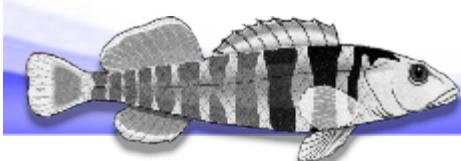
The background of the cover is a photograph of a large school of piranhas swimming in a dark, aquatic environment. The fish are silvery with distinct red/orange bands along their bodies. In the foreground, there are some green aquatic plants, including a large leafy fern on the left. The overall atmosphere is dark and aquatic.

The

The DARTER

V46#1

January/February 2020
B&W Printed \$5 Members / \$7 Non-members



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MEMBERSHIP

[join MASi](#)



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

THE DARTER

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

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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MASi will exchange 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, unless advised to the contrary. Send electronic versions to editor@missouriaquariumsociety.com



Cover - Piranhas, New STL Aquarium - Chuck Bremer



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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

**Volunteer in
2020 and help
yourself and
MASI!**

We've got a **GREAT** year
planned, including Auctions,

Welcome to 2020!

Swaps, Awards, Social Events, Picnics and Christmas Party. What else should we be doing as a club for the Hobby and our members in 2020?

MASI will be co-sponsoring the American Killifish Association's 2020 Annual Conference here in St Louis. We are honored to have the largest national aquatic association's annual meeting. It's the largest but built around some of the smallest and most brightly colored fish in the freshwater portion of the aquatic hobby. Help us make the AKA 2020 a convention all AKA members will remember for a long time. Support your council members and let them know your thoughts about all MASI should be doing in 2020.

Keep looking below water....

Chuck Bremer

FROM THE EDITOR

Welcome to 2020!
Has a nice ring to it, doesn't it?

Based on the year we are coming from, 2020 should be a GREAT YEAR!

This issue has more original articles than any issue in 2019. But the storehouse of new articles is empty! Help us keep up or even improve this pace, write about something you are interested in for the next Darter issue. I'm sure that if you're interested other aquatic hobbyists are too. Not a writer? We can always use original artwork or cover photos too. Those have also run dry!

MASI has become a more Family friendly in 2020. Do you know of a family who would benefit from membership in MASi or have a suggestion of what we might be doing to support our Family memberships?

Visit the STL Aquarium! The consensus of most reviewers is that the STL Aquarium will be a great family activity and complement your membership in MASi greatly. Mere photos can't do it justice like Being There! Go visit and give the Council feedback on how we should use it or support it in the future.

MASI ended 2019 with 193 paid family memberships. Memberships have never before been that high. Can we reach 200 in 2020? It shouldn't be a barrier but it will mean that we need all the 2019 members to renew for 2020 to continue that climb.

Renew your MASi membership early in 2020. I'll remind you in the cover letters for the Darter but renew soon. If you haven't renewed your membership by the 2nd Darter issue in March, you'll get a reminder but not that issue.

The March Darter is one you won't want to miss! It will set up MASi's very important spring weekend and have a lot of information on your Fish Buck Reward accumulation for the past year. Fish Buck Rewards are MASi's way of thanking you for your activities supporting the club and are used at the special Rewards Auction part of the MASi Spring Awards Banquet.



Be sure to check the Classifieds page of things sought or available from others. There are lots of social media out there to check, including our web site's Trading Post, our 2 BAND sites and other locations. The Classifieds section has been revamped to highlight what's displayed on MASi's major social media sites and the links hop directly there. We will still put your classified directly on this page but be sure to take advantage of the other sites too.

**Help us fill up
the next Darter!**

Content deadline for the 2nd Darter of 2020 is March 10th.

Send Feedback and Letters to the Editor to: editor@missouriaquariumsociety.com





MASI General Meeting: Thurs, January 16th, 2020!!

The Critical Role of Aquarists - Saving Rainbowfish Species via Crowdfunding



**Dr. Peter
Unmack**



Peter will focus on the Running River and Malanda Rainbowfishes, with background on their discovery, the threats that are leading to their decline and actions to save the species.

This has only been possible due to the generous donations from aquarists and clubs from around the world.

The 2018 MASI Challenge provided over \$2000 for the Running Rainbow Project

Meeting includes Mini-Auction and Door Prize Raffles

7:30 PM Dorsett Village Church

2240 Bennington Place, Maryland Heights, MO

Dinner with the Speaker 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



Dr. Peter J. Unmack



LIKE MANY, PETER'S fascination with fishes began with the purchase of his first fish tank when he was 7 years old.

He soon obtained additional aquariums until he filled the two sheds in his parents backyard with fish tanks. Since 1985, Peter has kept a large range of Australian native freshwater fishes, most of which he collected from various travels. Peter has collected fishes extensively throughout much of mainland Australia as well as other parts of the world including Papua New Guinea, North America and southern South America.



Peter's interests include just about anything to do with freshwater fishes, but especially fish biogeography, conservation and desert springs.

Peter was fortunate to be able to turn this fish hobby into an academic career.

In 1994 he moved from Australia to California, then to



Arizona State University to complete his doctorate on the biogeography of Australian freshwater fishes. He remained in the United States doing research at Brigham Young University in Utah on the biogeography of

southern South America and western North America fishes, followed that with another project at the National Evolutionary Synthesis Centre in North Carolina working on developing GIS models to predict biogeographic patterns in freshwater organisms.

In 2013 Peter moved back to his homeland, Australia, and is currently at the University of Canberra working on fish conservation projects, which include rainbowfish conservation, trying to decipher hemi-clonal unisexual carp gudgeons and examining biogeographic patterns in Australian fishes.

**View his web pages at
<http://www.peter.unmack.net/>**

Or:

**Click Below to view
Background from
Amazonas Magazine**



<https://www.reef2rainforest.com/2017/11/17/video-saving-the-running-river-rainbowfish/>



MASI General Meeting: Thurs, February 20th, 2020!!



Charlie Mueller: Spawning the Mouthbrooding Loricariinae



Charlie will discuss his personal experiences maintaining and breeding some of the mouthbrooding "whiptail" catfish of South America.

Charlie has kept fish for over 20 years focused almost exclusively on South America. He has recently narrowed focus to catfish with sucker mouths, from cave spawners to lip brooders. Being a member of Greater Pittsburgh Aquarium Society (GPASI), allowed his addiction to grow larger, currently focused on breeding members of the *Apistoloricaria/Rhadinoloricaria*, *Planiloricaria*, *Pseudacanthicus*, and *Pseudohemiodon* genera. This discussion will focus on first hand experience with maintaining, breeding, and raising different species of sucker mouth catfish from South America.



Meeting includes Mini-Auction and Door Prize Raffles

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



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Sun: 10:00am-6:00pm





Santa and Helper re-checking the "Naughty" and "Nice" list before gift distribution while everyone waits "(im)patiently".



OK, I THINK WE'RE
READY, BRING ON
THE KIDS!



HEY! EVERYONE'S
A KID, AREN'T
THEY? THE ONLY
REQUIREMENT IS
TO HAVE HAD
PARENTS!!





...AND AFTER SOME LAST MINUTE TIPS FOR
SANTA ON A NEW "NAUGHTY-N-NICE"
SMARTPHONE APP FOR 2020, HE AND HELPER
WERE GOOD TO GO!



SHOP HOPPING - January 2020

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

Special Events and Deals!



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

AKA 2020 National Convention

June 19-21 - St Louis, MO

RENNOWNED SPEAKERS:

- Killifish & Other Fish of Cameroon & Congo - Christophe Aubin, France.
- Killifish of Venezuela and Surrounds - Donald Taphorn, PhD, Venezuela.
- Lampeye Killifish - Richard Pierce, PhD, Massachusetts.
- Collecting Native Fishes in Southeastern US - Dave Hemmerlein, SW Michigan.
- Fishroom Techniques & Tools - Mike Hellweg & Jack Heller, St Louis.



Additional details or Register at:

AKA.ORG

BEAUTIFUL & RARE KILLIFISH:

INCLUDING: Major Killifish Show, Special Rare Fish Sale, Rented Table Sale, Banquet & Awards Program, Sunday Huge Killifish Auction, Guided trips to MO Ozarks & New STL Aquarium.



Images © Tony Tereira

The AKA welcomes anyone with interest in "Pretty Little Pond & Ditch Fish".





MASI 2019 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



**GOAL:
\$2000+**

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.

AKA 2020 National Convention

June 19-21 - St Louis, MO

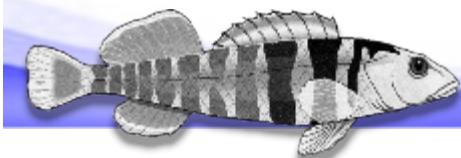


FISH, FOLK & FUN!

The AKA welcomes anyone with interest in "Pretty Little Pond & Ditch Fish".

Additional details or
Register at:
AKA.ORG





MASI 2020 Challenge

CONSERVATIONFISHERIES

PRESERVING THE SOUTHEAST'S AQUATIC BIODIVERSITY

KNOXVILLE, TN



#savethefish

IT IS VERY appropriate that MASI's Executive Council has chosen Conservation Fisheries, INC as our challenge for the coming year.



Conservation Fisheries, INC is a non-profit, 501(c)3 organization in Knoxville, Tennessee. Founded in 1986 and incorporated in 1992, CFI is dedicated to the **preservation of aquatic biodiversity** in our streams and rivers. Over nearly 30 years they have developed techniques to propagate more than 65 nongame fish, including some of the **most imperiled species** in the southeastern United States. They were the first facility in the Southeast to propagate rare, non-game fishes for recovery work.

Their primary goal is to **restore fish populations** that have been eliminated because of pollution or habitat destruction. However, CFI also produces many rare or difficult-to-collect species for other purposes related to aquatic conservation.

Freshwater fish diversity in the Southeast is unrivaled in the Temperate World. The streambeds harbor many species of freshwater fish, mussels, salamanders, crayfish, and

aquatic insects, many of which aren't found anywhere else.

Conservation Fisheries is most proud of the region's freshwater fish diversity, which includes more than 400 species (that's more than half of the species found in all of the United States and Canada). Many of them are threatened or imperiled.

These entities, as well as many others, have also partnered with CFI:



The Nature Conservancy

NRCS
Natural Resources Conservation Service



Watch here for CFI featured species profiles each Darter issue of 2020: © CFI



The Rainbow Darter is widely distributed through the uplands of the Mississippi River basin, and is common across much of the eastern United States. It also occurs in many of the Great Lake tributaries with the

exception of the tributaries flowing into Lake Superior. The Rainbow Darter can be found in small upland streams and rivers. Adults prefer fast-flowing riffle habitat while young are usually found in slightly slower areas.

These fish start breeding in early March when water temperatures just reach 55 F, and continue breeding through June. Although this is a common fish, the Biology Dept at Missouri State University (with Professor Dr. Chris Barnhart) funded CFI to propagate rainbow darters in 2010 to serve as fish hosts for their endangered mussel restoration program. CFI was quite successful in their production efforts and were able to document the life history characteristics of this darter. Other agencies have used CFI to propagate fish as mussel hosts because it lessens the impact on native streams, as well as increases the mussel production given propagated fish have not developed immune responses to mussel glochidia exposure.

Some species with which Conservation Fisheries, INC has worked:

Ambloplites rupestris Rock Bass
Ammocrypta clara Western Sand Darter
Ammocrypta vivax Scaly Sand Darter
Chrosomus cumberlandensis Blackside Dace
Chrosomus saylori Laurel Dace
Cottus carolinae Banded Sculpin
Cottus paulus Pygmy Sculpin
Crystallaria cincotta Diamond Darter
Crystallaria asprella Crystal Darter
Cyprinella caerulea Blue Shiner
Cyprinella galactura Whitetail Shiner
Elassoma alabamae Spring Pygmy Sunfish
Elassoma boehlkei Carolina Pygmy Sunfish
Erimonax monachus Spotfin Chub
Erimystax cahni Slender Chub
Erimystax dissimilis Streamline Chub
Erimystax insignis Blotched Chub
Etheostoma akatulo Bluemask Darter
Etheostoma artesiae Redspot Darter
Etheostoma bellator Warrior Darter
Etheostoma boschungi Slackwater Darter
Etheostoma caeruleum Rainbow Darter
Etheostoma chienense Relict Darter
Etheostoma cinereum Ashy Darter
Etheostoma douglasi Tuscaloosa Darter

Etheostoma etowahae Etowah Darter
Etheostoma jessiae Blueside Darter
Etheostoma lemniscatum Tuxedo Darter
Etheostoma luteovinctum Redband Darter
Etheostoma maculatum Spotted Darter
Etheostoma marmorpinnum Marbled Darter
Etheostoma moorei Yellowcheek Darter
Etheostoma nebra Buck Darter
Etheostoma okaloosae Okaloosa Darter
Etheostoma parvipinne Goldstripe Darter
Etheostoma percnurum Duskytail Darter
Etheostoma phytophyllum Rush Darter
Etheostoma obeyense Barcheek Darter
Etheostoma sagitta spilotum Kentucky Arrow Darter
Etheostoma sanguifluum Bloodfin Darter
Etheostoma serrifer Sawcheek Darter
Etheostoma sitikuense Critico Darter
Etheostoma sp. cf. zonistium "Blueface Darter"
Etheostoma stigmaeum Speckled Darter
Etheostoma susanae Cumberland Darter
Etheostoma vulneratum Wounded Darter
Etheostoma wapiti Boulder Darter
Fundulus julisia Barrens Topminnow
Ictiobus niger Black Buffalo
Moxostoma sp. "Sicklefin Redhorse"
Notropis cahabae Cahaba Shiner

Notropis cf. volucellus Mobile Mimic Shiner
Notropis mekistocholas Cape Fear Shiner
Notropis sp. "Sawfin Shiner"
Noturus baileyi Smoky Madtom
Noturus crypticus Chucky Madtom
Noturus eleutherus Mountain Madtom
Noturus flavipinnis Yellowfin Madtom
Noturus furiosus Carolina Madtom
Noturus gladiator Piebald Madtom
Noturus lachneri Ouachita Madtom
Noturus miurus Brindled Madtom
Noturus phaeus Brown Madtom
Noturus stanauli Pygmy Madtom
Percina aurantiaca Tangerine Darter
Percina aurolineata Goldline Darter
Percina aurora Pearl Darter
Percina bimaculata Chesapeake Logperch
Percina burtoni Blotchside Logperch
Percina caprodes Common Logperch
Percina copelandi Channel Darter
Percina evides Gilt Darter
Percina jenkinsi Conasauga Logperch
Percina squamata Olive Darter
Percina rex Roanoke Logperch
Percina williamsi Sickle Darter



MASI hit 193 Memberships for 2019!

New &
Returning
Members since
the last Darter!

Andrew Scott	O'Fallon, MO
Joseph S. Burr	Festus, MO
Robert Eggleston	Springfield, MO
Randall Ison	Greenfield, IN
Curt Skouby	ST Louis, MO
Alex Kaminsky	Ballwin, MO

193 in one year is the most members ever on record! We may lose a few that forget to renew but we should surpass 200 members in 2020.

With
more
in
2020?



The Missouri Aquarium Society has changed rapidly!

Say "Hello" to new members and make them feel

at home. Ask them their experiences and opinions.

Make them feel welcome! New Members bring interesting ideas that

may help improve the club and make it more relevant for all.

Help these Folks get involved and you continue to improve the club!

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MASI AUCTION MESSAGE

Mike Hellweg

Once again, we will 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! Consider yourself warned! This auction is always our biggest, so it will fill up extra fast! No, we're not going to add more slots. That would undo everything we've been trying to accomplish by cutting off at 500 items. As explained several times, and we have the statistics to back it up - sellers make LESS with a bigger auction, as does the club. Buyers lose out as they don't get to see and bid on everything because they get tired and leave. When there are no bidders, things sell for the first buck offered.

Our volunteers wind up staying late and putting in a long day. So there is NO benefit to anyone allowing more items except for the folks who like to come in late in the day and get the \$1 items. That may seem like fun, but for the sellers it really hurts because they put the work into growing, picking, packing and bringing great fish only to have them sell for a buck at the end of the auction - and items that sell for a buck become a full donation to the club, so the seller gets nothing. It's not fair to anyone.

So be sure to get your registration in right away in order not to miss out!

And for now, 'nuff said...

Raffle Winner - November Meeting



This Perfect Dipnet, provided by Jonah's Aquarium, is sure to be used to add to a natives collection.





COUNCIL MINUTES

Executive Council

2019-2020 Council Meetings

Date	Place	Time
Jan-16	@ Gen Meeting	7:00 PM
Jan-18	@ 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-TBD	@ TBD	7:30 PM
Jul TBD	@ MASiC 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

11/2/19

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

ANNOUNCEMENTS

- The next Council meeting is Dec 7 at the home of Charles Harrison.
- The next Auction is Nov 10.

REPORTS

- SECRETARY:** Angela read the Minutes from the Sep meeting. A motion to approve was made by Mike Hellweg and was seconded by Mike Huber. The motion passed.
- TREASURER:** A motion to waive the Treasurers report was made by Charles Harrison and was seconded by Ian Eggert. The motion passed.
- EDITOR:** Deadline for Darter submissions is Nov 12.

• **LIBRARIAN:** Mike Huber is auditing the book list. A motion to spend up to \$100.00 to purchase new storage tubs for the library book was made by Gary Lange and was seconded by Charles Harrison. The motion passed.

• **LISTMASTER:** Chuck reported that MASiC had 65 new members in 2019.

• **SPEAKERS:** Gary has meeting speakers booked until June 2020.

• **SWAP MEET:** Holly said she would like 2 admission tables to be set up to keep people from walking in without paying.

• **SOCIAL EVENTS:** John Van Asch is looking into having the next Fishy Bowl in Mar 2020.

OLD BUSINESS:

- The 2019 MASiC Challenge for the George Maier Fund is currently over \$2000.00.
- Still need ideas for the 2020 MASiC Challenge.
- The Fishy Bowl was well attended.

• A motion to make a check payable to Seascapes for the amount of the raffle sales for the gift certificate for the tank raffle was made by Gary Lange and was seconded by Mike Huber. The motion passed.

NEW BUSINESS

• A motion for MASiC to cohost the 2020 AKA Convention Jun 19-22 with SLAKA was made by Mike Huber and was seconded by Mike Hellweg. The motion passed.

A motion to adjourn at 9:07 was made by Mike Hellweg and was seconded by Ian Eggert. The motion passed.



MASI 2020

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	SWAP SHOP 	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

HOLIDAY INN: AIRPORT WEST,
EARTH CITY
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ST. LOUIS/EARTH CITY, MO 63045

** MINI-AUCTIONS AT ALL GENERAL MEETINGS EXCEPT
DECEMBER



Missouri Aquarium Society 2020 Calendar

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

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Join/Renew your
MASI membership!!

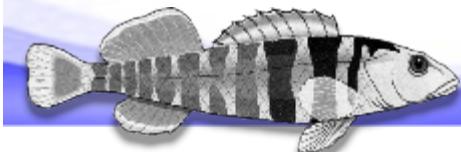
RENEW prior to March
to receive the Darter
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membership is \$15 and
includes an electronic
subscription to The Darter
published six times per year.
Join or renew membership at
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events, by PayPal from the
MASI [Website's Membership
Page](#) or by contacting Ed
Millinger, membership chair,
at 573-883-9943.

Help MASI Support
the Aquarium Hobby!

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Support Nationally &
Internationally by
supporting the MASI
Challenge.





Meet MASI Fishy Folk: Charles Harrison



learned a lot about the microscopic side of aquatic life and how things interact.

Over time I found I could raise fish for sale and turned a sunroom into a Betta room with big glass Coke bottles shelved in the windows to sell Bettas and Cherry Barbs to a local pet store for a little extra cash.

My attention was also turning to photography and I put together a dark



room and enlarger for prints. I even graduated from a NY Photography school with college credits in photography by mail! There was no idea of the internet in the '60's as the first ARPANET message was sent in 1969. After graduation in 1967, I took up residence in Ft Worth and began Graduate school at TCU.

I set up a fish room and kept many of the South American annual Killifish. The warm weather in Ft. Worth made it easier to maintain many

warmer fish and Discus spawned in my distilled water from the university's lab water supply. I joined the area tropical fish club and shortly became editor of "Betta Tails", their monthly publication. 6 years later, I had managed a local fish store and spawned most of the S American Annual killifish available at the time. Dr. Dave Schleser and I became close friends.

Soon I was looking for employment and, as it was a tough time finding jobs in the scientific community, I left the fish behind and moved back to Wichita Falls to teach High School.

There was no new fish room in my life until 1978 after Sue and I moved to St Louis. I had never experienced a Basement before. The floor space was the size of the house! WOW! - so much more room!



BORN AND RAISED in Wichita Falls, Texas, I spent my first 35 years in the North Texas, Ft. Worth - Dallas area.

My first wife is no longer with us but our two daughters are both living in Texas along with two Grandkids and two great Grandsons. Sue Ellen, my wife of 43 years and I have been living in St. Louis since 1978 but have no kids between us.

I started keeping fish after High School in 1961. I had a little 10 gal. tank with black gravel and a lot of Elodea to have something like we had in Biology class. I don't know where I got them, but I remember Gold Australies in the tank and watching the eggs they laid turn into fish over a couple of weeks. Guppies never were my real thing. The egg scatterers were, and still are, more pleasing.

One of the largest problems to overcome was a need for some live foods. I collected some Daphnia and cultured them and Protozoa to meet that challenge. While doing so I





My little fish room was built
into our house a couple of years after
we settled in South County.

I set up the fish room, insulated it and began stocking it with Killifish. We joined MASCI a couple of years later and soon I was their VP and doing programs and inviting speakers. I was VP for 3 or so years and brought a lot of Killifish information into St. Louis. Now I am happy to be a Council member and keep the Web site and Fish Heads Forum going.

There was a lot of Killifish talk back then along with a lot of water chemistry. Since '78 I have spawned my way to Ultimate Grand Master Breeder (2012) and about 3,000 points and have grown into a Grand Master Horticulturist as well.

My favorite fish is the
Callopanchax occidentalis (the "Gold



Pheasant"). It requires

a 6 months dry period for the eggs to mature. The absolute beauty of the golden fish equals its difficulty in keeping the fish alive without males killing off the females and each other. Collecting the eggs from a peat bottom is easy but keeping the eggs with just enough moisture for 6 months is a major challenge.

I do keep a pet fish just to keep something I can hand feed. She's an old Haplo Catfish that gets Black Worms in the morning. She and a mate built a nice bubble nest about 5 years ago but there were never enough fry to turn in for BAP.

I have 20 ± tanks set up in my fish room now but have been cutting back in recent months to focus on obedience training and trialing our Cardigan Welsh Corgis.

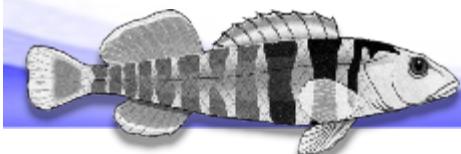
I don't have a Dream Tank or even a picture of one in my mind. I love the Native tanks in the Chattanooga Aquarium but that is way over the top for an individual but I hope the St. Louis Aquarium does something like that.

I am looking forward to the 2020 AKA Convention here in St Louis. I served as their Chairman of



the Board of Trustees for 2 terms and on their board for many years. The Killifish are a widely diverse group of many beautiful fishes from all over the world and I take great pride to present the AKA our 2019 Challenge Check during their convention this year.





The St Louis Aquarium opened Christmas Day, 2019



Maybe these early reviews will influence a decision to visit. These are text reviews, not heavily illustrated so not spoilers of impending visits. A photo article may be in a future Darter after more have had a chance to visit.



First impressions at a Pre-Opening of the Saint Louis Aquarium

By Bob O'Brien

The opportunity presented this week to get a December 10th preview of the new St. Louis Aquarium through my work. I have been to several aquariums around the country, such as Shedd Aquarium in Chicago, Wonders of Wildlife in Springfield (Bass Pro Shops), Adventure Aquarium near Philadelphia, Tennessee Aquarium in Chattanooga, but am by no means an expert on the subject. I really enjoy the Tennessee Aquarium.

My first impression when entering the St. Louis Aquarium was the similarity in design to the Wonders of Wildlife in Springfield. The Wonders of Wildlife Aquarium in Springfield is quite impressive and I thought the St.

Louis Aquarium had some promise. Not all of the attraction were running, and there may be more displays that we were not able to see.

The first thing you see is the clock aquarium, populated with discus at the time. After that is a train car hallway simulating entering the train station reminiscent of being on the train years ago a cool touch in connection to the location.

Leaving the train car you see the first large display of the Mississippi River basin tank. This is a large tank, probably 5-10,000 gallons of endemic species and they were still adding stock to some of the displays before the opening on December 25th of this year. The fish are still young, but in really good condition.

The next tank was a piranha tank, couple thousand gallon with maybe a hundred red belly piranha. Pretty cool. They did have some odd companions, I was told they added the tiger barbs just before we arrived, but they lost a few of them. Not sure why they would combine those two species from different parts of the world. Maybe it is a temporary dither fish or something.

Then there is a large Amazon Basin aquarium. This tank was way under populated, and I am pretty sure they were still stocking, but there were not yet many species that I saw in the tank. A few pacu, silver arowana, peacock bass, and one lonely severum.

The final and most impressive tank was the shark and salt water display. Similar to the aquarium in Springfield, it covers at least 2 floors with dozens of viewing ports and some large curved windows. This tank was pretty full at the time, with dozens of species of fish. The design of the viewing panes give some great views and interaction with the fish making this an obvious main attraction. Most of the people were

impressed and excited to see the display. There was a large school of bait fish that moved around, a large grouper, and dozens of other species.

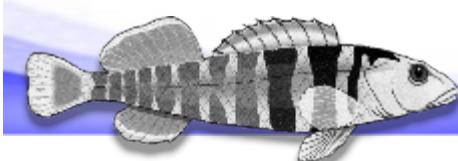
One of the displays that was not open at the time I was there was the octopus and invertebrates section. Looks like there will be a half dozen good sized displays for these. There were also a lot of interactive educational displays on the upper level, such as a ray petting zoo, river creation water flow, and area for kids to explore.

All in all, I would say the St. Louis Aquarium on the pre-opening tour was a bit disappointing, but I will reserve final judgement when I get a chance to view it after it officially opens for business, since there may be more to see than what was displayed at the preview. It was a similar but smaller version of the Wonders of Wildlife Aquarium in Springfield.

I would have liked to see more biotopes of different regions of the world, for instance, an African rift lake tank, or maybe their own eastern Asia tank for the tiger barbs. There was not a lot of freshwater species diversity.

One really nice thing about the aquarium is its location. There are lots of things to do and see at the Union Station that would make this an enjoyable day and evening. I hope everyone gets a chance to go visit the attraction.





FINALLY! - an Aquarium in St. Louis!

By Mike Hellweg

For as long as I can remember, folks have been talking about the desire and even the need for a public aquarium here in St. Louis. Big names were often associated with various plans - Marlon Perkins, Jacques Cousteau, Walt Disney, Gussie Busch, and many others. Plans came and went. The Post-Dispatch has featured probably more than a dozen different designs over the years.

As a kid I was sure it was going to happen. But it never did. At the last minute, before the paperwork was finalized, something always happened. Political intrigue, money problems, and various other behind the scenes machinations all led to repeated disappointment. But now, finally, we actually have a public aquarium in St. Louis.

Since most of you have probably not been there yet, I'll avoid any spoilers and just give a die-hard public aquarium fan's point of view. Chuck Bremer, Chris Mohrle and I went on January 6. I'm sure Chuck and Chris will have their own points of view, and I know Chuck took enough pictures to fill a photo album. (Editor's note 300+)

In the lead-up to our visit, I read all of the reviews in various places. Most were and are negative, so I truly wasn't expecting much. But I was pleasantly surprised. I actually learned something and saw something I've never even seen photos of before!

To be sure, the aquarium is definitely not the Shedd, Steinhart, or Chattanooga Aquarium (which seems to be the biggest complaint). But it isn't trying to be. Once you leave that preconceived notion behind, you can begin to enjoy it for what it is - something new, different and long-awaited for the St. Louis Metro Area. It's bright, crisp and clean and has that "new aquarium" smell to it. To be sure, like any new venture it has some kinks to be worked out, but overall it was a pleasant way to spend about two hours fish watching and people watching.

There are a few misplaced fish - tiger barbs swimming in the red belly piranha tank, Managuense and Midas Cichlids (from Central America) are in the big South American tank, and a couple of man-made varieties of fish in displays where, I think, the fish should be limited to fish found in nature only, but those are minor complaints - and I'm sure most folks didn't even notice. I'm a bit disappointed in the acrylic work - seams are visible and the acrylic has not been too well polished so it is wavy in places where it should not be...but that's an aesthetic thing.

The biggest negative that I have to mention is that the graphics at each

tank are terrible. Everyone was asking "what's that" and there was nothing for them to look at and see what the fish were except for a single touch screen display a few feet away to one side of the tank. That's a neat idea, but highly impractical. When you've got 30 or so people milling about in front of a huge tank, and only one person at a time can get up to and manipulate the screen, most just walk away without getting their question answered. Pictures of the fish, with a small plaque giving their names and a short blurb about some interesting facts on that species or their habitat would be a simple fix.



The fish are all young and have some growing to do, but really for me that is just a reason to go back in a few months and see them again. All of the fish that I could see were healthy and behaving as they should, except for the gars. For some reason all of the gars were laying on the bottom of their tank. I've never seen gar do that before.

I thought maybe something was wrong with them, but later in the day we stopped at a couple of local shops that also had gar in their tanks and guess what? They were laying on the bottom, too! Strange, and definitely something to look into and learn more about. Something that this old fish guy didn't know about fish behavior. So I learned something!

My favorite display was, of course, the one with the leafy (*Phyllopteryx taeniolatus*) and weedy (*Phycodurus eques*) sea dragons. What a cool sight to see! And now I don't have to go all the way to Chicago to see them. What was even cooler? The leafy sea dragons were doing so well that they were mating! I've seen seahorses and some species of pipefish spawn, but





I've never even seen a photo of leafy or weedy sea dragons spawning! What a cool thing to see! I got to see something I've never seen before!

There is still a lot of open wall space that will hopefully one day have more tanks - and let's face it, every aquarium and every aquarist always wants to see more tanks and more fish!

I'm not sure why public aquariums seem to need to have something "cute" - otters, penguins, dolphins, small whales, sea lions, etc. Why not just focus their time, funds, and energy on the fish? That is more than enough of a draw to keep folks coming back. But we have the obligatory "cuteness" in a group of three young otters. As I watched them, I kept thinking what cool fish could they have kept in that huge display? Maybe one day...but again, most of the folks there, especially the kids, really seemed to enjoy them.

There are also the obligatory touch tanks with small turtles, rays, starfish, pencil urchins and similar critters. The difference here was that the ray touch pool has windows in the side so you can actually watch the rays. To me it was much more interesting than touching them. You can do that anywhere. Again, not a big fan of that wasted opportunity. But once again the kids seem to love it!

I hope the aquarium continues to grow and fill in the many blank spaces that still seem to call out for tanks and fish. I talked to several of the employees. They were all friendly and excited to be working there. Most did not quite have a complete grasp on the subject, but most of them haven't yet been working for more than a few weeks. I'm sure they'll become more proficient as time goes by.

Until then, maybe some laminated fact sheets for them would help. Instead, they have to look up answers

to questions they don't know on their phones! Anyone can do that.

Additionally, I would love to see a large reef tank with sustainably captive grown corals to show both how beautiful the reefs are, and how we humans can help. Folks constantly hear "save the reef", but if they don't see one, can't relate to it, and don't know it, they won't ever really care. Hopefully something like this is in the works.

One comment I have to make on the folks enjoying the aquarium - maybe stop for just a minute and just watch the fish instead of trying to take dozens of photos of each fish and selfies in front of every tank. When you go, take a few minutes and just enjoy the fish. Everyone knows what you look like!

I will be going back, and look forward to it becoming a regular visit, just like going to the St. Louis Zoo. If you've read all of the negative stuff about how small it is, how small the fish are, etc. well, just put that out of your mind and enjoy it for what it is - finally, our own aquarium!



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The St Louis Aquarium is Different

By Chuck Bremer

Yes, St Louis now has an aquarium! As I'm sure some of the other reviews will concentrate on it as an aquarium, I'm going to approach it more as an attraction for St Louis. Everyone sees things differently and with a different eye.

I don't have the widest of comparisons to work from. I've never been to the Tennessee Aquarium, which I've been told is one of the best, and I plan to go. I have been to the Shedd, New Orleans, Bass Pro, Genova, Vienna, Mall of the Americas (Did you know that under Lego Land there is a public aquarium?), Cabellas, Fin Inn and a few other attractions that I've forgotten.

There are approximately 20 aquariums visible at the STL Aquarium. Not many tanks for a fish keeper, but fish keepers don't have tanks nearly as impressive as at STL. I won't get into detail on other attractions, but in addition to these were also 6-10 other dry or non-fishy attractions scattered around, mostly for educational purposes with spaces for plenty more or for more tanks as time and money present themselves.

The STL Aquarium was impressive! It was well thought out, well designed and, for the general non-hobbyist public will be a major attraction and introduction to the hobby we love. The aquarium is meant to be an attraction to St Louis that will bring in tourism as well as

local visitors to complement the Gateway Park National Park.

The STL Aquarium did lots of things right! They used their knowledge of other aquariums to design an attraction that would be an incentive to the majority of the public. Knowledge of crowd psychology designed a facility that complements Union Station, and I think this one will stick, not disappear like past efforts.

The Aquarium definitely plays, pun intended, to the children who visit. There were lots of get 'em wet, hands on, experiences, and I saw more adults partaking than kids. There was even a "waterless tank" to play in so adults didn't get their hands wet. Now you'll have to go to the aquarium to figure that one out.

People handling capacity is high. Traffic patterns were well thought out without being noticed. Groups of visitors enter about every 15 minutes. While waiting visitors are entertained by a large, well populated, discus tank and an amazing "light show" on the ceiling of the lobby. The river otters were holding much of the crowd along the way with an educational nook. A reason to visit is to talk to an otter.

The biggest attraction was definitely the Ocean/Shark tank. It was well designed with a multitude of viewing spaces each giving a different view of things happening in the tank. Viewing took place on a top-to-bottom and clockwise path allowing more to view at once and significantly expanded the viewing spaces improving everyone's visit. The viewing ports were well integrated into the aqua scaping so that none were visible from other viewing ports and each seemed like you had your own private view.

This heavy use of computer enhanced display and design at the STL Aquarium I've not seen at others. If all the humongous video screens are added together it may be more square foot of viewing area than the actual vertical viewing area on the

aquariums themselves, including the shark tank!

There were at least 6 major Computer enhanced displays that add greatly to the experience plus all the smaller ones used as information retrieval systems. The computer graphics enhancement added to the overall ambiance and experience and were one of the reasons the lights were dimmed.

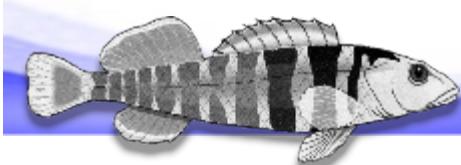
Some of the Computer aided displays are reasons to visit the aquarium themselves, beyond the fish! The "light show" in the entry lobby is amazing, worth seeing and state of the art on a curved surface. The computer aided train ride sets the stage well for the rest of the visit and is narrated by a well-known St Louis native, John, a trainy guy. They make the otters talk and the sea shore palpable.

An additional attractions for kids, and adults, is a huge video screen view of an aquarium in the waiting area beside the ticket line at least partially sponsored by Tetra. Kids waiting to obtain tickets can color their own fish and release it to swim around the tank. Volunteers help and oversee the process. As a result of our visit, MASi now has a fish swimming around within this "tank".

No, the STL Aquarium isn't perfect. It can still be improved and likely will be for the future, but even now it is visit worthy and has something for everyone. It fits the intended purpose well and will enhance St Louis' attraction to natives and visitors alike and it will do much to entice more folks to keep an aquarium and advance the aquarium hobby.

I'll take Connie and the grandkids next time. We'll learn from the visit.





Spawning the Hillstream Loach

"Sewellia" species

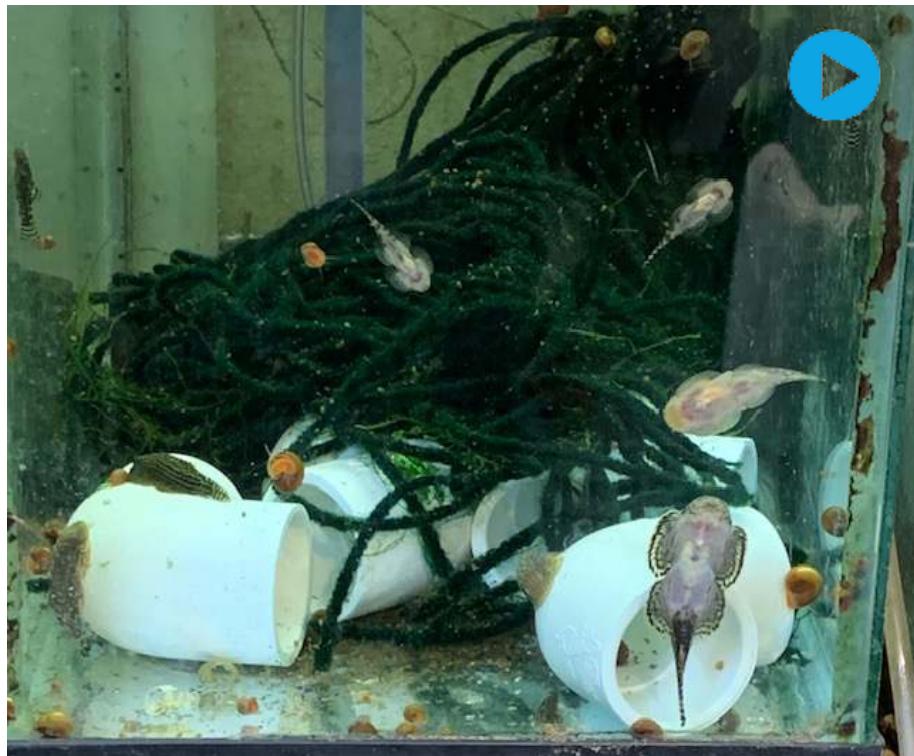
By Charles Harrison

A GOAL OF MINE for several years has been Spawning the Hillstream Loach!

There was a group of *Sewellia speciosa* in a recently changed out a 5 gal leaking tank that couldn't be fixed. I had made the old tank back in the '90's and it had some personal attachment. These fish had lived there for about 5 years without losing one but now the tank had developed a second leak I couldn't fix.



About the same time I had found a second offering of loaches at an auction and paid top dollar for them. I believed the new Loaches were *Sewellia elongata* but they are different enough to be a different species if not also a different genera. This second addition to the tank could also be *Beaufortia daon* but I shall keep the ID as is for now.



So, I now had two groups of Hillstream Loaches about 5 of each in a 5 gallon tank and put them into a new home. This time they were set up with several pieces of thin slate and a layered hill built in the back of the tank. The top of the slate pile was covered with a couple of 100 strand spawning mops and the old sponge filter was placed in the center of the tank with scattered 1" PVC pipe fittings in the front. In went new water and the captured Loaches.

The old location of the leaking tank had to dry so I set the new tank just below the old spot in the center rack, filled the tank and plugged in the air line for the sponge filter. Air flow was left up to move some water around.

The Sewellias have been kept using Baby Brine Shrimp (BBS) that I feed to all my Killies, indeed, almost



Fry in spawning mop

all of the fish in my fish room. When the loaches were fed Algae wafers they never seemed to take after them and I never saw them eating what seemed to be Algae. They liked the live foods including Grindal worms and even got Black worms once in a while.

But only last night, about two months after set up, I saw a little black comma scooting across the floor of the tank!

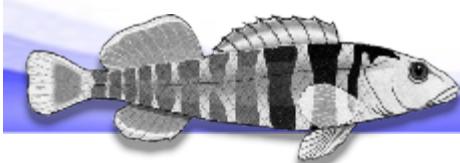
BINGO! They have spawned!

Now to let them grow up so I can tell which species they are and turn them in for BAP points! This morning when I fed the tanks I took extra looks at the tank and found at least five in one counting and I am sure there are more in the mops. As time goes by will we will see, but this is an achievement of something I have been working on for several years.

Spawning some species just takes patience.

Photos by the Author





BEFORE I BUY...

Or: It's No Fun to Think before I Tank, but it IS Important

by Kathy Pilarcik Deutsch

MY FIRST REAL fish tank was probably the bane of my mother's day.

Previously, I kept my carnival-won goldfish in buckets and bowls. But now I was 5 and I wanted angelfish.

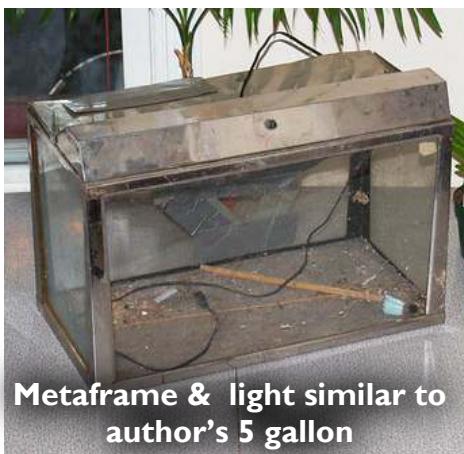
It was, I suspect, a birthday gift from Lansing Pet Store. I feel zero guilt, all these years later, for deciding on tropical fish in the non-tropical climate of Northwest Indiana. My mom would go into Lansing Pet and gaze adoringly at the capuchin monkeys they sold. While she ogled primates, I was staring at (what I now know) were baby Angelfish.

The metal frame tank was a huge 5 gallons, and came with a shiny silver lid (with a LIGHT!), a box filter and pump, gravel and a heater! I was getting such exotic fish they needed heat! We put that tank on a plastic placemat on a coffee table, and promptly filled it with water and fish (probably all at once).

The tank was packed to the gills with angels and black mollies (which Mom liked). I am sure none of us knew that all those fish were babies who would grow. The filter was packed with

dusty black charcoal and violently itchy "angelhair" (fiberglass floss). I was not allowed to touch either, so it was up to Mom to clean the tank.

Which she did, weekly, grumbling the whole time. All the fish were netted into a bucket, all the gravel, the



Metaframe & light similar to author's 5 gallon

water, the filter stuff came out. The heater did not last long, sadly. It, and the light in the hood, did not take kindly to Mom's brand of care.

After a scrub and rinse, the gravel went back in, well water was added, the heater and filter with fresh innards, and finally, the fish. After slamming on the silver hood, Mom called it good and went off to the next chore.

The mollies survived...

It was a lesson in how to not care for fish, and it taught me a lot. It enforced the truth that fish will die if I did not understand how to care for them. And that it was up to me, not Mom, to be the Mom of the fish. It's not fun, and sometimes I lapse, but usually I follow a thought-path when I get the yearning to get fish and/or a tank.

First, what is my end game? Do I want to look at a planted tank? Breed a species? Fill an empty spot (Oh, how I love finding a spot for a tank!) in my living room? Scratch an itch for a pair of angels gliding through the vallisneria?

Then I get practical, which I am not good at. WHO is going to clean the

tank all the way to the bottom? WHO is going to add water, clean the filter, check the heaters, look for disease? I had a hexagonal tank on a stand that I got at Beldt's. Far too late, I realized I could not reach to the tank bottom to scrub algae. When I mentioned this to Ginny Macrum, the co-owner of Beldt's, she looked at me and said one word: "bikini".

Big nope, there...



But the practical aspect is the most overlooked. Place the tank on a good floor, and be prepared with towels folded into the stand underneath. Actually, each tank should have some old towels underneath, just in case. Electrical outlets with ground fault interrupters are a must when siting a tank. Can the floor load HOLD that 200 gallon tank? Water alone is 8 lb per gallon.

And the window issue is a constant. Sunlight streaming into the tank is a glorious sight, with the fish darting about in glee. And then the algae starts. I love my tanks in the sun. And I really love algae eating fish, so that is what I do. But if you want big cichlids in the sun, best to plan for a armor coated pleco to help with the green stuff.





Green stuff, the money kind, is another consideration. What is all this going to cost to buy and maintain? Especially if the fish are rare, it seems the food and accessories cost more as well. And speaking of "cost more", salt water tanks will collect salt all over and can potentially damage things. Just saying. If it is salt that you want, get a nano tank and place it in your kitchen, where cleaning is no big deal. And if an octopus is the coveted species, you need a critter keeper "jail" for it, that

goes inside the perfectly filtered saltwater tank. With a sealed lid and a special filter with a cover so the guy does not slither into the impeller.
...I warned you.

But what is worth more than cash? Time. How much time is honestly available for ongoing fish care and study? I have my tanks in my dining room,

kitchen, and bedroom. And also in the hallway. But we have pared down quite a bit from the time the kids were also doing fish on a large scale. I look at those fish in my dining room so much I no longer "see" them, if you know what I mean. Since I have taken on the responsibility of these lives, I make myself focus on each tank when I feed. I look to see who is getting old, who is getting sick. Sometimes, I just study their lives and how they go about the day.

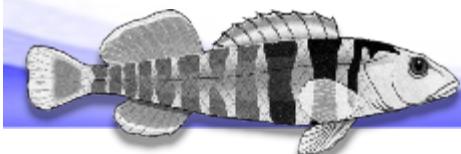
THE OLD FISH HEAD by KATHY DEUTSCH



No point in having fish if we don't make time to enjoy them. Too many tanks and the interest is gone, caught up in cleaning, water changes, and worry.

Time, money, practicality, and desire, the concepts I think about when I want to get new fish or a new tank. Wish I had some inkling about them when I was 5- would have saved a lot of trouble.





The DARTER

The Congo Tetra

Phenacogrammus interruptus

By Chase Klinesteker

Contributed specifically
for MASI's DARTER

THE CONGO TETRA is considered to be one of the most beautiful of all characins. They come from the Zaire River Basin of the Congo River in Africa.

Their iridescent blue coloration, long flowing fins in the male, and peaceful disposition make it an ideal community tank fish. They are aggressive feeders at the surface and will eat a variety of foods, although they may nibble on soft plants if not fed some vegetable flakes. Males can reach 3 1/2 inches with females slightly smaller, so plenty of open swimming room is needed.

They come from soft, acid, peaty waters, and require clean water low in nitrates for best health and color. 75 to 80 degrees temperature is ideal. They are shy unless there is plant cover, diffuse light, and they are in a school. They can



© André Karwath

be excitable and will jump if spooked, so keep them covered. Their lifespan can be 5 or more years.

Congo Tetras are considered somewhat difficult to breed mostly due to their need for soft, acid water and the sensitivity to pollution. Some folks feel that if they are raised in hard water, they will be unable to spawn.

My setup was a 10-gallon tank with undergravel filter of medium-hard tapwater that was treated with a peat moss box filter. Darken the tank and keep out of high traffic areas, as they can be shy in new surroundings. A grass matt or plants can be used on the bottom to hide the eggs.

It took 7 days for the fish to adjust to the breeding tank, so one could possibly use a dither fish or 2 to help them feel more comfortable at first. After spawning, the large non-adhesive eggs were then removed and put in an aerated 2-gallon

container of rain water treated with methylene blue for anti-fungal treatment and to decrease the light (their eggs are light-sensitive). There was only a 25% hatch rate.

Having them spawn in soft acid water should result in a much better yield. The eggs take 4-6 days to hatch and need rinsing and fresh water 2 or 3 times because of infertile eggs and eggshells polluting the water.

When the fry become free-swimming, they can take newly-hatched brine shrimp, but growth is slow and they take 8 or more months to reach maturity. The fry can be slowly adjusted to harder water, but they are quite sensitive to large water chemistry or temperature changes.

The Congo Tetra stunningly beautiful fish that is peaceful and, for those willing to accept a challenge, well worth the extra effort to keep and breed.

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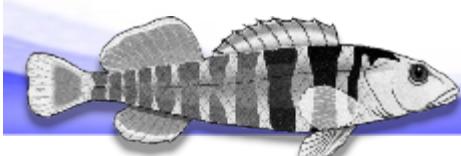
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A "Hobbyist's" Guide to Selling Fish

PART 2: *The Ethical Fish- Business*

By Kevin Plazak

WHEN YOU ARE selling fish, you are selling living things. Ethics start to get fuzzy when a life has a price tag. Some zoos get a bum rap as it seems like zoos are selling tickets to profit off of animals sitting in cages, more on them further down.

"And again I say unto you, It is easier for a camel to go through the eye of a needle, than for a rich man to enter into the kingdom of God".

Mathew 19:24

A fish in a glass box is an awful lot like a cage by any standard. And if the sole reason that they are sitting in that box is so you can make some money, it becomes harder to make a case for this being an ethical choice.

"Is it ethical to keep fish?" is the most important question. My opinion is that it is ethical. PETA's opinion might be that it is not ethical because some of these fish might die. They are partially correct as fish will die, through no fault of their own. There are costs to every fish sold, and that



cost is in money as well as a certain number of dead fish along the way to get them to you. That is just a truth. And it is the hardest part of my week, dealing with the costs associated with their deaths. How can that be ethical?

Ethics Lessons:

 These are helpless critters and you need to care deeply about them all.

 A happy fish
keeper has happy
fish.

Be kind to your customers as they are often helpless critters too.

I have no defense for the death of a fish. 1 to 2% of every fish that comes through my hands will die either in receiving the fish, holding the fish, bagging the fish or putting the fish in

the hands of my customers. 100 to 200 fish die every week in my custody. This number, when considered industry wide, is a pretty low number. I've been told 5% is a much more reasonable number to expect.

I take some solace from being a good vendor of fish, but it still bothers me. And the day it stops bothering me is the day I quit. THAT is ethics lesson number one - these are helpless critters and you need to care deeply about them all.

If you don't care that you lose a bunch of fish because they weren't that expensive, you are the reason people think fish keeping is unethical. Fish are alive, they matter and knowing that you are just trying to make the best day for them that you can helps make you an ethical fish keeper. Never stop trying to make their day as good as it can be.

So how can unintentionally but knowingly putting 100 to 200 fish to death, by just being in a fish business, be ethical? The most ethical path for species protection in a world controlled by humans is one where humans have empathy for fish. Empathy is fostered by familiarity— which is why zoos exist (see, I got back to the zoos!).

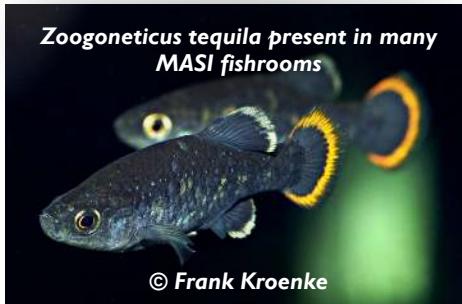
Urban and suburban settings are where a lot of people live. Wildlife is not often found in the middle of population centers so many humans have little or no chance to interact with



wildlife. And when you are not around a species, you don't really care about that species.

Zoos bridge the gap between wildlife and people. When kids that don't give a rip about a bear actually see one for the first time - suddenly bears matter a little more to them. As a result of that first interaction with a bear, some of these kids go on to work with bears, some in captivity, but many in their native habitat.

Home aquariums bridge the gap between wildlife and people. If you have aquarium fish in your home, there is a good chance that someone in that home will care more about fish. Some of those people will go on to work with fish in their native range and potentially make a difference in the existence of a species. Many fish species have been kept alive through refuge in home aquaria, such as the Goodeids *Ameca splendens* and especially *Zoogoneticus tequila*, once extinct in the wild but now being reintroduced in part thanks to MASI efforts. These species were buffered from extinction because of home aquarists.



The hobby-path of Pam Chin, PCCA, is a good example of the aquarium hobby leading to the protection of species. When I was coming up through the hobby in the 80's, Pam was a member of both of my local clubs and she was a social butterfly - auctioning, loud laughter with a genuine love of the club and the hobby.

Pam is sitting on Lake Tanganyika as I write this and gathering information about the state of the lake and may even have been a part of discovering a new species on this trip. When she is on nearby Lake Malawi, she is often putting net busters in place that make fishing for threatened fish much harder for



More about Pam Chin and her efforts to save Rift Lake Cichlids at these links:
[Author](#)
[Interview](#)
[Stuart M Grant Fund](#)

irresponsible fisherman. She raises a lot of money to protect species, and it all started with her husband's crazy passion for cichlids. Like for Pam, the hobby leads to actual change in the world because a person chose to keep and care about a fish at home.

I keep fish because I love them.

Because I have had such a long relationship with fish and the hobby, my fish actually helped me complete my degree in biology - a true story too long to get into here. Suffice it to say, my fish got me into a class that taught me that empathy for wildlife is the path to caring for wildlife. If you create a means where fish are in the hands of people, those people will have a greater empathy for fish. They will fight for fish. My reason for selling fish is to create empathy for fish in others which, in turn, helps species that need resources get those resources because more people care.

If you can't make money while selling fish, you still have a hobby and that's all right. Making money on fish is fun, but it isn't fun to expect a living thing to make you money. Did you follow that? Dealing with the cost associated to your well being, when you are expecting a living thing to make you money, is likely more expensive than the money you will make.

Ethical rule number two - you are not a helpless critter, but make your day as good as it can be. A happy fish keeper has happy fish. If the business makes you crazy, walk away. The fish liked you better as a caring hobbyist anyway.

Basically, be kind to the fish and be kind to yourself. Treat the fish to a nice snack once in a while - it may be a total waste of money but will put a bounce in your step for hours. Try to represent your fish as honestly as you can and take responsibility for your failures. Try to sell happy fish.

Be kind to your customers as they are often helpless critters too. Ethics sounds like a high-minded exercise in philosophy, but it's really just a way for folks to enjoy getting along with each other and to be satisfied with their choices in the process. Taking good care of the fish will put you in a good place which is how you take care of yourself.

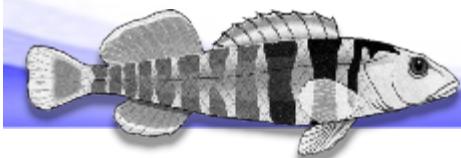
Next installment:

Kevin's definitions: Let's be clear here, I feel ethics and morals are different. Morals are based on a person's beliefs and ethics are social standards. Some people believe it is morally appropriate to let the state kill a person and some people feel it is morally inappropriate. Both people are morally correct, however it is always ethical for the state to protect life, so it is never ethical for the state to put people in harm's way. Infer what you will about the author's beliefs on the topic...

A lot of people believe laws are ethical or moral when in fact they are just rules that have a result of punishment or no punishment. For example, you can legally keep eight hens in St. Louis and you can legally keep three hens in Portland, Oregon. St. Louis isn't more or less ethical in their choice; it is just an arbitrary number that was palatable to the constituents of the politicians at the time the law was passed. There aren't a "right" number of chickens to keep in much the same way there isn't a "right" number of fish to keep. It is just a law dictating the legal number of chickens within a boundary defined by still more laws.

So, let's loop back to the ethics of keeping fish before we tread further into religion and politics.





Pallid Shiner *Hybopsis amnis*

Rediscovered in Missouri after 63 years!

Robert (Bob) Hrabik
MO Dept of
Conservation
Ichthyologist, RET

IT WAS TO be a fun-filled, educational day at Cane Creek Conservation Area on September 28, 2019. I was leading a class of ichthyology students from the Missouri University of Science and Technology on a field trip to sample and learn about lowland fishes.

The day was going well as the students were exposed to wetlands, swamps, meandering and sluggish lowland creeks, and ditch habitats. They examined and discussed the life histories of many species found only in the Bootheel region in Missouri. These included Flyer, Banded Pigmy Sunfish, and sand darters to name a few of about 40 lowland species.

There was one place yet to sample, with an opportunity to see a few different species: Cane Creek Ditch where the students broke into two groups, sampled the ditch, and returned with their catches. Always



Photo of *Hybopsis amnis amnis* from the Hatchie River, TN. SE Missouri specimens are *H. amnis pinnosa* or a hybrid of the two subspecies and looks similar. At right is preserved specimen from Cane Creek Ditch.



MO S&T Students, author in straw hat.

looking for something different, I thumbed through a 5-gallon bucket of small fish.

Then it happened- A small minnow caught my eye. At first, I wondered why something from the *Hybopsis* genus of fish was in a lowland ditch because current members of this genus are primarily found in the Ozarks.

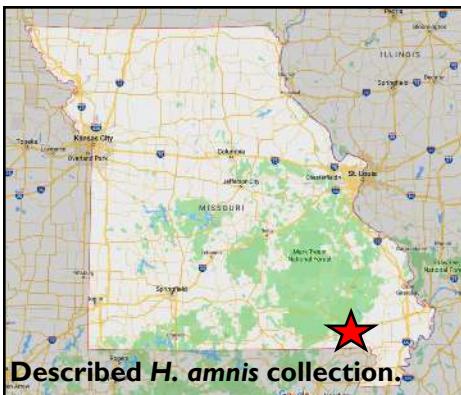
It hit me! Wow, could it be?!

...I searched the bucket more intently and... **Wow, again!** There were several specimens and the pattern was clear: the ichthyology students, their professor, Dave Duvernell, and myself had found the long-elusive Pallid Shiner, *Hybopsis amnis*!

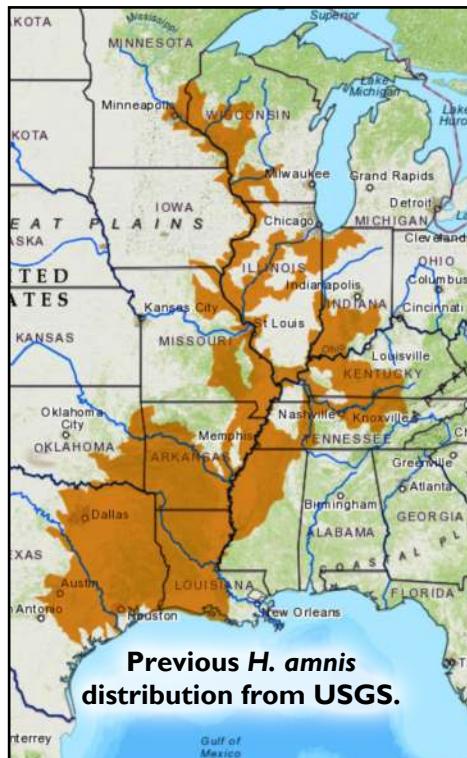


Cane Creek Ditch





In Missouri, Pallid Shiner were last collected in the Meramec River and purportedly from a Bootheel ditch in 1956. The species was once widespread, occurring from northeastern to southeastern Missouri, but over time, it became quite uncommon and then simply vanished. Reasons for the disappearance are speculative, but changing land use and the channelization of the Mississippi River may have been involved. The once large fish kills in the Bootheel may also have hastened their demise.



Our collection that day means that Pallid Shiner are back in Missouri - or would it be more appropriate to say they are still in Missouri?

We know very little about their distribution and it raises a lot of questions.

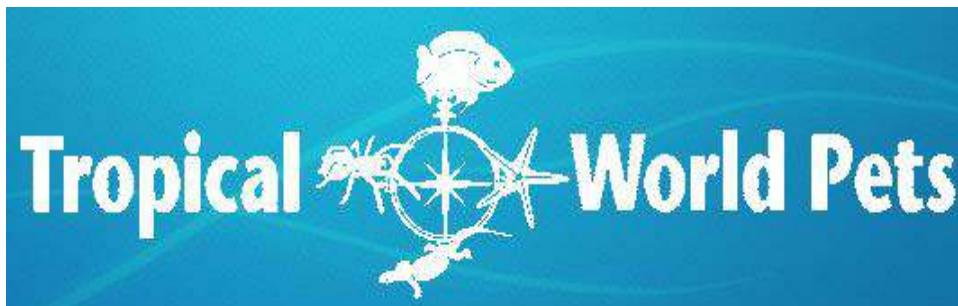
Was 2019 a banner reproductive year for this fish thus we simply were in the right place at the right time?

Did the current Cane Creek Ditch population re-colonize from a source population in the Black River drainage further south in Arkansas?

Are environmental conditions better today than say, 50-60 years ago thus allowing for the species to repopulate parts of its former range?

Perhaps past researchers simply missed them because they were so rare?

These questions are all to be answered by future surveys and research of this species.



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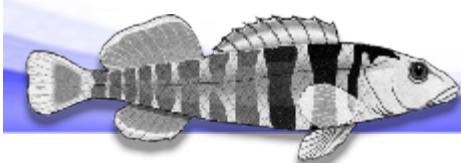


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Minifins

The Buffalohead Cichlid

Steatocranus casuarius

By Mike Hellweg, CFN
(Certifiable Fish Nut)

OVER 50% OF the fishes regularly kept in the hobby are members of one family - Cichlidae. There are cichlids found on 4 of the 7 continents, with Europe, Australia, and Antarctica lacking any naturally occurring cichlids. They have fascinating behavior, are intelligent and often interact with their humans, adding to their endearment.

The vast majority of cichlids kept in aquaria today are found in just two lakes on the African continent - Lake Malawi and Lake Tanganyika. In fact, when folks mention "African Cichlids", they are usually talking about the Mbuna and Peacocks of Lake Malawi as if those are the only cichlids in Africa! They are surprised to learn that there are cichlids all over Africa from Egypt all the way west to Senegal and south to South Africa. Almost every river and lake on the continent is home to at least one cichlid species.

The smaller riverine cichlids of West Africa are my favorites, and those coming from West Africa are colorful and unique. The mighty Congo is the deepest river on the planet



and home to the interesting buffalohead cichlid, *Steatocranus casuarius*.



Rapids on the Congo River

The male has a large bulbous, fleshy growth on his forehead that continues to grow throughout his life, until it sometimes becomes almost as large as his head. Females and juvenile males also have a small hump, so that can't be used as a sure sign of sex in smaller specimens. Males can reach 6

inches, though they are usually a bit smaller. Females top out at just under 4 inches, but are also usually just a bit smaller. Males are deep chocolate gray brown and have pointed tips on their dorsal and anal fin. The male's lips are also very large, and these, along with the fleshy growth, make him look like a comic book character. Females are usually lighter brown with darker brown bands and have rounded tips to their dorsal and anal fins.

Buffaloheads are rheophilic, meaning they come from fast flowing water. Their swim bladder is reduced in size to decrease neutral buoyancy and make it easy for them to stay in place in this churning current without expending too much energy. They move along the bottom in short hops, reminiscent of a darter. Keep this in mind when setting up their tank. They really like good water movement.

The water doesn't have to be churning, but it's a good idea to give them a power filter at least one size larger than that rated for their tank, and set it up on one of the short ends of the tank so the current flows from side to side in the tank instead of from front to back. A power head or wave maker attached to the short end of the tank would work just as well. While water parameters are generally not that important to buffaloheads, water





quality is. Give them large, regular water changes. They prefer their water a bit on the warm side, but don't go too crazy. Set the heater to 80 to 82 degrees Fahrenheit and they will be happy.

Wild buffaloheads are primarily algae eaters, though they probably consume a large amount of microfauna with the algae. Any commercial foods will be eaten greedily, but they should have a diet heavy in veggies. Mine get spirulina based pellets and flakes as a staple diet, with a weekly supplement of frozen brine shrimp, mysis and bloodworms. I only give them live blackworms when I want to encourage them to spawn, and then only for a few days to help get them in condition for spawning.

They need a fairly large tank. A four foot tank (33 XL, 55 gallon or even larger) should be the minimum size considered. With rheophilic cichlids, it's all about lower level real estate, so a tank with a larger bottom should be chosen. Cover the bottom with larger gravel, and add an assortment of pebbles, rocks, and cobbles of various sizes. Add several caves that are large enough for them to hide in - at least two caves for each fish in the tank so they have choices. PVC pipes or clay pleco caves work very well for this purpose.

Due to the strong current, true aquatic plants are not often found in their natural habitat, so they won't be missed in your tank. You can design a fantastic looking landscape using various rocks while hiding caves behind or under them. Be sure to support large rocks on the bottom of the tank so that any digging activity won't cause them to collapse, injuring fish or damaging the tank. Add a few

clumps of Java moss attached to some of the rocks out of the current as these will provide grazing areas for fry between meals.

Steatocranus casuarinus forms pairs that often remain together and spawn several times. I believe strongly in the suggestion that you should start with a group of 6 to 8 young fish. They grow fairly slowly, but steadily, so in about a year or so you will have a pair or two form in the tank from this initial group. There will be some scuffles, but Buffaloheads aren't extremely aggressive and the strong current will keep them from spending much energy on fighting.

Once they reach sexual maturity, if they are being fed a good diet they will spawn without further intervention on your part. The pair will choose a cave and the female will lay her eggs inside. Sometimes the male is too big to fit in the entrance of the cave, so he releases his milt at the entrance of the cave and fans or pumps it into the opening. If none of the caves are to her liking, the female will often dig a suitable "cave" under a cobble or larger rock out of the current - or in at least one case, under the base of the ceramic cave I had provided!

You will know they have spawned when the female remains in the cave, even at feeding time. She will guard the eggs and then the fry and keep them in the cave until they are free swimming and ready to head out mostly on their own. They are surprisingly large, much bigger than most other cichlids at this point in their lives. Mom and Dad will guard the area, but unlike most other cave spawning cichlids, they don't spend a

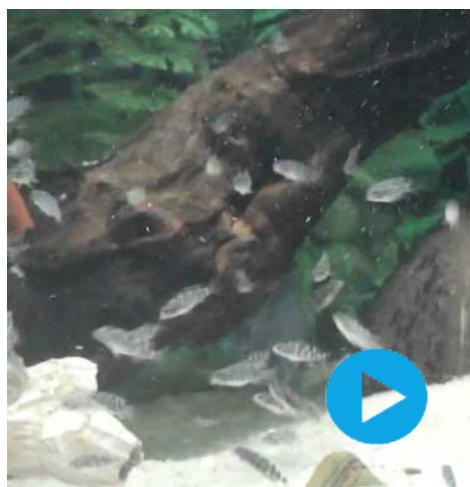
lot of time leading the juveniles around the tank. The fry will spend their time grazing aufwuchs and picking over every space in the tank and will spend a lot of time near the clumps of Java moss, grazing on the microfauna that lives there.

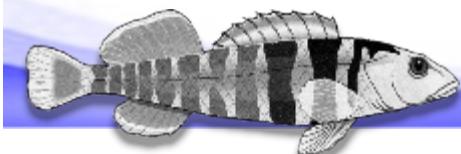
Growing buffaloheads will take finely ground veggie based flake, pellets and powdered foods as a staple diet. They should get some live foods in the form of newly hatched brine shrimp and microworms to supplement the food they are finding in the tank. Fry spend all day grazing, and return to their home cave at night for just the first few nights. Over a period of a week or so they will gradually expand their grazing area and exercise greater independence, and finally cease to return to the cave at all.

They do not school in the traditional sense, but they will remain in a pretty close-knit group for a month or two. Some juveniles will hang around the old homestead after subsequent broods are produced, while others seem to want to get as far away as possible. Sounds familiar, doesn't it? I'm not sure if buffalohead parents like having their semi-independent juveniles living in the basement, so to speak, but the adults at least seem to tolerate them, and the older siblings don't bother their younger brothers and sisters. In the 125 that I kept them in several years ago, I had a large group of juveniles of different sizes from three spawns all schooling together.

It is a good idea to gently remove most of the youngsters about a week after they are free swimming. This will allow them to get targeted feeding and all of the food without having to share with other spawns and their parents. Move them to a 20 long filled with water from the parent's tank and supplied with good filtration. Feed them well; give them large, regular water changes; and within 3 or 4 months they will be an inch or more in size and ready to move to new homes.

They are very intelligent and even at this size, they have a great piscinity and spend much of their time watching what is going on outside the tank, and interacting with their human, and as always, begging for food. Feed them well, but don't get carried away!





The Walstad Method for Planted Aquariums

-
My Personal Experience
-

by Steve Coxon

DIRTED - TANKS aren't new. More than 30 years ago, a science teacher of mine had a metal frame tank with dirt, plants, and some mosquito fish. It baffled me because her tank did nearly everything I understood as a young aquarist to be wrong.

It was beside a window, had dirt instead of gravel, was given little regular maintenance, and had no light, heater, or under gravel filter. Perhaps the only thing she did not do "wrong" was overfeed her fish. Yet, the fish and plants thrived.

A few years ago, I was just getting back into the hobby after a hiatus due to moves and small children. I wanted a heavily planted aquarium, but wasn't ready to make a large investment of either time or money. I came across [Ecology of the Planted Aquarium: A Practical Manual and Scientific Treatise for the Home Aquarist](#) by Diana Walstad.

In the book, the author promises great plant growth while saving time and money. She eschews CO₂ injection, regular fertilization, and expensive lights, instead advocating for inexpensive lighting including some indirect sunlight and potting soil substrate.

Walstad's Basics:

1. **Potting soil substrate**
2. **Light "siesta" during the day**
3. **Use of floating or emergent plants**

Walstad follows three key principles:

1. Potting soil substrate. The soil plus fish waste offers everything needed by plants, including CO₂ from decomposition.
2. A "siesta" during the day to allow CO₂ levels to return. That is, a day length of 14 hours with a 4-hour rest period approximately in the middle using inexpensive timers (e.g., 5 hours on, 4 hours off, 5 hours on followed by a 10-hour night).
3. The use of floating or emergent plants to remove nutrients efficiently and discourage algae growth.

First published in 1999, the book is now on its third edition, each with minor updates. The author has published both a practical set-up summary as well as updates, most notably on advances in LED lighting, on her website at <http://dianawalstad.com>. As such, I will focus on my own experiences with three aquariums that largely follow the author's recommendations.

Fishbowl Trial

I did not initially trust putting fish in a tank with potting soil. I decided to test the concept with only plants in a one-gallon fishbowl. I used one inch (damp) of MiracleGro Organic Choice

ECOLOGY OF THE PLANTED AQUARIUM



Diana Walstad

Potting Mix capped with a 3/4 inch layer of play sand. I used a clamp light with a bright white compact fluorescent light. The water was from the St. Louis County tap, treated with Prime. I planted easy growing plants including chain swords, cabomba, and (yes) duckweed. My kids were delighted to find snails shortly after set-up.

The trial went very well over its approximately eight month span. The bowl was unheated and averaged 66F in the winter and 72F in the summer. Possibly due to the low temperatures, the cabomba did poorly enough that I eventually pulled it out. However, the chainswords spread well and filled the bowl. The duckweed needed regular removal. I did not feed the snails and there were no algae problems. I had to dismantle the bowl as my family and I were away from home for three months.

20 Gallon High

Two years ago, I decided to try a Walstad set-up in a 20 gallon high tank with a goal of keeping an *Apistogramma cacatuoides* pair. The tank was set-up with the same soil type and depth along with the same sand cap. I planted chain swords, cabomba, and an Amazon sword. I added duckweed.

Along with the Apistos, who have 20-30 fry much of the time, the tank has housed a school of 12 black neons and a bristle-nose pleco from shortly after



completing a fishless cycle as well as some *Corydoras parallelus* and Beckford's pencilfish from MASi events. The latter have begun successfully spawning in the tank, which has matured into a jungle. The tank has a few Amano shrimp as well as a few assassin snails to keep the pest snail populations in check.

The nitrates remain undetectable and the phosphates are very low. However, plant growth is strong and algae growth is minimal. I remove a net full of duckweed and a handful of cabomba weekly. I use a Finnex Planted+ LED on a timer using the "siesta" schedule and heat the tank to 76F.

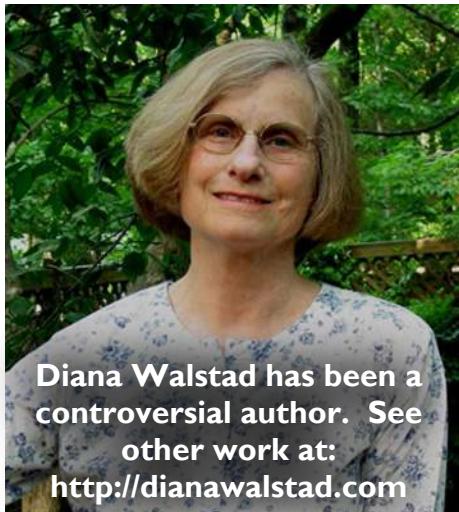
Initially the tank developed some hair algae on the cabomba near the surface, but it stopped growing without more than effort than hand removal. The driftwood does get some green beard algae, but it is slow growing and does not bother me. Unlike other tanks I have kept, the glass does not grow visible algae at all. India almond leaves are left in the tank to disintegrate and replaced as needed.

While Walstad does not advocate for them, I do regular water changes of 5 gallons biweekly of half tap and half spring water, keeping the pH around 6. During water changes, I siphon detritus from the top of the sand, but avoid disturbing the substrate.

About a month ago, after reading Karen Randall's Sunken Gardens based on Mike Hellweg's book review in a recent issue of The Darter, I purchased a CO₂ checker as well as some pre-mixed drop checker solution. It has remained green since that time, suggesting that the tank has appropriate CO₂. This likely comes from the soil decomposition.

My only real issue with the tank was the addition of corkscrew val, which grows well— not only where I planted it, but right up front and everywhere in between! It forms strong roots. To remove it from the soil, I use scissors to cut around each plant into the soil in a circle and slowly pull the plant out and lift it from the tank in a fine mesh net to reduce soil loss into the water column. I add a bit of sand over the holes.

Overall, I have been extremely pleased with the tank. While it is not easy to change the aquascape, it is a focal point in our living room and



provides ready life science lessons for our children. It certainly fit my desire to have a low-budget and low-maintenance tank as well as breeding Apistos.

10 Gallon

Finally, because I was so pleased with the other Walstad tank, I set-up a 10 gallon that fits perfectly on a small table in our family room about a year ago. The tank is lit with an inexpensive NICREW brand LED. I wanted to try slower growing crypts and anubias. Also, instead of duckweed, I used salvinia.

I obtained a trio of Gardneri killies from Charles Harrison. I added guppy grass to provide cover for the fry and now there are at least 10 Gardneri. The tank also contains a few Amano and bamboo shrimp. Unlike the 20, there are no visible snails. Like the 20, it did get some hair algae in the beginning and does have beard algae on the driftwood. However, there is no longer an hair algae and very little algae grows on the glass.

The plants are growing beautifully, and I have been able to export several crypts to my fishroom as well as salvinia and guppy grass to the compost. The tank has a small power filter and is heated to 78. It maintains no detectable nitrates or phosphates. I provide similar maintenance, but simply use treated tap water.

Conclusion

I highly recommend trying a Walstad method planted tank. They offer low-maintenance and low-cost heavily planted tanks. Aquascaping is not easy to manipulate, but with careful planning they can provide a beautiful home for your fish and invertebrates.

There is a wealth of information online, of course, but I believe that the best way to learn about the method is to experience it.

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2019 BREEDER'S AWARD PROGRAM - Steve Edie



November 2019

Member	Genus	Species	Common Name	PTs	Bonus	CARES	Total
Mike Hellweg	<i>Cyprinodon</i>	<i>chetumalensis</i>		10			7270
Mike Huber	<i>Danakilia</i>	<i>sp. "Shukoray" @</i>		10		10	2658
	<i>Goodea</i>	<i>atripinnis</i>	Blackfin Goodeid	10			2668
	<i>Poecilia</i>	<i>reticulata</i> ^	Blue Guppy	0	1		2669
	<i>Poecilia</i>	<i>reticulata</i> ^	Green Guppy	0	1		2670
	<i>Poecilia</i>	<i>reticulata</i> ^	Purple Guppy	0	1		2671
	<i>Skiffia</i>	<i>francesae "Rio Teuchitlan" @</i>	Golden Splitfin	15		15	2701
	<i>Xenotoca</i>	<i>doadrioi #@</i>	Redtail Splitfin	0		10	2711
Holly Paoni	<i>Danio</i>	<i>erythromicron</i>		15			1062
& Kevin Wise							
Mike Slater	<i>Apitistogramma</i>	<i>borelli</i>		10			130
Rick Tinklenberg	<i>Girardinichthys</i>	<i>multiradiatus "San Miguel Spring" @</i>	Gold Sailfin Goodeid	20		20	3210
	<i>Xenotoca</i>	<i>doadrioi "San Marcos" @</i>		10		10	3230
	<i>Xiphophorus</i>	<i>nigrensis *</i>	Black Swordtail	10	5		3245
Pat Tosie	<i>Skiffia</i>	<i>francesae "Sayula" @</i>		15		15	6232
Bob & Lora Watson	<i>Danio</i>	<i>nigrofasciatus</i>	Spotted Danio	5			355
	<i>Illyodon</i>	<i>whitei @</i>		10		10	375

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>



December 2019

Member	Genus	Species	Common Name	PTs	Bonus	CARES	Total
Mike Hellweg	Poecilia	sp. "Rio Coatzacoalos"		5			7275
	Pseudocrenilabrus	sp. "Mweru"		10			7285
Mike Huber	Chapalichthys	encaustus #@	Barred Splitfin	0		10	2721
Pat Tosie	Haplochromis	sp. "Ile des Cochons" *		10	5		6247

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.



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HORTICULTURE AWARD PROGRAM - Mike Hellweg

November & December 2019

Points Rewarded!



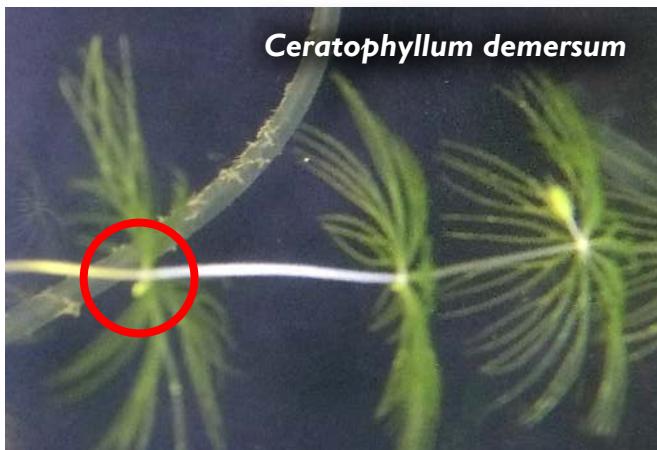
Member	Genus & Species	Common Name	Type	Points
Holly Paoni & Kevin Wise	1785 Pts			
	<i>Aponogeton capuronii x ?</i>		IB	10*
	<i>Salvinia cucullata</i>	Vietnamese Salvinia	V	5

River Kinder-Russell	25 Pts			
	<i>Ceratophyllum demersum</i>	Hornwort	IB	10
	<i>Lemna minor</i>	Dwarf Duckweed	V	5
	<i>Microsorum pteropus</i> Singapore	Singapore Java Fern	V	10*

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



INDOOR Blooms...



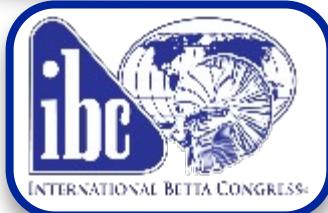
Ceratophyllum demersum



2020

CLUB HOPPING Steve Edie

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 14 - HAAS Auction, Kansas City, MO
Mar 15 - Greenwater Swap, Joliet, IL
Mar 21 - TCTFS Auction, Peoria, IL
Mar 21 - EIAA Spring Auction, Cedar Rapids, IA
Mar 29 - CCAC Spring Auction, Indianapolis, IN
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
Jun 19-21 - AKA Natl Convention, STL, MO
Jun 25-28 - IBC Conv, Hoffman Estates, IL
Jul 11 - CAFÉ Auction, Champaign, IL
Jul 12 - Little Egypt Swap, Belleville, IL
Jul 16-19 - ACA Convention, Sacramento, CA
Aug 8 - HAAS Swap, Kansas City, MO
Aug 9 - MASi Summer Auction, St Louis, MO
Sep 13 - QC Fish Swap, Davenport, IA
Sep 20 - Rockford Swap, Rockford, IL
Sep 27 - MASi Fall SWAP, St Louis, MO
Sep 27 - CCAC Fall Auction, Indianapolis, IN
Sep 27 - GCCA Swap, Hoffman Estates, IL
Oct 3 - EIAA Fall Auction, Cedar Rapids, IA
Oct 10 - HAAS Auction, Kansas City, MO
Oct 8-11 - CatCon - Herndon, VA
Oct 18 - Greenwater Auction, Joliet, IL
Nov 1 - GCCA Swap, Hoffman Estates, IL
Nov 8 - MASi Fall Auction, St Louis, MO
Nov 8 - QC Fish Swap, Davenport, IA
Nov 15 - Greenwater Swap, Joliet, IL
Nov 20-22 - OCA Extravaganza, Strongsville, OH
Dec 6 - GCCA Swap, Hoffman Estates, IL



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Clubs linked
to their logo



Other links are on
the MASi

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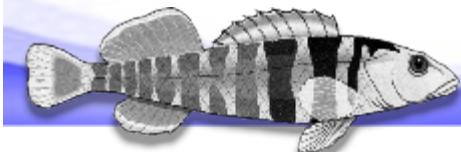
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Tue - Thu: 11:00 am - 7:00 pm

Fri - Sat: 10:00 am - 8:00 pm

Sun: 12:00 pm - 6:00 pm





MEMBER CLASSIFIEDS

Member	For Sale	Bid/Asked	Contact
Charles Harrison	Thiosulfate crystals (Chlorine Remover) - pound OTO double strength Chlorine/Chloramine test kits - 4 ounce Flubendazole, 10% powder 25 grams Lavamisole HCl Powder - 5 grams treats 100 gallons Methylene Blue 5% solution (4 ounces) Acriflavine Concentrate (4%) solution, 2 ounces Bromthymol Blue pH test solution, 4 ounces	\$4.00 \$12.50 \$20.00 \$10.00 \$12.75 \$12.70 \$7.00	(314) 849-9761 charles@inkmkr.com
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

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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!](#)

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55 gallon tanks	Neocardinia shrimp	MASI Swap BAND
Neon Dward Rainbows	Water Wisteria	MASI Swap BAND
Phantom Tetras	Resealable 75 Gallon	MASI Swap BAND
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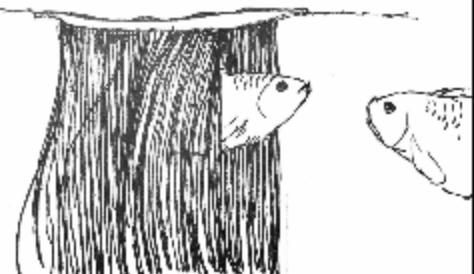
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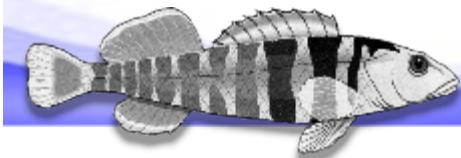
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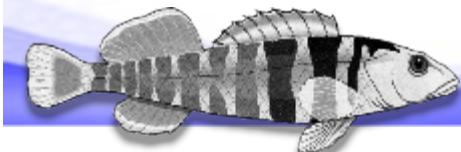
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Monthly Bowl Shows for 2020

January - Cyprinids: Barbs, Danios, Rasboras, Minnows, Goldfish

February - Aquatic Critters/ Oddballs Sharks, Loaches, Eels, Oddballs, Inverts, and Amphibians

March - Cichlids

April - Killies

May - Characins: Tetras, Pencilfish, Piranhas, Pacu, Silver Dollars, etc.

June - Catfish

July - Livebearers

August - Anabantoids: Bettas, Gouramis, Ctenopomas, etc.

September - Rainbows

October - Superbowl

November - No Show

December - No Show



Monthly Bowl Show Entry Form

Entrant Name _____

Month/Year _____ Monthly Class _____

_____ Fold here and place in front of bowl(s) with Entrant name hidden _____

Line	Species: Latin or Common Name	SEX	Monthly	Open
1		M F		
2		M F		
3		M F		
4		M F		
5		M F		
6		M F		
7		M F		
8		M F		
9		M F		
10		M F		

