

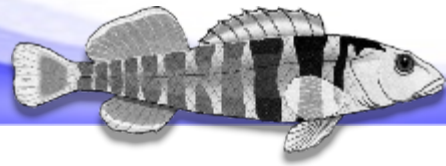


The
DARTER

V45-N6

November/December 2019

B&W Printed \$5 Members / \$7 Non-members



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THE DARTER

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The editor reserves the right to edit any article for length, clarity, or content. Photos provided are by each Author unless otherwise indicated.

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Annual membership in the Missouri Aquarium Society, Inc. is \$15 and includes an electronic subscription to The Darter. B&W printed Darter's are available at the meetings for Members: \$5; Non-members: \$7. Published six times per year.

Join or renew membership at any meeting, most club events, by PayPal from the MASI Website's Membership Page or by contacting the membership chair.

EDITOR Chuck Bremer editor@missouriaquariumsociety.com www.missouriaquariumsociety.com



Cover - Red Tailed Zebra Loach
Schistura mahnerti - Jerry
Montgomery

2020 Renewal by
March!



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Article Photos are provided by the Author unless otherwise noted.

Click/Tap this to bounce back here. Then tap/click the article you want to read next!





FROM THE PRESIDENT'S TANK

Pat Tosie

This month's Raffle Prize:

**The Perfect Dipnet!
Donated by Jonah's
Aquarium:**

<http://jonahsaquarium.com/>



Chuck Bremer

FROM THE EDITOR

This is the last Darter issue of 2019!!

Renew your MASI Membership anytime between now and March, 2020 to prevent interruptions in receipt of the Darter. See page 22 for renewal details.

It's been a full and eventful year with a record number of members (190+), New members (65+) - many from long distance, and a record number of Darter issues (12). MASI has had fantastic programs, fun social activities and more family involvement in 2019 than before. We've had 2 Swaps in one year and can recognize a Changing Hobby around St Louis.

Things are changing with the Darter too! It was delivered as print through 2016, primarily electronic in 2017 and in 2019 half read it on smart phones. I have tried to change it by adding phone friendly column sizes, multiple live links to additional content of other clubs, advertisers and videos, and internal ease of use features. What else can/should be done? Please give me some ideas of what you see elsewhere that might be adapted.

Primary Darter issues still number Six: Jan, Mar, May, July, Sept and November; but there were Special Editions and Program Updates for other months in 2019. Was that positive or negative? What should be done in 2020? Which do you read most, issues with more Club News or more Hobby articles? Are you reading any of them? How's our balance? Let me know!

Write for the Darter in 2020!!

Hobby information needs to be recycled every couple of years and kept around for new folks. Unless someone has access to the staples of the hobby they also eventually risk fading away, forgotten. MASI BAP & HAP programs do that for fish and plants, so should the Darter.

MASI is for members of all experience levels and we need diversity in Darter articles. We forget how lucky MASI is to have some proficient and prolific members but everyone has something they can contribute. We're estatic those who've been in the hobby continue to contribute. However, basics taken for granted are also needed by new comers. New members, please consider re-contributing for other new members what you've just learned that made your hobby more enjoyable or the problem solutions you had



wrestled with perhaps not top-of-mind for longer term hobbyists.

We eagerly await the too-long anticipated opening of the St Louis Aquarium. I Challenge someone to write a review within the first week it opens! Don't shy off writing one just because you think someone has already done it -not everyone sees things the same so multiple reviews would be GREAT!

The 2019 MASI Challenge is a success, we have one of the most active BAPs in the US and our HAP isn't far behind. If you are having trouble finding a place within the club, just ask around or read this Darter issue.

MASI has something for everyone!!

Content deadline for the 1st Darter of 2020 is Jan 7th.

[Send Feedback and Letters to the Editor to: editor@missouriaquariumsociety.com](mailto:editor@missouriaquariumsociety.com)





MASI General Meeting: Thurs, November 21st!!

Apistogramma & Other Dwarf Cichlids

Sal Silvestri shares successes and failures maintaining and breeding these beautiful and interesting species.

It all started with a goldfish won at a carnival. Since then Sal has been an active hobbyist for over 40 years, joining the Norwalk Aquarium Society in 1975. The one bowl eventually grew to a 55 gallon tank housing two 14" Oscars and "Cichlids" are still his favorites.

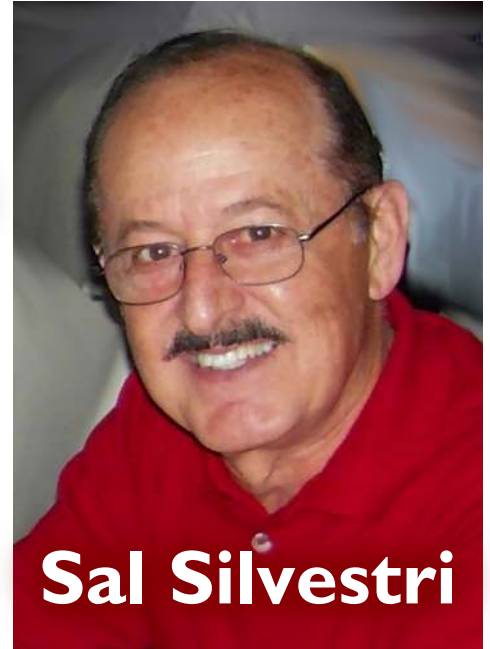
Sal's tanks grew with his breeding skills, and now range from 10 to seventy-five gallons. One is devoted to communities of Lake Tanganyikan Cichlids- others house several varieties of *Apistogramma* species, another favorite. Remaining tanks contain a variety- cichlids from West African, tetras, catfish and a new found love - "Bettas".

He shares his knowledge and wisdom at speaking engagements throughout the Northeast and Europe with many of his articles honored with reprints in ACA's Buntbarche Bulletin and other society magazines of the US and abroad.

Also Including Mini-Auction and Door Prize Raffles

7:30 PM Dorsett Village Church
2240 Bennington Place, Maryland Heights, MO

Dinner with the Speaker in November is 6:00 PM, Bar-BQ at @ Bandana's, 12222 Dorsett Rd, Maryland Heights, MO. Please let Gary Lange know if you will be attending!! Email: gwlange@sbcglobal.net or Text: (314) 412-7636



Sal Silvestri



DON'T FORGET THE NEXT MASI GENERAL MEETING, DECEMBER 19TH, IS THE:

Register a dish to share with Lora at the November meeting to help Party Planning!

Missouri Aquarium Society Christmas Party

Bring a Fishy gift to Exchange or bring a non-fishy one if you prefer. Everyone who brings a gift is entered into a Raffle and receives a replacement to take home!!



7:30 PM Dorsett Village Church 2240 Bennington Place, Maryland Heights, MO



FROM THE VICE PRESIDENT

Gary Lange



Mark those Calendars with the Year's Monthly Programs

2019

Nov 21

Sal Silvestri of Norwalk AS
Apistogramma and Other Dwarf Cichlids

Dec 19

Christmas Party

2020

Jan 16

Peter Unmack of Univ. of Canberra
The Running River Rainbow Project

Feb 20

Charlie Mueller of Pittsburgh AS
Spawning the Mouthbrooding Loricarids

Mar 19

Ted Coletti of New Jersey AS
Tropical Fish in the Water Garden

Apr 16

Karen Randall of Aquatic Gardener's Assn.
Sarawak, Beautiful Land of Disappearing Sp

May 21

Pat Hartman of SW Michigan AS
A Rookie Goes to Mexico: First Ever
NAGWG Goodeid Study Tour

Jun-19

Eric Bodrock of All Oddball Aquatics
Cory Breeding Made Easy



MASI is approaching +80 190 Memberships!

New & Returning Members since the last Darter!

Over 60 added so far in 2019!



Rob Baker	St Charles, MO
Joe Gephardt	Decatur, IL
Rodney Meyer	O'Fallon, MO
Kevin Plazak	Milwaukie, OR
Scott Schillinger	Arnold, MO
Chasity Strange	Arnold, MO
Rich Townsend	Florissant, MO
Harold Walker	Arnold, MO
Megan Walters	Creve Coeur, MO
Susan Wright	Festus, MO

The Missouri Aquarium Society has changed rapidly! at home. Ask them their experiences and opinions. may help improve the club and make it more relevant for all.

Say "Hello" to new members and make them feel **welcome!** New Members bring interesting ideas that **Help these Folks get involved and you continue to improve the club!**

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MASI FISHY BOWLING

Recap!

In appreciation of its Members, MASI sponsored a Fall Bowling Party to get together, have some fun and exchange interests!

Free Bowling and Shoes were provided for MASI Families and Guests

Give John Van Asch feedback on a spring re-meet!





MASI 2019 Swap Meets

Holly Paoni

Buyers were happy with the wide variety offered and Vendors were happy with the amount of folks through the doors! So, financially for the club, this was close to being the best Swap meet ever and I consider it a success all the way around!

There are 15 vendors penciled in already for the Spring Swap Meet, with several others very interested- pending their schedules. A registration push for it will begin sometime in mid January to early February. The exact date is dependant on how quickly things settle down for me after the holidays. Yes, that may seem early to some, but many breeders & vendors plan the events they will be attending months or longer in advance. So we need to start things off early with vendor registration.

There were some hiccups but most probably didn't notice them. The biggest was we had a few dozen folks sneak in, without paying admission. I simply didn't have enough volunteers available to cover everything needed for the entire swap meet. Some who volunteered didn't show and some couldn't stay.

We need more volunteers willing to also work while they are at the swap. The more help we get, the more free time each volunteer gets to go shopping or visiting. Sadly, this time our volunteers including myself, were run quite ragged. Without more help some things will have to be cut from the swap meet and I'd rather not have to do that. There are plans to fix the hiccups we faced, but I need more manpower to make those plans work, and also to allow the volunteers working time to enjoy the swap.

If interested and available to volunteer for the April Swap, please contact me.

I'd like to thank Joe, of Seascape Studios for his donation of the Raffle tank, and to congratulate Larry Allbright who won that very nice set up!

SWAP UPDATE

WE HAD A very Successful Fall Swap Meet, even with all the challenges that date faced.

Aquashella and another regional club's event were the same weekend but with the clubs booking rooms for events so far in advance, these things happen occasionally. Facebook restrictions on sales also put a big damper on getting the word out, but that didn't seem to matter as we still had around to 300 folks through the doors, and a full Vendor's room.

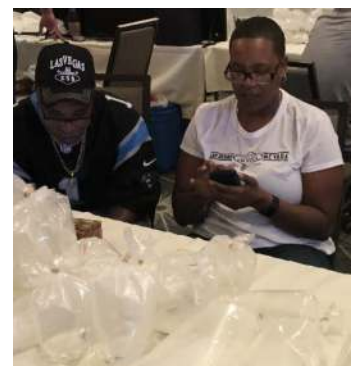
Mark your calendar for the weekend of April 25 & 26 and plan now. The 2020 Spring Swap will be here soon.



Missouri Aquarium Society's Fall SWAP
Held Sept 29th, 2019 - Sales Began @10:00 AM
If you weren't there, you should have been!







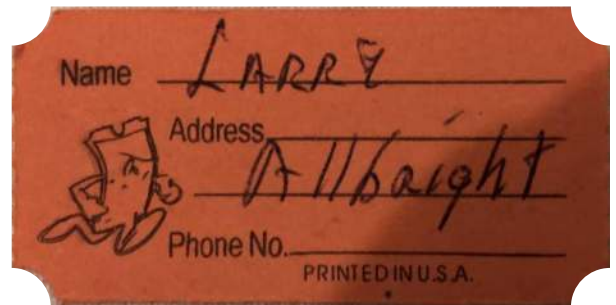
And we had a Winner!



OF THE HUNDREDS of tickets sold and the numerous attendees for the Raffle at the MASI Fall SWAP, it only takes one ticket to win!

Larry Albright did just that and won the 25 gallon display tank provided by Joe Faszl of Seascapes Studio.

It remains to be seen if Larry will begin his quest to his dream tank with this humble beginning but Joe is doing his best to get that to happen. See the MASI Fishy Folk article on Larry elsewhere in this issue. If Larry says "Yes" to Joe, look for more articles about this tank and its development in future Darter issues. The additional raffle money went to help fill Larry's tank.



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Oct. SUPERBOWL Results



Photos with "KW", from the Show
courtesy of Kevin Wise.

Best in Show

Turquoise Rainbow **Charlie Hoppe**



People's Choice

Red Tailed Black Shark **Larry Albright**



Old World Cichlid

Neolamprologus pulcher 1 **Jack Heller**

Neolamprologus leleupi 2 **Jack Heller**



New World Cichlid

Angelfish - Gold Marble Veetail 3 **Bob Watson**

Rainbowfish

Turquoise Rainbow 1 **Charlie Hoppe**

Turquoise Rainbow 2 **Charlie Hoppe**

Praecox Rainbow 3 **Chris Mohrle**



Killifish

Fundulopanchax gardneri Innideri 1 **Charles Harrison**

Epiplatys lamottei 2 **Jack Heller**

Pachypanchax omalonatus 3 **Charles Harrison**

Aphyosemion australe orange **Jack Heller**

Gnatholebius holgrei **Jack Heller**



Livebearer: Fancy Finnacle

Red Eyed Albino Red Fancy Swordtail 1 **Bob Watson**

Koi Swordtail male 2 **Shelby Wiegand**

Lyretail Swordtail 3 **Chuck Bell**

Spotted Maragold Domestic Swordtail **Chuck Bremer**

Koi Swordtail female **Shelby Wiegand**



Livebearer: Normal or Wild Type Finnacle

Otapa Swordtail 1 **Bob Watson**

WT Xiphophorus alverezi - Delores 2 **Chuck Bremer**





Placement Awards to be presented at the November General Meeting



Folks will go home with a few extra dollars and \$FB3370 were rewarded for Super Bowl entries & wins to be used at the Annual Awards Night \$Fish Buck Auction, April 25, 2020.



Egglayers: Cyprinids & Characins

Long Finned Cherry Barb male	1	Shelby Wiegand
Long Finned Cherry Barb female	2	Shelby Wiegand
Cherry Barb	3	Charles Harrison
Neon tetra		Chuck Bremer
Cardinal tetra		Chuck Bremer
Hockystick tetra		Chuck Bremer
Harlequin Rasbora		Shelby Wiegand
Black Ruby Barb		Ed Millinger
Long Fin White Cloud		Chris Mohrle
Long Fin White Cloud		Chris Mohrle

Egglayers: Any Other Type

Red Tailed Black Shark	1	Larry Albright
Frick the Dojo Loach	2	Claire Wyckoff
Unknown Loach	3	Charlie Hoppe
Sparkling Gourami		Chuck Bremer
Senegal Bichir		Chuck Bremer
Clown Loach		Charlie Hoppe
Shubunkin		Chasity Strange
Frederick 'the Betta, Splendens		Claire Wyckoff

Catfish: Corydoras & Relatives

Schultzi Corydoras	1	Charlie Hoppe
Sterbai Corydoras	2	Ed Millinger
Orange Laser Cory	3	Chris Mohrle
Long Finned Paleatus Corydoras		Bob Watson
Orange Laser Cory		Chris Mohrle

Catfish: All Other

Albino female bristlenose	1	Larry Albright
Rhino the Rhino Pleco	2	Claire Wyckoff
Electric Catfish <i>Malapterurus electricus</i>	3	Rick Wiegand
Ancistrus L181		Christina Jones
Synodontis Petricola		Chris Mohrle
Synodontis Petricola		Chris Mohrle





MASI AUCTION MESSAGE

Mike Hellweg

FLEX tank setup. As always, our volunteers made it a great day. Thanks to all who helped! I hope everyone had a great time.

After the Holidays our 2020 Winter Auction will be coming up before you know it on February 9.

... that's 2020!...shouldn't we have flying cars by then? Or at least, tanks that change their own water?



The Spring Auction will again be at the Holiday Inn Airport West - Earth City. Lunches will be available for purchase starting at 11:30 am. For those who want to sell, be sure to contact me at the MASI auction email address for members on January 19 beginning at 12:01 am, and for non-members starting January 26 beginning at 12:01 am.

If you haven't heard, the slots fill up fast! This auction folks got lucky and everyone on the waiting list got a chance to get moved up and sell at the auction. But don't let this fool you! Be sure to get your registration in right after they open in order not to miss out!

And for now, 'nuff said...

Well the 2019 Fall Auction is now history.

In spite of it being a beautiful day, over 100 people came to bid and bring home some new fish, plants, equipment and to buy raffle tickets and possibly take home a new filter or a complete Fluval 15 gallon

Raffle Winners





MASI Challenge

2019 George Maier Educational Fund



The Challenge to support this Educational Fund, nominated by Charles Harrison, began on January 1, 2019 with a \$300 Seed from MASI. We have now Exceeded our Target 3 years in a row!

2019



...and still growing!



MASI's Donation will be made at the AKA 2020 Convention in St Louis, June 19-21, 2020.

Go to www.aka.org for details of the George Maier Fund and the AKA 2020 Convention.



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COUNCIL MINUTES

Executive Council

2019-2020 Council Meetings		
Date	Place	Time
Dec-7	@ Harrison's	7:30 PM
Jan-16	@ Gen Meeting	7:00 PM
Jan-21	@ Heller's	7:30 PM
Feb-29	@ Pitman's	7:30 PM
Mar-28	@ Lange's	7:30 PM
Apr-18	@ Paoni's	6:30 PM
May-23	@ Bremer's	6:30 PM
Jun-20	@ Huber's	7:30 PM
Jul TBD	@ MASI Picnic	6:30 PM

The voting portion of the Executive Council consists of 4 elected officers, 6 elected council members and the 3 appointed positions: Auction Chair, Editor and Show Chair.

On page 2 are contacts for the 2019/20 Executive Council and other Committee Chairs and Service positions within our Club. Please feel free to provide input to anyone or to attend the Council meetings yourself.

Members are invited to attend the Council meetings to bring up issues, contribute to the discussion or just to see how they are run. Meetings are normally held the 3rd Saturday of each month at a Council member home but are changed to fit schedules when necessary.

Give them your Feedback and Support!

COUNCIL MEETING

8/24/19

Pat Tosie called the meeting to order at 7:30 at the home of Angela & Mike Hellweg. Present were Gary Lange, Angela Hellweg, Ian Eggert, Charles Harrison, Melanie Holmes, Mike Huber, Holly Paoni, Caleb Pitman, Mike Hellweg, Chuck Bremer, and Chris Mohrle. Guests were Kevin Wise and Sue Harrison.

ANNOUNCEMENTS

- The next Council meeting is Sep 21, hosted by Ian Eggert at the home of Pat Tosie.

REPORTS

- SECRETARY:** Angela read the Minutes from the July meeting. A motion to approve was made by Charles Harrison and was seconded by Ian Eggert. The motion passed.
- TREASURER:** Pat read the July Treasure's report. A motion to approve was made by Mike Hellweg and was seconded by Chuck Bremer. The motion passed.

- EDITOR:** Chuck needs report and articles for the Sep-Oct Darter. The deadline is Sep 10.
- ADVERTISING:** Rick Renfro and Nate Carr are unable to work on advertising due to personal and health reasons.
- LIBRARY:** Mike Huber wants to match library books with the list.
- LISTMASTER:** Chuck reported 176 memberships.
- MEMBERSHIP & WELCOMING:** Ian will have laminated informational MASI flyers made up for area shops.
- REFRESHMENTS:** A motion to increase the monthly refreshment budget to \$75.00 was made by Mike Hellweg and was seconded by Charles Harrison. The motion passed.
- SPEAKERS:** Gary still needs speakers for Jan and Mar 2020.
- SWAP:** 35 tables have been sold so far.

OLD BUSINESS

- \$1801.00 has been raised so far for the 2019 MASI Challenge for the George Maier fund. Donations have slowed a bit.

NEW BUSINESS

- No swap posts have been posted on the MASI Forum.
- A motion to set up a MASI social media platform on BAND was made by Holly Paoni and was seconded by Melanie Holmes. The motion passed.
- A possible date for Fishy Bowl is Nov 2 at Epiphany Lanes.

A motion to adjourn at 8:56 was made by Charles Harrison and was seconded by Chris Mohrle. The motion passed.



COUNCIL MEETING

9/21/19

Pat Tosie called the meeting to order at 7:30 at his home (hosted by Ian Eggert). Present were Angela Hellweg, Ian Eggert, Charles Harrison, Melanie Holmes, Holly Paoni, Caleb Pitman, Mike Hellweg, Chuck Bremer,



and Chris Mohrle. Guests were Sue Harrison & Kevin Wise.

ANNOUNCEMENTS

- The next Council meeting is Nov 2 at the home of Melanie Holmes.

REPORTS

- **SECRETARY:** Angela read the Minutes from the Aug meeting. A motion to approve was made by Mike Hellweg and was seconded by Chris Mohrle. The motion passed.
- **TREASURER:** Pat read the Treasurer's report. A motion to approve was made by Chris Mohrle and was seconded by Holly Paoni. The motion passed. Charles Harrison suggested that MASI set up a checking account for PayPal that would be separate from the MASI club checking account.
- **EDITOR:** Deadline for submissions for the Nov/Dec Darter is Nov 12.
- **ADVERTISING:** Holly said that shop flyers for the Swap meet have been passed out.

- **AUCTION:** Mike reported that sales were down for the Aug auction.
- **HAP:** Mike reported that submissions were up this month.
- **BOWL SHOW:** The Bowl Show is in October. Chris needs judges.
- **CORRESPONDING:** Pat has received some donations from Cobalt.
- **MEMBERSHIP & WELCOMING:** Informational countertop flyers were passed out to 17 pet stores.

OLD BUSINESS

- The MASI Challenge has raised over \$2000.00 so far.
- MASI Fishy Bowl at Epiphany Lanes is Oct 26 from 6:00 to 9:00.
- Classifieds are not being used much, but the MASI Band site is growing.
- Ideas are still needed for the 2020 MASI Challenge.

NEW BUSINESS

- The possibility of MASI sponsoring a brick at the St. Louis Aquarium was discussed.
- MASI shirt sales were discussed. Caleb will head MASI brand apparel.

- A motion to ban non MASI raffles on MASI social media/electronic sites was made by Mike Hellweg and was seconded by Caleb Pitman. The motion passed.
- A motion to spend up to \$300.00 to purchase 50 MASI insulated bags to be sold for \$10.00 each was made by Chuck Bremer and was seconded by Ian Eggert. The motion passed.

A motion to adjourn at 8:55 was made by Charles Harrison and was seconded by Ian Eggert. The motion passed

**Got Fish?
Join MASI!**

**LUALYN
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GEMS**

**2533 A Vandalia St
Collinsville IL 62234**

618-344-7333

**lualynaquaticgems@
gmail.com**

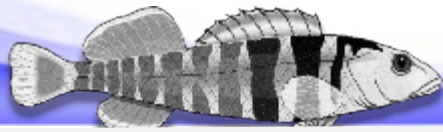
Hours:

Tue - Fri: 11am - 7pm

Saturday: 10am - 6pm

**Sunday - Monday:
Closed**





The DARTER

SHOP HOPPING - January 2019

Special Events and Deals!

These Local Fish Shops (LFS) help introduce hundreds of people to the Aquatic Hobby every day. They also help the Missouri Aquarium Society reach those hobbyists and keep them engaged by promoting our programs. Support their programs too!

Happy Fish Shopping!
The Missouri Aquarium Society

What	Where
New Facebook Posts	Saltwater Paradise
New Facebook Posts	Lualyn Aquatic Gems
Home Page	Midwest Tropical Fish
Current Specials	Petco on N Lindbergh
In Store Specials	PetsWay - 2 Locs
Facebook	Pet Connection
Weekly Specials	Sailfin Pet Shop
Facebook/Specials	Aqua World - 2 Locs
Monthly Specials	Tropical World Pets
Weekly Specials	Corals & More
Fish List	Malawi Aquatics
Upcoming Events	Seascape Studios



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Hours of operation:
TUESDAY-FRIDAY 1:00PM-8:00PM
SATURDAY 11:00PM-8:00PM
SUNDAY 11:00PM-6:00PM
CLOSED MONDAY



MA SI 2020



Missouri Aquarium Society 2020 Calendar

2020		
Jan 16	General Meeting Running River Rainbows	7:30 PM
Feb 9	Winter Auction* 	9:00 AM
Feb 20	General Meeting Mouth Brooding Loricarids	7:30 PM
Mar 19	General Meeting Tubbing	7:30 PM
Apr 16	General Meeting Planted Tanks	7:30 PM
Apr 25	 Spring SWAP*	10:00 AM
Apr 26	Spring Auction* 	9:00 AM
May 21	General Meeting Goodeid Livebearers	7:30 PM
Jun 18	General Meeting Cory Breeding	7:30 PM
Jun 19-21	AKA National Convention 	
Aug 9	Summer Auction* 	9:00 AM
Sep 27	Fall Swap* 	10:00 AM
Nov 8	Fall Auction* 	9:00 AM

3rd Thursday General Meetings at:

7:30 PM - DORSETT VILLAGE CHURCH
2240 BENNINGTON PLACE
MARYLAND HEIGHTS, MO 63043

Events marked in RED* at:



HOLIDAY INN: AIRPORT WEST,
EARTH CITY
3400 RIDER TRAIL SOUTH
ST. LOUIS/EARTH CITY, MO 63045

Holiday Inn

** MINI-AUCTIONS AT ALL GENERAL MEETINGS EXCEPT
DECEMBER

DARTER November/December 2019 Volume 45, Number 6

Want to continue to
get the DARTER 6x
per year?

Don't Forget to
Join/Renew your
MASI membership!!

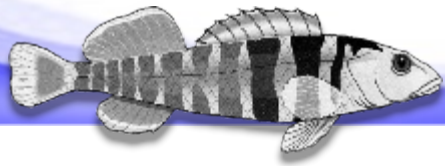
A Year's membership is \$15
and includes an electronic
subscription to The Darter
published six times per year.
Join for 2020 in Nov or Dec,
2019 and get the last 2019
issue free. Join or renew
membership at any meeting,
most club events, by PayPal
from the MASI [Website's
Membership Page](#) or by
contacting Ed Millinger,
membership chair, at 573-
883-9943.

Help MASI Support
the Aquarium Hobby!

Support Locally by
shopping our
supporters.

Support Nationally &
Internationally by
supporting the MASI
Challenge.



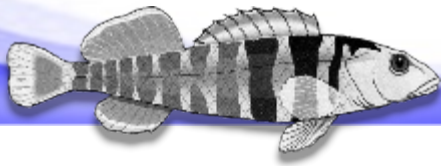


Meet MASI Fishy Folk: Larry Allbright



- **My Family members** are my Wife of 49 years, 3 kids, 11 grandchildren and 8 great-grandchildren!
- I've kept fish for 63 years starting with a tank of Live Bearers and right now I have 24 various tanks. Almost all are stocked with varieties of plants, angels, barbs, cardinal tetras, rainbows, bristle nose and Cory cats.
- My Favorite pet fish is an Angelfish but I dream of breeding High Fin Lyretail Swords and I would love to have a 1000 Gallon saltwater aquarium and someone to take care of it. More realistically I'd probably settle for a 350 freshwater tank.
- Recently I've gotten Blue-eyed Bristlenose' to spawn and am trying to get black angels to spawn for me again.
- Other pets we have around the household are two dogs and two cats.





A "Hobbyist's" Guide to Selling Fish

PART 1: Intro to a Series of Articles on the business of Selling Fish

By Kevin Plazak

THERE ARE A lot of reasons a hobbyist like you would be interested in selling fish for a living or, maybe just as a fun side-hustle or, heck, just to get rid of all the extra fry that are piling up in every tank you own. You might see it as glamorous, a lot of fun, or a sirens' song that calls to your soul at every moment of every day.

...You know, sirens call men to crash into rocks and die, right?

Selling fish can be a lot of things depending on how you approach it. If it is a casual endeavor that allows you to free up space in your fish room, you might be a hobbyist that gets a few bucks at the club auction while building up a little credit at the local stores.

This is where it started for me and I really loved it. On club meeting nights I could sell around \$100 to a local wholesaler, trade fish to local fish stores and sell fish through the club auction. Yeah, I might have spent most



The way to make a million dollars in the fish business is to start with three million".

-
Anonymous

of what I earned in the auction - but it was a lot of fun! If your business goes no further than this, count yourself a Rockefeller because that was the easiest money I've ever made at fish selling. It was also really satisfying.

You can take a job at a local store and sell fish that you may get to order and stock. You may also sell the fish that someone else stocks. In either event, you are selling your time and skill while you sell someone else's fish. This will make you more money than working in your own fish room (statistically, not absolutely), but you will have to sell fish that you might not have any interest in selling. I did this for most of my college life and it served its purpose, but I would not care to go back into selling fish retail unless I owned the store.

There are a lot of online businesses that work really well. I can't speak from a lot of experience in this venue. I have sold fish through Aquabid and found that you sell about 10% of everything you list if you list your fish for a fair price and you have a critical mass of fish listed. If you list high dollar items or rare items, it may be different. I intend to explore this further in the future, but can't really speak to this with as much expertise as an author should have.

You can work at a wholesale business. This is a lot like working at a retail company without all the customers and a lot more catching fish. And when you aren't catching fish, you are cleaning a tank or medicating sick fish or feeding fish or discovering a new problem. The upside of this work is that the dress code generally includes covering all bathing suit areas without a lot of other specifics. You will likely be left alone if you catch fish quickly and the counts are right. The downside is the pay is often bad. I've been paid badly now for 15 years at my own company and I still love it every day. But I'm getting ahead of myself...

There are other facets of the live fish business: A jobber is one who gets fish from farms or importers and sells them to stores in smaller quantities. Jobbers often pay more than stores, but less than retail. There are trans-shippers who bring fish in from other countries and send them to their customers without ever taking the fish out of their bags.

There are fish farmers who produce fish for wholesalers, retailers, and hobbyists - sometime simultaneously. There are blends of every facet and there are specialists who only sell fish from one lake or one country or only sell cichlids or only plecos... the possibilities are endless.

But as the lines blur between farm and end user (the person who keeps the fish for most of its life), the business starts to get tricky. The first thing that will happen when more farms sell to the public (and a lot of farms do now sell to the public) is a streamlining of interesting fish in local



stores. We're already seeing this everywhere. And as fewer fish are available, smart (or talented or fanatical - call 'em what you will) fish keepers are seeing the gaps and they are trying to fill them.

The problem with this is that once you have filled the appetite of the buying public, you will not make as much money on rare bichirs, or rare plecos, or rare corals... there is a finite amount of demand for high dollar critters, so you will need to rely on volume. Volume solves many ills in a business and focusing on keeping fish flowing is the key to diverse sales. Diversity in the tanks, and a rotating diversity, is what make a store a draw for people.

The market is not flooded, there are gaps in the supply chain everywhere and fish stores have an incredibly narrow variety of fish that they can get each week. Most stores are more than happy to buy healthy fish that are priced fairly and they will pay for those fish each week. Getting in front of the retail buyer is just a function of being online and selling through an existing fish site - Aquabid, Amazon, Ebay or just through one of the Facebook replacement sites.

If you have two hours a week, I would stay a hobbyist and enjoy those two hours at a nearby club meeting selling your fish through the club or trading at a local store. If you have a spare 60 hours a week, wholesale or

retail may be for you. If you like money, marry a doctor that finds your fish hobby adorable.

Ideas for Making Money by Selling Fish:

-  As a Hobbyist at a Club Auction
-  Job at a local store
-  Own a Local Store
-  Sell Online
-  Work at a wholesale business
-  Be a Jobber
-  Be a Trans-shipper
-  Start a Fish Farm
-  Other?...

While there are exceptions to this summary, the norm is far closer to my summation than it is a rags to riches tale. Exceptional people can do exceptional things and they can make money in the hobby. They can make money doing anything they set their

mind to, it's a character flaw of the exceptional - they choose to succeed at stuff.

Head-strong people do pretty well in the fish business too as long as their strict set of rules include hiring good people to make good choices on their behalf. This ensures their head-strong ways don't reject the newest trends in the hobby. Best of all, when they should pack it in and give up on this very difficult business, they just keep plugging along. This is my tribe, the hopelessly in love with the fish business.

This series of articles are not written to dissuade you from starting a fish business. I would encourage you to believe that the aquarium fish business can be a money pit. And without a lot of very savvy people guiding you through the pitfalls of the business, you will likely spend three times what you make.

Not losing money can be as simple as tracking your money expenses and sales... **SERIOUSLY**, many people have no idea what they spend or take in. More on this too, later...

Next installment: "The Ethical Fish-Business".

Editor's Note: Although he has been associated with MASI peripherally, Kevin is a recent long distance member of MASI, of which we are beginning to have several.

Since he has never been to a MASI meeting and brings a different perspective to this newsletter, he deserves some introduction:

Like many of us, he has spent most of his life and all of his adult life keeping fish. His first fish tank was at 8, his first volunteer job in a pet store was at 13. He paid for college working at pet stores and raising African cichlids.

After receiving a degree in Environmental Biology, he went on to work for PetCo for a number of years working in the fish area and then managing stores. When his hobby started making about as much as a job would pay, he took his first shot as a wholesaler – and *within a couple of months he went back to work a desk job* – but not before he learned a couple of very valuable lessons. He eventually moved to Portland, Oregon to ultimately begin his current business: **20/20 Tropicals**, mainly a business of selling fish to stores.

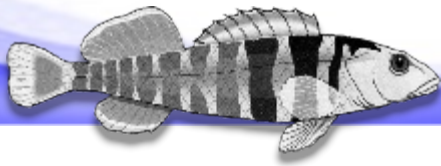
He claims to have failed in a myriad of ways and has earned the knowledge to know how to prevent catastrophic failure as well as how best to leverage every penny.

This is an introduction article to a series of articles. His plan is to provide a complete, step by step guide on how to sell fish; starting with a hard look in the mirror for each would-be entrepreneur, and then create simple guidelines to actually make a go of selling fish. Your feedback will determine how the steps are covered.

When the reader has finished the series, they should be able to assess if they might want to try a full blown business or keep it a hobby. Kevin's goal is to make the hobby more profitable for most folks rather than having them lose a pile of money starting a business. He says he "will cover 'exit strategies' down the road. Almost for sure... Probably."

I have met Kevin. He was previously Editor of the PCCA's newsletter and not bashful nor shy, so get ready for an interesting ride...





Neocaridina Shrimp Keeping Basics

OR

Keeping Shrimp
Simple!

-

By Holly Paoni



THERE HAVE BEEN a lot of questions lately about keeping shrimp. Some answers try to make something simple and easy too complicated. It's not complicated at all. A simple low tech set up is all that is really needed.

My best advice is to begin with a cycled and well established tank. Shrimp do not handle spikes in ammonia, nitrites or nitrates well at all. They are not fond of jumps in PH, GH or KH either. Even though they have a very very low bio- load on the tank, it needs to be very stable. To get a very stable tank, nothing beats the length of time it's run to establish plenty of beneficial bacteria, and make it past the fluctuations a newer set up goes through. Once over those, go ahead and add some colorful shrimp!

I'm focusing on shrimp of the genus *Neocaridina*, as they thrive in our area's tap water. Needs of the genus *Caridina* vary species to species. A few *Caridina* can handle or even like harder water, but the majority have very specific needs requiring specialized substrates, and RO/DI water formulated within their preferred range.

Not all dwarf shrimp are the same, so I'm sticking with what will work with our tap water and do well. You can

branch out with your own research after getting some experience with the *Neos*.

As a well established tank, I mean it is beyond just being cycled. There is biofilm or some trace algae growing somewhere in the aquarium, and water parameters have been testing nice and steady for a couple of months after cycling with some small fish residing there; there aren't any mini ammonia spikes; GH and KH are holding steady; and nitrates are staying low with normal water changes- It's a nice stable tank.

For shrimp tanks I prefer to use plain old sponge filters because there is no place for the shrimp or li'l shrimpettes to get stuck or trapped.

Box filters- some have holes small enough for the wee ones to get into. I've had shrimp climb into the chamber on the back of hang-on-back filters to



presumably feed on the goodies on the media and I've had them climb right over matten filters and stay in the back.... finding dozens living in that small pocket in the back. Shrimp can get into the tiniest nooks and crannies. Sponge filters keep them from being lost or trapped and shrimp can also feed off of a seasoned sponge filter.

Substrate can be anything inert. Pick whatever color of inert substrate that contrasts with your shrimp. Light substrate for your deeper reds, blacks, deep blue shrimp or darker substrate for your light colored shrimp such as lower grade cherries, all yellows, rillis, snowballs and blue pearls will make them show up best. When the substrate contrasts with the shrimp, the shrimp POP.

Decoration for the shrimp tank includes something with lots of nooks and crannies. When shrimp molt, which they do routinely, they are vulnerable until the new exoskeleton hardens. During this time they prefer to go hide in a safe place. Driftwood with small crevices, cholla wood with some decent sized holes and specialized shrimp caves all work well as do thickets or mats of Java ferns, Bolbitis ferns, Anubias or Bucephalandra. In those well established mats of live plants there are dozens of places under the leaves to hide out for a few days. Mosses also





work well. I have a moss wall in one of my shrimp tanks formed by adding moss to a few small sticks and letting it grow together and thicken.

I leave shed exoskeletons that make their way into the open areas of the tank. If the shrimp are needing calcium they will eat them and they are an easy visual indicator of what the colony may need. If the shrimp are not eating the shed exoskeletons, no need to do anything- all is well. If you see them grazing on them, your tank is lacking minerals and calcium.

I add dead coral to the tank to supply calcium. I have a few nano sized pieces and put a piece over by the filter where it will slowly release calcium and trace minerals. The shrimp will pick at it as needed- similar to a salt lick for livestock. Another way is adding a natural cuttlebone piece, like is used for pet birds which works the same way. Some folks use a homemade food recipe usually referred to as snail jello. It gets extra calcium into their diet. All these work well, without needing to mess around with water chemistry by re-mineralizing water.

Water that is too hard is said to cause molting issues. The shrimp can't molt and dies trapped inside its older but too small exoskeleton. I have not had this issue, and my water can get extremely hard during dry hot months of summer. For me this is a Ph of 9.4 and TDS of 924 for a couple months. My water gets that high every few years during long dry summers. My shrimp so far haven't ever missed a beat. However, that increase came slowly over many months then slowly came back down to our typical St Louis water chemistry. It wasn't an overnight change, it was slow & gradual. Shrimp can't handle rapid change. They can go outside their typical parameters, but changes with shrimp must be slow and gradual.

Open space is needed in a shrimp only tank because you'll want to regularly sort through and grade or cull your shrimp to keep their colors up. With the colored shrimp, there are several grades of color intensity. Reds are the most popular, so I'll use those as an **example**.



It goes from Low grade to High grade: Cherry, Super Cherry, Sakura, Fire Red, and Bloody Mary. Some break this down into even more grades of just red. Differences between grades can get as complicated as to how intense the color is even on their leg joints.

...I'm trying to keep it simple...

Even though the grades breed mainly true, you will still find higher or lower grade shrimp in your colony. Use the open area to view and sort your shrimp to keep the color you've got or to improve it. If you have lower grades popping up and don't remove them, over time they will interbreed and the colony color will degrade.

Shrimp are grazers, picking constantly at whatever they can find. They are omnivores that lean towards plant based foods. A specialized diet is not needed. Whether algae wafer bits, algae pellets, mini-sticks and pellets, a variety of flake foods, soft green algae off the glass tops, canned french cut

green beans without salt, steamed spinach, zucchini, or microworms - they will eat it. They aren't picky.

Since shrimp are constantly grazing, it's a good idea to keep something in the tank for them to graze on. Usually the seasoned sponge filter is enough, but as the population grows, it needs to be supplemented.

I supplement with hardwood leaves, fresh cholla, or new driftwood. These get a slimy coating on them shortly after being introduced to a tank. The shrimp love to eat that stuff. It can look pretty gross if it really blooms, as its white and slimy. Gross looking or not, the shrimp love it. It doesn't affect water quality, as it's a living micro fauna or fungus. Since shrimp are sensitive to water quality issues, its about the perfect food to keep in a shrimp tank. They can graze on it constantly and you are just feeding other foods as a supplement in small amounts to balance their nutrition. I feed the fish a varied diet, 2-3 times a day and my shrimp get a tiny bit of whatever the fish are getting once a day.

Tank maintenance on a shrimp tank is about the same as any other breeding tank. You don't want the tank spotless. Its okay and actually preferred to let a bit of algae grow. I



don't clean the back or side glass on my breeding tanks. Micro fauna live there and algae is something to be grazed upon and nibbled at. As for the sponge filters, I do check them routinely, but don't clean them often. When I do clean them, I only clean them partially as I want to save the goodies growing there. The shrimp graze on them and need the majority of that nitrifying bacteria.

Make water changes often enough to keep the pH, GH, KH from fluctuating wildly with each water



change. You also want to keep nitrates at 20 ppm or lower. Each tank is different. My fish tanks get 50-75% water changes, usually weekly, if they need it or not. My shrimp get treated the same but they would be fine getting a 25% - 35% water change once a month.

I change water in my shrimp tanks like I change my fish tanks, for one reason. My tap water is slowly but steadily always changing and if I wait it will be even more different the next time. The change is non readable to minuscule with liquid test kits but over a couple months the change adds up to too much for them to handle. By giving my shrimp tanks constant water changes like the rest of the fishroom it's not an issue.

Shrimp do very well at room temp, and even down into the low 60's without showing any change in activity level. They can go up to the high 70's to low 80's, but will cook at slightly higher temps very quickly. In a fish room, a heater isn't needed, as the



water in the room maintains temp very well. For an household or office tank, a heater set in the low 70's to maintain the temperature will keep drafts or HVAC vents from making the tank temperature rise and fall repeatedly throughout the day.

Newer aquarium LED lighting puts off next to no heat, but lights and hoods from just a few years ago do. In small tanks, this is an issue, as the heat from some of these lights can raise tank temp as much as 4-8 degrees on a nano-tank when on, then drop again when off. If this is the case, I recommend upgrading your lighting to something that puts off very little to no heat.

Tank mates for shrimp are limited. Most fish want to eat them.

Even some nano species will gang up on and eat shrimp if given a chance.

Even if they don't eat the adult shrimp, the new shrimplets are still tiny enough for a 1" adult fish to eat. There are some species that can work, however, if you're just looking for shrimp numbers to maintain or slowly climb.

If you want to save most of the shrimp & their young you'll need basically a species only tank. The only totally shrimp safe species in my experience are common *Otocinclus* and Siamese Algae Eaters (SAE)- although SAE get way to large to have 1 in a shrimp tank, let alone a good shoal of them. Otos and most snails do work well, as they are shrimp sized but they do fill the same niche in the eco system as shrimp- clean up duty.

Mostly shrimp safe fish species are those that won't wipe out the entire population and will let the shrimp colony grow slowly or maintain. You will lose some, but not a big chunk of the shrimp population. This works best in a very well planted tank with a lot of thick cover. Examples of these species include the laid back to shy nano-fish such as Chili Rasboras, *Microdevario kubotai* or other nanos with a similar temperament.

Smaller bristle nose, *Cory habrosus*, guppies and endlers that do not ever predate on their own young may also work. Temperaments among fish vary considerably within the same species, so what works for one person may not work for all. It is trial and error for most.

Species that will thank you for providing a shrimpy treat as a meal include most large livebearers, all cichlids including angelfish, most anabantoids, most active schooling fish and medium sized to large catfish of all types. A vast majority of killies and rainbow fish will also eventually hunt down the majority of shrimp tank mates. The majority of our aquarium species do not do well with shrimp.

My rule of thumb is: if the fish even thinks the shrimp or shrimp baby will fit in its mouth, good chance the shrimp will be a fish snack. If the shrimp doesn't fit in the fishes mouth, but the species is outgoing or rambunctious, or would gang up and hunt it together, good chance the shrimp will be lunch if the fish get



hungry or bored. Calmer, laid back to shy species that stay small are the best bet, but please have another place to move them to in the event they don't work out.

Shrimp do climb, and will even go on what I like to call a walkabout, from time to time. To prevent this, keep the hole for your airline blocked, as shrimp can climb through that space. I watched one climb up the airline tubing, take a walk on the glass top and over to the next glass top on another tank still looking for a way into the neighboring tank. A scrap of filter pad or foam, wrapped around the airline, going into the tank prevents the walkabout. I also do not keep different colors of shrimp next to each other just to prevent contaminating color varieties and muddying their color.

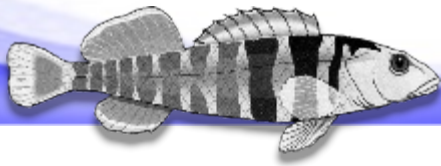
That's my Neocaridina basics. If you want to branch into the *Caridinius* then *Caridinia cf. babaulti*, and the Various *Caridinia* Tiger varieties also do very well in the same conditions as *Neocaridinius*. Some others types may survive but not thrive.

Shrimp keeping is fun and enjoyable. There are a multitude of colors and patterns available and it's not complicated. Every fish species has a list of special needs and shrimp aren't any different. Use a simple low tech set up that's matured with places to hide, tank mates that won't eat them, a constant food source for grazing, and good water quality, and they will breed like bunnies!

A 5-10 gal is all that's needed for a medium to large colony (50-300 shrimp). Larger tanks do give more buffering for water quality issues and look nice too, so go ahead and use that 20 long for your shrimp tank.

Photos by the author.





Sunken Gardens

A Book Review

By Mike Hellweg



HAVE TO START off this review by stating that I have been friends with the author, Karen Randall, for more than twenty years, but that shouldn't color my review of this excellent book.

There are over 40 books on aquarium plants available, from the old Pet Library book (which actually isn't all that bad) to Christel Kasselmann's Aquarium Plants and her Planted Aquariums, which are both excellent and should be in the library of any serious planted tank enthusiast. There are several books put out by the master Takashi Amano as well.

Why would I recommend a book when "everything" is available on your phone at the touch of a button? Because books are concise and information is all available in one place, and it has been reviewed by experts, unlike websites which might be put out by anyone, whether or not they know what they are talking about! This book differs from websites in that Karen presents facts as facts, not opinions. She explains the why of each suggestion, without saying you "have to" do this or that, but rather explaining why this or that is needed, and what the options are.

Many of the older books don't cover modern equipment and techniques, and some of the others give

many an inspiration, this is the first book I've read that is actually a step-by-step guide to setting up and running an underwater indoor garden. In addition, this 250 page book has it all in one place, unlike many of the websites available on the subject. Everything is categorized, easy to find, clearly explained, and illustrated with excellent color photos.

First the author introduces aquatic plants and gives a basic overview of aquatic plants and how they are different from terrestrial plants. Then she introduces basic water chemistry as it applies to the planted aquarium without getting too technical. She even advises the reader that if they want, they can skip the chemistry chapter and return to it later after they have read the rest of the book, when they might have a better understanding of why they might need to know a bit about water chemistry.

Her lesson here is painless, yet covers the subject in enough detail that the beginning aquatic gardener can get what they need without being overwhelmed by more advanced details from more advanced hobbyists who think that you should understand what they are talking about. The chapter is very simply and very well written.

Then she spends three chapters discussing the basics of essential equipment, substrates and fertilizers. Again, without overwhelming the reader with terminology or insisting

that the reader has to go out and spend hundreds of dollars on specific equipment to start out, but guiding the reader toward making wise purchases as one starts out.

If you feel overwhelmed simply by lighting choices, Karen introduces the reader to lighting terminology and types, again without getting too



“Sunken Gardens” author, Karen Randall, will be speaking to MASI in April, 2020 on “Sarawak, Beautiful Land of Disappearing Species”



technical. It will help the reader understand what they need to know about planted tank lighting without all of the opinions masquerading as fact on the internet. The same goes for CO2 fertilization, substrate, heating, and even fertilizers.

Once a reader sets up a tank, maintenance is important. Karen covers how to maintain an aquatic garden, trim the plants, and gives a simple schedule to follow as you move through the months with your new aquatic garden. In addition, she has a section on what to do while you're away on vacation which is something I have rarely seen in books.

The next section of the book covers the plants themselves, and divides up the many choices available into low light, moderate light and high light. Each species is described with a short paragraph about care and is illustrated with a photograph. This chapter covers about 50 pages. This is followed by a chapter on care for the plants, every thing from how to plant the different types to how to trim them as they grow, illustrated with several excellent photos.

Of course, every aquarium should have fish and other critters in it! The next chapter covers fish to avoid, and then gives a nice selection of

some of the more popular fishes that can be successfully kept in an aquatic garden tank. She also covers shrimp and snails. Yes, I know some planted tank folk hate any kind of snail, but there are actually several that do very well in an aquatic garden.

There is an introduction into the different schools of thought on Aquascaping. Though an in-depth look at the various techniques is beyond the scope of the book, Karen's introduction to each type is well done and each is well illustrated. This chapter is followed by one on actually how to lay out a planted tank and get some of the effects that a reader can see, but otherwise might have no idea of how to pull them off. She covers everything from setting up one of the popular nano tanks all the way up to setting up a large tank.

Karen wraps up with troubleshooting and dealing with problems that all of us run into, especially algae. This chapter alone is worth the price of the book! Prevention is the key, but algae are nefarious little &*^%@ (survivors) and are found even in the best maintained tanks. The whole idea is to keep them from becoming the dominant plant life in the tank.

The final pages are dedicated to a listing of resources, starting with the Aquatic Gardener's Association, of which every planted tank enthusiast should be a member. There are several trusted websites listed as well, which might help the beginner weed out (pun intended) some of the less informative sites out there.

This book is available on Amazon.com for \$25 or less (depending on sales running - as I write this it is on sale for \$17!). It is a nice, solid paperback with full color illustrations and done in an easy to read font.

I highly recommend this book to all of our members. As a bonus, Karen will be here as a speaker at a meeting next spring, so you can even pick her brain if you have any questions, although I think covers, most of the questions that may come up in this book. I highly recommend it, and think it should be in the library of anyone even remotely interested in a planted tank!

Oh, and I wanted to mention that our own Gary Lange has several photos featured in the book!



Hard-to-Find Tropical Fish
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Michael Hellweg

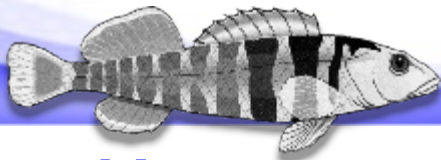
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Making Super Dechlor

OR

Good things in even smaller packages!

By Gary Lange

Ok so I promised you the "Super Dechlor" recipe.

NOTE: Super Dechlor is a NON-STANDARD dilution and does NOT use the same dosage chart as the usual Dechlor recipe!! Which can be found in Darter Vol 45, No 4: July, 2019, !!

Many years ago, pre-internet I looked up in the chemistry reference books in my lab the solubility of sodium thiosulfate in water to make the most concentrated solution practical. Slight dilutions were made from there because if there was any evaporation in the container or the container got too cold I wanted the sodium thiosulfate to stay in solution. What I ended up making a 200 ml total volume containing 93 grams (46.5 grams/100 ml).

I've been making this recipe for over 25 years and it has worked quite well and not fallen out of solution. This 200 ml solution can be used to treat 4,000 gallons of water so quite a bit of water changing to be had for such a small volume.

Find a suitable jar, the best type will be one with a fairly narrow diameter, 2 or 3 inches maximum. Find a jar, plastic or glass, that has a good tight lid. You are going to shake the jar to COMPLETELY dissolve the crystals so you will need a jar that has a tight seal to prevent splashing sodium thiosulfate and water all over the room.

Gallons to be treated: SUPER DECHLOR

SPECIAL DILUTION!!

	1	5	10	50	100	
Amount to Use:						
Oz	0.002	0.01	0.02	0.1	0.19	Oz
Tsp	0.01	0.06	0.12	0.6	1.2	Tsp
cc/ml	0.06	0.28	0.57	2.8	5.7	cc/ml
Drops	1	6	11	57	113	Drops

Prepare the jar by carefully measuring out 200 milliliter (ml) of tap water. Most modern kitchen measurement devices have both cup and milliliter markings on the side and it's just a little over 3/4 of a cup but you want to be accurate here. Pour that water into your jar and place it on a level counter. Once it stops moving use a magic marker or other permanent marker to mark EXACTLY where the 200 ml of water meniscus is on your jar for future reference. A jar with a smaller diameter will help measure the 200 ml line more accurately. Once you have done that re-empty the jar completely, leaving as little water as possible.

Next, measure out six tablespoons or 93 grams by weight, of Sodium Thiosulfate crystals. If you prefer to work in grams and don't have a scale, they are available at Harbor Freight fairly reasonably. The tablespoon measurements also work out if you are using the coarse crystal Sodium Thiosulfate, just measure carefully. Add the sodium thiosulfate crystals to the jar.

Take a little more than a cup of DISTILLED or RO water and heat it in your microwave. It's rather important to use distilled or RO water as you don't want any other salt ions in your water. Get it fairly hot but it doesn't need to be boiling. When water is added to sodium thiosulfate the reaction will be endothermic, meaning the solution will get cooler. If you start with a room temperature solution of distilled water it will soon be quite cold

and all of the crystals won't dissolve. If all of the crystals don't dissolve then later the rest of the sodium thiosulfate will also start falling out of solution until you have a huge crystal blob in the bottom of the container.

We don't want no blobs here so use hot water! SO, it is very important to initially dissolve all of the crystals.

Using extremely hard water, which some people in the St. Louis area have, may cause the almost saturated solution of sodium thiosulfate to start precipitating sometime later, which is very bad. There is only so much room between those water molecules so if you start with distilled water or RO water you will have a much better chance of keeping it all in solution.

Think of it this way, you have a closet that is half full of ugly Christmas sweaters that you hate to wear. Those are our unwanted, "hard water molecules". Now you really want to stuff your closet with cool looking jeans and shirts (our sodium and thiosulfate ions) but you don't have enough room because of all of those darn sweaters. Start with an empty closet (RO or distilled water) and there is a whole lot more room for the jeans and shirts! Got it? -so get rid of those sweaters, er... I mean hard water molecules... and go RO!



Carefully add SOME of that hot water until it reaches the line marked on the side of the jar. Put the lid on the jar and seal it tightly. Then shake until the crystals have dissolved completely.

Double check when everything has dissolved that you indeed have a volume level of 200 ml. You will have to add a bit more water because the sodium thiosulfate is now dissolved into the water and you won't have a perfect 200 ml volume anymore and if it's less than a 200 ml final volume your sodium thiosulfate may fall out of solution later.

I keep most of the dechlor in the jar I use to make it for storage but put my day to day working solution in a bottle with the dropper built in like you get with a pH test kit bottle or you can try Michael's or Harbor Freight to find one. Just clean it out really well before using and you should have a nice clean drop delivery system.

What you have now made is an almost super saturated solution of sodium thiosulfate. For our water in St. Louis and St. Louis county one drop per gallon contains enough sodium thiosulfate to effectively remove any chlorine or chloramines. I have found by measuring and checking with the chlorine test kit that this is usually 1.5-

2x more than needed for St. Louis County water, depending on the time of year so just sticking to 1 drop per gallon and in St. Louis County all year round and you should be fine. Elsewhere do the test, like you should actually be doing for any dechlor solution.

Remember that when the chloramine bond is broken it releases ammonia and sodium thiosulfate does not neutralize ammonia like some of the other dechlor (ammonia locking) solutions on the market. If you already have an active biological filter in your tank then it will quickly pull out the minor amount of ammonia that is released in this reaction.

If you don't have a good biological filter going, especially true if the aquarium is freshly set up, use Prime or Amquel as a dechlor (and ammonia locking) reagent for the first few months. They will neutralize the chloramine and also tie up the ammonia released in the process.

Use Super dechlor at - 1 drop per gallon, or 1 ml per 20 gallons or 1/4th teaspoon/25 gallons, 2.75 ml(just slightly more than 1/2 teaspoon)/55 gallon barrel.

So, to treat a 55 gallon barrel I add 55 drops or 2.75 ml. Just to finish off

the math puzzle that's 1.28 grams of sodium thiosulfate used to safely neutralize 55 gallons of water. That's three times less than the snowfall amount that we got when 3/4th of a teaspoon of crystals (3.87 grams) were added to that original 55 gallon barrel. So "I'm not cheap I'm frugal", was the old MASI member Ralph Wilhelm quote. As you can see here if you use the right amount of dechlor it can go three times further.

If you REALLY change a lot of water then maybe you want to take that 500 gram bag of Sodium Thiosulfate and make it up as Super-DeChlor all at once. That way you don't have to measure or weigh out the crystals. For that the final total volume needs to be 1,075 ml or a little bit over one liter. Use a big enough container to hold 1,075 ml and again mark it so that you get as close to the correct volume as possible when you finish dissolving all of those crystals. One can usually grab the kitchen measuring cups as they also have milliliter markings on the side.

That 1,075 ml will be enough Super dechlor to neutralize 19,000 to 21,500 gallons of water.



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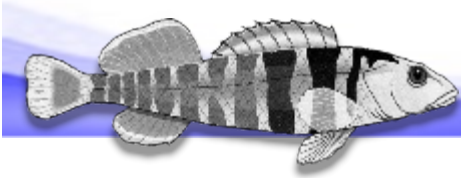


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Minifins

The Least Killifish

Heterandria formosa

By Mike Hellweg, CFN
(Certifiable Fish Nut)



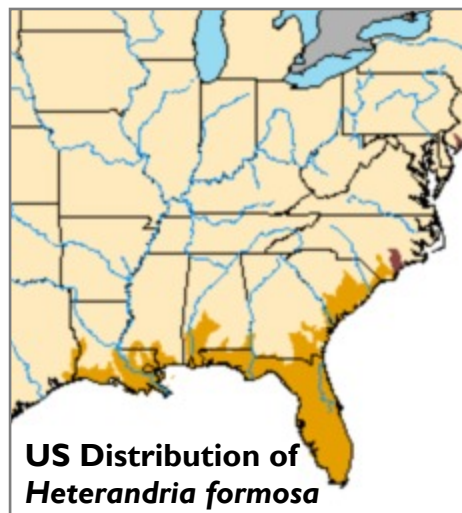
THE LEAST KILLIFISH (*Heterandria formosa*) is a fish with a weird name. Its common name includes the word "killifish", even though it is not a killie, but rather a livebearer of the family Poeciliidae. Well, maybe it's not so weird, there are other Poeciliids that ARE actually Killies and are egg layers to boot.

The Least Killifish is one of the smallest of all fishes, and indeed, all vertebrates. For decades the male held the title of smallest known vertebrate, but in the past few decades that title passed on first to a marine goby, then to a freshwater Cyprinid related to the danios, and most recently, to a diminutive frog that is barely larger than a newborn *H. formosa*!

Male Least Killifish usually barely top a half inch. A really big one might reach five eighths of an inch. Females are substantially larger, relatively speaking. A big female might reach an inch and a quarter, but most are closer to an inch in size. Since they are so small, the ideal tank for them would be a species tank, considering just about

every other species would be larger than they are, potentially creating a stressful situation for these diminutive fish.

While most of the fishes we hobbyists like to keep are found on the other side of the world, the Least Killifish is found in the good ole USA, from the Carolinas down the East Coast through Florida and along the Gulf Coast to Louisiana. It is found in everything from weed choked blackwater swamps to roadside ditches, hardwater springs, small streams, ponds, lakes and just about anywhere that is wet all year around. Populations are remarkably similar, though there are a few in southern Florida that are colored blonde and others around the Miami area in which



US Distribution of *Heterandria formosa*

males sport a bright orange spot in their dorsal fin.

Over the years I have been fortunate to be able to collect them at the far north eastern edge of their range in North Carolina, the southern edge of their range in the Everglades and areas just outside of the Everglades, and in Coastal Louisiana near Lake Ponchartrain. It's amazing how varied these habitats are, from swampy and low pH to high pH spring fed water to slightly brackish.

In all of these habitats the Least Killies are so numerous that at least a half dozen came up in EVERY swipe of the net! In the Everglades along "Alligator Alley" they were so numerous that each swipe of the net in a roadside ditch brought up literally hundreds that would have to be removed by the handful before we were able to see what other fish we caught.

For a tiny fish they are amazingly adaptable, hardy, and not really that shy. In some places I found them in water that was so deep I couldn't see the bottom, and in others the water was barely an inch deep. This really helps when thinking about what kind of home to give them in the Fishroom.

While it would seem that they are the perfect candidate for a nano tank or small tub garden, they are just as



perfect for a larger tank as well. With such a wide range in the wild, they are also tolerant of temperature and don't really seem to need or even want a heater. If you're comfortable in the room, they will be, too.

They can remain out in the tub garden until early October, so move everything else in first, and leave these guys till last. They won't mind as long as the change is gradual. I've even had them in a tub outdoors until early November, but I did add a small heater- just in case. I'm not sure if it was really needed but it made me feel better. The only fish I've ever left out longer was a pair of Paradisefish that stayed out until Thanksgiving weekend one year before I was able to bring them inside. They, too, had a small heater and rewarded me with one last outdoor spawn for that year!

Least Killifish are omnivores in the wild, taking small insects, crustaceans, worms, algae, and aufwuchs, making them undemanding and easy to feed. They will literally eat anything that fits in their mouths. I feed them primarily newly hatched brine shrimp, micro pellets, finely ground flakes and Grindal worms. They will also take microworms with gusto, and greedily gobble down the springtails that love to live on the tops of my Mattenfilters. In outdoor tubs they will thrive on mosquito larvae and similar invertebrates.

Mention of Mattenfilters brings me to filtration- the least killifish is one of the few fish that I can say with certainty that filtration is optional. They don't seem to need the water movement, though it doesn't bother them in tanks where water movement

is also fairly heavy. Even a fairly decent sized colony does not have a heavy bioload, and as long as their water is changed regularly and the tank is planted, use a filter or not as you choose.

If you keep them in a group without other species in the tank, a colony will quickly form and soon you'll be looking for new homes for them. Their reproductive strategy is a bit different than many other livebearers, including the guppy. Both species are Poecilids and so produce living young, but since the Least Killis are so small, in order to produce fry large enough to survive on their own from the start, they utilize a strategy called superfetation. The female is able to carry as many as a dozen or more broods of one or two fry at a time. When the embryos are first fertilized, they form a connection to the mother and she provides them with nutrients as they develop for a short time.

As fertilized eggs move down the reproductive track this supply shuts down and they then live off their yolk sacs as they grow allowing others behind them to get a good nutritional start from the mother as they did. Before they reach the end of their development the nutritional supply starts again and they finish the last few days of their development getting more nutrition from their mother. When each group are ready to be born, the female will drop the small brood of one to three fry in the early hours of the day daily until all dozen or so broods have been dropped. She then rests for a week or two and starts the cycle over again. This is an extremely simplified explanation, but will suffice for this article. If you would like to learn more



there are articles and even books on the subject.

Newborn fry are about the size of a newborn guppy, surprising since the female least killi is less than half the size of a female guppy! Unlike many other livebearers, the fry don't head to the surface, but instead look for cover near the bottom. They begin to feed immediately, and will take everything from finely ground food, to powders, to newly hatched brine shrimp. Between feedings they will feed on aufwuchs and the microfauna that covers most surfaces of the tank, especially live plants. In fact, with a good growth of live plants you can get away with only feeding them once a day. The rest of the day they'll be picking on every surface in the tank.

Growth is rapid, and in less than two months they will be getting ready to spawn themselves. They are not long-lived fish, but expect 2 - 3 years out of well cared for adults. With a colony, it seems that there are always plenty of fish reproducing.

This is one cool little fish, and if you give them a try, I'll bet you'll be like me and still have some swimming in your tanks 30 or more years from now!



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2019 BREEDER'S AWARD PROGRAM - Steve Edie



September 2019

Member	Genus	Species	Common Name	PTs	Bonus	CARES	Total
Chuck Bremer	<i>Chindongo</i>	<i>demasoni</i> #@		0		10	1337
Jake Harris	<i>Pelvichromis</i>	<i>pulcher</i>	Rainbow Kribensis	10			10
Mike Huber	<i>Chapalichthys</i>	<i>peraticus</i>	Leopard Goodeid	10			2583
	<i>Copadichromis</i>	<i>borleyi</i> "Kadango" *	Red Fin	10	5		2598
	<i>Poecilia</i>	<i>reticulata</i> ^	Red BlondeGuppy	0	1		2599
Holly Paoni & Kevin Wise	<i>Hyphessobrycon</i>	<i>sp. "Malinowsky"</i>		15			1047
Caleb Pitman	<i>Gambusia</i>	<i>holbrooki</i>	Eastern Mosquitofish	5			267

BAP Key:

* = 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)

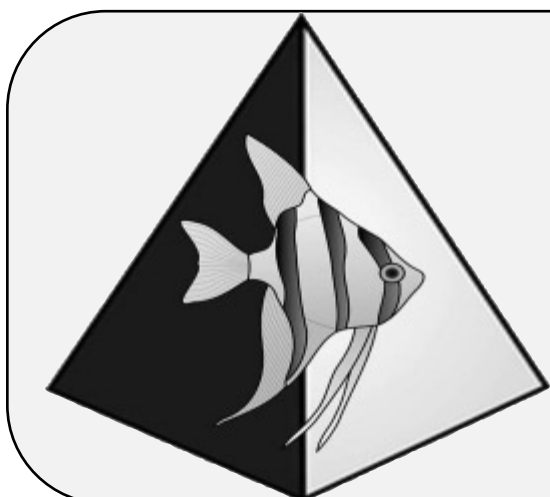
= Species previously submitted = 0 points, except for C.A.R.E.S. = base point bonus <http://caresforfish.org/>

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

Sources:

<http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp>

Every new point accumulated advances the Member's Breeder Award Level and accumulates \$Fish Bucks for use at the MASI Spring Awards Banquet. Awards for Breeder of the Year and CARES Breeder of the Year, accumulate from Jan 1 to Dec 31. BAP level awards accumulate until a month or two before the Banquet.



Little Egypt Aquarium Club Winter SWAP

January 12, 2020, 11am-3pm in the Garden Room/cafe at Southwestern Illinois College; 2500 Carlyle ave, Belleville, Illinois 62221 for more info call/text (618)910-9201 or email littleegyptaquariumclub@outlook.com

Monthly meetings are held the 2nd Sunday of the month at 6pm, at the same location.



October 2019

Member	Genus	Species	Common Name	PTs	Bonus	CARES	Total
Chuck Bremer	<i>Characodon</i>	<i>lateralis</i> "Guadalupe Agulara" #@	Rose Characodon	0		10	1347
	<i>Xenotoca</i>	<i>eiseni</i> @	Red Tailed Goodeid	10		10	1367
	<i>Xenotoca</i>	<i>lyonsi</i> "Rio Tamazula" @	Red Tailed Goodeid	10		10	1387
	<i>Xiphophorus</i>	<i>kallmani</i> #@	Kallman's Swordtail	0		10	1397
	<i>Zoogoneticus</i>	<i>tequila</i> #@	Orange Tailed Splitfin	0		15	1412
Steve Edie	<i>Cyprichromis</i>	<i>leptosoma</i> "Kerenge Island"		15			280
Jack Heller	<i>Neolamprologus</i>	<i>pulcher</i>		10			775
Mike Huber	<i>Aulonocara</i>	<i>maylandi</i> @	Sulfurhead Peacock	10		10	2619
	<i>Cynotilapia</i>	<i>zebroides</i> "Cobwe" *	Orange Back	10	5		2634
	<i>Poecilia</i>	<i>reticulata</i> ^	Blue Red Grassy Guppy	0	1		2635
	<i>Poecilia</i>	<i>reticulata</i> ^	Half Black German White Guppy	0	1		2636
	<i>Poecilia</i>	<i>reticulata</i> ^	Red Guppy	0	1		2637
	<i>Poecilia</i>	<i>reticulata</i> ^	Red Pineapple Guppy	0	1		2638
Jerry Jost	<i>Corydoras</i>	<i>loretoensis</i> *		15	5		3317
	<i>Scleromystax</i>	<i>macropterus</i>		20			3337
	<i>Scleromystax</i>	sp. "C113" *		15	5		3357
Caleb Pitman	<i>Lamprologus</i>	<i>multifasciatus</i>		10			277
John Van Asch	<i>Danio</i>	<i>rerio</i>	Zebra Danio	0			300
	<i>Pimephales</i>	<i>promelas</i> ***	Rosy Red Minnow	5	15		320
Bob & Lora Watson	<i>Chapalichthys</i>	<i>encaustus</i> @	Spotted Goofeid	10		10	340
	<i>Ancistrus</i>	sp. "Bristlenose - Longfin White"		10			350

BAP Key:

- * = 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 <http://caresforfish.org/>
 ^ = Species previously submitted, limited points for additional color varieties

Sources:

<http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp>



HORTICULTURE AWARD PROGRAM - Mike Hellweg

September & October 2019

Points Rewarded!

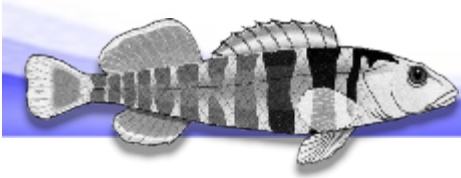


Member	Genus & Species	Common Name	Type	Points
Brian Woodrick	110 points			
	<i>Salvinia cucullata</i>	Vietnamese Salvinia	V	5
Charlie Hoppe	175 points			
	<i>Najas guadalupensis</i>	Guppy Grass	V	5
	<i>Riccia fluitans</i>	Crystalwort	V	10
Chris London	200 points			
	<i>Anubias barteri coffeefolia</i>	Coffee Leaf Anubias	V	15
	<i>Echinodorus cordifolius</i> Marble Queen	Marble Queen Sword	V	15
	<i>Lomariopsis lineata</i>	Susswassertang	V	5
	<i>Nymphaea lotus zenkerii</i>	Red Tiger Lotus	V	20
Chuck Bremer	1265 points			
	<i>Aeschynomene fluitans</i>	Giant Sensitive Plant	OB	10*
	<i>Bacopa australis</i>	Southern Bacopa	V	20
Daniel Kinder	175 points			
	<i>Colocasia esculenta</i>	Elephant Ear Taro	V	15
Jake Harris	45 points			
	<i>Anubias barteri</i>	Common Anubias	IB	20
	<i>Zosterella dubia</i>	Willow Grass	IB	15
Mike Huber	465 points			
	<i>Acorus calamus</i>	Sweet Flag	V	10
	<i>Ceratophyllum demersum</i>	Hornwort	V	5
	<i>Justicia americana</i>	Water Willow	V	5
	<i>Lemna minor</i>	Dwarf Duckweed	V	5
	<i>Nymphaea odorata</i>		OB	20
	<i>Sagittaria calycina</i>	Narrow Leaf Arrowhead	OB	5
	<i>Sagittaria calycina</i>	Narrow Leaf Arrowhead	V	5
	<i>Salvinia minima</i>	Dwarf Salvinia	V	5
	<i>Typha latifolia</i>	Common Cattail	V	5
	<i>Typha minima</i>	Dwarf Cattail	V	5



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





The DARTER

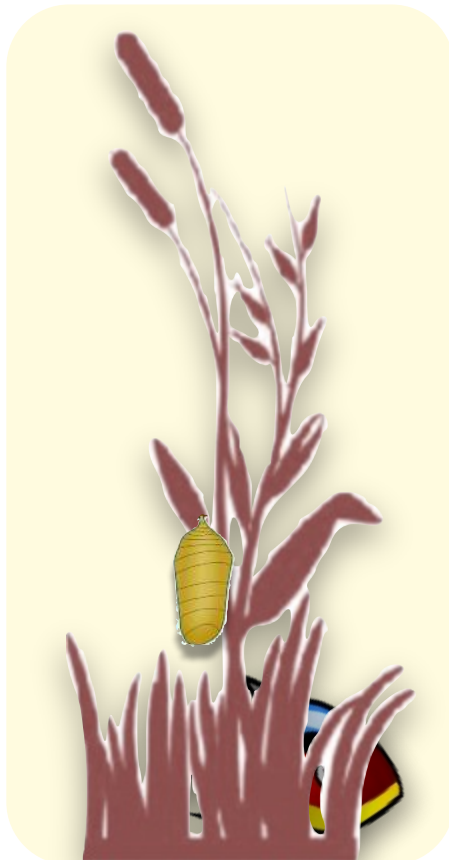
HORTICULTURE AWARD PROGRAM - Mike Hellweg September & October 2019 - Blooms...



**These folks
checked for
blooms one last
time before
bringing in their
tubs!**



Aeschynomene fluitans



**These folks did
it the hard way,
ALL INDOORS!**



Anubias barteri



Sagittaria calycina



Nymphaea odorata



Zosterella dubia



2019

Nov 22-24 - OCA Extravaganza, Strongsville, OH

Nov 24 - Greenwater Swap, Joliet, IL

Dec 1 - GCCA Swap, Hoffman Estates, IL

2020

Jan 12 - GCCA Swap, Hoffman Estates, IL

Jan 12 - Little Egypt Swap, Belleville, IL

Jan 19 - Greenwater Auction, Joliet, IL

Jan 25 - CAFÉ Auction, Champaign, IL

Feb 9 - MASI Winter Auction, St Louis, MO

Feb 9 - QC Fish Swap, Davenport, IA

Feb 23 - GCCA Swap, Hoffman Estates, IL

Mar 8 - Rockford Swap, Rockford, IL

Mar 15 - Greenwater Swap, Joliet, IL

Mar 21 - TCTFS Auction, Peoria, IL

Mar 21 - EIAA Spring Auction, Cedar Rapids, IA

Mar 29 - QC Fish Swap, Davenport, IA

Apr 5 - GCCA Swap, Hoffman Estates, IL

Apr 17-19 - NEC Convention, Cromwell, CT

Apr 25 - MASI Spring SWAP, St Louis, MO

Apr 26 - MASI Spring Auction, St Louis, MO

Jun 11-14 - ALA Convention, Coral Springs, FL

Jul 11 - CAFÉ Auction, Champaign, IL

Jun 19-21 - AKA Natl Convention, St Louis, MO

Jul 16-19 - ACA Convention, Sacramento, CA

Aug 9 - MASI Summer Auction, St Louis, MO

Sep 27 - MASI Fall SWAP, St Louis, MO

Sep 27 - GCCA Swap, Hoffman Estates, IL

Oct 8-11 - CatCon - Herndon, VA

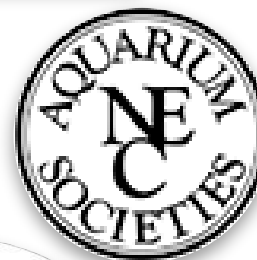
Nov 1 - GCCA Swap, Hoffman Estates, IL

Nov 8 - MASI Fall Auction, St Louis, MO

Nov 20-22 - OCA Extravaganza, Strongsville, OH

Dec 6 - GCCA Swap, Hoffman Estates, IL

CLUB HOPPING Steve Edie



Nearby Clubs linked to their logo



Other links are on the MASI

[Linkpage.](#)

Convention LogosHotlinked!



AKA 2020 National Convention

June 19-21 - St Louis, MO

American Killifish Association Convention 2020 - June 19 through June 21, 2020 at the Holiday Inn St. Louis, Airport West. This AKA Convention is being co-sponsored by the St. Louis Area Killifish Association (SLAKA) and the Missouri Aquarium Society (MASI).

Friday Show Set-Up

Saturday Speakers:

Christophe Aubin - Bordeaux, France - traveled, photographed and collected killifish and other fish in Cameroon and Congo. He has spoken to aquarium clubs throughout Europe about his collecting experiences and the fish hobby. See some of his photos at <https://www.stofmania.com/>

Donald Taphorn, PhD - lived nearly 30 years in Venezuela, where he collected and studied annual killifish. Dr. Taphorn will present the annual killifish of Venezuela, including his collecting work with the late Professor Jamie Thomerson in the Orinoco. His time in Venezuela was spent at UNELLEZ (the University of the Western Llanos), where he founded a Natural History Museum and Fish Collection- one of the finest in South America, fully computerized with almost 50,000 catalogued lots.

Richard Pierce, PhD - Massachusetts - a marine biologist who has studied and collected killifish for many years. Rich will be presenting a program on the Lampeye group with some great information on this unique and beautiful group of killifish.

Dave Hemmerlein - SW Michigan - long time member of the AKA and NANFA, and an experienced collector of native North American fishes including native killifish. Dave will present on collecting native fishes in the southeastern United States.

Mike Hellweg & Jack Heller - St Louis' serious hobbyists, will provide a workshop on fish room techniques and tools that have served them well during their many years in the hobby. Mike is a nationally renowned hobbyist who has presented throughout the U.S.. on various aspects of the aquarium hobby and written two books on live foods for the aquarist. Jack has spoken extensively on the killifish hobby and fish room design.

Speaker Lineup:

Christophe



Donald



Richard



Dave



Jack



Mike



Saturday's

Special

Sale: Combo Rare Fish & Rented Table Sale. See website for details. Buyer's Access based on Convention registration number. Convention handles transactions and all sales from rented tables go to the sellers.

Saturday Banquet and Awards Program

Sunday Auction: 11 A.M.

Monday Activities Planned for those who choose to stay another day.

Collecting trip to the Missouri Ozarks, home to a large number of freshwater species including killifish, darters, minnows, dace and catfish.

Tour of Newly Opened St. Louis Aquarium - promised to be another great experience.



Registration for AKA Convention 2020 opens January 1, 2020 on line at <http://aka.org/>

Jack Heller & Mike Hellweg - Co-Convention Chairs

Emails: HellerJackL@aol.com
& mike@minifins.com

Holiday Inn - St. Louis Airport West

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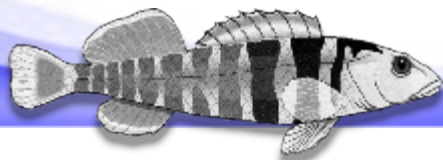
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Fri - Sat: 10:00 am - 8:00 pm
Sun: 12:00 pm - 6:00 pm

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Member	For Sale	Bid/Asked	Contact
Charles Harrison	Thiosulfate crystals (Chlorine Remover) - pound	\$4.00	(314) 849-9761
	OTO double strength Chlorine/Chloramine test kits - 4 ounce	\$12.50	charles@inkmkr.com
	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	
Charles Hoppe	Several 10 and 15 gallon tanks, including wooden rack. The stand is steel and it holds 12 ten gallon tanks. It has fluorescent lights and air valves for the 12 tanks. Makes a nice small fishroom. Extras, contact me if interested.		(314) 846-4648 charliehoppe@me.com
Mike Hellweg MiniFins	General Aquarium Support: Dechlor, Coconut Caves, Flake Foods, Plants & Custom Fish Orders Contact by email or buy at the back of the room at MASI General meetings	Contact for Pricing	Email: Mike@Minifins.com

Got \$\$\$\$ swimming in those Tanks?

MASI Members of good standing can place a fish related classified ad in the Darter for free. Send your ads to the editor. Deadline is 10 days prior to the January, March, May, July, September or November MASI Meeting. The Darter is Emailed about 3 days prior to each meeting.

IN SEARCH OF (ISO) & AVAILABILITY OF:

Check out these ISO and Availability posts on the [MASI Forum's Trading Post!](#)
Also check BAND.us/@MASIclub & BAND.us/@MASIswap!

ISO	AVAILABLE	CHECK HERE:
Peacock & Hap males	5" Discus	Forum Trading Post
	50+ Small Species	Forum Trading Post
Golden White Clouds	Floating Plants & Mosses	Discussion BAND
Rimless 10 Gal	Blue Hap male	Discussion BAND
Black Mollys	Corys, Angels & Eels	Discussion BAND
Apisto Pair	Electric Blue Rams	MASI Swap BAND
Discus	L-144's, Shelly Cichlids, etc.	MASI Swap BAND
L-183's & L-007's	Guppies, Platies, Shrimp	MASI Swap BAND
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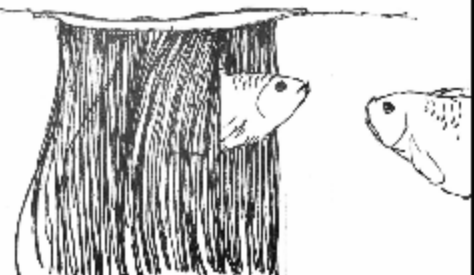
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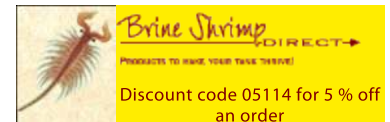
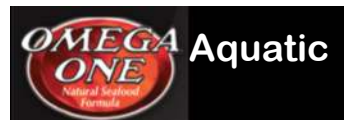
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