This is not necessarily bad because you want the male to regain his strength by eating well for awhile. After six weeks the fry were approaching an inch in length. They are plain brown with two stripes running down the length of their bodies.

About this time the macs spawned again. After one embrace the female released 24 eggs. Both

the male and female picked up eggs although the female gathered up the most by far. They then positioned themselves face to face and the female transferred her remaining eggs into the males mouth. As I write this the male has held for a week which I think is critical. If he makes it past three to four days he should hold to term. It is fun to watch him juggle the eggs in his mouth, his throat patch expands and the eggs roll around. Imagine having 60 dried peas in your mouth for an extended period of time. The first fry are ready to be turned in for BAP points, hopefully more will follow.

Betta macrostoma are listed as vulnerable by the IUCN (International Union for Conservation of Nature) red list of threatened species. If things get worse the next category is endangered, critically endangered, extinct in the wild and finally extinct. I plan on holding onto the fry I have and hopefully having an easier time spawning them. It's been quite an experience working with these fish. I'm lucky I had Mike Hellweg along the way to help me..

Addendum:

When I arrived home the day after our August meeting I found that the male had released his fry. So far I have counted eight. He held for twenty two days, about the maximum time most sources have noted. Right away his full color returned and by Sunday he was ready to spawn again. He ate very greedily of course but I started to wonder, I know he held much more than eight eggs at the beginning, could he choose to eat an egg or two every so often during the holding term? If not what happens to the other eggs he held? I wouldn't blame him for seeking some nutrition during the long holding period.

Editor's Notes

By Steve Deutsch

This issue is slightly late this month (at least for electronic distribution) for several reasons. First, I really was getting tired of not being able to use the living room, and put most things aside until the floor was finished and the furniture back in place. Then there was too much time spent at work. Plus the puppy always gets some of the blame for "Where did all the time go?" But more seriously, and sadly, MASi lost a long time member and we all lost a friend in Jim Thale. I held off finishing this to allow people to provide memories of Jim for publication, and my thanks to Mike Hellweg and Ed Millinger for doing so.

Ed also has provided a couple of articles for this issue. Pat Tosie provided another installment of Fishes as Dishes. I have rounded it out with an exchange article on creating an automatic water change system.

The floor's down and the puppy is growing up, so I'll try to be more on time for the next issues. You can help by sending articles early and often. Preferably by Oct. 15 for the November December Darter, which will close the (automatic) entries for this year's Ralph Wilhelm writing award. We are a bit down on original articles this year, so your odds are going up – but you have to enter (write) to win.

Creating an Automatic Water Changing System for your Fishroom

Greg Sage Gregsage@mesanetworks.net

Reprinted from the August 2012 Fish Talk of the Atlanta Area Aquarium Association

This is an Automatic Water Change System that Requires:

No Pumps
No drilling
No Air
Little Maintenance

Because of this:

You never need to risk breaking a tank to drill it.
Moving tanks around is no problem.
System can be modified easily to add or delete tanks.

This system will not:

Pass water between tanks
Spread diseases or pathogens

Water being added is:

Oxygenated
Proper temperature
Evenly distributed between tanks

However, the system requires:

- Being gravity (siphon) dependant, tanks must be at least 12" off ground.
- You will need a nearby sink to both fill and drain, OR a reservoir and a drain holding temperature controlled, aged water. (Where you will then need to pump the water from the reservoir)
- Using water from the tap will work without dechlorination, as you will only be adding up to about 20% tank volume at a time.
- Obtaining and Working with PVC and PVC glue

Pros-

- No drilling tanks, leaking drain portholes, pumps, motors or moving water with air or powered means that can fail
- No need to turn anything off or disrupt fish to change water
- No need to add dechlor
- Can do changes regularly, at any percentage, as often as you like
- What used to take me 3-4 hours on Saturday of carrying buckets I can now do daily, with no effort, in 40 minutes.
- Temperature shock is avoided with frequent, small changes
- You can spend more time cleaning tanks and doing other work
- No backflow siphon issues
- Water does not mix between tanks
- Fish are healthier, bigger, and breed more frequently.
- Plants do far better
- Periods of inactivity (vacations, etc.), are less stressful on the fish because water changes continue.
- Diseases are far less frequent (I may have had a case of ich once in 5 years, and nothing else).

-Though I cannot drain water from individual tanks with the system, I can easily fill whenever I clean by turning on that zone for as long as I need manually. I can turn off the other tanks in that zone if I do not want to change any water.

Cons-

- If you need to empty a tank you must still do it by hand
- At times there can be a fair amount of working with PVC glue
- Tanks must be observed regularly to restart a drain siphon if it stops
- You should be aware of internal water pressure within the PVC system (Do not turn water on full when valves are open if water is turned off into tanks.)

Changes I have made in my fishkeeping to best adapt to the system.

1. My fishroom is primarily bare bottomed tanks. The system does not clean up mulm or vacuum the bottoms of tanks
2. Most of my fish are well adapted to the water quality that comes from my tap. My Ph is about 7.4, Hardness is low, at 90ppm.
3. I am experiencing with doing a 4 minute change daily, rather than 10 minutes every other day (which equals about 15% in 10 gal. tanks from my tap). I'd like to then try adding only cold water. Until it warms it settles to the bottom, supporting less mixing with water being removed, and may save cost by not using the water heater. The volume added should be too little for its differing temperature to stress the fish.
4. I am not concerned when they are occasionally overfed, but have strived to keep the bottoms free from mulm buildup. However, water changes can be frequent enough to prevent ammonia buildup, encouraging the cultivation of infusoria for fry- so I leave a thin layer of mulm in my fry tanks (particularly the smaller egg layers). When a tank appears stressed, I first look at temperature, knowing that water quality will less likely be a factor.
5. Whenever I do any work that involves draining a tank more than an inch or two I always ensure that the drain siphon has not stopped working.

Materials needed to install:

Pad and paper- everything is written out before hand

A 2, 4 or 6 zone control box and sprinkler valves - depending on the size of your room, that are available at any Home Depot, Lowe's etc. A lawn sprinkler control box costs about \$30, and a valve for each zone is about \$10.

System can be done entirely manually with lines splitting into separate zone lines from sink, and changes are then done by turning on water by hand, rotating from zone to zone. You must be sure to have a zone open when turning the water on, and open next zone before turning current zone off so that PVC setup isn't forced to hold entire tap water pressure (though it should be able to).

PVC- get to know the guys at Home depot. They will wonder what you are doing after buying up all their $\frac{1}{2}$ " valves half a dozen times. Your planning on paper will tell roughly how much PVC, fittings and valves you will need. PVC materials are bizarre cheap. 10 feet of half inch PVC costs under \$2.00. You will be using $\frac{1}{2}$ inch PVC tubing (for all filling lines), $\frac{3}{4}$ inch (for all drain setups from each tank) and 1 inch section lengths that will collect water from the tank drains and connect to the main sink drain. I highly recommend at least one hand-held PVC cutter (about \$10.00).

PVC glue- I just use the simple clear stuff in the gold can. Use your own judgement. You MUST glue all fill lines, for they hold pressure from the tap.

I don't glue most drain lines once the water has drained from the tanks, and I prefer knowing it can be torn down or changed easily, but I do encounter occasional dripping. However, drain setups at each tank

MUST be glued until the water gets to the main drain, or air will get into the setup where it should not, and the siphon can stop. PVC glue runs about \$2.50 a can.

Angles, Ts, Valves etc.- Each tank's fill and drain line setups will require a certain number, then multiply out. They are also affordable- "contractor" packs- packs of 10- are also generally under \$2. Valves are the greatest expense. Each tank has one, and a few more valves will control where water goes based on the size of your setup. They run about \$3 apiece. As a rule (depending on your room) you'll be using 90 degree pieces in $\frac{1}{2}$ ", $\frac{3}{4}$ " and 1" sizes. Also connectors, tees, and end caps and in all three sizes, reducers will be $\frac{3}{4}$ " to $\frac{1}{2}$ " and 1" to $\frac{3}{4}$ ", but you will only be using $\frac{1}{2}$ " valves.

Again, try to determine how many you will need ahead of time to keep visits to the hardware store to a minimum.

Electrical Ties- I use these to help hold and stabilize the lines against the racks and each other. 8 or 11 inch ties work best, and they can be connected to one another to create longer pieces if needed. Bags of 100 are about \$9.

You will also need:

About a weekend to do this, depending on the number of tanks you have.

A ventilated area

A drill with a 16th inch or so bit

A Tape measure

2 pairs of pliers to easily disconnect joints not yet glued

Clothes you don't mind getting wet, and possibly stained with PVC glue.

Best way to do it:

Be aware that it will be 1 week after building this system before being able to use it. The PVC glue must be fully cured and dissipated before water running through the PVC cleans off the glued joints.

Introduced water pressure will move any glue residue into the tanks with the fish. I have lost fish that died as a result of my running water into a tank through a line containing new glue that hadn't dried thoroughly.

Steps:

1. Insure that all tanks are where you want them to be. Have tanks placed to provide easy access behind them, and set up in straight lines when possible. The bottom tanks must be at least 12 inches from the ground and above the drain used to collect the water that drains out.

2. Build all of the drain setups for each tank from $\frac{3}{4}$ ' inch tubing. Observe attached drain siphon setup photos. Keep in mind the size of the tank each will be used on, and where the main drain line will be located that it will be draining into. All fill lines will be $\frac{1}{2}$ inch and drain lines $\frac{3}{4}$ inch. You want to be sure that water never fills faster than it can drain. All drain lines collect to a 1 inch line so that it will not back up. You will see that where the drain T is placed within the drain setup apparatus determines the water level in the tank. Always keep at least 2 inches "headroom" from the surface of the water to the top of the tank to prevent overflowing if the drain setup loses its siphon (from having worked on the tank where it was drained down, etc.) I built one for each size of tank (all 10s, 20s etc.), didn't glue them, took them each back apart, then made each piece multiplied out to number of tanks. Then I put them together and glued them, then set aside. The most time intensive part is drilling all of the little holes into the in-tank drain ends so that babies are not sucked out. The connection where this drain setup drains into the 1" drain line will NEVER be glued into the 1" line. You will need to use this joint to restart the siphon if it stops. (which happens very rarely- maybe once every other month on one or two tanks in my 60 tank fishroom, and can always be traced to my working on it or it being drained down too far, and I didn't check it afterward)

3. Now build the $\frac{1}{2}$ " fill lines for each tank. Drill a 16th inch hole into the middle of each end cap. Each fill PVC line must be made specifically for each tank. Keep in mind where the light sits, so that water flows into tank unobstructed. I use the white plastic honeycomb light grating to cover tanks that need to be covered, they don't obstruct water flow from the fill lines. Do not make them so that drilled caps sit in the water, water should enter from cap ideally 2-3" from surface to provide aeration and prevent back siphoning into other tanks when the flow stops. See attached fill line photos. Glue fill line setups together, keeping knobs so that they are easy to access and knobs can move freely from open to fully closed.

-Begin to conceive where the $\frac{1}{2}$ " fill line from the sprinkler valve back at the sink will be placed, and how the fill line will best lay against the back of the tanks and attach to the rack, while next to the drain setups.

-I installed my fill lines first, then had the drain sit lines against them. See attached top rack PVC photo.

-Keep in mind that the fill lines will hold pressure, so keep turns, etc. with the fill lines to a minimum.

-Keep in mind that everything you do until step 10 will be disconnected and re-built outside or in a well ventilated area to be glued together in sections. The sections will then be glued together in the fishroom as they are put in their final place on the tanks.

6. Lay out 1" drain line tubing behind tanks and begin to put in the 90 degree angles etc. to fit the lines to the angles of your room.

-There needs to be a 1" line for each row of tanks that will then drain into the single 1" line out to the sink drain.

-Temporarily attach this line to the rack, or support it as you will want it. (Nothing will be permanently attached until after everything is glued in a ventilated area and brought back to the fishroom. I do not glue the 1" drain lines, so they can be roughly put in place.)

-If you are really organized and somewhat good at this, gently slope the 1" drain line toward the sink drain from far point of the room. This will help to avoid any standing water within the setup.

7. Determine how you will tap into the sink drain line. I put a "Y" piece in below the fishroom sink so that both the sink and the fishroom water go out of the house together. In one fishroom, instead of draining to the city sewer I drained into a plastic garbage can with a pump that then moved the water out into the yard and garden.

8. Run the fill line from the sink to the sprinkler valves mounted nearby.

Hook valves up to control box.

Have fun and be creative with all the new PVC you just bought, and end up with a line from each valve to a designated portion of the fishroom.

9. Hang the already made drain lines from the tanks. The tanks of each row will drain into their own 1" drain line that will then T into the 1" line that goes to the sink drain. Put a tee into the 1" line, then you will need a 1" to $\frac{3}{4}$ " reducer to connect the $\frac{3}{4}$ " individual tank setups into the 1" line.

Do not allow a tank to somehow drain into a tank below. Each tank row drains into the same 1" drain line that goes down to the main drain line and out to the main drain. This will prevent water mixing between tanks. (This can be seen on photo of back of tanks, attached)

To prevent vacuums within the 1" drain lines from developing, causing siphoning to start where it is not intended, I put a T into the lowest 1" drain lines with an open $\frac{3}{4}$ " line of PVC rising straight up to above the room's water level, allowing air to enter the drain lines as they head to the end drain. This opens up the flow, prevents siphoning and helps keep water from building up within the drain system.

10. Begin cutting tubing for both fill and drain lines that will be connected to already built fill and drain setups and put it all together. Build as it will be in final form with light hoods placed in, etc. Do not glue anything yet.

11. Divide up when finished into sections that can be brought to a well ventilated area to glue. Obviously, keep all angles of each connection as it should be- I have used a marker, putting a line over the joints that needed to be angled, then simply matched them up when outside. Completed drain setups can be left on tanks, they will never be glued into drain lines for they need to be disconnected to start or restart the siphon. PVC glue and its fumes are toxic to fish. Always allow any freshly glued area to dry thoroughly days, not hours, before running water into the tanks from newly glued areas.
12. Glue sections together. Let dry and air out THOROUGHLY. Keep all valves in the open position to assist air flow through the PVC when drying.

*Nearly all of the times I have encountered problems with drain siphons has been due to spots I'd missed gluing at this stage of the process.

Be aware to keep structure in small enough pieces when finally placed on the tanks in the fishroom so that it can be put together and glued easily, without any force or tension.

13. Carry back into fishroom and place on tanks, aware of where sections need to be connected. Do one section at a time, make sure every connection is glued that needs to be when putting the system together. See attached back of rack photo.

Remember:

It is only PVC. As long as you have one or two connectors and a little glue you can cut a line (As long as the water is off. This may sound stupid. I've done it. More than once.) and change whatever you'd like. Put it back together and voila, good as new.

14. When all is in place and glued marvel at your work and try to forget about it for at least 3 days, a week is best. Leave all valves on tanks open to assist air flow through system.

Then after a wait of 3-7 days...

15. Make a "Siphon Starter". Observe siphon starter photos attached. You will need two pieces of $\frac{3}{4}$ " PVC, one maybe a foot long, the other about 18". Connect with a 90 degree elbow, then put 2nd 90 degree elbow on other end of shorter piece.

16. Start the siphon in each drain setup structure for each tank: To start the drain siphon loop for each tank: Be sure the tank is filled slightly above where the T in the drain setup will drain down to the 1" drain line. Gently connect the 90 degree elbow (because it will need to come off quickly) on the shorter end of your siphon starter over end of the line going down to the 1" main drain line. Place finger over hole in top of drain setup and inhale firmly to begin siphon in outer loop. Then connect to the 1" drain line placed to take water from that tank while trying to get as little water on your shoes as possible. See attached Siphon Starter photos.

17. Now go around the room and check that all of the valves on the fill lines into each tank are open about halfway. ALWAYS be aware to keep system "open". Closing off many or all of the valves could cause a crack or a blowout in the system over time.

18. Now the fun begins. GENTLY turn on the water about 1/3 to half the strength you want to eventually expect to use. You are looking for:

- Leaks, Drips
- Water going where it should not. This sounds silly, but if you have more than 10 or 20 tanks, you may find that a drain line taking too many tanks too soon is causing another tank in an odd place to fill rather than drain. In my room of about 60 tanks I had two of those spots to fix.
- How evenly is water being distributed? Begin to turn some fill valves up, some down depending on flow to adjust the flow into each tank. If no immediate problems, turn up flow of water slightly, continuing to adjust. Tanks closest to water source will be at greater flow than tanks later in line and tend to fill faster, etc.
- Watch for some tanks filling faster than others. This could be water going in, but it is more likely that the siphon hasn't started properly in the drain setup, and needs to be restarted.

- Water flow from the nozzles hitting light hoods, causing any problems.
- Watch for water going into tanks causing too much disruption, and adjust accordingly.

19. Let it run for up to 10 minutes, possibly adding an antichlorine agent- you do not yet know how much water is actually being added. Gradually increase the pressure to the desired flow, watching for any of the problems listed above.

20. Turn off. Then set timers at control box. I would keep the water changes gradual at first- I have been doing 15% every other day for 4 years (about 10 minutes on a 10 gallon tank with water pressure at about 2/3rds full strength.). At first, I would start at about half that, increasing as you wish, keeping in mind that too much can bring chlorine and chloramine issues. At some point you may want to find out exactly how much water is being changed. To do this I divert the fill stream from a tank at about mid distance from the sink into a bucket, measuring the amount of water in the bucket at specific time intervals, keeping track of where the knobs are placed where the water is turned on. Full strength with both hot and cold turned up could end up too hot, and far more water than you need.

Maintenance: This for me is simply looking for puddles, locating the leak and fixing it, usually by replacing or simply gluing the offending joint. My room has close to 1000 ft. of tubing. I have tanks from each zone spread throughout the room (all 30's fill at same time wherever they are located in the room, etc). This is simply because the system evolved over time, and I did not move tanks, as I probably should have, to accommodate the system. That is not the easiest, nor the most sane way to do it.

Hopefully, yours will be set up more cleanly and less prone to the occasional repair. With my system of hundreds of connections and joints, I fix about 5-6 a year, usually in one or two quick sessions. On the rare times a drain siphon loses its siphon it is usually because I had worked on the tank and drained the tank too far, then forgot to restart the siphon. When this happens it will not drain- Obvious because the tank is fuller than the other tanks. (the reason for the "headroom" mentioned earlier.) If you are only changing 10% or 15% each change, then the tank will not overflow. Sometimes a joint had simply been forgotten to be glued, and at other times it may just need to be restarted. Of dozens of weekends and vacations of up to a week away I have never had a siphon lose its siphon when I was gone.

When I have had any problems:

Over the 6 years of using this or a similar system, problems have been rare, but here is a rundown:

1. A sprinkler valve once malfunctioned, and a section kept refilling and draining, eventually killing all of the fish in that zone. That was the single biggest disaster I have ever had. I now spend the extra buck and get better quality valves. There has never been another instance similar to that. Preventable.
2. Twice I lost tanks of fish to water changing too soon after a repair and fumes wiped out the fish. Not all fish were affected. In both instances 4 tanks were affected, but in both instances it was only the tiger limias that all died. Again, preventable.
3. Twice I put water in that was too warm, but I was only changing 15%. I would never have known, except that in both instances I wiped out my A. toweri that seem particularly sensitive to warm water, while affecting no one else. Also preventable.

And the last of those problems happened over 4 years ago. Good Luck!

Greg Sage

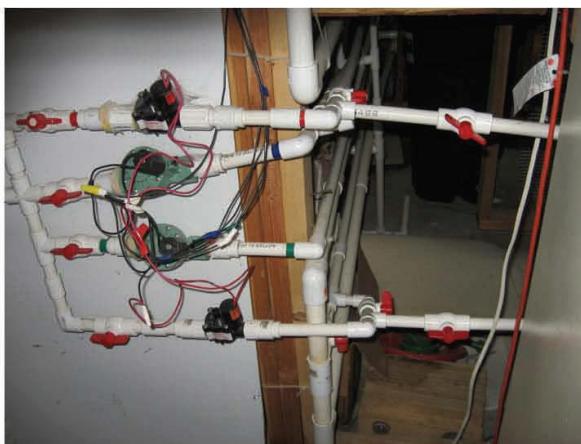
selectaquatics@gmail.com



Fill Lines



Drain out to sewer



Sprinkler Valves



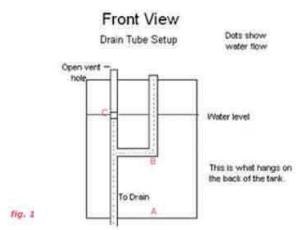
Setup Suggestion



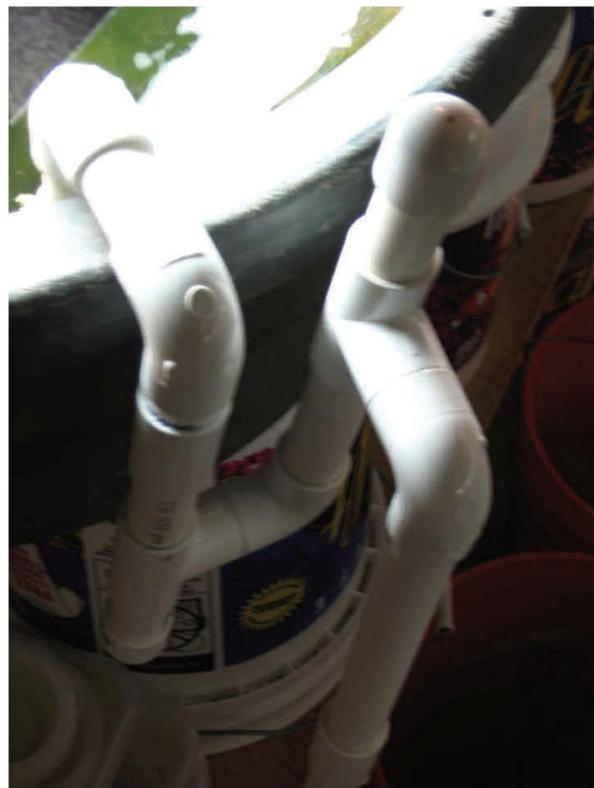
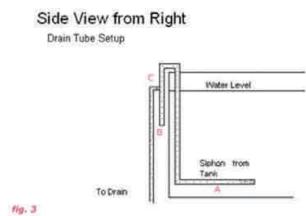
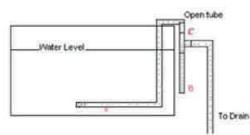
Siphon Starters



Using Starter



Side view from left
Drain tube setup



Drain Setup



2012



MASI SWAP MEET

\$20 TABLES

SATURDAY

*\$2
ADMISSION*

DATE: OCTOBER 6, 2012

TIME: 11AM TO 3:00 PM

**PLACE : GARDENVILLE
MASONIC HALL**

*\$5
EARLYBIRD*

8230 GRAVOIS ROAD

AFFTON, MO 63123

HTTP://WWW.MISSOURIAQUARIUMSOCIETY.COM

Contact Derek Walker JAMDWALK@MSN.COM



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.



AGA

**2012
convention**

**NOV 1-4
ST. LOUIS, MO**

aquatic-gardeners.org

The Missouri Aquarium Society, Inc. is proud to announce that we will be hosting the **Aquatic Gardeners Association 2012 Convention** right here in St. Louis on November 1 - 4, 2012, at the Crowne Plaza Hotel St. Louis Airport.

We have a spectacular line-up of workshops, events and speakers dedicated to planted tanks!

Keynote Speaker:

- Prof. Niels Jacobsen of the University of Copenhagen in Denmark, eminent authority on *Cryptocoryne* species.

Also Featuring:

- Kris Weinhold "Beginners Aquascaping, and Tips & Tricks"
- Brandon McLane of Florida Aquatic Nurseries "Propagating Aquatic Plants"
- Tom Barr "Fertilization & Plant Nutrition"
- Cavan Allen "Identifying and Collecting Native Plants"

PLUS!

Live Nano Aquascaping Workshop

Photo Contest - "Planted Tanks, Plants and Blooms"

Thursday Field Trip to the St. Louis Zoo and Art Museum

Wine-and-cheese reception at Jerry Jost's business, Jost Chemical

Friday Field Trip to the Missouri Botanical Garden

Saturday night banquet featuring Niels Jacobsen speaking on his "Wanderings in the Great Forests of southeast Asia," and the 2012 AGA Aquascaping Contest Winners!

Sunday All-Day Plant (and other stuff) Auction -- biggest plant auction in the US!

Also vendors, raffles, t-shirts, etc. Follow us on Facebook or Twitter
@AGA2012STL

For more information, visit www.aquatic-gardeners.org

BAP Report

Steve Edie

Member	Species	Common	Pts	Total
<u>July 2012</u>				
Charles Harrison	<i>Fundulopanchax gardneri</i> "Inidere"		15	2550
Mike Hellweg	<i>Devario malabaricus</i>	Giant Danio	5	5059
Steven Hoffman	<i>Girardinus falcatus</i>	Sickle Falcatus	5	90
Steven Hoffman	<i>Hemichromis</i> sp. "Moanda"		10	100
Steven Hoffman	<i>Limia perugiae</i>	Peruvian Limia	5	105
Jerry Jost	<i>Corydoras trilineatus</i>	Three Lined Cory	10	1605
Jerry Jost	<i>Macropodus erythrogaster</i>	Red Shoulder Paradisefish	10	1615
Jerry Jost	<i>Phallichthys quadripunctatus</i> "Punta Pena" @		10	1625
Cory Koch	<i>Xystichromis</i> sp. "Dayglow" #@		10	2352
Cory Koch	<i>Neochromis omnicaeruleus</i> sp. "Makobe" * @	Tricolor Fulu	25	2377
Cory Koch	<i>Psammochromis riponianus</i> "Boyanga, Uganda" #@		10	2302
Gary Lange	<i>Pseudomugil conniae</i> *	Connie's Blue-eye	15	1719
Debbie Sultan & Tom Corradini	<i>Steatocranus casuarius</i>	Buffalo Head	15	15
Derek Walker	<i>Ancistrus</i> sp. "Albino"		10	2665
Derek Walker	<i>Ancistrus cirrhosus</i> "Albino"		10	2675
Derek Walker	<i>Tateurndina ocellicauda</i>	Peacock Gudgeon	15	2690
Derek Walker	<i>Xystichromis phytophagus</i> #@	Christmas Fulu	10	2700

Aug 2012

Marlon Felman	<i>Xiphophorus montezumae</i>	Montezuma Swordtail	5	155
Charles Harrison	<i>Skiffia bilineata</i> "Rio Grande de Moreira" @		40	2590
Jerry Jost	<i>Chapalichthys encaustus</i> @	Barred Goodeid	30	1655
Jerry Jost	<i>Corydoras melini</i> *	False Bandit Cory	15	1670
Cory Koch	<i>Amatitlania nigrofasciatus</i> "Rio Choluteca" *		10	2387

Cory Koch	<i>Neolamprologus prochilus</i> *	15	2402	
Cory Koch	<i>Xenotilapia flavipinnis</i> "Crocodile Island" *	25	2427	
Jim Miller	<i>Geophagus altifrons</i>	15	2839	
Jim Miller	<i>Girardinus microdactylus</i> "Pina del Rio"	5	2844	
Ed Millinger	<i>Betta macrostoma</i> @	Brunei Beauty	40	695
Nick Scarlatis	<i>Xenotoca eiseni</i> @		30	235
Rick Tinklenberg	<i>Goodea atripinnis</i>	Black Finned Goodeid	15	2270
Rick Tinklenberg	<i>Pelmatochromis buettikoferi</i> *		20	2290
Rick Tinklenberg	<i>Sturisomatichthys</i> sp. "Columbia" **		30	2320
Rick Tinklenberg	<i>Tanichthys</i> sp. "Lemon Yellow White Cloud" *		15	2335
Pat Tosie	<i>Apistogramma</i> sp. "Melgar" *		20	4020
Pat Tosie	<i>Zoogoneticus quitzeoensis</i> #@		15	4035
Pat Tosie	<i>Zoogoneticus tequila</i> #@		15	4050
Derek Walker	<i>Enigmatochromis lucanusi</i> **@		40	2740
Derek Walker	<i>Goodea gracilis</i> "Rio San Juan del Rio Queretaro" #@		15	2755
Derek Walker	<i>Ilyodon cortesae</i> "Cupatitzio Spring" #@		15	2770
Derek Walker	<i>Melanotaenia boesemani</i> @		20	2790
Derek Walker	<i>Zoogoneticus tequila</i> "Rio Teuchitlan" #@		15	2805

* = 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)

= Species previously submitted = 0 points, except for C.A.R.E.S. = base point bonus

^ = Species previously submitted, limited points for additional color varieties

Sources:

Cal Academy - <http://research.calacademy.org>

CARES - <http://www.carespreservation.com>

Note: Bad news and good news.

Bad news is that more species have been added to the C.A.R.E.S. list.

Good news is there are more opportunities for bonus points if you can find and breed these species.

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.

EAT MORE



FISH

Whole Baked Fish Cuban-Style

Ingredients:

2 - (3-pound) whole fish, such as striped bass, tilapia, flounder, or sole, cleaned and scaled

1 - large green bell pepper, cored, seeded, and thinly sliced, divided

2 - limes, juiced

¾ - cup Spanish olive oil, divided

2 - onions, peeled and thinly sliced, divided

3 - bay leaves

Salt and freshly ground black pepper

½ - teaspoon crushed red pepper flakes

1 - tablespoon minced garlic

2 ¼ - teaspoons kosher salt

1 - teaspoon dried oregano, crumbled

1 - cup tomato puree

2 - tablespoons white wine vinegar

1 - cup dry white wine

Chopped fresh parsley leaves, for garnish

Total Time: 75 minutes, Preparation - 25 minutes, Cook - 50 minutes, Makes 4-6 servings.

Directions:

Rinse the fish well under cold running water and pat dry on both sides as well as inside the cavity. Make several slits about 1/3-inch deep on both sides of the fish. Place the fish in a non-reactive shallow dish or platter and pour the lime juice over the fish. Set aside while you continue with the preparations.

Preheat the oven to 375 degrees F.

Rub the bottom of a shallow glass or ceramic dish large enough to hold the fish with 2 tablespoons of the olive oil. Saute 1/2 of the onion slices and 1/2 of the pepper slices in 2 tablespoons olive oil and then place along the bottom of the baking dish. Tear 2 of the bay leaves into small pieces and sprinkle over the vegetables. Drizzle with 2 tablespoons more of the remaining Spanish olive oil and season with salt, black pepper, to taste, and crushed red pepper flakes. Place the fish on top of the sliced vegetables.

Using a mortar and pestle, combine the garlic, kosher salt and oregano and mash to form a paste. Spread the garlic paste inside the cavity of the fish and into the slits on top. Place the remaining bay leaf inside the cavity of the fish. In the same small bowl that you used to make the garlic paste, combine the tomato puree and vinegar and stir to combine. Pour this tomato mixture all over the fish. Top with the remaining onion and pepper slices and drizzle the remaining olive oil and the wine over the top. Season again with salt and black pepper, cover the dish loosely with aluminum foil, and bake until the fish flakes easily when pierced with a fork, 45 to 50 minutes. Garnish with the parsley and serve hot or warm, with the pan juices drizzled over all.

Club Hopping 2012

Steve Edie

Note: Some of this year's dates are tentative.

Sept14-16 – Dallas: Federation of Texas Aquarium Societies – Annual Convention

Sept 19 – Everywhere: Talk Like a Pirate Day

Sept 30 – Chicago: Greater Chicago Cichlid Association Swap Meet

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

Oct 13-14 – Schoolcraft, MI: Southwestern Michigan Aquarium Society – Annual Workshop

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

Oct 27 - Cincinnati: Greater Cincinnati Aquarium Society - Auction

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

Nov 4 – Milwaukee: Milwaukee Aquarium Society – Fish-O-Ramma Swap Meet

Nov 11 - St Louis: Missouri Aquarium Society – Auction

Nov 11 – Milwaukee: Milwaukee Aquarium Society – Fish-O-Ramma Swap Meet

Nov 11 – Chicago: Greater Chicago Cichlid Association Swap Meet

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

Apr 5-7, 2013 – Hartford: NorthEast Council Convention

May 24-26, 2013 – Chicago: GCCA Cichlid Classic

July 18-21, 2013 – Denver: American Cichlid Association Convention

Check with the individual clubs for more details.

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@msiouriaquariumsociety.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.

MASI MEMBERS E-Mail Addresses:

Jim & Sue Amsden	suzjimmie@aol.com
Klaus Bertich	kbertich@sbcglobal.net
Earl Biffle	biff.bat@juno.com
Roy Brandhorst	Skipperoy4@juno.com
Scott Bush	sportspicks@charter.net
Steve Deutsch	steve@skdeu.com
Kathy Deutsch	kathy@skdeu.com
Steve Edie	sredie@charter.net
Charles Harrison	charles@inkmaker.com
Mike Hellweg	mhellweg511@charter.net
Angela Hellweg	pugdog64@yahoo.com
Steven Hoffman	hoffmo@cablemo.net
Lisa Hollenbeck	lisah@alpineshop.com
Bart Kraeger	bartck@aol.com
Lawrence Kent	lawkentnorton@yahoo.com
Gary Lange	gw lange@sbcglobal.net
Mark and Tammy Langer	JTMS@sbcglobal.net
Micky Lee	too_fishy@hotmail.com
Charles and MaryAnn Lenau	cmlenau@centurylink.net
Gary McIlvaine	gmcilvaine@msn.com
Ed Millinger	amazoneddy1@sbcglobal.net
Jim Miller	jjimdeemiller@att.net
Jim Mueller	j.a.mueller@sbcglobal.net
Bob Newton	robt.newton@sbcglobal.net
Brad Riley	briley53@aol.com
Randy Shell	rdsma@charter.net
Rick Smith	polarfish2003@yahoo.com
Rose Sonderman	RoseSews@Earthlink.net
Jim & Brenda Thale	tbird55jb@aol.com
Mark & Alice Theby	markrehabber@yahoo.com
Pat Tosie	pattosie@yahoo.com
Patrick A. Tosie, II	patricktosie@juno.com
John Van Asch	johnsfishy@att.net
Dave and Laura Wagner	dave_laura@charter.net
Andy Walker	awalker02@sbcglobal.net
Harold Walker, Jr.	fiveinall@sbcglobal.net
Jim & Rosie Yaekel	jryaekel@htc.net

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.

EASTERN AQUATICS

717-898-7224 (leave message)

Easternaquatics@yahoo.com

LIVE CULTURED BLACKWORMS

***Cultured blackworms are blackworms that are grown under completely controlled conditions. They are grown using clean, cold water and are fed a special ground grain feed which contains no animal products or any waste products. They are not raised in conjunction with any fish or other animals. The worms are free of parasites and pathogens (disease causing) bacteria. As an extra precaution, all worms are quarantined for 7-10 days after harvesting to assure best quality and packaged in bags with pure oxygen to reduce any shipping stress.

**Please call or email with zip code for prices and shipping quotes.*

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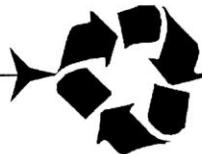
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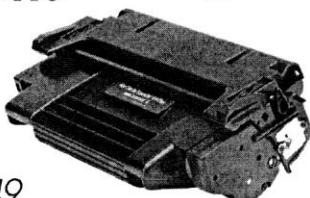
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