

The  
**DARTER**

V44-N2



**MARCH/APRIL 2018**

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

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## THE DARTER

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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.

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Jost/Lange



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# FROM THE PRESIDENT'S TANK

Pat Tosie

**Don't forget to Renew your MASI Membership**

**We're having 2 Swaps this year. Check out the MASI Spring Weekend for one of them on pages 7, 8 & 9! Sign up for the Awards Banquet with Chris Mohrle.**

*Keep looking below water....*

# FROM THE EDITOR

Chuck Bremer



**You'll see a few changes in this Darter**, including those changes in the MASI Spring Weekend that Pat mentions above. Check out those pages for details and be watching your Inbox over the next two months for more details and announcements.

**We have some special articles in this issue by some of our recent speakers.** Ian Fuller, Phil Nixon as well our internationally known Mike Hellweg.

**It is also VERY NICE to have some new authors.** Tom Keevin adds his first article for the Darter and hopefully we'll see many more. His road trips to Public Aquariums might have you catching the travel bug and it is certainly timely if you're planning a family vacation. *We have had several new authors over the past couple of years and they have gotten a lot of attention in the hobby. Make yourself one of them.*

**We have a couple of MASI Fishy Folk.** Others want to know who's around them and we're all hungry for additional knowledge about you and the fish you keep!

**Judging for the Ralph Wilhelm WOTY** is going on as you read this. Someone will get a BIG check at our Annual Awards Banquet. There were 35 articles submitted and if you contributed the winner could be you. HAP and BAP articles are entered this year so spawning those fish and writing about it could get you BAP points and Dollars.

**We xpanded the Club Hopping** to include additional local activities. Did you know we will have BOTH national Koi and Guppy shows in the St Louis area in 2018? Even though we may not show fish at our MASI Spring Weekend you can still get plenty of local fish observation time.

**Club Activity lined up for 2018 is Great!** We've added some of the event flyers for clubs that would qualify as "Road Trips" around us. It is always nice to see how others do things and maybe bring home ideas for MASI to try.

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

**Thanks to everyone who continues to contribute!!**



**Deadline for the May Darter is May 8th!**

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

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



# March Meeting



## *MA SI General Meeting*

*Thursday, March 15 th!!*

***"Those Interesting  
Tanganyikans!!"***

***John Krepper***

**ACA Member and Photographer**

*John is also bringing young Tangs for the  
night's Mini-Auction!*



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

**I first started keeping fish at age 12** (1968) and was quickly introduced to the Louisville Tropical Fish Fanciers club, participating as a junior member. I moved from High Fin Green Mollies to Rift Lake cichlids in a short time before settling on Lake Tanganyika in the early 1970's and have keep them ever since, except for a break from 1994 to 2005. While in Santa Barbara, CA, in 1979, I founded the Santa Barbara Aquarium Society. In 1985 I returned and rejoined the LTFF club which eventually led to being elected President during the LTFF hosting of the American Cichlid Association Annual Convention in 1992. I have continued as a member of the ACA during my years in the hobby and regularly attend the ACA convention and am currently also a member of the Circle City Aquarium Club in Indianapolis.

**Over the years of keeping Lake Tanganyikan** cichlids I have photographed my fish and my friend's fish and will use these photos to share my experiences keeping Lake Tanganyika cichlids- specifically feather fins and sand dwellers- in the aquarium. Details include feeding, territory requirements, water conditioning, general maintenance and great fish pics! **I look forward to seeing you soon!**



# MA SI Spring Weekend April 21 & 22, 2018

**New Location!**

**Easy Access, Free Parking  
Food Concession**



**SWAP Meet on Saturday,  
April 21, 2018  
10 AM to 1 PM!**

**Annual Awards Banquet  
on Saturday, April 21, 2018  
5 PM Seating**

**Buyer Admission at the door: \$3**

**SWAP Seller Information & Registration:**  
Tom Corradini [tom@farmerenv.com](mailto:tom@farmerenv.com) or  
Guy Tinker [guytinker3@gmail.com](mailto:guytinker3@gmail.com)  
8' Tables \$20 or \$25 with Electricity

**All Day Auction on Sunday,  
April 22, 2018  
View 10 AM, Auction 11 AM**

**Auction Seller Information & Registration:**  
[On the Website &  
Auction@missouriaquariumsociety.com](#)  
Buyers get a number at the door.  
No admission charge.

**Awards to be Presented:**  
**Aquatic Horticultural Awards**  
**Breeder's Award Program**  
**Member of the Year**  
**Hobbyist Society Service Award**  
**Hobbyist Show Champion**  
**Ralph Wilhelm Writer of the Year**

**MASI Members \$30/plate**  
**Pre-Register w Chris Mohrle -**  
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**More Info on our website or [Facebook:](#)**  
[www.missouriaquariumsociety.com](http://www.missouriaquariumsociety.com)





# MA SI 2018 Swap Meets

**Tom Corridini**

**Guy Tinker**



## Missouri Aquarium Society Spring Swap Meet!

**Join Missouri Aquarium Society for the first of two 2018 swap meets on Saturday, April 21.** Do you have extra fish you'd like to re-home with fellow enthusiasts? Do you need to clear out extra tanks, lights, or filters? Do those aquatic plants need thinning? Reserve your table now for a guaranteed sellers spot! If you would like to donate any items, MASI will also have a table set up with all sales going to support the club.

If you are interested in selling your wares an 8-foot table is just \$20. Tables with available electricity are \$25. We have limited spots available for vendors so reserve your space now!

**The swap is Saturday, April 21 from 10 am - 1 pm. Admission is just \$3.** Are you looking for rare fish, plants, quality food, and everything you need to set up the perfect aquarium? Plan on attending!

**Saturday evening MASI will be hosting a full-service banquet and awards ceremony.** Join us for an evening with all of your fishy friends and cheer on those members who have met club milestones throughout the year.

As an added bonus to both vendors and sellers, the Saturday Swap will be **followed on Sunday by one of MASI's huge auctions.** Vendors are welcome to enter unsold items in the Sunday auction where regular rules will.

**Tom Corradini and Guy Tinker, Jr. are this year's Swap Chairmen. Chris Mohrle is spearheading the awards banquet.** Feel free to contact them with any questions you may have



**Come meet your favorite vendors and make your best deals! On Fish, Plants, Equipment, Food and all things needed for your Aquarium!**

**Two Swaps this year: April 21 & September 30th**







# MASI AUCTION MESSAGE

Mike Hellweg

**The annual Winter auction went off pretty well.** Even with the snow and ice that morning, turnout was fantastic! We had a near record turnout, and fewer items for sale than we usually do at the Winter auction, meaning that prices were up quite a bit! There were a lot of fantastic items for sale, and probably the largest group of plants that I've yet to see at one of our auctions.

While it's a bit more cozy than our old location, our new location seems to meet our needs well, and is saving us quite a bit on rental fees, meaning more money to bring in more great speakers and schedule other events for club members.

**There will be a lunch concession available this time as well.** The hotel was happy to cook more food at the last one and will make some tweaks to meet our needs as a result.

**As always, we will need volunteers to help out starting at 9:00 am and running all day.**



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

**The MASI Spring Weekend**

**Auction is April 22, 2018.**

**Please note that it will be held at our new event location:**



**AIRPORT WEST-EARTH CITY  
3400 RIDER TRAIL S.  
ST. LOUIS, MO 63045**

**Tank, filter, and gift certificate to Sailfin Pet Shop**



Mike  
[auction@missouriacquariumsociety.com](mailto:auction@missouriacquariumsociety.com)



**Mike Marsh**  
**Won a 75 gallon Aquarium at the Winter Auction Raffle**



# MASI 2017 Member of the Year

## Nominations



### I nominate Debbie Sultan for Member of the Year.

Although relatively new to the club, and the hobby in general,

she has stepped up to become a valued member of MASI. She is our current Vice-President, and has done an outstanding job of getting interesting speakers to our monthly meetings: Jim Cumming, Mike Drawdy, Ad Konings to name a few, with more yet to come. She supports our auctions and events and volunteers to help when something needs to be done. She and Tom have become regulars at national conventions like the American Cichlid Association and the Ohio Cichlid Extravaganza, and represent MASI well at these events. She has moved up the Breeders Award Program at a scorching pace and to date has 28 first MASI spawns to her credit. These 28

spawns have introduced new species to MASI that have never been spawned before by any of our members. But by far her biggest asset is her enthusiasm; it's not just contagious, it's infectious. For those of us who have been in the hobby for decades and may get jaded at times, it's refreshing to be reminded of how exciting the hobby was in our earlier years. I would be remiss if I didn't note that Tom plays a key role as partner and supporter of her accomplishments.

-Steve Edie



### I nominate Chuck Bremer for Member of the Year.

Since joining the club a few short years ago Chuck has contributed countless hours to making MASI a better club for



all involved. In addition to creating and publishing The Darter, his masterful keeping of lists has gone beyond columns and tables and led to real

improvements, such as convincing the club to go digital for publications, tracking membership trends, and keeping up-to-date information on auction buyers and sellers. One of Chuck's most noticeable contribution in the last year is the introduction of a bar-coding system for both the monthly club mini-auctions and the large quarterly auctions. As if this isn't enough, Chuck creates amazing graphics for members to post on social media promoting club events. Chuck has undoubtedly dedicated more time than anyone to the club of late and thus, I believe he deserves to be awarded Member of the Year.

-Debbie Sultan

## SHOP HOPPING - September, 2017

### Special Events and Deals!

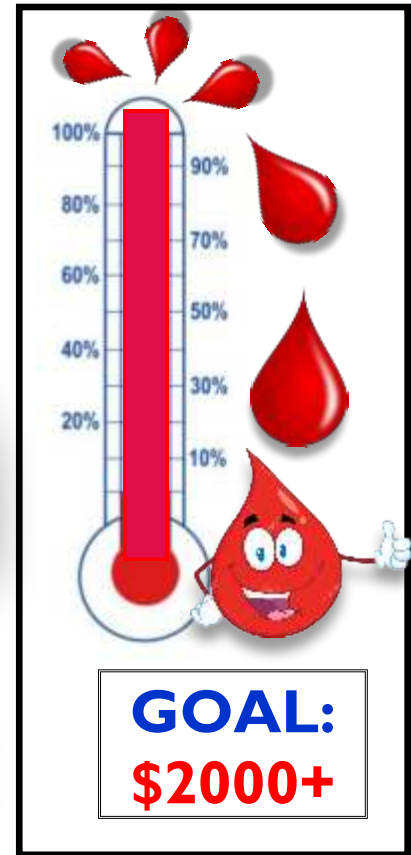
**These Local Fish Shops (LFS) help introduce hundreds of people to the Aquatic Hobby every day.** They also help the Missouri Aquarium Society reach those hobbyists and keep them engaged by promoting our programs. **Support their programs too!**

**Happy Fish Shopping!**  
*The Missouri Aquarium Society*

What	Where
<a href="#">New Facebook Posts</a>	Saltwater Paradise
<a href="#">New Facebook Posts</a>	Aquatic Treasures
<a href="#">Fish in Stock</a>	Midwest Tropical Fish
<a href="#">Current Specials</a>	petco
<a href="#">In Store Specials</a>	PetsWay
<a href="#">Facebook</a>	Pet Connection
<a href="#">Monthly Specials</a>	Sailfin Pet Shop
<a href="#">Facebook/Specials</a>	Aqua World
<a href="#">Monthly Specials</a>	Tropical World Pets
<a href="#">Weekly Specials</a>	Corals & More
<a href="#">Fish List</a>	Malawi Aquatics



# Stuart M. Grant Cichlid Conservation Fund



**Steve Edie, Ad Konings and Pat Tosie in front of Nankoma Island, Lake Malawi**

**Ad Konings, our speaker at the February MASI Meeting, was presented with a BIG check to support the Stuart M Grant - Lakes Malawi and Tanganyika Cichlid Conservation efforts in the amount of \$2682.**

**Thanks to Everyone who contributed in some way and made this Conservation Gift possible!!**

**As Ad says in his books:**

***Enjoy Your Cichlids!!***



# Running River Rainbowfish Recovery Efforts

## MASI Challenge 2018

### The Running River Rainbow Fishes in Australia

-

#### Nominated by Gary Lange

**F**OR THOSE OF you that don't know about this story - there is a really nice river, called the Burdekin River System in Queensland Australia, somewhat near the city of Townsville.

For many years it was known to the fish collectors that a unique unnamed species of rainbowfish resided there, often going in the hobby by the name "Upper Burdekin River Rainbowfish". Just by looking at it you could tell it was very different from the *Melanotaenia splendida splendida* (Eastern Rainbowfish) that were in nearby rivers several miles away in different watersheds and further down river.

**A few years back they started noticing that *Melanotaenia splendida splendida* and crosses** with the "Upper Burdekin River Rainbowfish" were popping up. It looked like someone had put some of the common Eastern rainbowfish into this system and now the common rainbowfish was out-competing these unique rainbowfish.



**Running River Rainbowfish**

**Rainbowfish cross quite easily** which happens in the wild as easily as it does in our aquariums. Having separate water sheds or barriers like waterfalls allows for speciation over several thousands of years. In the past, because of waterfalls in the lower stretches of the river they were able to evolve separately in the upper reaches of this river system, away from the eastern rainbowfish.

**There have always been the common rainbowfish, *Melanotaenia splendida splendida* in the lower stretches of the river.** The theory is that farmers in the upper regions put some common rainbowfish into their runoff dams. When the spring rains came they were washed over the dam and into the Burdekin river system.

In the past few years Dr. Peter Unmack and his team have collected a lot of specimens and had their DNA sequenced to prove that they were indeed pure Burdekin River (Running River Rainbowfish). It's very difficult to tell crosses apart, especially the females, so they were all sequenced.

**With a decent group of pure species fish they then started breeding these in the lab.** Monies raised from various aquarium societies

around the world, including MASI helped to pay for the sequencing and the laboratory production of these fish.

Meanwhile they looked further up in the Burdekin River system, above several waterfalls and found two permanent streams. These would be the places where they would release the



**GOAL:**

**\$2000+**



lab bred fish. Because there was a waterfall this would keep the *splendida* in the lower section from invading their portions of the stream.

**Before this there were no other rainbowfish in these streams** so this would ensure that the population would remain pure and not encroaching on yet another population of rainbowfish.

In November and January of 2017 2,500 fish were released into Puzzle creek and another 2,500 fish released into Deception Creek. Don't you just love the names of Aussie Creeks! At this time it appears that the fish have adapted well in Deception Creek and are multiplying.

**The fish in Puzzle Creek need some more field work** although they did find quite a few young fish meaning that they were breeding successfully. Heavy rains kept the researchers from checking the stream more thoroughly. More money is needed to continue this project and monitor the fish that have been released into the wild.

## Part II - Malanda rainbowfish

**In a river system slightly north of the Running River** (Burdekin River system) and slightly west of the city of Cairns is another group of critically endangered rainbowfish. It is also a new and yet unnamed species of rainbowfish. This really beautiful rainbowfish rarely gets bigger than 2 inches so a true dwarf.

**Again it's because of the invasion of their habitat by the Eastern rainbowfish.** It has been speculated because of deforestation and climate change this has caused these upper streams to become warmer. It is believed that this has helped the Eastern Rainbowfish to move into these upper stretches of the



Malanda Rainbowfish

river and displace the smaller Malanda rainbowfish in these areas.

Work is being done on sequencing some of these fish to ensure that pure populations are being used for breeders. Wild populations that haven't been contaminated are also being translocated higher up above waterfalls to ensure that they won't be overrun by the eastern rainbowfish. Our money will be used to help with sequencing, breeding and translocating these populations to areas where they will hopefully thrive.

**I now have breeding groups of both the Running River Rainbowfish and the Malanda River Rainbowfish** (Wallace Road form). I will be breeding these and sending out eggs and juveniles to MASI and other US clubs that have donated in the past to this effort and hopefully that continue support.

**I hope that I can convince you to bring** a bag or two of fish or plants or whatever other fishy items that you have every month to the auctions and mark them for "MASI challenge". At the end of the year we will write a

check to this group to help save these critically endangered rainbowfish. Hopefully I'll be showing a few short videos of some of these efforts at our meetings also.

### Further Information:

<http://www.lateralmag.com/articles/issue-16/watered-down>

<https://www.facebook.com/notes/australian-society-for-fish-biology/extinction-looms-for-four-australian-freshwater-fish/945120975596675/>

<http://www.canberra.edu.au/about-uc/uc-foundation/what-can-i-support/tabs/research/running-river-rainbow-fish-fund>

### Related Articles

- ANGFA Fishes of Sahul (FOS) Vol29(4) 933-937 2015
- ANGFA FOS Vol30(1) 962-972
- ANGFA FOS Vol30(3) 1024-1031 (Malanda rainbowfish)
- ANGFA FOS Vol30(4) 1038-1053

Malanda Rainbowfish photo by Greg Martin

Running River Rainbowfish photo by Michael Jones



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





Guy Tinker

Winner of a pair of *Pelvicachromis roloffi* in the February meeting Raffle. They came with their own food!

Meeting Bowl Shows - Chris Mohrle

**January**

Place	Tetras, Danios & Barbs.	Keeper
1	LF White Cloud	Chris Mohrle
2	Rosy Barb	Pat Tosie
3	Tear Drop Barb	Pat Tosie

Place	Open Class	Keeper
1	Corydoras anaeus	Daniell Kinder
2	Male Guppy	Pat Tosie

**February**

Place	Loaches, Sharks, etc..	Keeper
1	Red Tailed Shark	Pat Tosie

Place	Open Class	Keeper
1	<i>Apistogramma caucatoides</i>	Ed Millinger



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# MA SI 2018 Activities

## MA SI 2018 Calendar



Mar 15		<b>General Meeting</b>	<b>7:30 PM</b>
Mar 17		Council Meeting @ Millinger's	7:30 PM
Apr 19		<b>General Meeting</b>	<b>7:30 PM</b>
Apr 21		<b>SWAP</b>	<b>9:00 AM</b>
Apr 21		<b>Awards Banquet</b>	<b>PM TBD</b>
Apr 22		<b>Auction</b>	<b>9:00 AM</b>
Apr 28		Council Meeting @ Lange's	7:30 PM
May 17		<b>General Meeting</b>	<b>7:30 PM</b>
May 19		Council Meeting @ TBD	7:30 PM
Jun 21		<b>General Meeting/ Elections</b>	<b>7:30 PM</b>
Jun 30		Council Meeting @ Tinker's	7:30 PM
Jul 19		<b>General Meeting</b>	<b>7:30 PM</b>
Aug 12		<b>Auction</b>	<b>9:00 AM</b>
Aug 16		<b>General Meeting</b>	<b>7:30 PM</b>
Sep 20		<b>General Meeting</b>	<b>7:30 PM</b>
Sep 30		<b>SWAP</b>	<b>10:00 AM</b>
Oct 18		<b>General Meeting/ SuperBowl</b>	<b>7:30 PM</b>
Nov 11		<b>Auction</b>	<b>9:00 AM</b>
Nov 15		<b>General Meeting</b>	<b>7:30 PM</b>
Dec 20		<b>Christmas Party</b>	<b>7:30 PM</b>



Mark Your  
Calendar



**All Auctions and Swaps  
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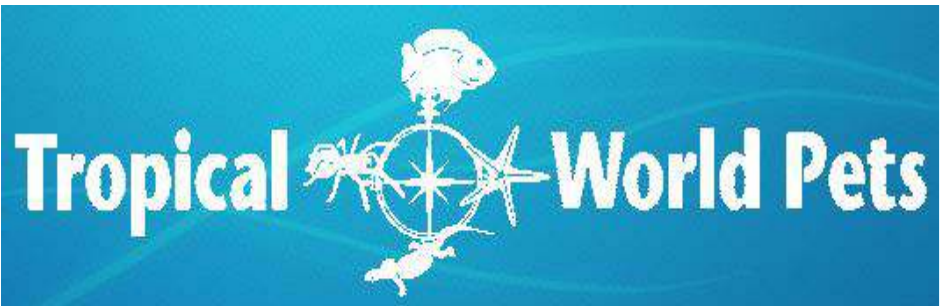
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## Meet MASI Fishy Folk: Rick Renfro

- **Family members?** My wife. My son and daughter each have 3 children giving a total of six grandchildren.
- **Years keeping fish?** I started when I was a boy, but did not have multiple tanks until I got mixed up with MASI!
- **What was in your first tank?** Community tank, Thick Lipped Gourami, Red Tail Shark, Corydoras, Neons and Bleeding Heart Tetras and a Kuhli Loach.
- **How many tankes do you have set up right now and what is in them?** Nine tanks, guppies, *Ancistrus*, *Corydoras*, snails.
- **Favorite fish as a pet?** So far, it was a regular Comet Goldfish I had that grew to 10". It was interactive and knew me.
- **Your dream fish?** Flowerhorn Cichlid



- **Your dream tank?** 500 gallon Ozark stream tank
- **Your realistic dream tank?** Probably my current tanks, I am happy with them and don't think I can care for any more
- **Your latest fish related accomplishment?** Added a central air system
- **Your latest goal?** Compete in the next IFGA event in St. Louis
- **Other pets?** American Bulldog

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# Meet MASI Fishy Folk: Jerry Jost

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# Breeding success for the Green Oto: *Hisonotus aky*

By Ian Fuller\*

**I**N DECEMBER 2013 I purchased a group of ten *Hisonotus aky* (*Azpellicueta, Casciotta, Almiron, & S. Korber, 2004*), from Pier aquatics in Wigan. These fish are commonly known as the 'Green Oto', these little *Lodicariidae* fishes are one of the most striking of fish, although just single colored they are comparable to any marine or Killi fish. Their bright metallic green body is a sight to behold.

These little fish originate from Rio Uruguay basin, Misiones Province, eastern Argentina and therefore should be kept in water that is a little cooler than the normal

*Hisonotus aky*. Image courtesy Richard Smith



tropical range we keep most of our 'Tropical' fish. The ideal temperature range is between 22°C and 23.5°C (72°F - 74°F).

My new group were introduced into their new tank, which had the water parameters set at pretty much neutral, pH7.0 and TDS 350 ppm. Basically this is the average of my mains water; there is very little if any measurable KH in it, so the pH very quickly drops to as low as pH4. I kept a close watch to see if this would cause any problems to the fish, but they seemed very happy with their new surroundings and were grazing on the leaves of the two potted Java ferns put into the tank to give them cover and places to hide.

Knowing that these fish were pretty much vegetarian I added a couple of JBL Pleco tabs, which were very quickly found and in a very short

space of time were being consumed by all eight fish. Over the next few days I tried several of the commercial Algae and Spirulina based tablet and granular foods, all were readily accepted.

It was early in March 2014, while sitting relaxing watching the fish going about their business, after doing some routine water changes and giving them all their evening feed, that I noticed what I thought was an abundance of small snails on the front glass of the *Hisonotus aky* tank. This tank is on the lowest rack in the fish house where the tank temperatures are coolest, at around 22°C. and normally not the easiest to view, but in my position sitting on the customary upturned bucket I could observe all the lower tanks and after a closer inspection I found that the little white blobs were in fact infertile eggs- *Hisonotus aky* eggs.

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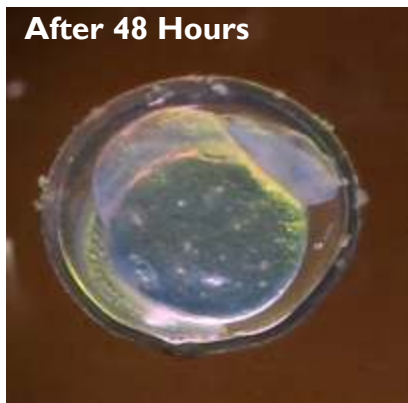


**On close examination I could see quite a few almost clear eggs,** some were on the tanks front and side glass, and many more on the Java fern leaves. There were several adults sitting amongst the leaves and totally ignoring the eggs.

**Having these little gems spawning was a real exciting event for me,** as these were to me something a bit special. I sat watching the adults



**H. aky egg after 24 hours**



**After 48 Hours**



**H. aky at 12 hours, 4.0 mm SL.**

moving around apparently just grazing on the leaves and the food tables they had been given a few minutes before, when, out of the corner of my eye I spotted something flitting about on the sand in the corner of the tank.

Now I had to get off the bucket and sit on the floor to get a better look and there it was, a tiny fry, all of four millimetres long (~1/8"), busily grazing on the glass. Then I saw another one, and another, looking around the tank I could actually see twenty or so tiny fry, even amongst the leaves where most of the adults were, some even appeared to be grazing over the bodies of the adults.

**This activity intrigued me** and I started to wonder if the breeding adults were actually producing body mucus similar to discus, providing their fry with their first meal. This is something I will be investigating in the future. I also noticed a few larger fry at a little over five millimetres in SL (Standard length) and already showing the green colour displayed by their parents.

Over the following days I watched the tank with interest, taking many photographs of the growing fry, and about a week or so after the first sighting of the eggs and newly hatched fry, I was sitting on my upturned bucket watching proceedings, when a



large fat female came along and sat right in the middle of the lower half of the front glass.

**She just appeared to be grazing on the bio film and algae** that had formed, when a single male came along and joined her, working the glass and getting ever closer, then he started to agitate her, working his mouth over her body and head. Quite suddenly he moved up and wrapped himself round her head, at which point she appeared to push into him and then he was off-only to repeat the action several more times over the following few minutes.

After watching the action for a few minutes, and rather than going to fetch my camera and risk missing any of the action, out came my camera phone, I managed to get a few, not particularly



**Dorsal and ventral views- H. aky at 3 days, 7.0 mm SL.**



good pictures, but they do show the mating action. The next day things were just the same with eggs being produced and fry hatching out all over the place.

**One of the biggest problems I have found with many Loricariidae fry** is giving them enough of the right kind of food, the JBL tablets seemed to be doing the trick, but at the recent Catfish Study Group convention, delegates were given sample packs of Repashy Gel foods. I managed to get samples of 'Super Green' a Vegan algae based food, and 'Soilent Green' which is an algae and bio film (Aufwuchs) food. Not having used this type of food before I mixed small trial amounts of each and offered these to the *Hisonotus aky* to see which, if any, they preferred.

**It only took a few seconds and the 'Super Green' sample was covered in fry of varying sizes,** all seemed to be eagerly munching away. There were several, but by no means as many fry, doing exactly the same on the sample of 'Soilent green'. There were a few that were constantly going from one sample to the other, eagerly grazing. So from my initial brief observations I concluded that they 'Liked it'. The adults did not seem that interested, but after leaving the fish house and returning an hour or so later there were no traces of the sample foods, so I decided it would be a good idea to add more. Time and growth rate will tell just how good this food is.

**At the time of writing, the group have now been constantly spawning at a steady rate,** with the females producing between 8 and 15 eggs each day, only one egg being laid at a time. The eggs are 2.0 - 2.5 mm diameter and almost clear. There are three females in the group and it is



*Hisonotus aky* courtship and mating activity.

difficult to determine whether one or all are involved in the breeding activity. They adults do not seem bother the eggs or emerging fry, which means that the eggs and fry can be left alone until they are larger and less delicate, when

they can then be moved to a larger growing on tank.

Photographs provided by the Author, Video from YouTube



*Hisonotus aky* Fry of varying ages feeding on Repashy 'Super Green'



## Public/Private Aquaria:

# Making my "Best" or "Worst" List

By Thomas Keevin

**L**AST YEAR (2017) I visited five public aquaria: the Steinhart Aquarium (San Francisco, CA), Tennessee Aquarium (Nashville, TN), National Mississippi River Museum (Dubuque, IA), Aquarium of Wildlife National Museum and Aquarium (Springfield, MO), and Georgia Aquarium (Atlanta, GA). Two of the aquaria are on the USA Today Readers' Choice 2017 List of 10 Best Aquariums - Georgia (#2) and Tennessee (#5).

Over the years I have visited a number of other aquaria that were on somebody's "best" list (e.g., Shedd Aquarium (Chicago, IL), Aquarium of the Americas (New Orleans, LA), Florida Aquarium (Tampa, FL), Mote Aquarium (Sarasota, FL), and others). All of these visits were made as side trips during business trips or on family vacations. To my wife's chagrin, I always sneak in an aquarium if there is one in the area we are visiting. As an example in 2016 my wife and I spent a



## My Checklist:

- **Primarily Aquatic**
- **Modern and not highly commercial**
- **Reasonable costs per view**
- **Aquatic biodiversity**
- **Local Conservation efforts**

week on the beach in Florida and I was able to catch the Mote Aquarium and the Florida Aquarium during day trips.

Luckily my wife is a country music fan, loves Nashville and my favorite aquarium, the Tennessee Aquarium, is a short drive away in Chattanooga. So, I exchange the country music for a visit to the aquarium.

**If you get a change to make it to the Tennessee Aquarium, it is well worth the extra time/money.** They

actually have two buildings next to each other (all for the price of one ticket). One is marine species and the other building contains freshwater tanks. The Tennessee Aquarium has a full room of seahorses

and pipefish with a detailed description of life-history and world-wide status. The Tennessee Aquarium is housed in a new building with a large staff of fish conservation biologists and a really nice, new third building, off-site - not open to the public, where they do their own fish conservation research.

**Of course when I visit a new aquarium, I love to check out the fish** and learning something new is always important to me. I have taken my visits one step further and take a hard look at the exhibits to see how they were designed, with education being a key component of a good design. Do they have information concerning the fish in the tank? Is there an educational function associated with the display?

For example, if a tank contains Red Lionfish do they provide life history information for the species, do they discuss what the exotic species is doing to reef fish populations, and do they discuss eradication efforts (Hey they are great to eat!). In my mind a good public/private aquarium entertains the public, educates the

Tennessee Aquarium



public, and makes an effort to conserve fish resources worldwide. These are all things my favorite aquarium does!

So, over the years I have seen the best of the public/private aquaria and I have seen the worst. I have described my expectations for the best, now I'm going to describe what it takes to make my worst list.



I recently made a month-long work-related trip to Austin and then Beaumont, TX. I was off on Sundays and thought I would check out the Austin Aquarium and then make the 1½ hour drive to nearby San Antonio to visit their aquarium. As I walked through the San Antonio Aquarium it quickly became apparent that I had seen this aquarium before as it was pretty much the same as the Austin Aquarium. A quick Google search confirmed my suspicion that both

these aquariums and the Portland Aquarium were owned by the same people.

On the plus side for both San Antonio and Austin Aquariums, the little kids seemed to be having a good time playing in the sand box, bouncing on the inflatable bouncy-tots, and feeding the fish. The feeding tanks were at their eye-level, not mine. The tanks were all clean and the fish appeared to be in good health, which were both positive notes.

Since the aquaria are basically "fraternal twins", I will describe why neither made my personal "best" list criteria. First, there was the cost per display. Both cost roughly \$15.00; hey that is really cheap! However, the San Antonio Aquarium had only 26 tanks



Dinosaurs in the San Antonio Aquarium Lobby

(28 if you consider a multi-level tank as three tanks) that contained marine invertebrates and/or fish and the Austin Aquarium had 36 tanks. That is an average of about 50 cents to look at each fish/invertebrate tank. Many of the tanks were knee or waist-high tanks designed for feeding fish and making money but not great for viewing fish.

Fish biodiversity was low. There really weren't that many different fish species. The San Antonio Aquarium had only two species of freshwater fish, Koi in a pay-for-feeding tank and a few Pacu. The Austin Aquarium had Koi in a feeding tank, a few assorted large South American fish with no species identification, and a tall circular tank on a stand with African Cichlids.

I'm a purist. I feel if something is called an aquarium it should not be a



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wanna-be zoo/amusement park. Each had almost as many aquaria with amphibians or reptiles as fish tanks and large cages of parakeets that visitors could enter to handle the birds. The entrance lobby of the San Antonio Aquarium was lined with large dinosaur displays and also had a room with a large sand box and a large room filled with large bouncy-toys like are used for kid's parties or at carnivals. The rooms could have been filled with aquariums to good advantage.



**Nice Engineer Goby (Gobby sp!?) display and life history in Austin**

Engineer Goby's  
(Pholidichthys Leucotaenia)

Size: Up to 24"  
Habitat: lagoons and on coastal reefs  
Origin: Philippines to the Solomon Islands  
Diet: Plankton

Researchers found juveniles emerging from holes in the seafloor and adjoining coral reefs. By day, these juveniles were up to 55 yd from their home burrows to feed.

Adults never leave the tunnels to feed. They frequently take in mouthfuls of juveniles and spit them out again. The presence of adult stomachs showed only engineer goby.



**I expect an aquarium to be modern and not highly commercial.** The San Antonio Aquarium was in a renovated Dodge dealership and the Austin Aquarium a former Salvation Army Furniture Store. Both aquaria had mermaids with tip jars for photos and the gift shops had a large selection of mermaid dolls for sale.

**Lastly, there is the education and conservation potential.** There were very few signs of any educational value. For example, there was a tank of Red Lionfish with no discussion of their exotic species status and the problems they have created and there was a tank of seahorses with no discussion of the group's world-wide decline and possible current conservation status. Based on my visits and an internet search, I could find no evidence that the San Antonio or Austin facilities had conservation programs of any sort.

**From my observations there was no indication that Texas has any threatened or endangered fish species.** Both locations could easily have emphasized the fact that Texas has some pretty neat darters, minnows, killifish, and sunfish as they passed up an educational opportunity. After my visit to the Austin Aquarium, I stopped by the two top-rated fish stores in Austin, Austin Aqua-Dome and Aquatek Tropical Fish. My favorite, Aquatek, certainly had more tanks and more fish phylogenetic biodiversity in them than the Austin Aquarium.

**As the new aquarium is being completed in St. Louis, it is my hope that it fits criteria for the "best" rather than the "worst" list.**

Although, it isn't going to be the size of other major public institutions, it can still function to entertain, educate, and conserve. Possibly the Missouri Aquarium Society could become involved with the new facility by making it part of the MASI Challenge. **It is important that we educate our community about the plight of fish world-wide and become involved in their conservation.**



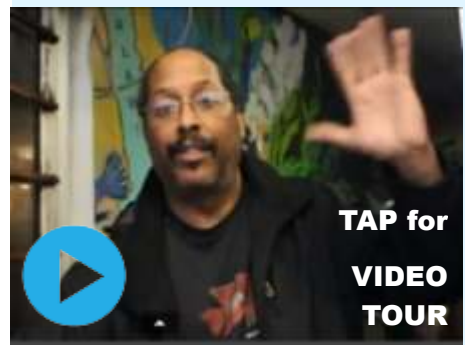
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## Minifins

-

## *Oryzias* species - The Ricefish

### Odd and Interesting Little Family of Fish

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

**T**HE RICEFISHES OF the genus *Oryzias* are a small group of close to forty species found in eastern and Southeast Asia from Korea and Japan through the Western Pacific Islands in the Philippines, Malaysia, and Indonesia and are even found up into India. They are primarily fresh water fishes, though many



Ricefish in rice paddy

*Oryzias latipes* Medaka



species are found moving freely between fresh, brackish, and even marine waters.

For a long time folks considered them to be closely related to the killifish or even the rainbowfish, but now they are in their own family, the Adrianichthyidae, which is located in the Beloniformes. That means they are most closely related to the halfbeaks! They are known as ricefish because they are often found in the shallow flooded rice paddies throughout their range.

**Without a doubt the best known rice fish is the Medaka, *Oryzias latipes*.** Medakas are found in Japan, China, and Korea where they have been popular pets for centuries. Wild Medakas are creamy white with bright blue eyes. In the hobby the golden morph is the most widely available, though my favorite is a newer variant that is deep red. An albino and a piebald variant with red/orange and white are also sometimes found in the trade.

**Medakas are frequent subjects of scientific research** and have even gone into space. They are the first vertebrate to mate and produce healthy young in space. A group of them resided in a specially made aquarium on the International Space Station for about 5 years, where scientists could study the effects of weightlessness on bones, among other things. Medakas are also popular

subjects of genetic research. Like the zebra Danio, black skirt tetra, tiger barb, rainbow shark and angelfish, there are transgenic glowing variants that can be found in some countries.



Ricefish in space

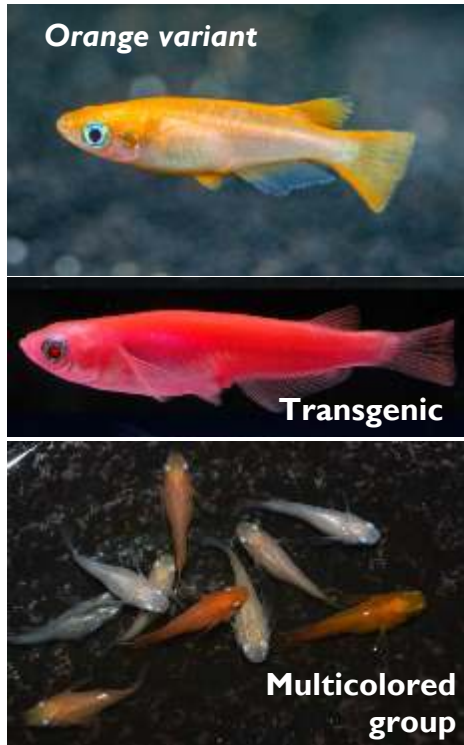
**Most hobbyists seeing ricefish in a shop would probably overlook them** or dismiss them as plain and uninteresting little fish. But if you take them home and put them in a planted tank, they will quickly settle in and begin to glow! Many ricefish species are very attractively patterned, and a few, such as the Daisy's or neon ricefish *Oryzias woworae*, are stunning. All are small with most topping out at less than two inches. They range from the truly diminutive Mekong ricefish, *Oryzias mekongensis*, to the "giant" yellow fin ricefish, *O. profundicola*, which reaches nearly two and a half inches.

**They are hardy little beasts that do very well in our St. Louis**



**local tap water** with little more being done than removing the chlorine and chloramines. It is a good idea to perform large, regular water changes to keep dissolved organics to a minimum.

Many hobbyists keep them in two to five gallon tanks with clumps of



hardy plants like Java moss or Java fern, often without even a filter in the tank! As long as they are fed live foods and given regular water changes this isn't a problem. Pairs will thrive and even breed in tanks as small as one gallon.

**Just remember to keep up on the water changes!** They are not demanding about temperature. As long as you are comfortable in the room, it is likely they will be too.

They are accomplished jumpers so keep their tank tightly covered. Plastic critter tanks with snap on lids are perfect for a pair or two. In a larger tank, a glass top can be notched at one corner for the airline and then any excess open space can be covered with packing tape.

**Ricefish are perfect for nano tanks** and small fish community tanks, though they shouldn't be expected to reproduce successfully as their tankmates will likely eat their eggs. They do like to have plants around the perimeter and a large open swimming area in the front. I've also found they seem to prefer having floating plants as cover over their heads. They seem to like quiet areas in the tank, so they should be kept in tanks with gentle filtration. A sponge filter is probably the best choice.

They are omnivores and will eat everything from high quality flake and pellet foods to live foods such as daphnia, newly hatched brine shrimp, fruit flies and/or Grindal worms. Other tiny live foods, if available, are greedily taken as well. Between meals they can be seen grazing on the biofilm that covers everything in the tank.

**It is easy to tell the boys from the girls.** Females are a bit larger while males are more colorful. Males often have extensions on their anal fins and sometimes their dorsal fin as well, which can become spectacular in some species like *O. javanicus* and *O. dancena*. Females generally have a much more full body, while that of the males is usually much more slender. If you have good eyes (remember, we're talking about tiny fish!), a close look at the area right in front of the anal fin will reveal the male's genital papilla as a small pointed protrusion. The

female's genital papilla is usually just a small rounded bump. Of course, it's really easy to tell the females in the mornings when they can be seen swimming around with clusters of eggs right in front of their anal fins.

Like livebearers, males fertilize the female's eggs internally. Mating



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*O. celebensis*



*O. mekongensis*



*O. dancena*



*O. profundicola*



*O. eversi* male



*O. sarasinorum*



*O. javanicus*



*O. woworae*

**Oryzais** genus currently has about **33 species.** Including:  
**celebensis**  
**dancena**  
**eversi**  
**javanicus**  
**latipes**  
**mekongensis**  
**profundicola**  
**sarasinorum**  
**woworae**

occurs almost daily. This can continue for several months. The fish will then stop spawning for a few months before beginning again. The eggs develop inside the female for up to several days. Each day she lays up to 20 eggs early in the morning.

**The eggs have thin filaments** that keep them clustered near the female's vent. They look like she is swimming with a cluster of grapes attached. She swims like this for up to a few hours, and then she deposits them in fine leaved plants like hornwort. From then on, she provides no care to the developing young.

Depending on the species, the eggs hatch in a few days to as much as

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far will also take fine powdered prepared fry diets. I've used Sera Micron and Golden Pearls and both work very well.

**They grow quickly** and are able to take newly hatched brine shrimp by the end of their first week. The smaller species reach sexual

two weeks after being laid. In a few open water species such as the Sulawesi species *O. sarasinorum* and *O. eversi*, the female has extended pelvic fins that form a protective "pouch" around a notch near her vent. The fins wrap around the developing eggs. She carries the eggs until they hatch, almost like a pseudo-livebearer! One thing I've noticed is that the eggs of the diminutive *O. mekongensis* and the relatively gigantic *O. celebensis* are just about the same size! As more species are studied, it wouldn't be surprising to see more interesting reproductive habits appear in this group.

**Well fed adults rarely eat their fry**, but as with many other fish, larger siblings aren't above eating their younger siblings. It's a good idea to separate fry with more than a week's difference in age.

Even if the older fry don't eat their younger siblings, they will out-compete them for food. When they hatch, fry are ready to eat and can be fed tiny foods like infusoria, vinegar eels and microworms from the start. The fry of all of the species I've kept so

maturity in just a couple months, while large species may take six months or so before they spawn for the first time.

Since they only live for a year or so in the wild, this is likely an adaptation to both a short lifespan and being near the bottom of the food chain. Many species start to decline after their first year, but they can often live for two or three years, and some like *O. eversi* and *O. celebensis* can live as long as five years when we take good care of them.

**If you're looking for something a bit different, take a closer look at those "drab" fish in your dealer's tanks. With their interesting spawning behavior, ease of care and often of breeding, they might be just the ticket for your next breeding project.**

Photos from NASA, Seriously Fish, Pinterest, Aquatic Arts and metop Aquarium CZ. © as noted there and on the photos.

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# Achieving INDOOR Blooms on Water Lettuce *Pistia stratoites*

By Chuck Bremer

**HAVE A 125** gallon tank that had multiple T8's to light it that had gotten dimmer over time and most plants were struggling in the two foot depth.

**Day length had been increased to about 14 hours** to further expand the amount of light. On the surface all the water lettuce had degenerated to the "Dwarf" type with leaves about the size of a penny or smaller and plants about 1 to 1-1/2 inches in diameter and it was barely hanging on.

Outside in the summer of 2017 the water lettuce had rejuvenated to full size in the sunny tubs and began to bloom just after the first of August. Many of the plants from the Sub-Tropics or Temperate zones are



triggered to bloom by change in day length. Water Lettuce outside will bloom after the 1st of August but not bloom before July 15th, even though it has attained adequate size to do so. At our latitude day length is about 14 hours in August but begins to rapidly decrease.

**When plants bloom at a particular time of year** there are usually three factors that trigger them to bloom. They must attain sufficient size to support a bloom, the day length must be within a given range and finally the day length may need to shorten to actually trigger flowering.

**After I swapped out my T8 lighting** over the tank the increased amount of light from the LEDs grew leaves that were silver dollar sized and the total width of the plant is now

about 4 inches. My LEDs were intense enough that I was beginning to have algae problems in other tanks on the same circuit so I reduced the day length from nearly 14 hours to about 11 hours.

Much to my surprise, within a few days after the timer change I began to notice flowers on the Water Lettuce. Evidently all three requirements had been achieved to trigger bloom:

1. **The plants now had sufficient size**
2. **The day length was in the range of bloom**
3. **and the day length was decreasing, as if fall was approaching!**

I have now further reduced the day length to see if I can trigger even more of the water lettuce to bloom.



## Death Valley Pupfish

By Phil Nixon

Reprinted from "CAFE In Seine MENU", March 2018

A publication of the Champaign Area Fish Exchange; Champaign, IL



**K**ILLIFISH ARE KNOWN for having unusual life cycles and living in unusual situations. Some of the most unusual of these are the pupfish species in the Mojave Desert. Many of the pupfish in the genus *Cyprinodon* live in southwestern North America, primarily in the deserts of Mexico and the southwestern U.S.

**Pupfish species in the Death Valley area** of southern California and western Nevada are thought to have derived from a single species in prehistoric Lake Manly. This was a large, glacial lake that existed 185 to 125 thousand years ago. It covered 620 square miles, being slightly smaller than Florida's Lake Okeechobee.

Climate change caused Lake Manly to evaporate away into several smaller, separate lakes. This also gradually increased the salinity. Eventually, these lakes disappeared

Devil's Hole Pupfish. National Park Service photo.



into the scattered springs, seeps, and creeks where pupfish exist today.

Numerous pupfish species and subspecies developed from the original species as the water bodies became distinct from each other. Interest in farming the desert in the first half of the 20th century further impacted the Death Valley pupfish species. Artesian springs containing pupfish were completely capped off with irrigation piping to provide water for farmland.

**One Ash Meadows pupfish, the Devil's Hole pupfish, *Cyprinodon diabolis*, lives in 93 degrees F** water in the upper 80 feet of a 400-foot-deep aquifer. The opening to the surface is about 6 by 18 feet. It is considered to be the smallest range in area of any vertebrate. It is also considered to be the world's rarest fish with recent numbers ranging from 35 to 200 individuals.

Instruments are located at the opening to monitor the water level and other conditions. Small platforms have also been installed for workers to stand on while taking scientific data without disturbing the surrounding hillside. The area is fenced in, but allows visitors to see the opening from a distance.

**The pupfish apparently rely on a limestone shelf about 6.5 by 13 feet** that receives enough light for diatoms, a type of algae, to grow as their food source. This shelf also appears to be their only spawning location. Too much of a drop in the aquifer will cause this shelf to be above the water, likely eliminating the pupfish's only food source and spawning location.

Debris from the surrounding hillsides wash and blow into Devil's Hole with much of it accumulating on this shelf. There has been concern that the debris might cover and kill the



Devil's Hole. Phil Nixon photo.



pupfish's algae food source, but it also provides nutrients for the algae.

Scientists have wondered whether it would help the pupfish if they periodically cleaned the shelf, but that could reduce the algae too much for the pupfish to survive.

The shelf is now known to be periodically cleaned by earthquakes as far away as Japan, Indonesia, and Chile. These earth movements cause the water in Devil's Hole to slosh, creating waves that clean the shelf. A recent earthquake in Alaska caused sloshing in Devil's Hole recorded on video by scientists there at the time.

An article and video of the earthquake induced "sloshing" are located at <https://www.smithsonianmag.com/smart-news/endangerreddesert-pupfish-spawn-wake-alaskan-earthquake-180967961/>



Devil's Hole location. Phil Nixon photo.

## Ash Meadows Armagosa Pupfish.



Photo by Phil Nixon.

**A**SSOCIATED PUPFISH SPECIES in these springs went extinct. Use of groundwater for Las Vegas and other cities continues to threaten these fish. There is also a renewed interest in irrigated farming in this area.

In Ash Meadows, several of these artesian springs were restored by removing the irrigation piping and recreating the original spring basins. Pupfish survived in and near some of these springs and in others, appropriate pupfish species were reintroduced. Ash Meadows is a disjunct portion of Death Valley National Park in Nevada about 120 miles northwest of Las Vegas.

Other species of pupfish occur in the main portion of the national park in nearby California.



# My Green Wet Thumb

## Summer Flowers

By Derek P.S. Tustin

Reprinted from "Semper Pisces", 2018  
January/February

The publication of the  
Chatham-Kent Aquarium  
Society; Chatham, ON

**Semper Pisces**

HAD A GREAT summer, but I'm thinking that our club's Aquatic Horticulturist Awards program



*Echinodorus rubin*

chairperson is going to wish that I hadn't!

I started out with a 30-gallon Rubbermaid pond, got an in-ground pond after that, and then tried growing some plants emersed indoors. All told, I have 41 (yup, that's forty-one) new submissions for my AHAP points, 14 of which are flowers.

I've been plugging along with my AHAP program, gathering points mostly from doubling in volume, when all I had to do to pull in the points was start a pond! (And as an added bonus, I actually got a spawning of rainbows. But that's another article for another day.) Of course, prior to this year I had lived the last ten years in an apartment without a deck or balcony, so this year was the first time I've actually been able to have a pond.

My approach was actually pretty simple. Buy one or two pots of a variety of different plants (scatter-gun approach rather than designing it for aesthetic appeal), check to see if any others from that same batch are flowering and buy other ones likely to flower, place them in the appropriate depth in one of the two ponds, and see what happens.

Along the way I had several failures, but more success than I could have hoped for. I'm not usually a picture person, but I spent some time trying to get pictures of the various flowers. Not all of them turned out (in fact, the majority



*Mimulus luteus*

didn't), but I thought I would share some of the images I captured and a bit of the stories behind them.

**Echinodorus rubin**  
I purchased two *Echinodorus rubin* and two *Echinodorus cordifolius* at Vandemeer Nursery\*. At the time I bought them neither were flowering, but all four flowered while in my ponds. I moved one of the *E. cordifolius* to my 75-gallon tank (and actually got three different plants from one pot) and it is now in the process of flowering submersed. I tried pollinating each species, one plant to the other, but wasn't able to get any seeds.

**Mimulus luteus**  
This is actually the first plant I bought with the intention of seeing if it would flower. The aquatic plants I had previously had flower were very plain, small, white flowers. The pictures I saw of this plant before I bought it showed a vibrant yellow flower with purple splotches. I bought one, and planted it in my "Cryptic Emersion" set-up. It actually flowered within a week, but then the stem rotted off. I purchased two more and placed them in my ponds outside, where they bloomed throughout the summer.

The first *Mimulus luteus* was purchased at the Pine Ridge Garden Gallery in Pickering, and the later two were purchased at Vandemeer Nursery.







*Mimulus cardinalis*



*Sagittaria sagittifolia* 'flore peno'

***Mimulus cardinalis***  
**Once I saw the *Mimulus luteus* in all its glory,** I thought I would see what the other *Mimulus* species would look like. I was surprised, but pleasantly so, when I saw the radically different flower of the *M. cardinalis*. I had two different plants flower at different times. These plants were also purchased at Vandemeer Nursery.

***Sagittaria lorata***  
**I've experimented with *Sagittaria* species in the past,** but they

were at the beginning of my aquatic horticulture attempts so I'm not even sure what different types may have passed through my hands. I saw this plant at the Pine Ridge Garden Gallery, and put it in my "Cryptic Emersion" set-up.

**Within two weeks the plant threw a flower spike.** I bought one more and put it in the same tank. It didn't flower, but it did throw two offshoots that developed the submerged form of leaves. I've since removed those to another tank to see how they will grow in a completely submerged environment. The original plants have remained in the submerged tank and have grown past the suspended light.

I also wanted to try this plant outside, so bought another pot from Vandemeer Nursery. This remained in

**Derek successfully also had these plants flower this summer, but for several reasons was unable to get useable photographs:**

- Anubias barteri* var. Barteri,**
- Caltha palustris,***
- Cotula coronopifolia,***
- Echinodorus cordifolius,***
- Hygrophila difformis,***
- Lobelia cardinalis,***
- Mimulus ringens,***
- Nymphaea 'Attraction',***
- Sagittaria sagittifolia japonica***

my outdoor tub until I brought the plants in, but it never flourished like the plants I had grown inside.

***Sagittaria sagittifolia* 'flore peno'**

**I purchased two *Sagittaria sagittifolia japonica*** at Vandemeer Nursery. Both flowered outside, so I purchased two more (also at Vandemeer Nursery) to establish more plants. I was pleasantly surprised to find that these two were not *S. sagittifolia japonica*, but rather the rarer *Sagittaria sagittifolia* 'flore peno'.



*Sagittaria lorata*





*Myosotis palustris*

The only difference between the two plants is the flower. The flower of the *S. sagittifolia japonica* looks similar to the flower of the *Echinodorus rubin* pictured above, the flower of the *S. sagittifolia* 'flore peno' looks like a puff-ball. At the end of the season I brought these indoors, and planted one in my 75-gallon tank. I fully expected that it would develop into the submerged form, but instead it has grown out of the water and is currently throwing a flower spike.

**Myosotis palustris**

Every good aquarist knows that the most important part of being a successful aquarist is to keep your spouse happy and, if not interested, at least involved in your hobby. This plant is one of my attempts at this. I took my wife to Vandemeer Nursery with me one day, and this is the plant that she selected. It prospered in the pond, but died out at the end of the season.

At the end of the season I acquired an 80-gallon pond, and am planning on targeting a bit more next summer. (I don't know if I should install the pond this fall – any suggestions?)

I'll see how the next "indoor" season goes, and work on getting some of the interior plants to go to seed. Next year I'll see what I need for AHAP, and based on that, this past summer's success and failures, and some more research I'll figure out what to plant.

Ponds are an interesting and easy route to acquiring some AHAP points, but even more important, it is yet another way to explore aquatic horticulture.

All photographs by the author

\*Going to Ontario may not be practical. St Louis area has several providers, including year round or seasonal specialists and several Fish Shops with outdoor plants. Thanks to Pam Jokerst for helping put this list together!

**Timberwinds Nursery, Ellisville, MO**

**Chalily Pond & Gardens, Manchester, MO**

**Ponds Plus Water Garden Center, St. Charles, MO**

**Jaeger Greenhouses, Maryland Heights, MO**

**Papillon Perennials, Wildwood, Missouri**

**Hartke Nursery, St. Louis, MO**

**Pond Market, South County, St. Louis, MO**

**Effinger Garden Center, Belleville, IL**

**Joe's Market Basket, Edwardsville, IL; Troy, IL; O'Fallon, IL**

**Creekside Gardens, Collinsville, IL**

**Aquatic Treasures, Collinsville, IL**

**Aqua World, Ellisville, MO**

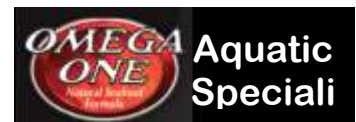
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## 2018 BREEDER'S AWARD PROGRAM - Steve Edie

## January 2018



Member	Genus	Species	Common Name	Points	Bonus	CARES	Total
Charles Harrison	<i>Aspidoras</i>	sp. "C118"		15			2905
Mike Huber	<i>Amphilopus</i>	<i>amarillo</i>		15			1648
	<i>Astatotilapia</i>	<i>latifasciata</i> #@	Zebra Obliquidens	0		10	1658
	<i>Aulonocara</i>	<i>stuartgranti</i> "Hai Reef"	Blue Neon Peacock	10			1668
	<i>Chindongo</i>	<i>flavus</i> *		10	5		1683
	<i>Chapalichthys</i>	<i>encaustus</i> #@		0		15	1698
	<i>Cynotilapia</i>	<i>afra</i> "Jalo Reef"		10			1708
	<i>Dario</i>	<i>dario</i>	Scarlet Badis	15			1723
	<i>Elassoma</i>	<i>okeefenokee</i>	Dwarf Sunfish	20			1743
	<i>Ilyodon</i>	<i>furcidens</i> #		0			1743
	<i>Tramitichromis</i>	<i>intermedius</i>		15			1758
	<i>Xenotoca</i>	<i>doadrioi</i> #@		0		15	1773
	" <i>Xystichromis</i> "	sp. "Dayglow" #@		0		10	1783
	" <i>Xystichromis</i> "	sp. "Kyoga Flameback" #@		0		10	1793
	" <i>Xystichromis</i> "	<i>phytophagus</i> #@	Xmas Fulu	0		10	1803
	<i>Zoogoneticus</i>	<i>tequilla</i> #@		0		15	1818
Chris Mohrle	<i>Poecilia</i>	<i>reticulata</i>	MosaicGuppy	5			280
	<i>Synodontis</i>	<i>petricola</i>		20			300
Dan Rios	<i>Ameca</i>	<i>splendens</i> @	Butterfly Goodeid	15		15	180
	<i>Aulonocara</i>	<i>stuartgranti</i> "Hai Reef"	Blue Neon Peacock	10			190
	<i>Betta</i>	<i>ocellata</i>	One Spot Betta	15			205
	<i>Cyprichromis</i>	<i>leptosoma</i> "Utinta"		15			220
Scot Roach	<i>Goodea</i>	<i>gracilis</i> #@	Slender Goodeid	0		15	274
	" <i>Xystichromis</i> "	sp. "Kyoga Flameback" #@		0		10	284
Debbie Sultan	<i>Copadichromis</i>	<i>chrysonatus</i> *		10	5		1055
& Tom Corradini	<i>Telmatochromis</i>	<i>vittatus</i>		10			1065
Kurt Zahringer	<i>Brachyrhaphis</i>	<i>holdridgei</i> "Isabel, Nicaragua" *		10	5		715



## 2018 BREEDER'S AWARD PROGRAM - continued

# February 2018

Member	Genus	Species	Common Name	Points	Bonus	CARES	Total
Mike Huber	<i>Altolamprologus</i>	<i>calvus</i>	Black Calvus	15			1833
	<i>Danio</i>	<i>erythromicron</i>	Emerald Dwarf Rasbora	20			1853
	<i>Goodea</i>	<i>gracilis</i> #@	Dusky Splitfin	0		15	1868
	<i>Phallichthys</i>	<i>quadripunctatus</i> #@	Four Spot Merry Widow	0		5	1873
	<i>Pseudotropheus</i>	<i>livingstonii</i>		10			1883
Jerry Jost	<i>Corydoras</i>	sp. "CW016" *	Teniente Cory	10	5		2747
Ed Millinger	<i>Trigonostigma</i>	<i>heteromorpha</i> **	Harlequin Rasbora	20	10		1015
	<i>Xiphophorus</i>	sp. "Domestic Variatus" ^	Marigold Variatus	0	1		1016
Scot Roach	<i>Amatitlania</i>	sp. "Honduran Red Point"		10			294
	<i>Pundamilia</i>	sp. "Blue Bar" @		10		10	314
Bob & Lora Watson	<i>Limia</i>	<i>melanogaster</i>	Black Belly Limia	5			190

### 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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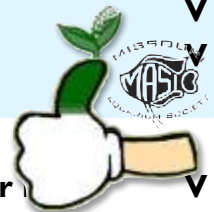


# HORTICULTURE AWARD PROGRAM - Mike Hellweg

## January/February 2018



Member	Genus & Species	Common Name	Type	Points
Charles Harrison	800 points			
	<i>Anubias barteri coffeefolia</i>	Coffee Leaf Anubias	IB	20
	<i>Anubias barteri nana</i>	Dwarf Anubias	IB	20
	<i>Ceratophyllum demersum</i>	Hornwort	IB	10
Scot Roach	10 points			
	<i>Spirodela polyrhiza</i>	Giant Duckweed	V	5
	<i>Taxiphyllum barbieri</i>	Java Moss	V	5
Mike Hellweg	3705 points			
	<i>Wolffia columbiana</i>	Columbian Water	V	5



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



*Anubias barteri*  
'Coffeefolia'



*Anubias barteri nana*



*Ceratophyllum demersum*  
Hornwort

# Start Planning those Outdoor "Tanks" now!



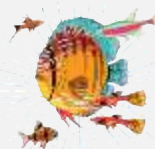
# CLUB HOPPING - Steve Edie

## 2018 - Save the Dates

- Mar 16-18 - Rocky Hill, CT - NEC Convention**
- Mar 17 - Rogers, AR - NWAAS Auction
- Mar 18 - Joliet, IL - Greenwater Swap
- Mar 24 - Peoria, IL - TCTFS Auction
- Mar 25 - Des Moines, IA - CEACICH Swap/Auction
- Mar 25 - Hoffman Estates, IL - GCCA Swap
- Mar 30- Apr 1 - Cedar Rapids, IA - EIAA Show Wkend
- 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**
- Jun 23-24 - St Louis, MO - SLWGS Pond-O-Rama**
- Jul 4-8 - Houston, TX - ACA Annual Convention**
- Jun 7-10 - Georgia - NANFA Convention**
- Jun 9 - Indianapolis, IN - CCAC Swap
- Jul 14 - Champaign, IL - CAFE Summer Auction
- Aug 12 - St Louis: MASI – Summer Auction**
- Sep 14-16 - St Louis, MO - SLWGS Koi Show**
- Sep 15 - Peoria, IL - TCTFS 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
- Oct 12-14 - St Louis, MO - GGA Guppy Show**
- Oct 13 - Cedar Rapids, IA - EIAA Auction
- Oct 13-14 - San Antonio, TX - FOTAS Convention**
- Nov 11 - St Louis: MASI – Fall Auction**
- Nov 16-18 - Strongsville, OH - OCA Convention**
- Dec 2 - Hoffman Estates, IL - GCCA Swap



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Other links are on the MASI

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## MEMBER CLASSIFIEDS

Member	For Sale	Bid/Asked	Contact
Charles Harrison	Thiosulfate crystals (Chlorine Remover) - pound	\$4.00	(314) 849-9761
	OTO double strength Chlorine/Chloramine test kits - 4 ounce	\$12.50	<a href="mailto:charles@inkmkr.com">charles@inkmkr.com</a>
	Flubendazole, 10% powder 25 grams	\$20.00	
	Lavamisole HCl Powder - 5 grams treats 100 gallons	\$10.00	
	Methylene Blue 5% solution (4 ounces)	\$12.75	
	Acriflavine Concentrate (4%) solution, 2 ounces	\$12.70	
	Bromthymol Blue pH test solution, 4 ounces	\$7.00	
Charles Hoppe	Several 10 and 15 gallon tanks, including wooden rack. Makes a nice small fishroom. Extras, contact me if interested.		(314) 846-4648 <a href="mailto:charliehoppe@me.com">charliehoppe@me.com</a>
Klaus Bertich	1 - 55 gal with light, filter	Make Offer	(314) 363-3376
	1 - 70 gal with light, filter	Make Offer	after 1:00 PM
	4 - 20 gal high	Make Offer	
	2 - 20 gal low	Make Offer	
	4 - 30 gal high.	Make Offer	
	1 - 15 gal	Make Offer	
	Air pump other misc fish room items.	Make Offer	
Jim Miller's Fishroom	# and Tank Sizes	Price	Pat Tosie
	2 - 5.5 Gallon	\$5.00	Call or Text:
	13 - 10 Gallon	\$5.00	314-616-4316
	19 - 20 Gallon Long	\$10.00	
	1 - 20 Gallon Tall	\$10.00	
	4 - 29 Gallon	\$15.00	
	1 - 30 Gallon	\$15.00	
	2 - 40 Gallon Breeder	\$20.00	
5 - 100+ Gallon	\$125.00		

**Sold!**

## 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	<i>Alfaro cultratus</i> , <i>Xiphophorus mayae</i> , <i>Xiphophorus clemenciae</i> , <i>Neotoca bilineata</i>		314-737-6759
Want Jim Wetzel	<i>Neolamprologus brichardii pulcher</i> , <i>Neolamprologus multifacisatus</i> or other Shell Dwellers, <i>Julidochromis marleri</i> adult female, <i>Tropheus duboisi</i> male		pirateperch@rockemail.com
Want Chuck Bremer	<i>Nymphaea micrantha</i> , <i>Neotoca bilineata</i>		BremerCD01@gmail.com

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

MA SI 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		

**March**  
**Cichlids**

**April**  
**Killies**





# Show or View at the EIAA

Spring Show  
March 30 -  
April 1, 2018

Rules and entry forms are on  
the club website  
Finflap.com

**Noelridge Park Greenhouse: Cedar Rapids, Iowa**



Cash prizes  
25 classes to enter



### TRI-COUNTY TROPICAL FISH SOCIETY AUCTION

**Saturday March 24, 2018**

American Legion Hall, 4501 Airport Road, Bartonville, IL 61607  
Doors open 9:00 A.M.  
Auction starts 10:30 A.M.

Further information, advance registration or seller sheets.  
Sue at 309-697-6149  
E-mail: [suetctfs@yahoo.com](mailto:suetctfs@yahoo.com)  
Buyer numbers available at registration

Auction split will be 75% to the seller 25% to TCTFS

The 10-table method will be used

**Northwest Arkansas Aquarium Society**  
**Spring AUCTION!**  
2018  
**Saturday, March 17, 2018**  
**Noon to ?**  
Viewing begins at 11:00 am  
**Come to buy and Sell!**  
**Large Selection Of Fish, Equipment, Aquariums, Plants**  
Location: Millwood Christian Church  
3450 W. Pleasant Grove Rd.  
Rogers, AR  
just off I-49, Exit #81 (west)





**GATEWAY GUPPY  
ASSOCIATES**

**IFGA**

**SANCTIONED  
SHOW**

**October 12-14, 2018**

**Over 75 Classes of Fancy  
Guppies!**

**Holiday Inn Airport West**  
**3400 Rider Trail South**  
**Earth City, MO 63045**

**AWARDS:**

**Tanks, Deltas, Females, and Breeders**

**1st place: plaque and certificate**

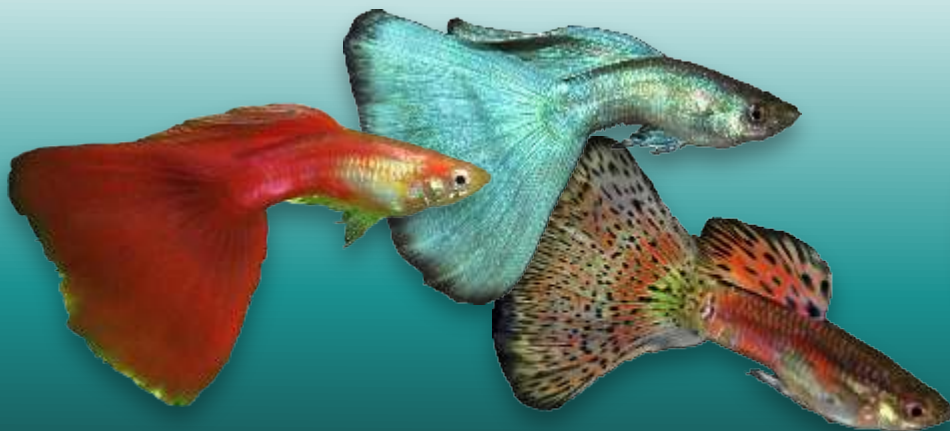
**2nd-4th place: certificates**

**Best of show**

**1st place - 4th place: plaque and  
certificate**

**(Special GGA Room Rates  
314-291-6800)**

For Show Rules and other Details see the GGA Website:  
<http://gatewayguppyassociates.com/wp/>



**We've Moved!**  
**2018 Auctions and Swap Meets are at a new location:**

**2018 MASI Events at the New Location!**

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



**Holiday Inn**

**AIRPORT WEST, EARTH CITY**  
**3400 RIDER TRAIL SOUTH**  
**ST. LOUIS, MO 63045**  
**1 (314) 291-6800**



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