



The **DARTER**

JANUARY/FEBRUARY 2018

V44-N1

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

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

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



Cover - *Pistia stratoites* Bloom
Mekaela Tinker



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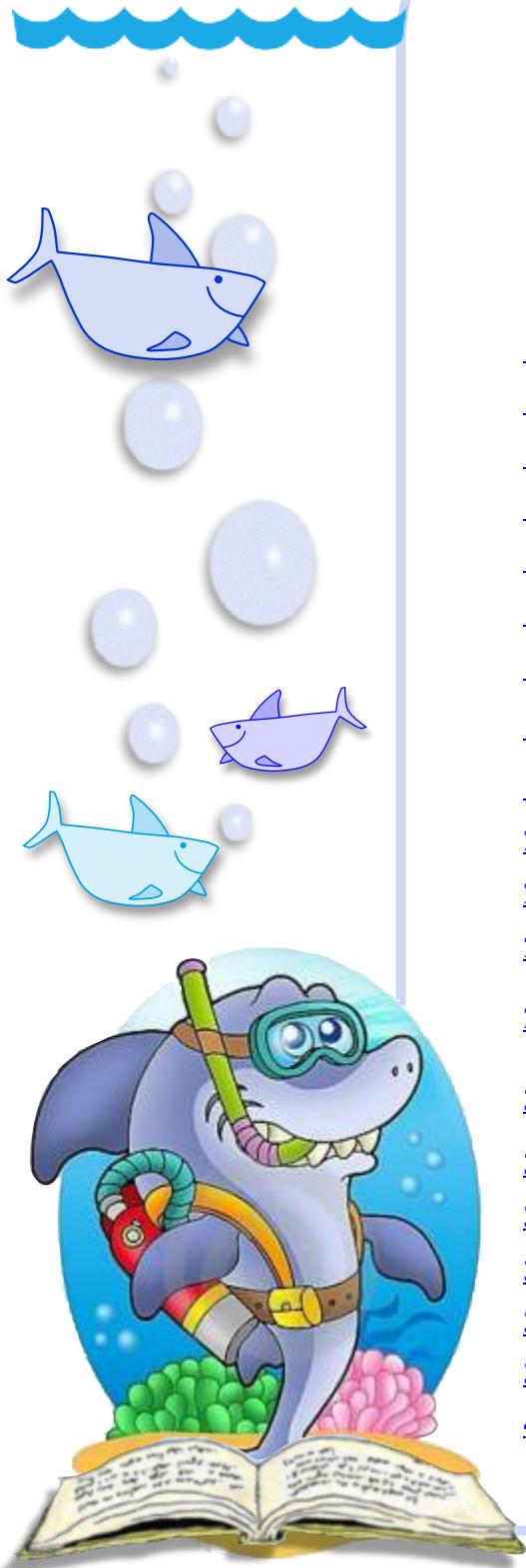


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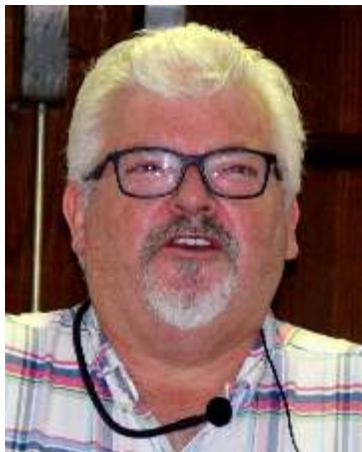


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FROM THE PRESIDENT'S TANK

Pat Tosie

**Don't forget to Renew your MASI
Membership to continue getting the DARTER
Club activities this year will be even better than last year!**

Keep looking below water....

Chuck Bremer

FROM THE EDITOR

Here's the 1st issue for 2018, Enjoy it!

Fewer announcements left more article space. Thanks to those members who stepped up with content, including some new authors and artists. There's a page for you or your kidz to color and we'll try to get colored versions back into future issues. Let Daniell or myself know what you think of it and if it should repeat sometime.

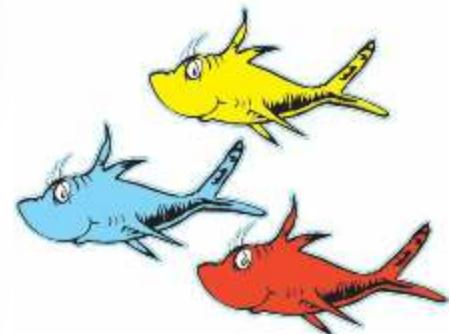
MASI Fishy Folk is back and plans are to continue it. Doesn't matter if you have one Aquarium or 100, the others in the club want to know about you and you'll find the ability to get acquainted much easier. The contact and familiarity between members pays off. It is noticeable the number of mentions of folks in the club who had helped or given inspiration to the authors in this issue. Getting to know others and letting them get to know you is the best way to get the most out of your club membership. Please leave your information with Ed or myself to be included in future issues.

Club Activity lined up for 2018 is Great! Two very good speakers in January and February you won't want to miss. Soon it will also be Auction season. There are several activities you won't want to miss over the next year. Don't forget our auctions and swaps are moving to a new venue this year. The maps in this issue are clickable if you need driving directions.

Happy reading, as always let us know what you want more or less of, it's your Darter!

Thanks to everyone who contributed!!

After reading the Exchange issues from other clubs across the US and around the world (Yes, we get some from Australia and Canada!) I am very proud of our club. We always seem to have more articles and higher levels of participation in our BAP and HAP programs than most other clubs. **You are to be congratulated!**



**Deadline for the
March Darter is
March 6th!**

**Send us an Article
or Cover Photo!!**

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



MFSI General Meeting

Thursday, Jan 18th!!

"Life of a Florida Fish Breeder"

Mike Drawdy

**Family man,
Conservationist, Breeder
and Manager at:**



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

As a young boy, I was fortunate to be able to grow up outdoors every day on a Tropical fish farm "Imperial Tropicals" in Lakeland, Florida. At a young age, I was taught how to hunt and fish and to respect mother nature. Now with a family of my own I am happy to be able to raise my kids in that same tradition.

I can follow my passion and love of animals by being the Manager of Imperial Tropicals. We put a lot of hard work into the proper care of breeding and growing the fish that we breed. I want people to have success with fish keeping and stay passionate.

My favorite part of fish keeping is to learn not only about where the fish comes from in the wild, but also about the people living next to the fish. You start seeing how fragile and threatened this world really is. One of our main focuses at Imperial Tropicals is to breed fish that are also threatened in the wild and to educate people about the dangers that they face in their natural habitat. Follow us (<https://www.facebook.com/ImperialTropicals/>) at Imperial Tropicals on our journey through this life.

Family man, Conservationist, Breeder and Manager at the progressive Imperial Tropicals: **Mike Drawdy**

One of Florida's leading tropical fish farms since 1970, Imperial Tropicals in Lakeland, FL, is operated by Mike. Imperial specializes in breeding high quality tropical fish including a variety of community fish, American and African Cichlids, invertebrates and more. The 20 acre farm is host to millions of inhabitants, distributed throughout over a hundred ponds and hundreds of breeding vats housed in several large greenhouses.

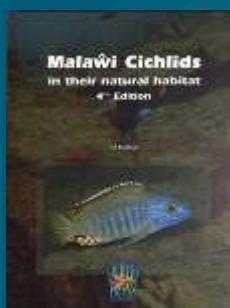
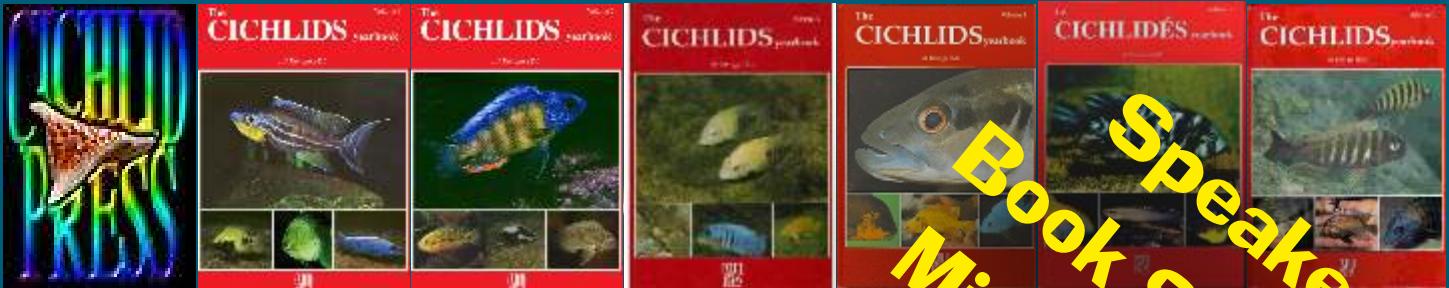


At Imperial, the passion for the hobby is evident. Continuing to breed the high quality livebearers for which they are known, their attention now includes more hard to find and hard to breed fish- often importing wild fish from overseas in hopes of creating domesticated strains for the hobby.

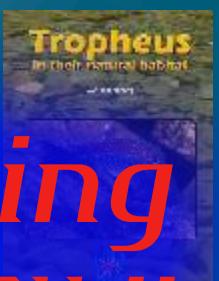
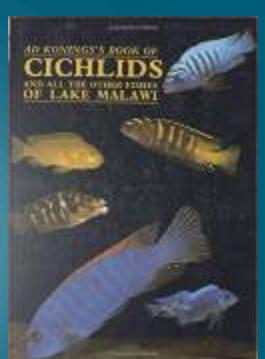
Imperial feels that as times change, so must they. Almost exclusively a wholesaler since their inception and providing large quantities of fish to some of the biggest distributors in the country, they are now also doing business directly with the hobby. Their website allows anybody to purchase from them directly and will continue to add with features which make doing business with Imperial even easier!



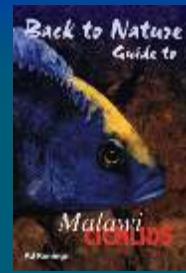
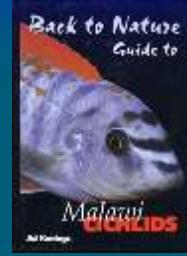
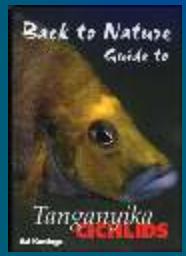
Speaker
Book Signing
Mini-Auction



Ad Konings



MASI General Meeting
Thursday, Feb 15th!!



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



MASI General Meeting

Thursday, Feb 15th!!

Ad Konings

*Internationally known Cichlid
Photographer, Author and Conservationist*

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

**Ad will be our
speaker for
the evening
and will be
available for
book signing.**

**Join MASI as
we present
Ad a check to
support the
Stuart M
Grant - Lakes
Malawi and
Tanganyika
Cichlid
Conservation
efforts.**

**Thanks to all the hobbyists and
associations that have already
donated to the Malawi cause!**

Born in Roosendaal, Netherlands, Ad has a PhD in human genetics and is a biologist by profession. He began keeping Tanganyikan cichlids when at the age of 14. He was hooked although it wasn't until 1991 when he started his own publishing company, Cichlid Press and published the first "Cichlids Yearbook".

Ad moved to El Paso, Texas, in 1996 and moved Cichlid Press here, with his wife and he doing the traveling, planning, photographing, diving, writing, layout, prepress, publication, and distribution for his own books and also Back to Nature books and books by other authors in addition to editing the web's, Cichlid Room Companion.

Ad averages three fish expeditions a year and about 75,000 frequent flier miles going all over the world to talk about his trips. He has authored or edited over 40 books on cichlids and 15 publications concerning descriptions of new cichlids. Ad has been an invited speaker to 20+ international talks and a great many more in the US. For his complete bio please visit his website: www.cichlidpress.com/

The good thing of it all, according to Ad, "I haven't worked a day in my life!"

Ad says: In the early 1990s fish stocks had collapsed. Nowadays beach seines are rare in the South East Arm of Lake Malawi, not because the authorities finally caught up with applying law, but simply because there are no fish left.

I began working on the Stuart M. Grant Cichlid Conservation Fund in 2007, trying to protect the Malawi cichlids from over-fishing. Preventing over-fishing in select areas really has a chance of succeeding in preserving the great biodiversity still to be found in this magnificent lake. The same is true for the Zambian section of Lake Tanganyika.

Enjoy Your Cichlids!!

**Stuart M. Grant
Cichlid Conservation Fund**





MASI AUCTION MESSAGE

Mike Hellweg

Please note that it will be held at a new location -

The Crowne Plaza was a great location, but it became too expensive. **This Holiday Inn is where we hosted the ALA Convention this past spring.** It is a bit smaller, but it is much less expensive. Within about 2 miles of the Crowne so it's not that far away and should meet all of our needs nicely. There will be a lunch concession available, too.

We will need volunteers to help out starting at 9:00 am and running all day. A few extra hands might be extra helpful as this is our first time at this new location and there may be some fine tuning needed especially in the morning as we work out the kinks.

The raffle will once again be multiple items - a tank, filter, and something else - all very useful things for the fishroom. The folks at Tropical World Pets on Watson Road will be supplying the tank. Be sure to thank them for their support. This raffle is a major source of funding for the club, and helps to cover the cost of the room.



Holiday Inn

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**The annual
Winter Auction
is February 11,
2018.**

Mike

auction@missouriaquariumsociety.com

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the day!**

Viewing 10:00 AM Auction Begins at 11:00 AM
Contact Info: auction@missouriaquariumsociety.com



We're Moving!

2018 Auctions and Swap Meets are at a new location:



2018 Events at the New Location!

Feb 11 - Auction
Apr 21 - Swap
Apr 22 - Auction
Aug 12 - Auction
Sep 30 - Swap
Nov 11 Auction

In the Missouri River bottoms just East of Ameristar Casino, North on Earth City Express way from I-70

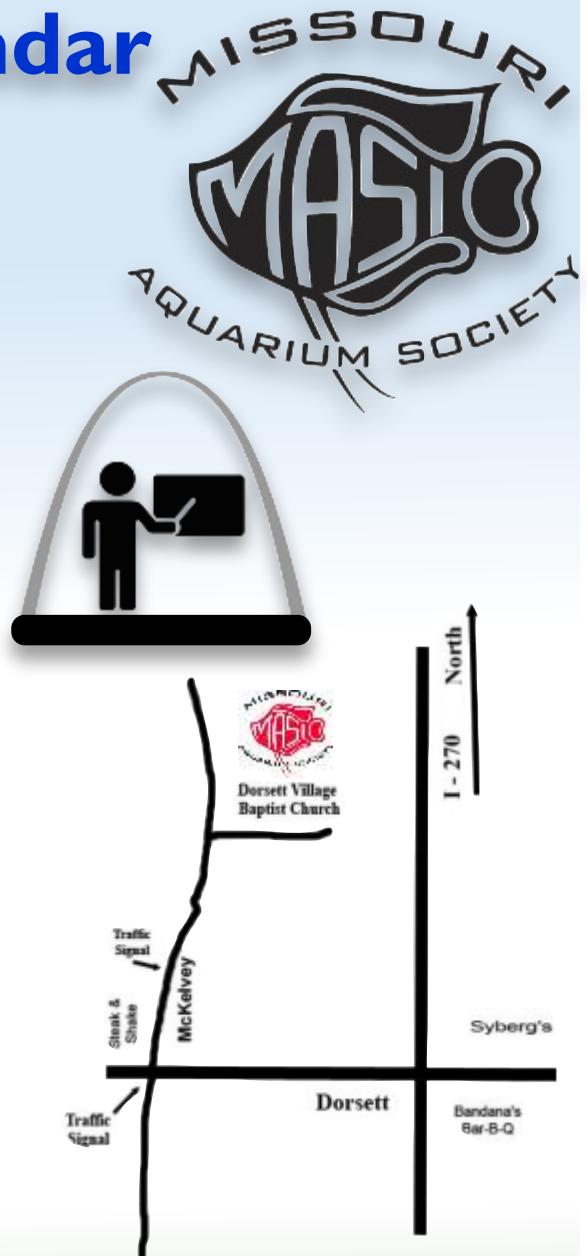


MASI 2018 Calendar

Jan 18	Council Meeting	6:45 PM
Jan 18	General Meeting	7:30 PM
Feb 3	Council Meeting @ Heller's	7:30 PM
Feb 11	 Auction 	9:00 AM
Feb 15	General Meeting	7:30 PM
Feb 24	Council Meeting @ Tosie New Office	7:30 PM
Mar 15	 General Meeting	7:30 PM
Mar 18	Council Meeting @ Millinger's	7:30 PM
Apr 19	General Meeting	7:30 PM
Apr 21	 SWAP 	9:00 AM
Apr 21	Awards Banquet	PM TBD
Apr 22	 Auction	9:00 AM
Apr 28	Council Meeting @ Lange's	7:30 PM
May 17	General Meeting	7:30 PM
May 19	Council Meeting @ TBD	7:30 PM
Jun 21	 General Meeting/ Elections	7:30 PM
Jun 30	Council Meeting @ Tinker's	7:30 PM
Jul 19	General Meeting	7:30 PM
Aug 12	 Auction	9:00 AM
Aug 16	General Meeting	7:30 PM
Sep 20	General Meeting	7:30 PM
Sep 30	 SWAP	10:00 AM
Oct 18	 General Meeting/ SuperBowl	7:30 PM
Nov 11	 Auction	9:00 AM
Nov 15	General Meeting	7:30 PM
Dec 20	 Christmas Party	7:30 PM

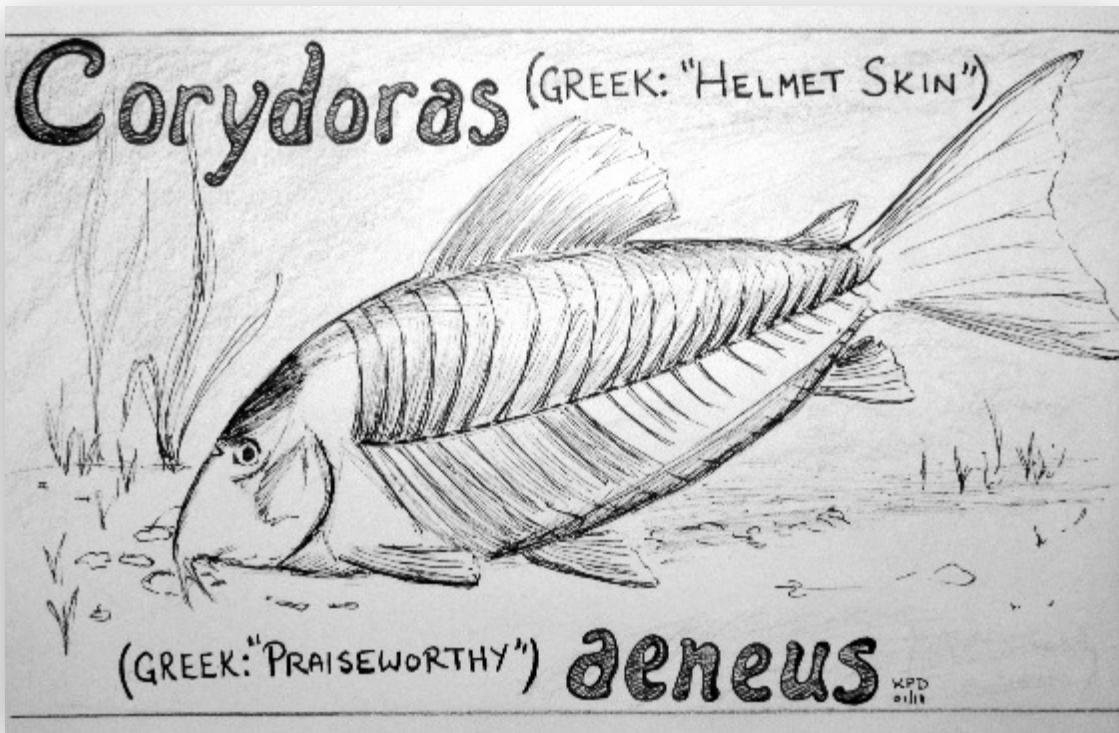


We've a Busy Year Planned!!



All General Meetings Are held at 7:30 PM Dorsett Village Church - 2240 Bennington Place, Maryland Heights, MO





What's in a Name?

By Kathy Deutsch



SHOP HOPPING - September, 2017

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	Aquatic Treasures
Fish in Stock	Midwest Tropical Fish
Current Specials	petco
November Specials	PetsWay
Facebook	Pet Connection
Monthly Specials	Sailfin Pet Shop
Facebook/Specials	Aqua World
Monthly Specials	Tropical World Pets
Weekly Specials	Corals & More
Fish List	Malawi Aquatics



Want to get the DARTER 6x per year?

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2018 membership is \$15 and includes an electronic subscription to The Darter 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 Ed Millinger, membership chair, at 573-883-9943.

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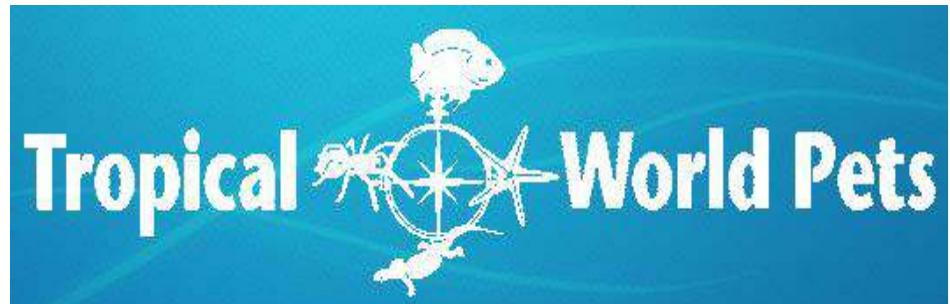


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Meet MASI Fishy Folk: Dave and Chinh Thies

MY WIFE AND I have only recently gotten into the fish game.

We started in January of 2016. Gary Lange, the Rainbow expert, got us started with two varieties and we got a third variety from Eric Bodrock. The Rainbows from Eric came from eggs he got from Gary. We also purchased some Cardinal and Glow Light Tetras from Imperial Tropicals in Florida. In addition to the fish, we also have red and blue dwarf shrimp. Our most recent acquisitions include Guppies and Swordfish from the most recent MASI auction and a few Bettas from Chuck Bremer. We currently have eleven tanks.

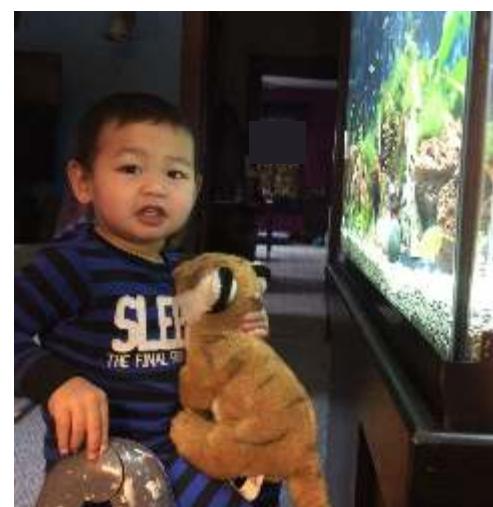
We also recently acquired three Netherland Dwarf rabbits, Black Otters and a Sable Marten, with plans for eventually showing them. Along with two Shitzus and some Hermit Crabs, we are just about crittered out.

Chinh and I have eight children, sixteen grandchildren and one great-child with two more on the way. Our youngest grandson, Aiden, four in March, usually accompanies us to the fish functions.

Our Guppies are starting to reproduce like rabbits, so their tanks are always interesting. We also are impressed by the new Swordfish and their frenetic activity. They present an interesting contrast to the Rainbows.

We enjoy the MASI activities, especially the auctions. We hope to have another good year with our fish and our MASI friends.

Dave and Chinh Thies



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Sat 10:30-7; Sun 12-6**



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Meet MASI Fishy Folk: Jim (James E) Wetzel



JIM HAS WRITTEN several technical papers and frequently writes for NANFA's American Currents magazine:

- **Family members? Wife and two kids, 6 and 4 years old.**
- **Years keeping fish? 45+ years**
- What was in your first tank? Larval Streamside Salamander *Ambystoma barbouri*
- How many tanks do you have set up right now and what is in them?
- **Home 9 tanks;** *J. marleri*, *Tropheus duboisi*, Keyhole Cichlids, Blueflash Cichlids, Bantam Sunfish, Redspotted Sunfish, Northern Bluegill, Coppernose Bluegill, Handpaint Bluegill, Fliers, Pirate Perch, Warmouth, *Xystichromis* sp. "dayglow", and *Orconectes immunis*
- **Work 225+ tanks;** Bluegill, Redear, Green Sunfish, Warmouth, Largemouth Bass, Spotted Bass, Tilapia spp., and Rainbow Trout where most are in production and / or research setting.

- Favorite fish as a pet? Chocolate Cichlid
- Your dream fish? IDK
- Your dream tank? 250 gallon aquarium in man room.
- **Your realistic dream tank? 250 gallon aquarium in man room.**
- Your latest fish related accomplishment? Initiating 4H project involving aquaculture for Missouri youth.
- Your latest goal? Breeding Fliers in a stock tank in Spring 2018.
- Other pets? Chickens, dogs, cats, etc.
- Anything else about you or the hobby you want to share with us? Research heavy into natives at Lincoln University of Missouri as Program Coordinator of the Aquaculture Program and Associate Professor of Aquaculture.

<https://www.lincolnu.edu/web/agriculture-and-environmental-sciences/wetzel>



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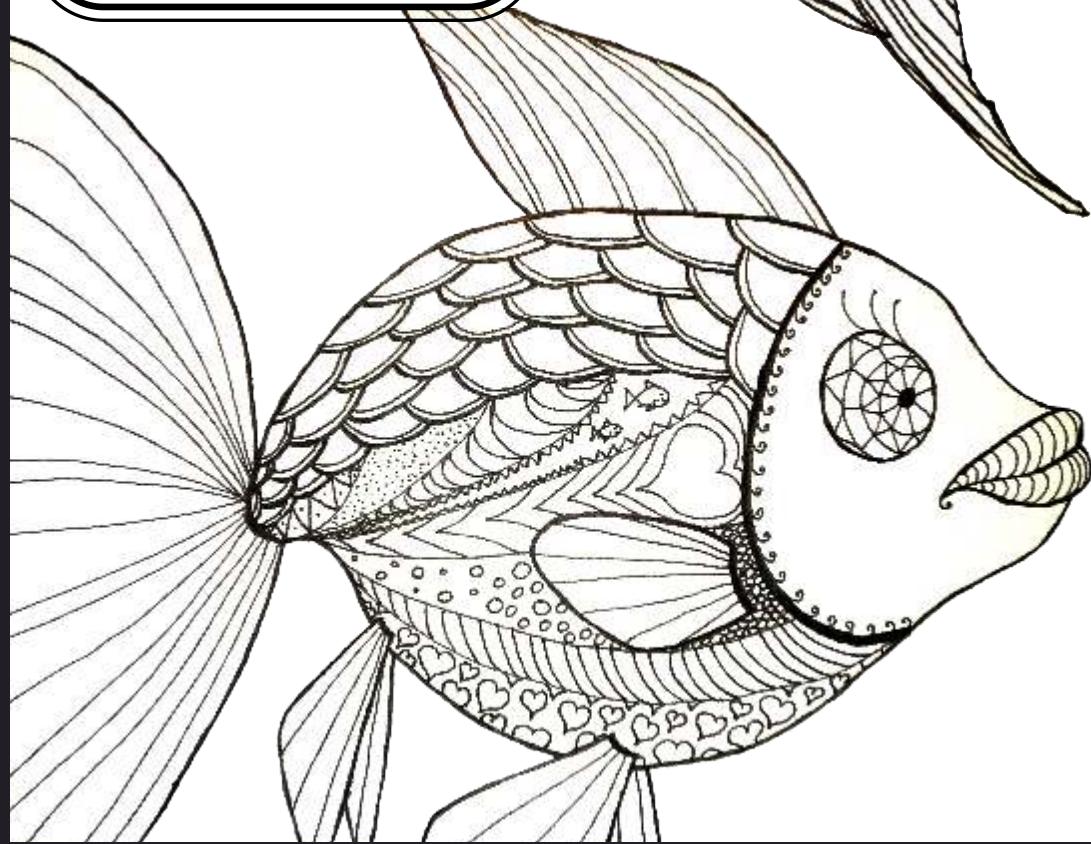
Mon: 10:30 am - 6:30 pm
Tue - Thu: 11:00 am - 7:00 pm
Fri - Sat: 10:00 am - 8:00 pm
Sun: 12:00 pm - 6:00 pm



Adult/Kidz Corner

*Bring your color
rendition to the
next MASI
Meeting!*

*Original by
Daniell
Kinder*



Central Air Supply

Not Just for the Big Guys

By Rick Renfro

I AM NOT SURE how many aquariums are needed before a room that you keep your fish in can be called a “fish room,” but I think that maybe if anyone would want to come and tour your aquariums, then you probably have a fish room, or if your wife finally concedes and starts calling your hideout your fish room.

I guess I am somewhere between having a fish room and just a room with fish tanks, either way it is nothing like some of the MASI members maintain where a central air system is a must have. When I planned an air system, I had five tanks running and plans to add a 55 gallon along with small rearing tanks as needed.

The ActiveAqua air pump I had was pushing 15 liters per minute and was running Matten filters in three 20 gallon tanks. My other two tanks were running on electricity, a 10 gallon with a hang on back filter, and a 75 gallon using an electric pump for the Matten filter.

A Matten filter uses about three times the air a standard box or sponge filter would use, so this one pump was at its limit running the equivalent of twelve sponge filters, an internal fry box, and a brine shrimp hatchery. This pump is a pretty good value for a fairly



quiet pump for under \$40.00 but the issue was that I had no flexibility, and that's a problem when you are a member of MASI with the quarterly and monthly auctions offering amazing fish at good prices.

My tanks run along part of two walls in my “man-fish-dog-second refrigerator-cave.” I decided to make the system a looped layout because this design will equalize the pressure throughout the system, and I simply love to mess around with building things out of pvc pipe, so twice the piping means twice the fun! All of the central air systems I have seen run the pvc along the top of the wall at the ceiling around the room. This would not be practical for me since I plan on some expansion, but only at the ends of



the existing layout and not throughout the room. This system runs along the ceiling of the two walls that the tanks occupy, then down the wall to return along the height of the tanks. In the lower section I have the air valves and at the highest point of the lower section

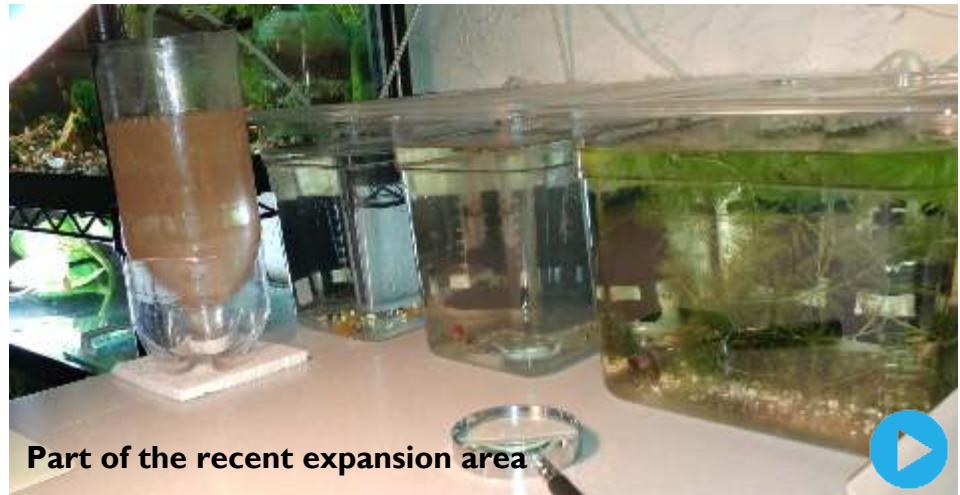


I have the "T" fitting where the pump's output enters the system. The air lines are hidden due to the valve placement, so the system is pretty much inconspicuous.

I purchased more pump capacity

than I need for a few reasons. The price was \$11.00 more for a model with an output of 45 liters per minute as opposed to the smaller model which would be at capacity at 24 liters per minute after I complete the change over to an all air filter system. The new pump is a linear piston pump that I purchased from Jehmco.com, along with the rest of the items needed to make this change over to air such as jumbo box filters, sponges, silicone and rigid tubing, and self-tapping valves. A linear piston pump's name is pretty much self explanatory once you know about the different types of air pumps. There are three types of air pumps commonly used for aquariums, the diaphragm pump, the linear piston pump, and the regenerative blower. Linear piston and diaphragm pumps utilize alternating current to magnetically drive a rubber diaphragm or piston to compress and push air into the air supply lines. A regenerative air pump uses the circular movement of an impeller with blades around it's circumference to create air pressure, sort of like a jet engine.

What influenced my decision to select a linear piston air pump is that some of these pumps, but not all, are very quiet and their efficiency does not diminish with age. It is amazing how quiet this particular pump runs. This is such a relief since it seems manufacturers of the lower cost linear piston and diaphragm air pumps have no problem claiming that their pumps are "silent" while operating at decibel levels that rival your neighbor cutting



Part of the recent expansion area

grass at 7:30 on a Sunday morning. Actually, the ActiveAqua pump has been a good value both in output and sound. For multiple tank applications, both diaphragm pumps and linear piston pumps will push enough air to run a fish room that is small to medium sized, with diaphragm pumps being less expensive than linear piston pumps. Both of these types seem to have a maximum output of around 230 liters per minute at 1.5 psi. A diaphragm pump can be rebuilt when they become loud or fail, and the kits are not too expensive. Like many things, there is a trade off between cost, noise, and capacity to decide upon. For large fish rooms, the regenerative blower is needed with an output measured in gallons per minute and can offer operating pressures up to 9 psi. At this level, I don't think sound is a factor.

If you have multiple tanks and harbor the propensity to purchase new fish and only afterward deal with the fact that you need another tank, the flexibility of a central system may be worth the expense and effort. In my case, I am working to develop new

Guppy strains. That requires multiple small tanks as needed for broods of fry, and also segregation of male and females. Aside from Guppies, I am breeding Ancistrus and just cannot leave Cory eggs stuck to the glass without raising them too. My current method of colony breeding Guppies works great for production and sales, but there is no control to work with genetics. The central air system has a higher initial expense, but the alternative cost of powered filtration for multiple tanks offering the flexibility to respond to breeding needs and anticipated new purchases would be overwhelming. (Hobbyist Note: Work on this argument and personalize it, as it may come in handy when trying to justify the expense to your spouse!)

As an update, by the time I submit this article, I have added a fifty five gallon tank and three small tanks for rearing Corydoras fry, hatching Ancistrus eggs, and raising a colony of Blue Leopard Ram's Horn snails, and have converted all my tanks to air driven filtration. **The cost of the entire system was right at \$330.00.**

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Converting Flourescent Fixtures to LED

By Ed Millinger

DON ATKINSON FIRST made me aware of the possibility of converting your fluorescent fixtures to LED's. I had been selling off my old fluorescent fixtures and buying new LED ones which is expensive. I decided to give this conversion idea a try.

The bulbs I first purchased were from Earth City, Mo. The four foot bulbs were only \$10. I inquired as to buying direct and they said they could do that but when I went back to order more they no longer sold those. I then found a brand named Hyperikon. They sell LED bulbs in 2, 3, 4, and 8 foot sizes and purchased

Editor's note: Be sure to follow closely all instructions that come with your replacement bulbs. Be aware there are more than one type of LED replacement bulb and more than one type of original fluorescent wiring. Some replacement bulbs are powered from tombstones on each end and some are powered by a split tombstones at only one end.

Read the instructions that come with each bulb and if in doubt get help!

Be Sure & Be Safe!

the four foot bulbs. They are 18 watts and replace a 32 watt fluorescent.

They send instructions which is necessary for me as I am the most unhandy man you have ever met.

Here's what you need to make the conversion. A screw driver or power tool with attachments will make it easier, a pair of scissors or wire snips, a pair of pliers or a socket to remove the screws holding the ballast, a wire stripper, some wire nuts and some electrical wire (multi use \$.79 a foot).

1. Start by removing the cover which will have six or so screws.



2. Next remove the ballast. Cut the wires as close to it as you can and discard the heavy ballast as it is no longer needed. Your light fixture is now lighter and easier to pick up.
3. The part that holds the bulbs is called a tombstone in reference to its shape. In my example the wires from the left tombstone are blue and the ones from the right are red.



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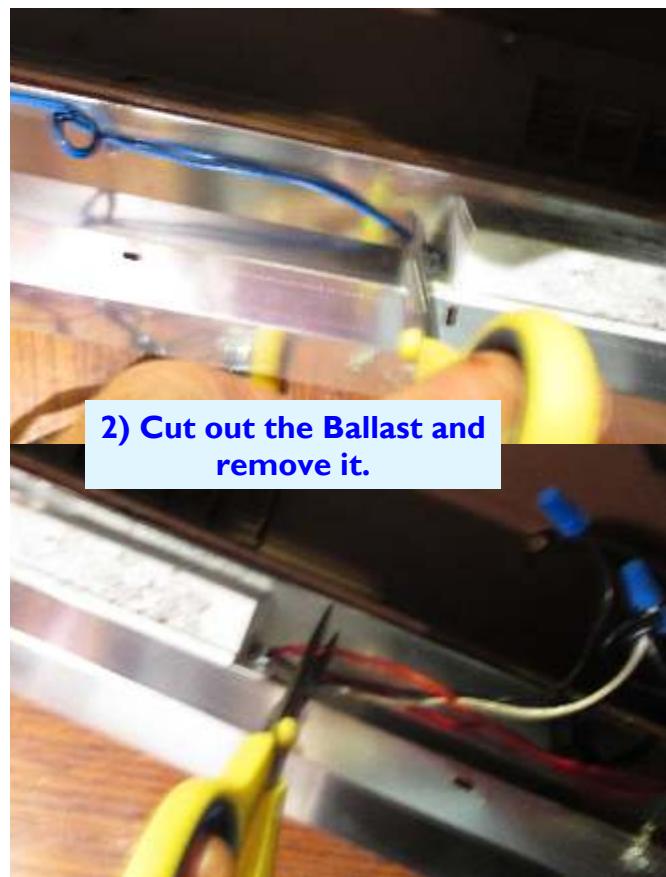
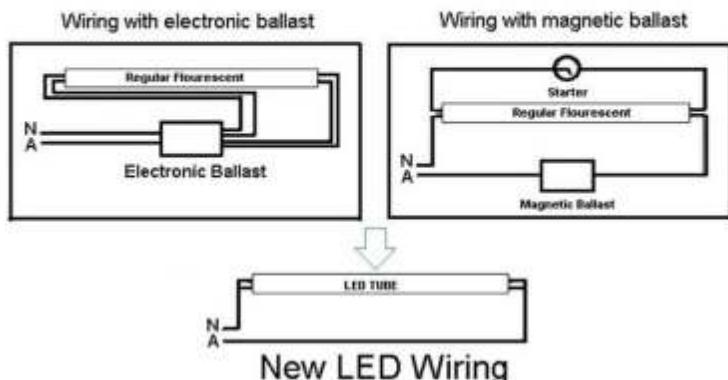
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Converting Flourescent to LED



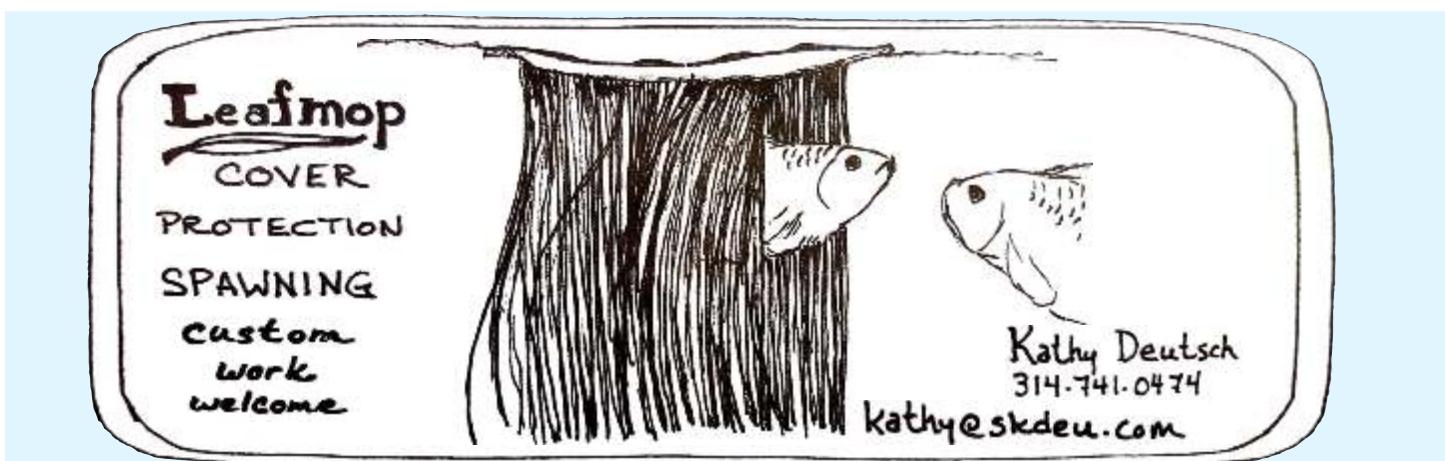
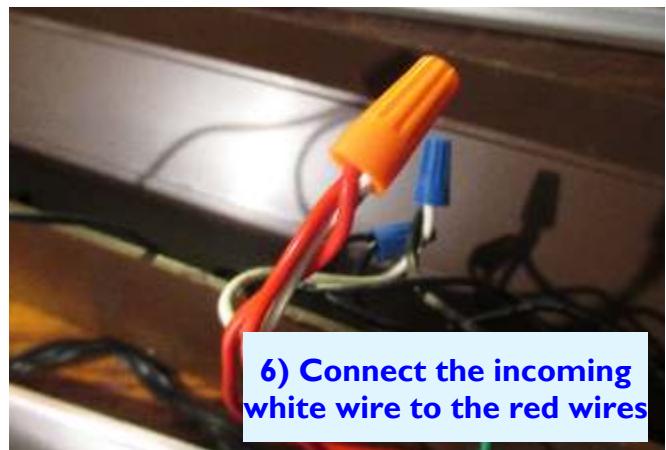
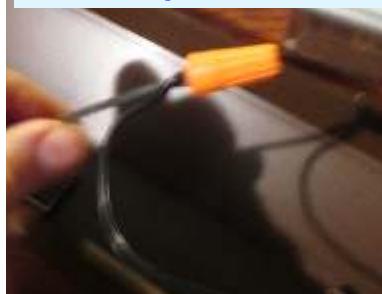
4. Cut a piece of wire purchased at the hardware store (eight or nine inches) and strip the 3/4" of plastic insulation to expose the wires so you can twist on a wire nut to connect it to the blue wires from the left tombstone.
5. Connect the other end of the added wire to the incoming black/positive wire and you are good to go on the left/blue side.
6. Use a wire nut to connect the incoming white/negative wire to the two red wires from the right tombstone.
7. Put the cover back in place, install your new LED bulb and you are done.

The only downside is these bulbs do not have the blue moonlight option that I really like but **the rewire really is simple and can save you some big bucks.**

4) Add extension wire to the blue wires



5) Complete the splice to the power wire



In It For the Long Haul

keeping long-lived fish

By Kathy Deutsch

MY FONDNESS FOR synodontis, plecostomus and African cichlids means I have fish who could live a long time. Sometimes they do, sometimes they don't. But I always set up my tanks with a 10 year plan in mind. MASI founder Ralph Wilhelm sold me his pet Syno years ago and I felt a distinct obligation to keep him alive as long as I could. This made me aware of the conditions that favored fishkeeping for the long haul.

Freshwater tropical fish that purportedly live the longest are catfish and cichlids. I have had tetras live 8 to 12 years. There is no magic involved and fewer water changes than I care to admit. But the rules to keeping fish are basically the same rules for keeping anything alive a long time. Room to live, fresh, healthy food and water, exercise, lack of stress and hygiene.

Fish like room to move around and explore. They absolutely need places to sleep and rest away from predators and human movement. They enjoy live plants, real wood, and some



companionship. Finally, they like having darkness and light time. My tanks all have PVC or ceramic tubes big enough to accommodate the fish. Terra cotta pot caves, sunken real wood "logs", big rocks and other structure make fish feel secure. They also orient themselves to these items. Imagine if someone came in at night and moved all your furniture. It would be disconcerting. But it might also be interesting. When I do a cleaning/siphoning, I try not to move the big structures or sleeping places. But I will move some light rocks or a log.

Live plants and wood logs are both structure AND food. I watch fish graze on the algae that accumulates on plants and wood. Yes, some fish do eat plants, but more often I see them pick bits off them. I cannot emphasize this too strongly: your fish need sunken wood. The older and softer it gets, the tastier it is. It grows algae, and provides important roughage in a fish's diet. Many fish that live near the bottom of tank eat old soft wood. They do in the wild, and they love having it around. But every fish I have ever had for any period of time has picked at soft wood, even the bettas.

This sounds odd, but food security is very important to fish health. Fish are forced to rely on

humans feeding them. I have found that fish that have algae, plants, other fish (*Sorry!*) and soft wood available as food seem more relaxed. They have emergency rations and are happy about it.

Fish Stressors:

- **Too much or too little light.**
- **Too much open space with nowhere to hide.**
- **Being constantly annoyed by movement outside the tank.**
- **Lack of rest.**
- **Food insecurity.**
- **Temperatures too warm or too cold.**
- **Water flow dead spots in a tank.**
- **Poor water quality.**



Healthy food is vital to fish. That means fresh flake and pelleted food that the fish will eat. In every tank, I use flake and a couple little pellets that float or sink. The fish gobble the flake and seek out the soaked pellets later. I don't feed live food, or frozen, except as a treat. I don't want the fish to get spoiled and refuse flakes as they hope for live food. I store my fish food in the freezer and mix up 2 weeks' worth in a coffee can.

If you use spices, save the plastic jars that have lids and holes for shaking out the spice. Wash them, and load with flake and pellet. Put one by each tank, and sprinkle a dash a couple times a day. Feeding fish a little bit often is interesting to them, and they seem to stay healthier.

Water changes, weekly. Even 5% is so helpful. I scoop out a container full, water my plants with it, and replace the amount with fresh water. The siphon-and-scrub is, of course, important but I don't have time to do that as often as I should. Watering my plants with fish water is easy. The guilt I feel about thirsty plants is a good motivator.

Fish love to move around. That's what they were built to do. When I set up a tank, I make sure the structures are not blocking large areas of the tank. There should be paths across the top, middle and bottom of the tank, like long highways. Along the paths, ideally, there should be areas where fish can avoid looking at one another. Fish confrontation, and resulting stress, comes from being forced to deal with each other all the time. If they can swim past each other, back and forth, without eye contact, then they can exercise freely.

Fish get stressed. Too much or too little light. Too much open space

with nowhere to hide. Being constantly annoyed by movement outside the tank. Lack of rest. Food insecurity, too warm or too cold. Dead spots in a tank (where the water flow is deadened). Lack of any current is scary to fish. Poor water quality.

These are all things that we, as fishkeepers, have an obligation to correct as much as we can. However, I do know fish, IE: my angelfish and goldfish, who LOVE people. They enjoy our comings and goings, and look back at the dogs who look at them. My angels eat and interact less if I am not in their area a lot during the day. My daughter had albino Oscars that loved to play ball, bopping a ping pong ball out of their tank at us. We would throw it back in and they would nose it out again! This is a long-winded way of saying we must observe our fish and figure out what makes their lives less stressful.

Hygiene is obvious. Fish need clean water. They need excess mulm (fish poop and leftover food) siphoned out of their house. They cannot leave when their tank gets dirty. I am not a stellar fish tank keeper... but I try. Bigger tanks are helpful, when you keep the fish density down. Fewer fish mean that they CAN move away from a grungy area, *only temporarily-still need to clean it eventually!*

We all keep fish for different reasons. I like thinking of my fish as wet pets and I try to make their lives with us comfortable. The reward is healthy fish that occupy a place in my life for a long time.

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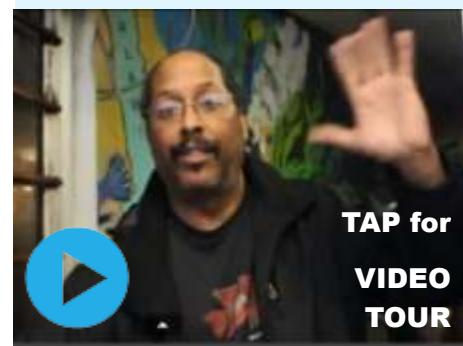
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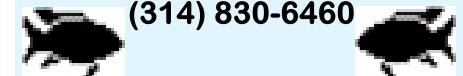
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Ed Millinger

AN UNEXPECTED ROMANCE



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LAST JUNE I purchased a number of egg layers from Tropical World Pets on Watson road. I was getting ready for tub season and wound up buying Colombian Blue tetras (*Hyphessobrycon columbianus*), Silver tip tetras (*Hasemania nana*), Harlequin rasboras (*Trigonostigma heteromorpha*), and a pair of *Acarichthys heckelii*.

The only species I had initial success with was the Colombian tetras. The others were either not mature enough or the conditions were not just right. At the end of the season I brought them inside.

I placed the Harlequins in a tank with some peaceful Acaras. In early December I decided to try the Harlequins in a ten gallon tank. I had researched these fish and found they like soft and slightly acid water with a temperature between the low 70's and eighty degrees. They are not picky eaters. Research showed that they typically lay their eggs under a broad leaf. Egg hatching occurs quickly at around 24 hours.

To make the water a little more acid I added Alder cones which also helps prevent egg fungus and threw in a great deal of Java moss and an *Anubias bateri* ...and for good measure a spawning mop from Kathy

Deutsch. There wasn't much room for swimming but I hoped the cover of the plants and mop would be enough to ensure some of the fry had a place to hide as the parents see their youngsters more as a meal than an obligation to raise. The temperature was 80.

At one of the meetings I told Gary Lange about this trial run and he mentioned that Mike Hellweg believed the that it was important to include some driftwood in the tank so I found some small pieces and introduced them into the 10 gallon set up. Now it was really getting crowded in there!

Chuck Dyn at Tropical World had selected two pairs for me and I noticed the two females were starting to become rather plump. I removed them from the 75 and placed them in the ten. Thereafter they were fed live baby brine shrimp, grindal worms and live black worms.

Two weeks later I placed the males into the tank with the females and waited for the magic to begin. Well nothing much happened so I figured maybe the water wasn't soft enough. I immediately began removing a gallon of water each day and replacing it with RO (reverse osmosis) water to which had been added four or five Alder cones to maintain the acidity level. This RO water had a total TDS (Total Dissolved Solids) of 6.

Several weeks went by and I noticed the females had not lost any of their girth. I needed room to raise up some cory fry from a group of *Corydoras septentrionalis* that Jim Miller had given me earlier in the year. I had hatched the cory eggs in a small plastic container but needed more room for them to grow so I moved the Harlequins back to the 75 and started to watch the Cory fry develop.

While watching the cory fry I noticed a quarter inch fish moving around that did not move much like a catfish. To my surprise this small fry already had the look of a Harlequin with the black marking in the lower body.

One baby wasn't going to do me much good. I continued to monitor the tank and soon discovered a small number of some of the smallest babies I have ever seen. The larger of the fry was the only survivor from a much earlier spawn. These newest little critters owed their existence to my pulling out the parents to raise the Cory fry. I have been feeding micro worms and live baby brine shrimp to both groups of fry **and plan for enough to turn in for the breeders award program.**



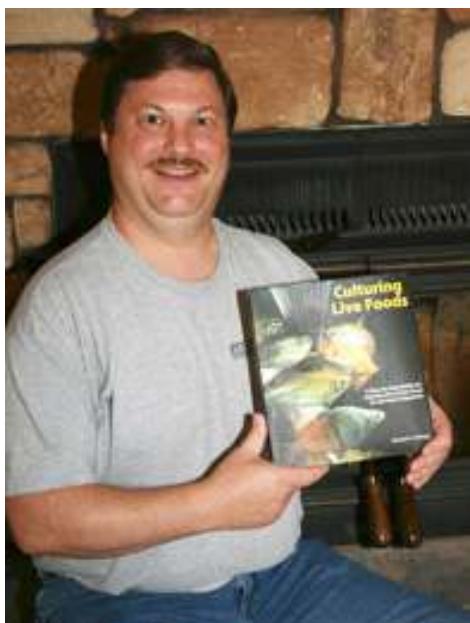
Minifins

The Secret is Out!!

It's Live Foods!

**Mike Hellweg, CFN
(Certifiable Fish Nut)**

AS AN AQUARIST advances in the hobby they will often seek new challenges to test their fishkeeping skills. Some freshwater hobbyists move on to marine aquaria and eventually reef tanks, others start working with either indoor or outdoor aquatic gardens, some move on to keeping



monster fish, some work with developing champion show fish, and yet others seek the challenge of breeding tropical fish.

For many of these various advanced hobbyists, they find that while commercial foods are excellent for maintaining a community tank or even for keeping and breeding the more common community tank fish, their animals need something more in order to thrive, grow into prize show specimens, or to spawn.

Many folks read my breeding articles and ask how I'm really able to get this or that species to spawn

Some Advantages of Live Foods:

Movement triggers feeding

Provide symbiotic enzymes

Provide missing nutrients

Obtain Show or Breeding conditioning

Need for a chase

when they've had trouble even keeping them alive. Sometimes it takes a couple weeks of live food just to get new wild caught fish to settle in, and then you can start moving them over to commercial foods until they are mature and ready to spawn. Sometimes it is just a week or two of conditioning the breeders on live foods and they're ready to spawn. After spawning, they can go back to their commercial diet until the next time you're ready for them to spawn. Many of the easier or "bread and butter" fish are exactly that because they can thrive from birth to old age with nothing but commercial foods. But others need something more.

Don't get me wrong! The major food manufacturer's put millions of dollars, yen, and euros into research and development of fish foods, and

today's commercial foods provide many fish with solid quality diets from birth to death. They make it easy for the average aquarist to keep many fish that a few decades ago were considered difficult. Flakes, pellets, frozen and



Black Worms

freeze-dried foods are all excellent and will provide even many finicky eaters with an excellent staple diet. I've found wild caught fish like many Anabantoids and even wild caught Pencilfish will often go after some of the modern flake and micro pellet foods as soon as they hit the water. Yet even today, with all of the modern science and research that these excellent commercial diets have backing them up, there are still some things that cannot be replicated.

These are most easy to see with larval fish. With most commonly bred species, the hobbyist can start a batch of fry on a commercial larval fish diet as soon as they are free swimming and they will do just fine. With larvae of more "challenging" species, though, the fry will die of starvation literally surrounded by what the well-meaning hobbyist believes is food! There is something lacking. Sometimes this can be movement. In many larval fish the eye is not quite fully developed for some time after they become free swimming. They can detect certain kinds of movement or certain shapes that would be of their natural diet at this point in their life. Without this movement or shape to trigger their feeding response, they quickly starve to death.

For other types of larvae that will take commercial diets from the start, fry seem to whither away and die off



suddenly after a few days or weeks. Recent research is showing that they may need to obtain certain digestive enzymes from their food to help them until their own digestive system is functioning fully. Just as with humans who have a diversity of symbiotic fauna living in their digestive system to aid in the digestion of some foods, many fish have their own symbiotic fauna in their digestive system. This needs to come from somewhere. It appears they obtain at least some of this fauna from

Live Foods:

Buy Them

Collect Them

Culture Them

certain animals that they eat while growing. Perhaps they only need certain digestive enzymes which they cannot manufacture for themselves. We're only beginning to understand this incredibly complex subject and I'm



Flour Beetle Culture

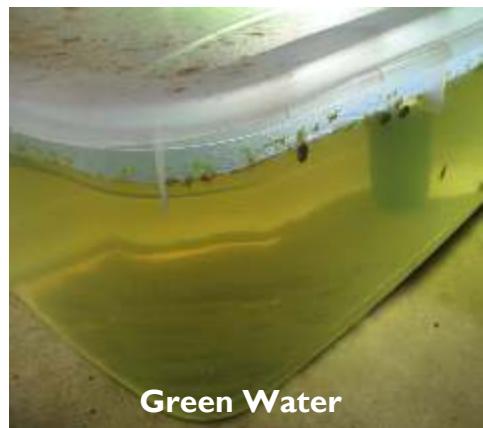
sure future research will continue to shed light for decades to come.

What we do know is that as fish grow, their dietary needs change. While young fish need a certain balance of proteins, lipids, minerals, vitamins, enzymes, etc. in their diets, as they grow juvenile and later adult fish need a different balance of these same items. In the wild they switch diets. In aquaria we often just give them larger sizes of the same food items. For some species this might be sufficient. For others it is not. Young fish are concentrating on converting their entire food intake into growing and staying alive. This mission changes as fish reach maturity and they need to concentrate instead on finding a mate and producing the next generation. Staying alive is still important, but reproduction is often paramount. Often adult fish need to take in copious amounts of certain food animals to trigger the production of their reproductive products or to bring out certain colors that are used to attract mates.

Some species even time their spawning to the seasonal fluctuation in insects such as ants or termites that are suddenly washed into the water during rainy season floods. Some need the sudden influx of protein from a sudden season bloom of mayflies or a bloom in crustacean populations like copepods, young crayfish, or krill. When these dietary triggers are absent, otherwise well fed fish may never reproduce.

Bringing show fish into color and condition for showing requires giving them special care. Many hobbyists have noted that fish moved outside for the summer have grown considerably and are much more vibrant and colorful when they are brought in for the fall and winter. This is largely because they

have been enjoying a much more natural environment, including the addition of many live food animals that are missing indoors. You can replicate this improved diet by giving your show fish a balanced diet of various live foods throughout the year. Try it! You'll be amazed at the difference in vibrance and color intensity, growth, and demeanor compared with fish fed just a



Green Water

commercial diet.

Finally, in some predatory fish there is the need for the stimulation of the chase or even the need to stalk their prey. Non-living food is completely ignored. I'm not talking just about large predatory species, but also about tiny micro predators (e.g. Badids, Syngnanthids, and Eleotriids), most of which will ignore commercial foods. Some of these like certain species of seahorses can be trained to take non-living foods, but even trained fish will out of preference choose to chase a living prey item instead of picking a dead one from a feeding station. Encouraging this predatory behavior in captivity is often referred to as "behavioral enrichment" and might even be necessary for the long term successful maintenance of some predatory species.

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While some hobbyists try and fail to breed certain fish, others seem to be able to coax just about any species they choose to spawn. The former hobbyists often wonder what they are doing wrong. The latter hobbyists already know the secret. They condition their breeders on live foods, and raise the fry on live foods. Sometimes this is as simple as feeding the intended parents with the proper diet of the right types of live foods for a week or two before setting them up for spawning. For others it merely requires increasing their food intake and adding a new food item for this period of time. And for yet others, it is the addition of a good quantity of a certain prey species into the diet that stimulates spawning. It might involve raising two or three different micro food animals to feed the growing fry as well.



Flightless Fruit Flies

Then there is the desire to provide safe foods for our beloved pet fish. With the recent pet food contamination scares, many fish hobbyists are looking for ways of providing their fish with a more natural diet. Nothing could be more natural than feeding them what they consume in the wild, or a reasonable facsimile

You can buy or culture your own:

White/Grindal/ micro worms

Vinegar eels

Daphnia

Paramaecia

Mealworms

Earthworms

Cherry shrimp

Gammarus

Green water

Baby Brine Shrimp

Etc...

thereof. Since the hobbyist can grow their own food under controlled conditions, they have complete control of the food from beginning to end, eliminating the worry of contamination.

Newer hobbyists may balk at the initial cost of purchasing cultures of live foods. What they often don't realize is that this initial purchase is the only one they need to make. Once you

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have the starter culture, you can produce your own live foods indefinitely. The cost drops, and all you have invested in it is your time and a small amount for culture media. Culture containers can be recycled from



Newly Hatched Baby Brine Shrimp (BBS)

other uses, so there is little cost involved in setting up even dozens of cultures. This may sound intimidating at first, but once you look at it and break it down step-by-step it becomes easy. After a few weeks, you'll wonder why you waited so long.

There are more than 50 species of critters that are regularly cultured by hobbyists as food for their fish. It can be confusing to choose from all of the different types of live foods available, so you'll have to do some research on your own fish, what foods are available, and what you feel you can successfully work with. What works for feeding one type of fish will sometimes not work for others. The best thing is that there is no need to culture many different types of live foods. Choose a couple that suit your fish AND you best and stick with these.

Give your cultures good care and they will reward you with many years of

healthy, nutritious food for your fish. Be prepared to spend time maintaining your cultures just as you do your fish. If you don't, they will soon crash. It's also a good idea to keep more than one culture going at a time, too, just in case of a crash. If you only have one culture and it crashes, you'll have to go out and buy a new starter and start from the beginning. While this is fine if you are only occasionally breeding fish, if you have fish that require live foods you will have to have food ready for them on a regular basis, not just when you can get around to it.

When considering your choices, pick food animals that are easy for



White/Grindal Worms

you to culture and that create few problems with your family as well. For example, even if your fish enjoys crickets, the sounds generated from culturing crickets may not be a winner with the rest of your family. You might choose to culture mealworms or other insects instead. The same goes for other culture animals, such as shrimp. Your fish may like ghost shrimp, but cherry shrimp might be easier for you to raise so you might be more

successful producing these in useful quantities instead. For those with smaller fish that enjoy live adult brine shrimp, live Daphnia are just as nutritious, and for most hobbyists are easier to culture.

With all of these things in mind, why not give culturing your own live foods a try? Your fish will appreciate it, and you'll be surprised at the results - long-lived, healthy, colorful fish that often reproduce for you. **What more could a tropical fish hobbyist ask for?**



Mike's Note: For those who are interested in trying live foods without having to culture them, ready-to-feed portions of live blackworms are available at the meetings each month. Later this year ready-to-feed portions of live enriched adult brine shrimp, live African Dwarf Redworms, and possibly one or two more things will be available at the meetings as well. If you want to try culturing your own live foods, you can also get starters of easy to culture foods from several members at our auctions, and often even just for the asking.



PVC Breeding Trap for *Synodontis petricola*

By Chris Mohrle

SPENT TIME RESEARCHING

Synodontis petricola via the internet and various fish hobby connections and would like to thank Derek Walker and Ingo Seidel for some of the information about breeding and general care. They helped me go in the right direction towards successfully breeding these catfish.

I have been working with this group about 5 years now and have raised all my breeders from fry. These are a very playful catfish from Lake Tanganyika, they get about 5-6" long they are very interactive with each other. They can live with a variety of species as long as the water parameter needs are similar.

As a breeding group I keep them in a species only tank. These fish take about two years to reach sexual maturity and truly don't really become productive until 3-4 years of age, so don't get frustrated by low production at first!

This species enjoys a mostly meaty diet but can be quite happy on



most pellet foods. My breeders get live blackworms or frozen bloodworms when possible, Xtreme Aquatics Cat Scrapers(I powder the pellets for fry), and also Repashy Spawn and Grow on alternating days.

And now onto the breeding!!

My cats breed in a 20g long aquarium divided in half by a 5" poret full tank filter purchased from Stephan Tanner at Swiss tropicals and eggs are collected using the "clear out" method on a good tip from Derek Walker. – think of it as an egg sucking toilet bowl. I could find very little on how to make this setup and only 1 video on YouTube, but by watching it over and over again and a little ingenuity I figured out the plan!

What you will need:

Non-PVC Stuff

- 20 Gallon long aquarium
- 1-Marina Hang on Back Breeder Box Size Small
- 12x12-1/2"- 3" thick Poret Filter Foam from Swiss Tropicals
- 4" round plastic needlepoint canvas (I got from Michael's)

PVC Stuff

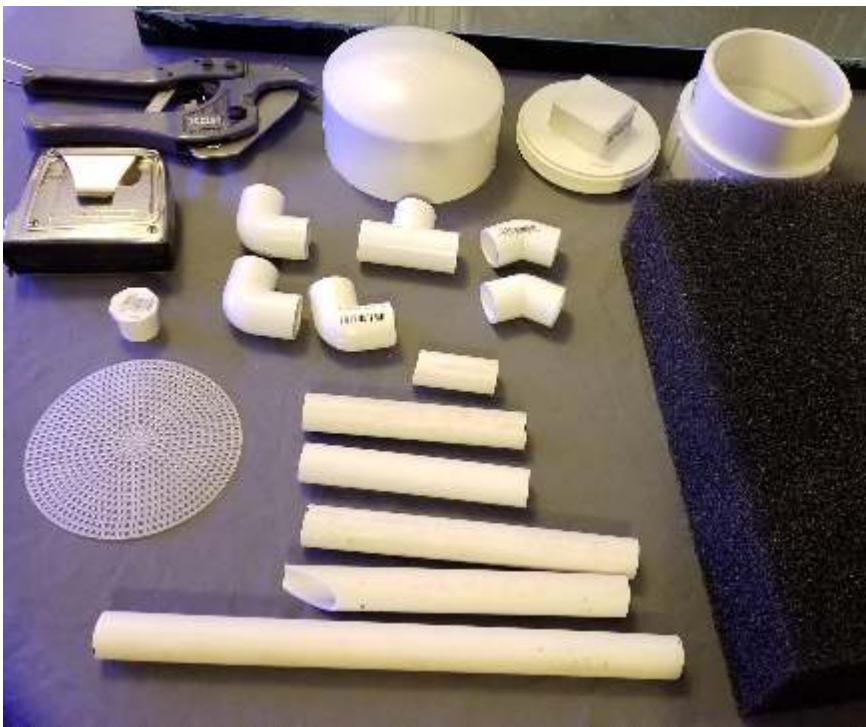
All pvc is 1/2" diameter except for breeding cave, to save confusion. Also everything was purchased at Lowe's except as noted!

- 3-PVC Sch. 40 90degree SxS elbow
- 2-PVC Sch. 40 45degree SxS elbow
- 1-PVC Sch. 40 SxSxS Tee fitting
- 1-PVC Sch. 40 SPG Plug
- 1-pvc tube 2" long
- 2-pvc tube 5" long
- 1-pvc tube 7" long
- 1-pvc tube 7" long with end cut at 45 degree
- 1-pvc tube 11" long
- 4" Charlotte Pipe PVC Sch. 40 Socket Cap
- 4" PVC DWV Hub x FIPT Female Adapter
- 4" Charlotte Pipe PVC DWV Plug Male Threaded

Tools

- Drill
- 1-1/16th" bit
- 7/32" bit
- Ratcheting PVC Cutter
- Measuring Tape





Now the construction!

DO NOT GLUE ANYTHING!

(Warning: If Glued, you will never be able to clean it!!!)

Spawning Cave

1. Using a 4" pvc socket cap drill a hole thru the top about halfway between the center and the edge with the 1-1/16th drill bit. I actually used the bit then widened it a little more.
2. Put the 4" plastic canvas inside the cap and press the 4" Hub/female adapter into the bottom to hold the canvas in place.
3. Screw in the 4" PVC Plug into the Hub/female adapter, creating your "Spawning Cave" with screen to keep the parents away from the eggs.
4. Flip the Cave over to the bottom to show the square plug side face up,
5. Drill a hole using the 1-1/16th bit, the exact size of the outer diameter of one of the 90 degree elbows. Be sure not to make the hole too big, I had to force the PVC into the one that I made. (It is tight so as to not need silicone or other sealant).

Air Line and Water Direction

1. Connect to that the 7" pvc tube and then another 90 degree elbow followed by the 2" tube and the Tee Fitting.

2. On the opposite side of this Tee put the 11" tube. And at the 90 simply put in the SPG Plug.
3. Drill a hole in the center of the SPG plug with the 7/32"bit, to fit the airline tubing, and again make sure its a tight fit! This creates the water motion so more about that later.
4. Back to the 11" tube put the 45 degree elbow on top followed by the 5" tube and another 45 degree elbow.
5. Finally add the last 90 degree elbow followed by the 7" tube with the end cut at 45 degrees. The 2 - 45 degree elbows are for a smoother water flow into the breeder. The cut at the end of the last tube is to view the rate of the flow easier and may not be necessary.
6. Run the airline into an adjustable air source.

I have found that if your flow is too high you don't get as many fertilized eggs and too low you will have babies hiding in the tube, so its a fine balance you must work with and figure out over time!

My explanation here may have been a little wordy, hopefully the pictures will help further explain.

Spawning Cave Construction



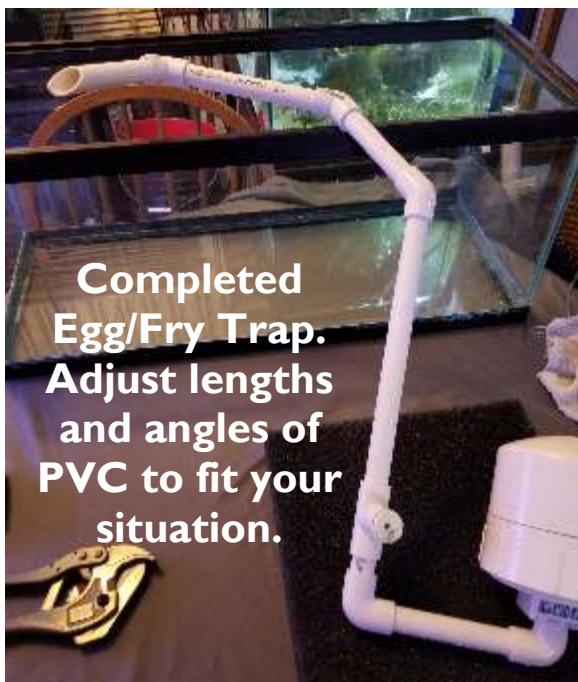
<https://youtu.be/CeG2aXZIVbI>

<https://youtu.be/xy8FzgjlaIY>



Completed Cave





View the Video for more detail!



Nannostomus *Mortenthaleri*

The “Coral Red” pencilfish-

By Don Kinyon

Reprinted from “Tank Tales”, 2018 January

A publication of the
Aquarium Club of
Lancaster County;
Lancaster, PA



A VERY COLORFUL SMALL characin from the Rio Nanay basin in Peru, the “coral red pencil fish” or *Nannostomus mortenthaleri* may just be the perfect aquarium fish.

It's hardy, easy to keep, accepts most any foods offered, is adaptable to most water conditions and is not extremely hard to breed in captivity. This fish, in fact, is one of the best of the “dither fish” that I've ever found. It's small size, pleasant demeanor, and extremely small mouth (*Nannostomus* actually translates to “small mouth”) it can be safely used to make many species of small cichlid or catfish more comfortable.

Paepke and Arendt described the fish in 2001 and it was first considered a subspecies of *N. marginatus*. When it was officially named, Martin Mortenthaler was honored, as he first discovered the species.



***N. mortenthaleri* is a small pencil fish**, the female reaches up to one and one-half inches and is the larger of the pair in my experience. Like most pencil fish, they are very slender as well. The belly and back of the fish is olive drab to brown in color, and there are two white stripes running the length of the body. What really sets this fish apart from most others is the bright red stripe starting at just above the mouth, through the eye and running to and through the tail. The fins are bright red, apart from the pectorals, which are usually clear. The males are somewhat more slender and more brightly colored than the females.

The water conditions for the fish in nature are varied, but is almost always fairly soft and acidic. These fish are sometimes found in blackwater habitat which can be very low pH and extremely low in conductivity. In the aquarium, I've had this fish in everything from cool water *Corydoras* tanks at 180 PPM total dissolved solids, and pH in the mid sevens, to blackwater *Astyanax* tanks over 80°F and a pH near 4.0, 0 PPM of TDS. They thrive in either extreme, but do seem to show better color in the warmer, softer water.

There was a bag lot of three of these great little fish in a rare fish auction I attended and even though I wasn't sure if both sexes were

represented, I bid high and won the lot. The three small fish's first home was a small tank, around 5 gallons, with a sponge filter, sand bottom and large mass of java moss. Water was straight rain water with a pH of 5.5 and had little or no TDS. There was no heater in the tank and the temperature fluctuated between 74° and 78°F. They were offered a variety of foods: mosquito larvae, daphnia, newly hatched brine shrimp, flake and freeze-dried prepared foods. Most everything was accepted with gusto. Water changes were 50% once a week.

Once the fish had been eating well for a week or so, it was clear that at least one of the three was a male. The others (I think) were female. After the pencil fish had spent a few weeks in the new home, some very small fry could be seen near the surface of the water. I always “flashlight” the tanks after the lights have been out for an hour or so to check on the fish. It's proved to be a great tool for spotting fry or catching natural behavior of more nocturnal species. During the lighted hours the young fish were never within view, but hung at or near the surface in the dark. Once the fry were noticed, the adults were moved to an adjacent tank with the same water and set up to start the process over again. The first spawn was in the spring, so the outside tubs were teeming with

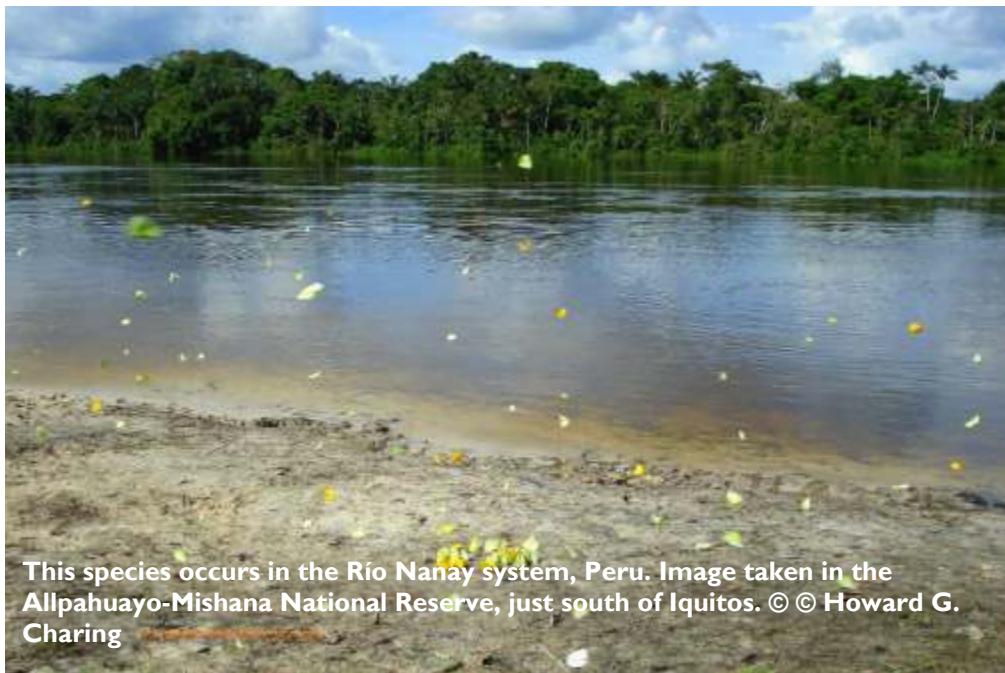


micro foods which could be strained and fed to the young fish. The fry browsed on the strands of java moss as well, so had plenty to eat.

The abundant food turned out to be a lifesaver for the brood, as it turned out. As they grew, it was clear that there were a considerable number of young fish. A quick count came to 70, but with the way the fish moved and all the cover in the tank, it was clear that number was conservative. The young fish grew quickly and in a few weeks, they were about half an inch long. Water changes started at 50% every second day, then every day, then twice daily as the fish grew (not the easiest task with a small tank and a large number of fish, but I was out of space). By this time the *N. mortenthaleri* were large enough to take flake food as well as the smaller live foods, and they were large enough to move around into



Juvies, Don Kinyon



This species occurs in the Río Nanay system, Peru. Image taken in the Allpahuayo-Mishana National Reserve, just south of Iquitos. © Howard G. Charing

other tanks as unplanned dither fish. I never got an exact count of the brood, but it was well over 100.

The second tank setup proved to produce around the same number, and the third a little smaller. Possibly, age is catching up with the parents or maybe they're just tired.

I'd recommend this species for almost any hobbyist that can reserve a tank for smaller fish.

They aren't aggressive toward other fish, are easy to keep and are one of the most attractive fresh water aquarium fish available. I don't see any downside to keeping them at all. *Okay; probably not a good idea to put them with Oscars.*

Photos by author or from SeriouslyFish.com and copyrighted as noted.



2017 BREEDER'S AWARD PROGRAM - Steve Edie

Remember there is no Mini-Auction at the Christmas Party in December. Plan to turn in your outstanding BAP or HAP for auction at the November meeting.



November 2017

Member	Genus	Species	Common Name	Points	Bonus	CARES	Total
Chuck Bremer	<i>Xiphophorus</i>	<i>kallmani</i> "Catemaco" @	Catemaco Sword	10		10	1182
Mike Hellweg	<i>Carassius</i>	<i>auratus</i>	Bristol Shubunkin	15			6940
	<i>Xiphophorus</i>	<i>kallmani</i> @	Catemaco Sword	10		10	6960
Mike Huber	<i>Aulonocara</i>	<i>hansbaenschi</i>	Red Shoulder Peacock	10			1473
	<i>Buccochromis</i>	<i>heterotaenia</i> "Likoma" *		15	5		1493
	<i>Chapalichthys</i>	<i>encaustus</i> @	Barred Goodeid	15		15	1523
	<i>Cyrtocara</i>	<i>moorii</i> @	Blue Dolphin Cichlid	10		10	1543
	<i>Goodea</i>	<i>gracilis</i> @	Dusky Split Fin	15		15	1573
	<i>Herotilapia</i>	<i>multispinosa</i>	Rainbow Cichlid	5			1578
	<i>Labidochromis</i>	<i>chisumulae</i>		10			1588
	<i>Pundamilia</i>	<i>nyererei</i> "Makobe Is" @		10		10	1608
	<i>Pyxichromis</i>	<i>orthostoma</i> "Nawamps" @		10		10	1628
	" <i>Xystichromis</i> "	sp. "Dayglow" @	Dayglow Fulu	10		10	1648
Jerry Jost	<i>Corydoras</i>	<i>atropersonatus</i> *	Fairy Catfish	10	5		2617
	<i>Corydoras</i>	<i>axelrodi</i>	Axelrod's Cory	10			2627
	<i>Corydoras</i>	<i>concolor</i> *	Slate Cory	10	5		2642
	<i>Corydoras</i>	<i>eversi</i> *	C065	10	5		2657
	<i>Corydoras</i>	<i>nijseni</i> *	C111, Nijssen's cory	10	5		2672
	<i>Corydoras</i>	<i>parallelus</i> *	C002, Two Line Cory	10	5		2687
	<i>Corydoras</i>	<i>sanchesii</i> *		10	5		2702
	<i>Corydoras</i>	<i>zygatus</i> *	Black Band Cory	10	5		2717
Ed Millinger	<i>Amphilophus</i>	<i>amarillo</i> *		15	5		970
	<i>Apistogramma</i>	<i>macmasteri</i>		15			985
Chris Mohrle	<i>Chapalichthys</i>	<i>percatus</i> @	Alien Splitfin	15		15	235
	<i>Corydoras</i>	<i>venezuelanus</i>	Red Fin Venezuelan Cory	10			245
	<i>Cyprichromis</i>	<i>leptosoma</i> "Utina"		15			260
	<i>Rocio</i>	<i>octofasciata</i>	Jack Dempsey	5			265
	<i>Tanichthys</i>	<i>albonubes</i>	Long Fin White Cloud	10			275



2017 BREEDER'S AWARD PROGRAM - continued

November 2017 continued

Member	Genus	Species	Common Name	Points	Bonus	CARES	Total
Dan Rios	Ancistrus	sp. "Pucallpa"		10			100
	Chapalichthys	peraticus @		15		15	130
	Corydoras	paleatus	Pepper Cory	10			140
	Corydoras	venezuelanus		10			150
Scot Roach	Ataeniobius	toweri @	Striped Goodeid	15		15	184
	Goodea	gracilis @	Slender Goodeid	15		15	214
	Limia	sp. "Tiger"	Tiger Limia	5			219
	Xenotaenia	resolanae @	Leopard Goodeid	15		15	249
	Xiphophorus	pygmaeus	Pygmy Swordtail	10			259
Bob & Lora Watson	Sewellia	lineolata	Hillstream Loach	20			145
	Neolamprologus	brichardi	Fairy Cichlid	10			155
	Xenotoca	doadroi @	Red Tail Goodeid	15		15	185

December 2017

Mike Hellweg	Ancistrus	multispinis *	15	5	6980
Jerry Jost	Corydoras	sp. "C090" *	10	5	2732
Pat Tosie	Skiffia	francesae @	20	20	5540

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

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

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

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

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HORTICULTURE AWARD PROGRAM - Mike Hellweg

November/December 2017

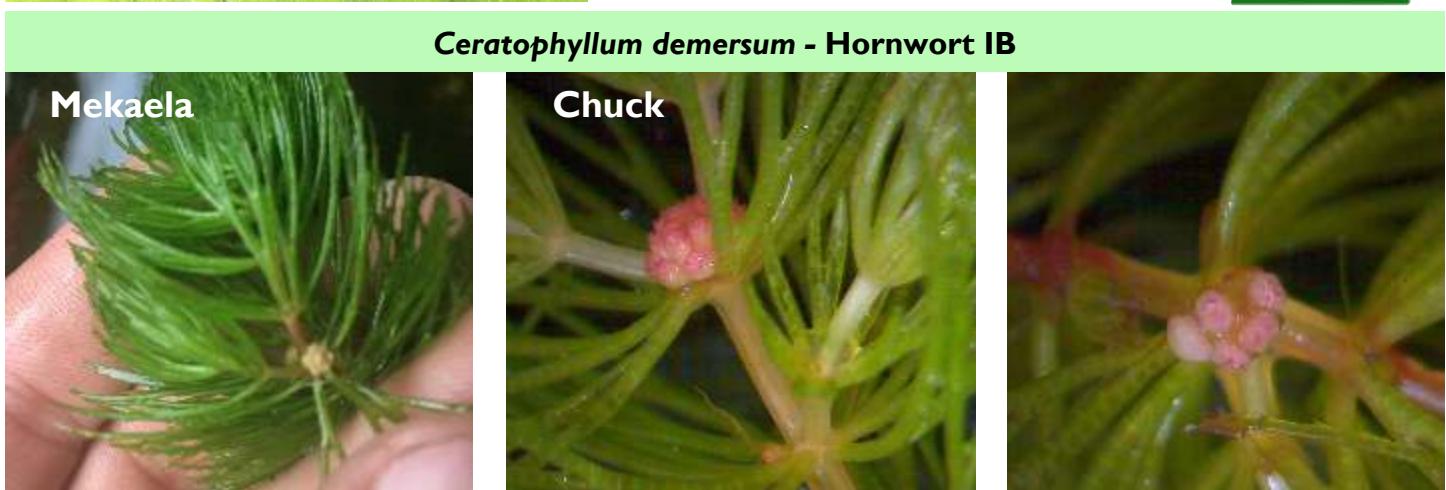
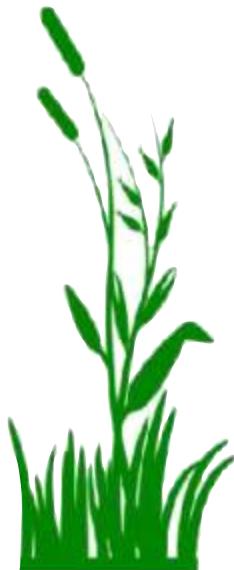


Member	Genus & Species	Common Name	Type	Points
Mekaela Tinker	85 points			
	<i>Ceratophyllum demersum</i>	Hornwort	IB	10
Chuck Bremer	900 points			
	<i>Ceratophyllum demersum</i>	Hornwort	IB	10

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



Folks, we've been a bit low on HAP the past few months. How about going through your tanks to see if you have plants yet to be turned in?



2017 Year End HORTICULTURAL AWARD PROGRAM - Mike Hellweg

50 Submissions from 8 entrants represent 37 different species from 20 different families

15 Outdoor Blooms, 8 Indoor Blooms, 1 Seed Reproduction, 26 Vegetative Reproductions

The most widely propagated species in 2017 was once again *Anubias barteri* - with 4 submissions from 3 different variants.

The most frequently submitted genus in 2017 was a four way tie, each with four submissions: *Anubias*, *Cyperus*, *Nymphaea*, and *Vallisneria*

Participant	2017 Points	Submissions 2017	Total Points	Total Submissions	Indoor Bloom	Outdoor Bloom	Seed
Bruce Mayhew	10	2	265	28	2	2	0
Chris Mohrle	125	8	560	38	5	0	1
Chuck Bremer	265	25	900	90	6	15	
Ed Millinger	20	2	350	44	0	13	
John Van Asch	5	1	790	85	5	24	6
Mekaela Tinker	85	7	85	7	1	4	0
Mike Hellweg	55	4	3700	313	39	16	15
Pat Tosie	15	1	400	45	2	7	0

Participant	Level	Award Status	Notes:
Bruce Mayhew	Senior		
Chris Mohrle	Master	To be presented	
Chuck Bremer	Master		1 seed and 6 articles for Grand Master
Ed Millinger	Senior		1 seed for Master
John Van Asch	Grand Master		
McKaela Tinker	Novice, General	To be presented	
Mike Hellweg	Illustrious Grand Master		
Pat Tosie	Master		



CLUB HOPPING - Steve Edie

2018 - Save the Dates

Jan 20 - Champaign, IL : CAFE - Winter Auction

Jan 21 - Alsip, IL - Greenwater Auction

Jan 28 - Hoffman Estates, IL - GCCA Swap

Feb 11 - St Louis: MASi - Winter Auction

Mar 4 - Rockford, IL - Rockford Fish Swap

Mar 10 - Cedar Rapids, IA - EIAA Auction

Mar 16-18 - Rocky Hill, CT - NEC Convention

Mar 18 - Alsip, IL - Greenwater Swap

Mar 24 - Peoria, IL - TCTFS Auction

Mar 24 - Des Moines, IA - CEACICH Swap/Auction

Mar 25 - Hoffman Estates, IL - GCCA Swap

Apr 15 - Indianapolis, IN - CCAC Auction

Apr 15 - Davenport, IA - Quad City Fish Swap

Apr 21 - St Louis: MASi - Spring SWAP

Apr 22 - St Louis: MASi - Spring Auction

May 4-6 - Grand Rapids, MI - ALA Convention

May 20 - Hoffman Estates, IL - GCCA Swap

May 25-27 - Romulus, MI - AKA Convention

Jul 4-8 - Houston, TX - ACA Annual Convention

Jun 7-10 - Georgia - NANFA Convention

Jun 9 - Indianapolis, IN - CCAC Swap

Jul 11 - Champaign, IL : CAFE - Winter Auction

Aug 12 - St Louis: MASi - Summer Auction

Sep 16 - Indianapolis, IN - CCAC Auction

Sep 30 - St Louis: MASi - SWAP

Oct 4-7 - Herndon, VA - CatCon 2018

Oct 7 - Hoffman Estates, IL - GCCA Swap

Nov 11 - St Louis: MASi - Fall Auction

Nov 16-18 - Strongsville, OH - OCA Convention

Dec 2 - Hoffman Estates, IL - GCCA Swap



Nearby
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to their logo



Other links are on
the MASi

[Linkpage.](#)

Convention
Logos Hotlinked!



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. Makes a nice small fishroom. Extras, contact me if interested.		(314) 846-4648 charliehoppe@me.com
Klaus Bertich	1 - 55 gal with light, filter 1 - 70 gal with light, filter 4 - 20 gal high 2 - 20 gal low 4 - 30 gal high. 1 - 15 gal Air pump other misc fish room items.	Make Offer Make Offer Make Offer Make Offer Make Offer Make Offer Make Offer	(314) 363-3376 after 1:00 PM
Jim Miller's Fishroom	# and Tank Sizes 2 - 5.5 Gallon 13 - 10 Gallon 19 - 20 Gallon Long 1 - 20 Gallon Tall 4 - 29 Gallon 1 - 30 Gallon 2 - 40 Gallon Breeder 5 - 100+ Gallon 30 Gallon wood stand 30 Gallon metal stand 55 Gallon wood stand	Price \$5.00 \$5.00 \$10.00 \$10.00 \$15.00 \$15.00 \$20.00 \$125.00 \$20.00 \$20.00 \$25.00	Pat Tosie Call or Text: 314-616-4316

WANT ADS

Member	Looking For:	Bid/Asked	Contact
Buy Mike Hellweg	Small Styro shipping boxes - 12 x 12 x 12 or a little bit smaller. If your company uses them and throws them away, save them! Bring to the meeting or I'll come pick them up	Free	(636) 240-2443
Want Mike Huber	Alfarocultratus, Xiphophorus mayae, Xiphophorus clemencae, Neotoca bilineata		314-737-6759
Want Jim Wetzel	Neolamprologus brichardi/pulcher, Neolamprologus multifasciatus or other Shell Dwellers, Julidochromis marlieri adult female, Tropheus duboisi male		pirateperch@rockemail.com

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

MASI Members of good standing can place a fish related classified ad in the Darter for free. Free ads may be up to 30 words in length. Send your ads to the editor. The 30 word ad can run each issue unless specified how long to run, in which case it will run as requested. 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 of these meetings.



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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		

January:
Cyprinids:
(Barbs, Danios,
Rasboras,
Minnows,
Goldfish)

February:
Sharks,
Loaches,
Eels, and
Oddballs

