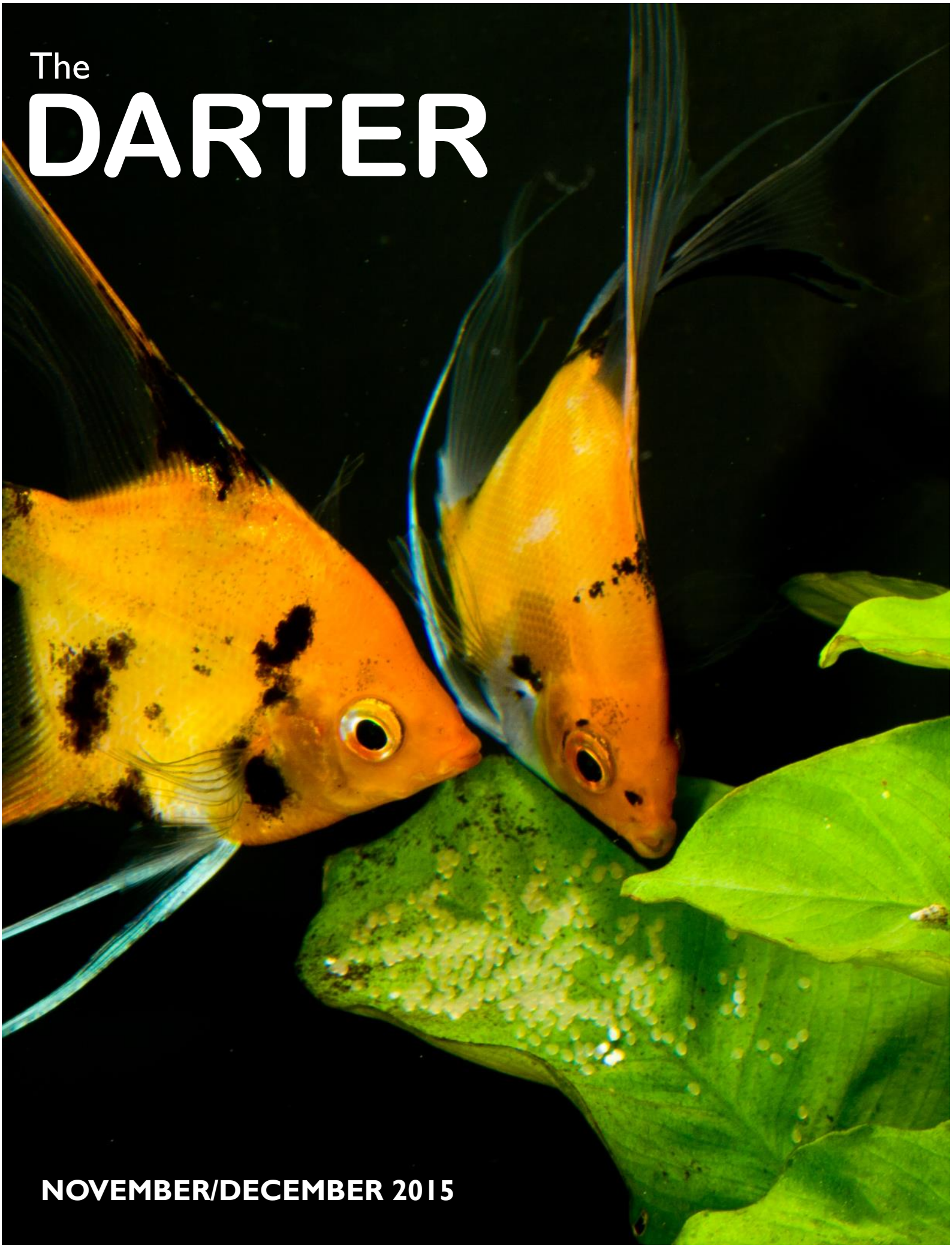
The

DARTER



NOVEMBER/DECEMBER 2015

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Cover - Gary Lange

FEATURES

INSIDE THIS ISSUE

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MASI STUFF!

An expanded line of MASI Logo merchandise is now available from Café Press. Pick from T-shirts, jerseys, caps, tote bags, coffee cups, and more. Go to www.cafepress.com/MissouriAquariumSociety.

FROM THE PRESIDENT

Pat Tosie

Swap Meet – FANTASTIC, Super Bowl – Picking up steam and progressing nicely, Fall Auction – another super turnout with great results! The DARTER – the BEST club newsletter out there! Our speaker line-up has been top-notch thanks to Gary Lange and his perseverance to get us the best people he can. The success we have had is thanks to the volunteers who put the time in to make them be successful. We are on the upswing and need your help! Ask a friend to come to our meeting or one of the events we have. Let us grow the club and make it the best we can be. We have over 100 members, how many more can we get?? If we are to host another national convention, we need people, people that will help out and be active members in our club.

This years' MASI Challenge, the Amazon Research Center for Ornamental Fishes, currently has over $2,000! You can still bring fish to donate at the next two meetings this year. PLEASE keep bringing the donations in and let's finish out the year with a bang. With everyone's support, maybe we can surpass our goal of $2,500!! With that said, what do we want the 2016 MASI Challenge to be? Any thoughts on which we should support for 2016? Something new? Should we do something we have done before? Should we do another year for the Amazon Research Center for Ornamental Fishes? What do you think? Any suggestions?

Always feel free to call or send me an e-mail with any suggestions, concerns and ideas that you may have for MASI to do or try. We are starting to look at other ideas about our next MASI Challenge, so please send your thoughts to me. PatTosie@yahoo.com

Chris Mohrle has stepped forward and taken over the Monthly Bowl Show Chairman, thank you, and big thanks go out to Rose Sonderman for heading that position for the last several years. Bring a fish for the Bowl Show and help Chris make the show great! John Van Asch has stepped up and is now heading up the Social Events Coordinator position, thank you John; we look forward to your fun activities and Thank You to Debbie Sultan for handling that position the last few years.

I have been trying to rearrange the monthly meeting agenda so that we have time to socialize at the end of the meeting, I hope you like the new format. With our BAP and HAP going so well, we have had a lot of items at the monthly meeting which takes time. Keep bring those BAP and HAP items, we are trying out a few things to help make it faster and smoother. Thank you, Chuck Bremer, for making the monthly auction spreadsheet, it seems to have helped a lot.

Manufacturer donations to MASI have been low the last couple of years, with the way the economy has been and the many companies merging and buying each other up, we just don't get as many. The monthly attendance prizes will most likely be reduced until we get more donations. If you know of a manufacture who may donate, please pass their name and address to me so I can send a request.

Keep looking below water….

FROM THE EDITOR

Mark England

In the last issue, I wrote about the huge failure rate of new hobbyists, beginners who leave the hobby when they cannot overcome their initial mistakes. They lose fish and don't understand why, so they become disenchanted with aquariums and give up.

Somehow MASI members got past their early problems and, I believe, with a little education, most beginners can, too. For our hobby to grow and prosper, we need beginners to be successful and, in my opinion, we have a responsibility to help them.

Several MASI members stepped up and are getting involved. We are reaching out to the local fish stores to understand how we can help. If you want to be part of this effort and give back to the hobby you love, call me at 636-251-0704 or email me at editor@missouraquariumsociety.com.

In this issue, we start a new feature called "Meet the Member" and authored by Kathy Deutsch. It's intended to help you get to know our members better and learn who's the expert in different areas.

How is *The Darter* doing? What types of articles do you want to see more of and which don't interest you? Write a letter to the editor if you don't like something or let me know if you do. I'll print and respond to all letters. It's your newsletter, so sound off.

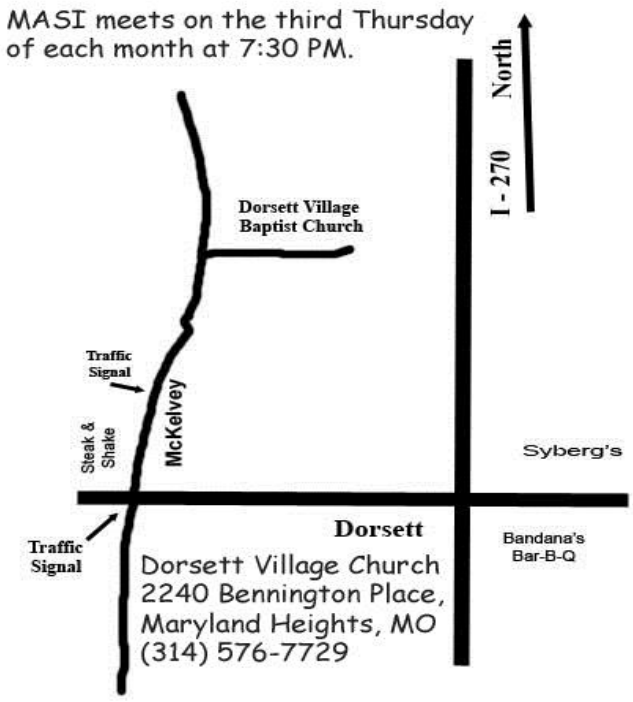
Enjoy this issue and have a happy holiday season.

NOVEMBER 19 — CHARLEY GRIMES "THE DEAD FISH TALK"

By Gary Lange

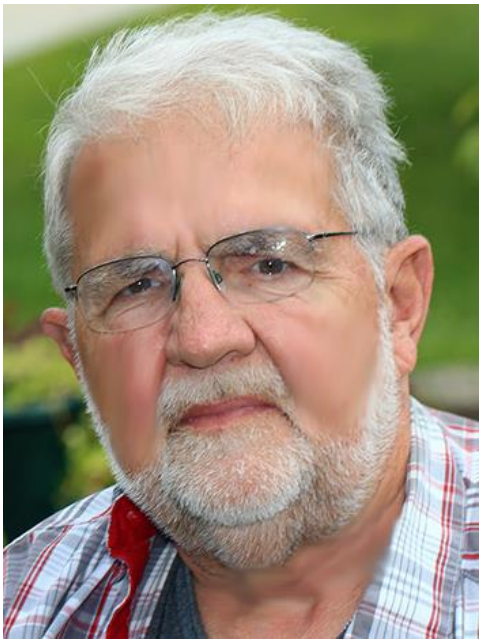
I've known Charley Grimes for a whole lot of years. In the eighties, I would take the pilgrimage to Indianapolis to go to their annual show and auction to learn about livebearers, (my first love) and killifish from the likes of Charley, Vern Parish, Mike Shadle, Pat Hartmann and a few other assorted crazy folks. The eighties certainly were the halcyon days of tropical fish keeping with so many people having huge fish rooms. With huge fish rooms comes the problem of scale and sometimes failures. It was always helpful to hear about those problems and failures first hand so that we could avoid making the same mistake. Some of us would just rather bury our problems but Charley made an entire talk out of it, "The Dead Fish Talk".

When I first told a few people that Charley was coming to speak they asked if he could do "The Talk" for us. I'm pretty sure that he hasn't done it for MASI but I've heard him give this talk several times so I can't be sure. What I do know is that even after people have heard the talk, once, twice or even more times they always stick around to hear it again. Even though they know what's coming they enjoy hearing the punch lines again and again. That's what a great storyteller does, they make you want to hear it one more time. These days there are so many lists of the top 50 fish to keep, foods to eat, places to visit. If I were making a top ten list of talks to hear, this talk would certainly be there. Please refrain from drinking liquids during this talk because there have been documented cases where large amounts of liquids have been expressed through oral and nasal cavities because of the subject matter.



Older listeners with weak bladder control are urged to make use of the facilities before the talk begins.

We will be having dinner with Charley at Bandanas at 6 pm. If you would like to join us please call or send me an email so that I reserve a large enough table for all of us. Bandanas BBQ 12222 Dorsett Road Maryland Heights, MO 63043



ABOUT CHARLEY GRIMES

I got my first fish tank when I was twelve or thirteen years old. It was a 12+ gallon tank that I made from an old gasoline pump cylinder. Shortly after 'cutting my teeth' on some Mollies and Zebra Danios, I added my first cichlids, two Angelfish, two Green Severums, and two Festivums. Within six months, my quarter sized Angelfish had body size a lot bigger than a silver dollar and erased any doubt that Angelfish are true cichlids-------they ate all of the Molly fry and then all of the Zebra Danios.

I learned three things during my first year of fish keeping:
1) I really like keeping fish
2) By and large, it is cichlid's nature to eat fish if given the opportunity
3) I really like cichlids!!!

Except for my college years, I have always kept tropical fish, and, I have never been without Cichlids, Killies, Livebearers, and Rainbowfish. Oh yeah, also Long Fin White Clouds.

Years ago a fish friend said that, in his mind, any TRUE fishroom should have a tank of Cardinal Tetras. I have maintained a Cardinal Tetra tank for at least 20 years.

MASI CHRISTMAS PARTY DECEMBER 17—7:30 PM DORSETT VILLAGE CHURCH

Families welcome! Bring the kids – there's a rumor that we'll have a visitor coming all the way from the North Pole!

Food We ask all to bring a side dish or desert item for our Pot Luck dinner (MASI supplies the meats and beverages). We will need dishes like salad, vegetable tray, chips & dip, potatoes, stuffing, green beans, corn, mixed vegetables, dessert, cookies, pie, cake, appetizers and more. Check on our Facebook Group Page: https://www.facebook.com/groups/MASIfish/ to see what people are bringing

Gift Exchange Please bring a gift (if it is a fishy gift, please mark it as such. If it is for someone special, please mark it as such. If you are bringing live gifts, please do not wrap them)

Canned Food Drive Don't forget a non-perishable food item or canned good for the church's food pantry, too! In past years we've overwhelmed the church with our donations – let's see if we can top last year!

2016 ANNUAL SHOW

FOOLING WITH FISH

MASI Annual Show

April 1-3, 2016

Crown Plaza Hotel

Speakers Confirmed To Date:

- Chuck Davis, banquet speaker
- Ted Judy
- Rusty Wessel

Fish Competition, Aquascaping, Photography, Art competitions, Giant Auction, Door Prizes, Raffles, Vendors

More To Come!

The show planning is moving along. We have some tee shirt ideas for the show, but can always use others. If YOU have an idea, even if you cannot draw, send it to me by Friday January 8, 2016. You can describe what you are thinking instead of drawing. This is NOT a contest. Just a way to get some ideas coming.

I am also emailing manufacturers to solicit donations for the show. If you think of a manufacturer who might help us out with product, again, let me know.

Kathy Deutsch

We are also working on something new for this year's show. Random prizes for attending the talks, who enters the most fish in the show—that sort of thing.

We also have a couple vendors confirmed for the vendors' room. Details will be coming when donations, talks, vendors, etc. are confirmed. So stay tuned, folks... Just need to confirm everything.

Make sure to use your items 19 and 20, on the auction forms, to help with your banquet ticket. Even if you can't make the banquet, it helps MASI put on the show and helps keep the show free to the membership !

I also want to ask—what would the membership like to see at the show? There is still some time to add to this year, and I will be doing the show in 2017, So if you have any questions, comments, suggestions, please just find me at a meeting or event or email me at hcaaquatics@yahoo.com.

Holly Paoni

CLUB HOPPING

By Steve Edie

Check with the individual clubs for more details.

Nov 20-22	Cleveland	Ohio Cichlid Association	Extravaganza	www.ohiocichlid.com
Jan 16	Urbana, IL	Champaign Area Fish Exchange	Auction	www.champaignfish.com
Jan 31	St. Louis	MASI	Winter Auction	www.missouriaquariumsociety.com
Jan 31	Chicago	Greater Chicago Cichlid Association	Swap Meet	www.gcca.net
Mar 6	Chicago	Greater Chicago Cichlid Association	Swap Meet	www.gcca.net
Apr 1-3	St. Louis	MASI	Annual Show	www.missouriaquariumsociety.com
May 27-29	Chicago	Greater Chicago Cichlid Association	Cichlid Classic	www.gcca.net
Jul 16	Urbana, IL	Champaign Area Fish Exchange	Summer Auction	www.champaignfish.com

The 2016 ACA Convention "Born to Be Wild" - July 28-31, 2016
Red Lion Hotel - 11320 Chester Rd. - Cincinnati, OH 45346

April 8-10
Sheraton Hartford South
100 Capital Blvd
Rocky Hill, CT 06067
http://northeastcouncil.org/NewNEC/index.php/all-about-the-convention

Speakers:

- Joseph Ferdenzi
- Lawrence Kent
- Dr. Paul V. Loiselle
- Steve Lundblad
- Dr. John Lyons

Friday dinner with keynote speaker

Sunday auction

Fish Show

AUCTION CHAIRMAN'S MESSAGE BY MIKE HELLWEG

Wow! Another year of fantastic auctions has come to a close. Whew! Thanks to all our volunteers, the buyers and the sellers – it takes each and every one of you to make a successful auction. We've seen a lot of new folks step up and help out and Daniell Kinder made the transition to treasurer without a hitch. Her first two auctions both came off very well, and we were able to get the auction checks in the mail by Wednesday after the auction. Thanks Daniell!

We implemented a few changes that seemed to go off very well, and most of the feedback I've received was very positive. All items 15 – 18 are now required to go through the silent auction. This cuts off about 2 hours of auction time and makes things easier overall on our volunteers, plus more buyers can be there for more of the auction and get the chance to get some great new fish! With the silent auction, we've essentially got two auctions going on at one time.

Another new feature is that each seller is allowed to "move up" one of their own items to the 12:30 table. These items will be sold at 12:30 before we start the moveups. Between this move up and the 4 items a seller can sell in the silent auction, the average seller who brings 10 items will have half their items sold by the end of the final silent auction table. By the way, our average seller has been bringing 10 items for over two decades!

As always, don't forget to thank Chuck and Mark down at Tropical World Pets for helping us out once again with a 75 gallon tank, top and light for the Fall auction raffle. It's rare to find a shop that's able to be this generous in today's economy, so be sure to not only thank them, but support them!

I hope we see you all at the Annual Winter Auction, January 31, 2016!

And for now, 'nuff said

Hugh McDermott, winner of a 75 gal. tank donated by Tropical World Pets

MASI INSULATED FISH BAG

$10 $10

Transport your fish in style!

Insulated, rolls up for easy transport, expandable, fits in luggage, carry your fish anywhere and keep them safe from temperature changes while displaying your pride in your club!

22" x 16" x 12" - holds several fish bags

Made of 100% recycled materials

Get yours today, before they're gone! Available at each monthly meeting while they last!

JANUARY 31 MASI WINTER AUCTION

Crown Plaza Hotel

Viewing 10 AM

Auction 11 AM

500+ Lots

MEET PAT TOSIE

Other family members: *Nicole, Patrick, Meghan, Christine.*

Years keeping fish: *45*

What was in your first tank and how old were you? *2 gal. bowl when I was 7. When I was 9, Dad got me two 15 gal. tanks, one with angelfish.*

How many tanks do you have now? *65. I've had as many as 140, but recently downsized.*

Favorite fish you've had: *Apistogramma.*

Your dream fish: *One named after me!*

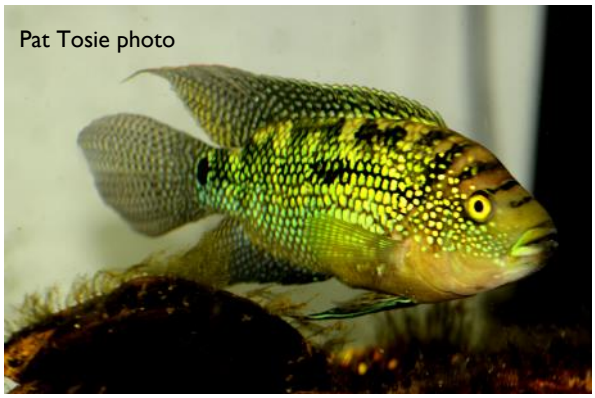
Your latest fish related accomplishment: *300 species spawned, 1 1st MASI family spawn, 24 1st MASI genus spawns, 123 1st MASI species spawns, 25 CARES species.*

Your latest goal: *Spawn 30 species of Apistos by December, 2015.*

Other pets: *3 dogs and 1 cat.*

If I could do it all over again, I would...*keep a "fish" diary.*

If I could tell a beginning fishkeeper one thing, it would be...*start with a tank no smaller than 30 gallons!*



Pat Tosie photo

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Editorial by Mark England

"The Aquarium Trade Is A Dark Hobby"

So says Mike Long, Reef Defense Coordinator for Sea Shepherd Conservation Society, an animal rights group dedicated to ending collection of wild fish for aquariums. The group was in the news this year over an incident where Sea Shepherd members were "observing" a licensed fish collector in Hawaii. He took objection to their presence and ripped the SCUBA mouthpiece from one of their divers. Jay Lovell, the collector, avoided jail through a plea agreement.

Rene Umberger, the Sea Shepherd member who was attacked, wants a complete ban and, in an interview with PBS said, "I want it all gone… not just Hawaii."

PETA, People for the Ethical Treatment of Animals, has an active campaign called "Fish In Tanks...No Thanks!" They claim fish suffer in captivity regardless of the quality of the captive habitat.

PETA estimated 95% of marine aquarium fish are captured from the wild by a largely unregulated industry with unsustainable practices.

They cite the unconscionable practice of cyanide fishing which they claim has a 70% mortality rate before a specimen ever reaches an aquarium.

Also featured in the campaign are "painted" fish (fish injected with dye to make them sell better) and goldfish destined for life in a bowl.

True or not, no ethical aquarium hobbyist supports anything less than the best care in the capture, shipping, and keeping of the aquarium fish we love.

Sea World San Diego recently announced plans to phase out its trained marine mammal shows citing a change in customer preferences. CEO Joel Manby was quoted by CBC News "They want the orca experience to be activities the whales do in the wild. Things they perceive as trick, they don't like as well."

These follow in the wake of deaths in the facilities and a huge drop in attendance at the shows. Leading public opinion is the move, *Blackfish,* a documentary on captive orcas and the events leading to the death of one of their trainers.

And Sea World is not the only one. The National Aquarium in Baltimore cancelled dolphin shows three years ago and Clearwater Aquarium stopped its shows in September.

Probably just as damaging to our hobby is the trend of aquariums as status symbols for the wealthy and famous. Aquariums have become another *object de art* used by interior designers and architects for their well-heeled clients.

This is exhibited in the media with the reality show "Tanked" which runs on Animal Planet. "Tanked" builds extreme aquariums for the rich and famous,

mostly "novelty" tanks that are impractical, unsustainable, and in most cases, merely status symbols for their owners. Typically, the big "reveal" shows an exhibit that is overstocked, requires professional maintenance, and is little understood by the client.

Sometimes we contribute to the problem. Pet stores still sell gold fish bowls. I call them "bowls of death." Same goes for bettas in bowls. We're sometimes guilty of impulse purchases where we don't fully understand a fish's requirements. We sometimes keep fish that will ultimately grow too large for us to care for.

If you think public opinion is not shifting, you need to open your eyes. While it is still relatively quiet on the legislative front, expect to see increased activity.

What can we do? First, let's dedicate ourselves to providing the best habitat we can for our beloved fishes. Breeding is the true test. If our fish are happy enough to breed and live a normal life span, we are providing good habitat. Let's educate ourselves and beginners in proper aquarium care.

Let's make our hobby sustainable. Even PETA admits 90% of freshwater fish are farm raised and we can be individually self-sustainable if we breed more fish than we buy. I once kept marine aquariums, but came to realize I had neither the funds nor the dedication to keep fish and invertebrates to a standard that satisfied me.

Support the CARES program by breeding threatened species. More information is available at www.carespreservation.com or see Mike Hellweg, MASI member and CARES coordinator for Characidae fishes.

THE FACE OF OUR HOBBY?

Back To Basics by Mark England

How Many Fish Can I...

The number one question at the fish store is "How many fish can I put in my tank?" The simple answer usually given is "One inch of fish per gallon of tank." Let's look at this answer a bit more in depth.

First, in my opinion, our goal should be healthy, happy fish. Maxing your tank to capacity is a recipe for trouble. The simple answer above assumes you always feed just enough, do regular water changes, and are diligent about filter maintenance. That rule leaves no margin for error.

My approach is understock so as fish grow and perhaps breed, I'm still well within capacity. If I'm late on a water change or cleaning my filter, I'm not courting disaster. It's so much easier. My main tank is at roughly half capacity according to the 1" to 10 gal. rule.

When deciding how many fish is best, other factors should be considered, such as how big your fish will be at maturity. The fish store usually sells juveniles and young adults.

Another is the shape of the tank. A long, low tank can keep more fish than a tall tank. Why? Greater surface area allows more oxygen to enter the water and more carbon dioxide to leave. Fish take in O_2 and give off CO_2 when they breathe.

In a similar way, the larger "footprint" with a long, low tank gives fish more swimming room and allows fish to have more territory. Some fish families, notably Cichlids, stake out a space that they will guard and defend against all competitors. When Cichlids get too crowded, a fight is the usual result. So how many fish a tank will hold can depend on how many fish need a territory.

Many of our most beautiful community fish are schooling fish and don't need territories in the same sense. However some fish like to school in the upper part of the water column and some prefer the middle or lower sections. It makes sense to have fish with a mix of preferences so they're not all trying to school at the same depth.

Speaking of schooling fish, they're usually happy when in a school of six or more, in my opinion. If there's only one or two schooling fish in a tank, they're usually stressed. They feel vulnerable. Avoid what I call the "Noah's Ark" approach—two of this fish and two of that and two more of another. It's more fun to watch a school's synchronized swimming than a pair hiding in the corner.

Well, now we've made it complicated and you just want to know how many fish you can get. Let me make a suggestion:

1. Pick your favorite fish and build your community around it. If your favorite is a schooling fish, get 6 or 8. If you like cichlids, you might want 2-4. Ask your local fish store for advice.
2. Complement your favorite fish with compatible species. Got a school of guppies? Complement them with other peaceful fish such as swordtails, platies, mollies, tetras, etc. Ask your local fish store for advice.
3. Add 2-4 catfish—the Corydoras family is ideal. Add snails, shrimp, or algae eating fish (Otocinclus or Siamese algae eaters are good). Ask your local fish store for advice.

One last part of my answer to "How many fish can I…" is that fish capacity varies based on the capacity of your biological filter. When you start your tank, the biological filter's capacity is zero. When you add your first fish, say 3 or 4, they add waste to the water. Bacterial begin to grow by feeding on the waste and multiple until the waste consumed by the bacterial equals the waste added by the fish. At this point

your filter's capacity has increased and you can add a few more fish. Then you must wait for the bacterial to multiple and catch up to the higher waste load. The best practice is to add a few fish, wait 2-3 weeks, then add some more until you have a well-stocked, not crowded, tank.

Did I remember to say ask your local fish store for advice? Each species is different and that's part of the fun. Your local fish store or club can help guide you so you wind up with Happy Fish!

THE MOSQUITO FISH WORTH THEIR WEIGHT IN GOLD … OR PUT THE @#$%^&* FISH IN THE @#$%^&* POND!

By Tony McMillan

Tony, a long-time member, passed away recently. This article won our 2011 writer's award.

Time is money the old axiom goes. No matter how cheap the materials one buys for any given project are, if things are not accomplished in a timely and efficient manner, the time spent will outweigh the money saved by purchasing things cheaply. This also holds true in the tropical fish hobby. Sometimes you buy a fish on sale, get it home to find it has a sickness that affects the other fish you already own and you have to treat the tank. Or you get a sale fish home to discover it's not the same temperament as the other fish in your community tank and all hell breaks loose. If only the events of this stupefying tale I am about tell could have been that simple.

Let me state unequivocally: The events that are to be portrayed in the following story are absolutely true; some identities have been changed to protect the innocent.

The following account occurred between a friend and me two summers ago, and it is a situation that those of you who worked in the retail side of the aquarium trade are all too familiar with. It is of the relationship between the advanced hobbyist and the novice; the novice that doesn't always listen.

The fish in question in this relationship is none other than Gambusia affinis, the common Mosquito Fish, which retails for about 20 cents apiece. Or, being native fish, can be seined or dip netted for free. Taking into consideration the time, sweat, toil, effort and gasoline involved, the Mosquito Fish in this story are literally worth their weight in gold. All because, as a bartender friend of

THE MOSQUITO FISH WORTH THEIR WEIGHT IN GOLD … OR PUT THE @#$%^&* FISH IN THE @#$%^&* POND!

mine succinctly put it, somebody wouldn't put the @#$%^&* fish in the @#$%^&* pond.

It all started back in the spring of '08. Rejoining MASI after a long absence I was getting ready to make a big splash into the world of outdoor tubbing. I was researching which species of plants and fish are good choices for outdoor gardening. I came across Gambusia affinis, the common Mosquito fish. They can survive the winter in this area and are good for mosquito control in tubs and water gardens. I had kept them as a teenager with a Red Eared Slider in my first aquarium. Being livebearers, I looked forward to adding their points to my BAP list.

It is at this point in the story I need to introduce Nick. Nick is not his real name.

As young man, Nick left the family farm and traveled out west to L.A. and became involved in the music industry. He became a successful promoter for acts like The Bangles and The Dixie Dregs, and his record label handled the Airplane soundtrack. We will call him Nick because during his stint in L.A. he attended a party at the house of Nick Gilder, the one hit wonder who had the hit "*Hot Child in the City*". Later in life he returned home to take over the family farm, and that is how I came to know him.

Besides conventional farming Nick has devoted much of his time and property to things like solar, wind and alternative power. He has many eco-friendly and green projects going on involving recycling and mulching. He has labeled his farm Critical Research and Plantation; otherwise. it goes by the acroonym of CRAP.

Nick and I both frequent a local pub that has a 2:00 a.m. liquor license. He was recounting to me one late night his interest in all things green and eco-friendly and that he had seen a program on Larry Rice's channel about raising Tilapia and growing vegetables in an enclosed system. He knew I would be interested as he was aware of my life-long involvement in the tropical fish hobby. It was thus I explained to him that my current project and next step in the hobby was to cultivate aquatic plants outdoors in tubs and that I was checking the local retailers but was unable to find any Mosquito Fish.

Nick's demeanor perked up after I explained to him the benefits of having Gambusia. He explained to me that on his farm are three bodies of water which we shall refer to here as the "lake", the "pond", and the "swamp". Both the pond and the swamp are temporary bodies of water and he was worried about these contributing to mosquito problems with all the rain we had in '08.

Nick expressed an interest in breeding mosquito fish, and I explained it's like breeding guppies and other poecilliads. Since they're livebearers, it's a given that they'll reproduce. He then inquired about their price. I told him that, depending on the retailer, between a dime and a quarter a piece. He then handed me a five dollar bill and told me to purchase ten fish for him next time I came across them. An inner voice cautioned me against this. "Isn't Nick notorious for not completing projects he starts?" I thought to myself. Reluctantly I accepted the five dollar bill.

It was getting into late May and I was becoming anxious about starting my outdoor gardening projects. That and Nick's five dollar bill were burning a hole in my pocket. I checked every retailer in metro-east, St. Louis city and St. Louis County and kept coming up empty handed regarding the availability of Gambusia. So I decided to cast my dragnet wider into St. Charles County.

On an unseasonably hot, late May afternoon I found a retailer who had Gambusia in stock. They were outdoors stocked by the hundreds in a 50 gal. wine vat

that reeked of ammonia. There were scores of dead floaters fouling the water. I was not happy with what I saw, but I had driven all the way out to St. Charles when gas had just reached over four dollars a gallon. And Nick's five dollars was still burning that hole in my pocket. Against my better judgment I ordered ten for Nick and eight for myself.

The problem was I was overconfident. Even though the fish didn't look that great, I reasoned once I got them out of that ammonia filled vat I could get them into fresh water and nurse them quickly to good health. I thought wrong. Of the original eighteen fish, only three survived the trip home. Two of those died the next day.

Dejected I relayed the bad news to Nick. I would deliver the surviving fish (which was a gravid female) to him if it survived another week. I told him we would just have to wait to find another source of Mosquito fish. Little did I know that source would almost literally jump into my wading boots in the next few days.

Memorial Day weekend my father and I went fishing at the strip mines in New Athens. The wading boots I had on came in handy as there was a thicket of Hornwort separating me from a bed of spawning Bass and Bluegill. I waded knee deep into the lake and made several successful casts when I discovered that several Gambusias were swimming around my legs feeding on microorganisms that I had stirred up wading through the Hornwort! I found a natural source of Mosquito fish!

THE MOSQUITO FISH WORTH THEIR WEIGHT IN GOLD … OR PUT THE @#$%^&* FISH IN THE @#$%^&* POND!

The next weekend I delivered the surviving Mosquito fish to Nick at the local pub. I also delivered the good news about the natural source of Mosquito fish near my home. When I handed the fish over I showed Nick the gravid spot and explained that since females store sperm they give birth every three to four weeks. I cautioned him against delay in placing her in the pond (or whatever setup he was going to use) as the female Gambusia try to devour their own young upon giving birth.

The following week it was once again last call at the local watering hole. I ran into Nick and inquired how the lone surviving Gambusia was doing. He explained he had it in a five gallon bucket outside and he was changing half the water every couple of days to counter any build up ammonia. Good - Nick at least understands the nitrogen cycle. In the short term he was okay I told him. Long term, I cautioned, if she gives birth the young are going to have nowhere to hide from their mother. And if he does manage to catch her in time and separate her, a five gallon bucket is not a suitable long term storage place for a growing population of fifteen to thirty juveniles. If he wants to have any fish for release into the pond or the swamp, he is going to have to act soon. Or simply put the fish into the pond.

The following week I ran into Nick again at the local pub. I informed him I was preparing to head to New Athens to go dip netting for some Mosquito fish as I had started my first aquatic tub with Water Lettuce and stocked it with Gold Dust Mollies. I asked how his aquatic charge was doing. He explained that she was still doing fine in the five gallon bucket and that he was still doing water changes. The hold-up he said was he was designing some sort of breeding net or fish trap for his pond to place either her or the juveniles in. If that was the case I urged him to act fast as she would give birth any day now, suggesting he should maybe put the fish in the pond as Mosquito season was upon us.

So I found myself on the day of the summer solstice heading to the strip mines near New Athens. It also happened to be the hottest day of '08. I waded out into the Hornwort about 7:30 p.m. but was having trouble finding any fish. It was simply too hot. Finally, at about 8:45 p.m. (45 minutes before the park closed), the sun dipped below the horizon and the Mosquito fish came out hunting all around my legs. I quickly netted seven specimens, hauled my sweat drenched self out the lake, and placed them in my bucket. I was back in business!

When I got home I placed two gravid females in a ten gallon tank loaded with Java Moss. I took the other male and four females to the pub to give to Nick to make up for the ones that had died. I asked how the lone female was doing. He replied she was still in the bucket. I gave him the other five fish to fulfill any financial obligation concerning the five dollars. I gave them with the caution that although he had gotten away with keeping a single fish in a five gallon bucket for several weeks, he would be unable to raise six fish in such a manner. I urged him to move forward with his plans on a breeding system, or simply put the fish in the pond.

I must step back and relate, that when I first told this story to a mutual acquaintance of ours named The Swede, that Swede, who knows Nick all too well, looked at me in dismay when I got to this point and exclaimed, why didn't he just put the @#$%^&* fish in the @#$%^&* pond? I wish I had answer for that. Nick just was too busy and had too many irons in the fire. We all have. But time is still money. At which point you simply put the @#$%^&* fish in the @#$%^&* pond. It is at this point that the story gets really strange.

Another week went by, and I made another weekend sojourn to the local pub. I ran into Nick and asked how the now six Mosquito fish were doing. Once again I heard the same bad news. They are doing okay in the five gallon bucket. He was still doing partial water changes, which was good, I told him. I again cautioned that he was not going to be able to raise six fish in a five gallon bucket very long. Something would go wrong sooner or later, and from experience, I would say sooner. Maybe it was time to put the fish into pond, I suggested.

The Fourth of July holiday was now here, and the owner of the local pub we frequent puts on an impressive fireworks show. I ran into Nick again. "How are the fish?" I asked, fearing the same answer I'd heard last month. He replied they were doing fine in the five gallon bucket still, but he had a question. He had not fed the fish the whole time he had been keeping them up to the current week, and was concerned about that. I told him they had probably been living off Mosquito larvae the whole time. He then told me that to be on the safe side he fed them some cat food, and wondered if that was okay.

Wow! That came out of left field. Cat food? I told Nick that I had heard of only one instance in my entire twenty years as an aquarist of someone feeding other pet foods to tropical fish. Someone wrote in to TFH asking if it was okay that they were feeding their Oscar 'Ol Roy dog food. The advice from TFH was the same that I was now giving to Nick. The cat food was going to foul the water and kill the fish, so that must be stopped immediately and never repeated. As I matter of fact, I said that the fish should be moved immediately to wherever he planning on keeping them, or maybe he should just put the @#$%^&* fish in the @#$%^&* pond.

Now I never really said the F word - those were Swede's words. But I must admit I did think it by this time. So another weekend, another last call, another inquiry. How are the fish? Still in the five gallon bucket. Another question for me. One of the Mosquito fish has developed white lips all of a sudden, what does that mean? It means the water was fouled from feeding the fish cat food and now they are developing fungus. I strongly recommended separating this fish from all the others and removing all of them from the five gallon bucket. Better yet - put the @#$%^&* fish in the @#$%^&* pond!

At this point I thought to myself "why should he start listening to me now, when he hasn't listened to a single word I said up to this point?" What is surprising is Nick

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actually did listen - well sort of. Another week went by and I learned Nick actually did separate the fish. Only after five of them died. He removed the lone surviving Mosquito fish and placed it in a 100 gallon livestock trough in his barn.

"You mean you had a 100 gallon container filled with water all this time?" I thought to myself. Of course, that's where he has been getting all the water to do the water changes in the five gallon bucket. OMG! If you're not going to put the @#$%^&* fish in the @#$%^&* pond, why not put them in the 100 gallon container instead of the five gallon bucket in the first place!

Of course I am simply too nice to say any of this aloud… until now. Another week went by. How is this lone surviving Mosquito fish doing? She's doing alright, seems happy swimming around the 100 gallon container. What are the plans for the pond? Nick says he's been unable to assemble the breeding trap. Boy, the mosquitos at the pond don't know how lucky they've been this summer.

Another week, this time filled with torrential rain from the remnants of a Gulf Coast hurricane. And another last call at the pub. How's the mosquito fish doing? Bad news - she disappeared. With all the rain we had the trough overflowed and the Gambusia escaped. So she is somewhere in the local watershed. Hell, she may finally be in the @#$%^&* pond!

So you are beginning to see that with our axiom that time is money, these mosquito fish are very expensive indeed. All this time and effort, and there is nothing to show for it. But hold on to your seats - this story is about to get really strange.

All of this now brings us up to early August. I had two female Mosquito fish I had kept for myself. They finally gave birth! I had sixteen fry and was looking forward to receiving my BAP points in 90 days. But what about the adults? I recalled the events of the summer up to this point. I felt bad, but if I gave these two fish to Nick would the results be any different? The reality was almost all of my tanks had juvenile fish I didn't want being eaten, so I had to give up the adults. I bagged up the two fish and headed to the pub.

I delivered the fish to Nick and he was very grateful. But since the definition of insanity is doing the same thing over and over again but expecting different results, I must be insane. For this story ends in a way I could of never predicted.

I went down to the pub for my weekly Mosquito fish update. The last two Mosquito fish I gave Nick were doing well in the 100 gallon trough. At least they weren't in a five gallon bucket. Why weren't they in the pond yet? Nick was still working on the trap for the pond to separate the mothers from their fry.

Which brings us up to Labor Day weekend - another stop at the pub and a conversation with Nick. The fish still were not in the pond, but at least they were not in a five gallon bucket. He was still working on making a trap. That was fine, I said, but cautioned this is time of the year it's starting to get cooler. Even though Mosquito fish are native to this area, this is the northernmost extent of their range. In a way they hibernate, I explained, over wintering by burying themselves in mulm till it gets warmer. Because of this, you are still going to need to put @#$%^&* fish in the @#$%^&* pond.

Another week went by and despite my protests no fish in the pond. Yet another week - still no fish in the pond. Too many other projects and irons in the fire. One of these projects involved disassembling a recently salvaged old washing machine. That's fine I said, but we are getting near October, and the Gambusia won't be able to over winter in bare 100 gallon trough. I again recommended putting the @#$%^&* fish in the @#$%^&* pond.

Although I didn't know it yet, this next trip for a Gambusia update would be my last.

Made it to the pub for last call. Nick was there as usual, excitedly proclaiming that he had finally put the fish in the pond! And here is how he did it! Remember the salvaged washing machine? Nick removed the colander-like tub from inside of it. This would become the breeding trap in the pond. The parents would be placed inside the tub, and the young would swim out the holes in the tub to freedom.

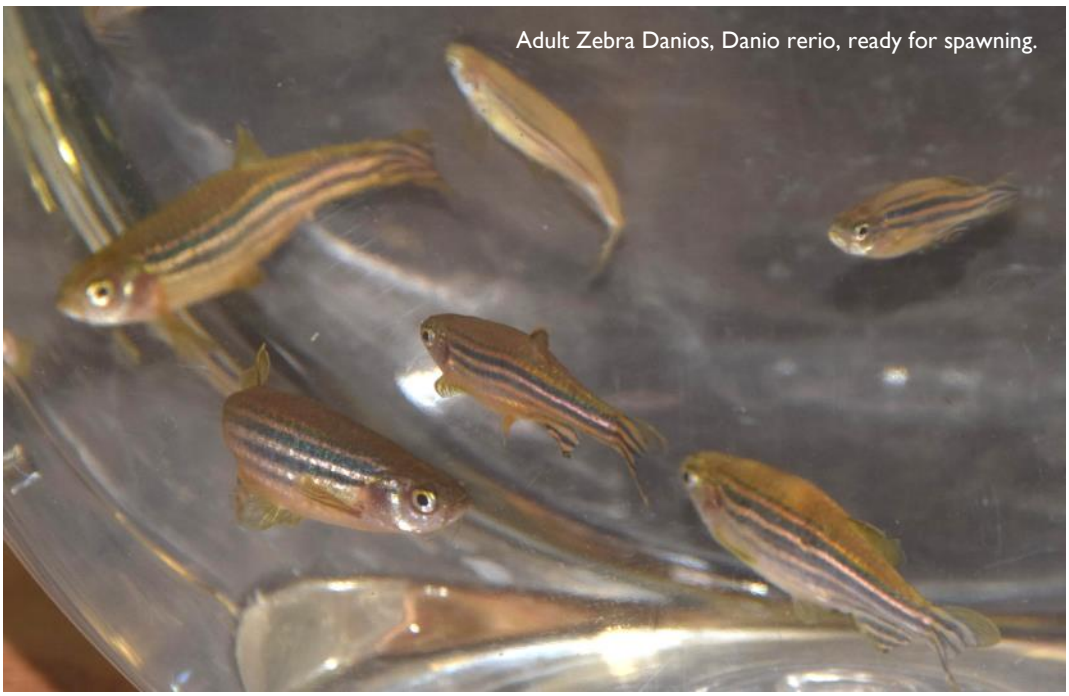
But the tub was way too heavy to lug out to the pond. So Nick fired up the bulldozer and put the washing machine tub in the scoop of the bulldozer. But wait -that's too easy, for the bulldozer might get stuck in the muck of the pond. So, to solve that problem he put on hip waders, wading out to the middle of the pond to place old wooden pallets as a platform to drive the bulldozer on so it wouldn't get stuck in the mud.

So, Nick drove the bulldozer with the washing machine tub in its scoop to the pond. He drove over the pallets he had placed in the pond to prevent the dozer from getting stuck. He then removed the tub from the scoop, hauled it to the middle of the pond, and placed the two (TWO!), Mosquito fish inside the tub. That is a lot of work for two fish that cost twenty five cents apiece!

I eventually earned my BAP points. I had thirteen fry left from which I donated eight, and sold the other five at auction for five dollars. Five dollars for five Mosquito fish? That's a dollar apiece for a fish that retails at twenty five cents apiece! But we know now that time is money, and the sweat, toil, work, and gas money spent on these mosquito fish means they were literally worth their weight in gold.

Epilogue: This past summer I made it up to Nick's farm with the intention of dip netting to judge the status of the Mosquito fish in the pond. The pond was drying up and looked horrible. Not only that, but a neighboring farmer used way too much fertilizer on his crops and the runoff ended up fertilizing the duckweed in the pond. I was only able to dip net duckweed and tadpoles in various stages of development. No sign of Gambusia. I will say this: this pond had the largest concentration of Bullfrogs I had ever seen in entire life. But alas, no fish.

THE MANY USES OF A DAPHNIA CULTURE… OR REARING ZEBRA DANIO FRY THE EASY WAY



Adult Zebra Danios, Danio rerio, ready for spawning.

By Chuck Bremer

"…the experiment proved small egg scatters could be raised without all the muss and fuss…

My tank of choice is a colony of livebearers. They are easy to spawn and most, if given a space large enough, will coexist with their young and create a continuous colony. Everyone has probably done this with the guppy, but my fish room contains several dozen species colonies, both large and small. FYI, I consider mouth brooding cichlids to be akin to livebearers…put 'em in a tank and they take care of themselves…presto, colony! I recently decided I need to broaden my horizons.

But, you see, there are several things I fear about small egg scatterers. Current literature says most of the small ones are difficult to feed - they need special small foods for fry; the eggs fungus prior to hatching and need a lot of care or special water or some other treatments; the adults eat their young without hesitation, etc.

Oh, yes, I've done it. Over forty years ago I set my wife up with a spawn of zebra fry and a tank of guppies to take care of while I was off to military training. She was also gestating our first son so this worked right in. We spawned the danios in a special-built long low tank full of marbles and she fed them hardboiled egg yolk, then transitioned to ground guppy food. Not a high survival rate, but it worked…and was a lot of work. The egg yolk suspension kept going bad and turning into hydrogen sulfide, etc.

Since then there has been the occasional spawn of egg scatterers - mostly by accident in the community tank. This has even included again the few zebra danio fry which were able to survive in a heavily planted tank. Rarely what one would consider as qualifying for BAP material, however.

But, as indicated, my horizons needs to be broadened, and that means spawning - on purpose - some of the egg scatterers. One can read of lots of newer, more modern methods now, especially for feeding. Many suggest use of infusoria or vinegar eels and then baby brine shrimp (BBS) when they are able to take them. But I still fear feeding the young fry as a major problem. And there's all that maintaining cultures and feeding frequently each day and water changes for fry one can barely see. It also means someone has to be around every day to feed and start the daily BBS culture. I just don't have the time, or the patience so it scares me - or maybe I'm just lazy.

Then after making several eclectic purchases at a regional fish

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club auction which included a 10 gallon tank with gravel and lots of marbles, a small breeding colony of Zebra Danios (5 fish), and a daphnia starter culture the problem was considered again. The three hour trip home gave time to think about the purchases and wonder if the zebras might be spawned. By the end of the trip a plan had been hatched. This would be an experiment in spawning and not feeding zebra danio fry, using only what had been bought at the auction.

The danios were in good condition so upon home arrival were immediately put into a gallon ice cream container with only the water from the bag and fed a few black worms. By the time the rest of the fish room was fed, the danios, hungry from the long stay in the auction bag, had cleaned up the black worms. The marbles were picked out of the newly purchased tank and about two layers were placed into the ice cream bucket with the danios. This filled the bucket to about one inch of the top of the water with marbles. The ice cream bucket with the danios and marbles was then covered to prevent jumping and set on the bench where it would receive spawning inducing light in the mornings from the other tanks.

Next attention was turned to a daphnia culture. The starter culture was poured into an aged five and a half gallon tank previously used as a holding tank for the fish to be sold at the auction and an air stone was added and set to "slow" just to keep the water moving slightly. The new culture was fed by pouring in about a half teaspoon of pureed sweet potato baby food suspended in water. By morning the daphnia had begun to plump up.

It should be noted that the 5½ gallon tank was well aged and had been used as a holding tank with plants in the past. So it had snails and some dirt already in it. It was a "quick and dirty" daphnia culture and these were left "as is". The daphnia had probably been collected in the wild as the culture had a few mosquito wigglers and a couple of small scuds in residence. A turkey baster was used to remove the mosquitos but the scuds proved too elusive to catch.

Everything was set aside for two days. The Danio adults were left unfed and at the end of this time were removed from the ice cream bucket and placed into a community tank for long term residence. Although in the white bucket no eggs could be seen, the marbles were removed, the water sloshed around, and poured into the daphnia culture. The culture was again fed with baby food as above with a little bit of finely ground flake food added as a garnish.

Adult zebra danios over marbles in the ice cream bucket. Note the shallow depth of the water. It prevents non-spawning adults in the tank from catching the eggs after they are laid.

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Daphnia culture set up. 5 ½ gallon tank with water and culture after being fed baby food

Now began the waiting. Every couple of days the daphnia culture was fed with baby food, sometimes with finely ground flake food added. The daphnia grew and began to reproduce creating a successful and growing culture. Other tanks were even fed from it on occasion.

After about 3 days a couple of eyes with thin tails were observed hanging on the glass side of the tank. Yes, there had been some eggs in the ice cream bucket and they were evidently hatching. The fry disappeared but the water was murky from the baby food and all the daphnia and this hindered visibility so it could not be known if they had survived past this phase or not.

At the end of a week occasionally small slivers could be seen swimming around in the water column with the daphnia. They were visible when silhouetted over a piece of white plastic laying on the bottom of the tank, so there were at least some danios that had survived to the free swimming stage. Normal care was continued for the daphnia culture by feeding it about every other day. There was no special care for the danios, which the experiment required to survive and feed on their own from within the culture.

As time passed the small fish became a bit more easily seen. After about a month they could be seen readily and the small daphnia had begun to thin. The daphnia culture began to take additional food to maintain the many adults that were present but smaller daphnia were disappearing. Danios were growing to ½ inch.

All at once- in the span of about a day, the baby daphnia nearly disappeared and it was time to remove the danio fry before they eliminated the culture.

The remaining adult daphnia had clustered together in the water column and most could be dipped out with one scoop of a small brine shrimp net. They were placed into a cup for holding and a slightly more coarse net was used to sweep back and forth in the remaining colony to catch the zebra danio fry which were ironically placed back into the original ice cream bucket (with fresh, aged water, of course) for holding. After the danios were removed the adult daphnia in the cup were returned to the original culture to maintain it.

Several daphnia had been caught when using the sweep net method but the danios clustered in the bucket and the retained daphnia could be re-netted from it with care and returned to the culture.

Now success could easily be assessed! The ice cream bucket contained about 50 young danios of various sizes. At no time during the month since spawning was it apparent they were this numerous as they were always difficult to find in the daphnia rearing tank. A thriving daphnia culture also remained. And I had never worried about fungused eggs nor had to feed the danio fry or change their water. Certainly an easy way to raise fry.

The danio fry were moved to a 10 gallon and fed from that point on as if they were adult fish. I would certainly consider this experiment a success.

Contrary to how it may appear, this was not a haphazard trial. Here are some things that may have led to success and some questions still remaining:

The adult danios were already conditioned when purchased and ready to spawn, they did not have to be conditioned other than one high protein meal to kick things off.

Adult removal two days after initiating spawning was based on published hatching times and was to allow time for the eggs to get ready to hatch but before they could move up to where the adults would find them to eat. A shorter time might have reduced the number of eggs and longer might have allowed predation. Based on observations in this experiment of a possibly longer hatching period, it would be interesting to try a slightly longer egg catch period to see if more eggs could be acquired, perhaps 3 or 4 days.

It's still unknown what the newly hatched fry were eating in the daphnia culture. They were probably eating the same pureed baby food as the daphnia but the culture also contained plant remnants, some fish food and snails. Snails feeding on plant remains will create infusoria or the finely ground fish food may also have produced bacteria or yeasts on which the daphnia or the newly hatched fry could have been feeding.

The daphnia used were probably D. pulex or D. magna as they were rather large. The adults were larger than the newly hatched danio fry and so could

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not have been eaten directly until the fry grew quite a bit older. The adult daphnia could continue to reproduce providing young daphnia as danio fry food.

This daphnia culture was created using a well-seasoned tank as a base. This tank had remnants of previous use that helped seed the colony food chain. If starting this tank from scratch I would have used 100% water from an established fish tank to do the same thing so it would not have to go through a nitrogen cycle of aging.

A few eggs may have been lost to the resident scuds. The scuds were small and few but could still be predatory. Preference would be a culture without them. The mosquito larvae are also predatory, but could be removed. Most of the mosquito risk would be if they emerged as adults and then fed on me, anyway, which is the real reason to get them out of the culture tank and into a tank with fish big enough to eat them first!

The fish food fed occasionally to the daphnia culture was to provide additional nutrients that the baby food did not provide, particularly protein was only about 5% in this baby food. Other baby foods that might work would be squash, pumpkin or peas. It is unclear, and references differ, whether the daphnia are feeding directly on the baby food or on yeast or bacteria the baby food helps promote.

Over feeding of either baby food or fish food can lead to an ammonia spike, just like overfeeding fish, so feed sparingly until the colony is well established. The air stone helped keep the water circulating to remove any ammonia and help keep the baby food in suspension so the daphnia could feed on it. There occasionally were adult daphnia on the bottom appearing to fan to raise settled food.

Even though all the danio eggs were laid in a period of just over 24 hours, the fry produced were of quite varied sizes. Whether this was due to variability in hatching time or variability in learning to eat in the tank is still a mystery. Even after slightly over a month of this experiment at least one small sliver of a fry was found in the daphnia culture after removal of the 50. Why it was still so small is a question still to be answered but it did survive and grow.

The water was never changed in the daphnia culture. Occasionally water was added to replace evaporation or with the baby food slurry. Over the course of the month just over half a 4 oz. jar of baby food was used so the culture was certainly economical when compared to other prepared foods.

The key to success was probably the maintenance of the daphnia culture. However, the experiment proved small egg scatters could be raised without all the muss and fuss of daily feedings and maintaining or purchasing multiple foods by using the food chain available in the daphnia culture instead. This should be more like grazing of fry in their natural habitat. Intensive hatching and rearing using prepared or specific foods may have created more fry or fry at a more consistent stage of growth, but this worked sufficiently.

The biggest lessons learned with this experiment are again that fish don't read, fish keeping shouldn't be difficult, and there is no reason to make it more difficult than necessary.

Zebra Danio fry in the same ice cream bucket after removal from the daphnia culture. I count about 50 fish ½ to 5/8 inch long.

A PROLOGUE TO COLLECTING IN NICARAGUA

By Kurt A. Zahringer

"I was wracked with fever, my group was leaving the next day, and I was facing the possibility of being alone for two days in a foreign country."

When I first attended a MASI Spring show in 2009, I had the privilege of seeing programs by Greg Steeves, Ray Lucas, Charlie Grimes, and Pam Chin. This began my journey with MASI, and my immersion into the organized aquarium hobby. I was particularly fascinated with Mrs. Chin's talk about scuba-diving and collecting in Lake Tanganyika. Although not an outlandish concept, it had simply never occurred to me to travel to another country for the specific purpose of collecting fish. Obviously I was aware of commercial fish collecting ventures, but I never considered this on an individual basis since that would be economically impractical.

However, as I marveled at Mrs. Chin's presentation, seeing the myriad of species captured by her incredible underwater photography and video, I understood the purpose of such an excursion. First, traveling abroad with a small group affords the opportunity to collect species that are neither economically feasible nor accessible for commercial collectors. Also, this served as a unique and incredible life experience, where one could actually explore and experience a foreign country and its fauna.

I decided then and there that, as soon as my life and financial situation would allow, I would venture beyond the borders of the US to a tropical land to find, capture, photograph, and return with fish of my own. It would be six long years until I would fulfill this promise to myself…

Late in 2014, Tim Rost, one of the pillars of my local church, announced he would be organizing a youth mission trip to Nicaragua to volunteer at a Christian school. In years past, my church had been very active in organizing mission trips, for organizations like Habitat for Humanity, and cleanup after hurricane Katrina, several of which I'd attended. Participation had dropped in years past and we hadn't organized such a trip for a few years. Mr. Rost intended to breathe new life into this aspect of our church's outreach and set an ambitious goal to do so.

I spoke to Mr. Rost immediately, and expressed my interest in attending. I knew this was a youth trip, but he said I might be able to attend as one of the adult chaperones (this was a rather jarring "Oh my God, I'm getting old," moment). My attendance was approved, and so I joined in the team's preparations for the trip of the following summer. It was very uplifting to know that I'd once again be traveling with my church to help people in need, and especially exciting to be traveling to another country.

I was then met with the usual concerns for traveling abroad: receiving vaccinations for Typhoid and Hepatitis, applying for a passport, etc. I spent some time learning about the country we'd be visiting. I learned that Nicaragua was a dangerous, war-torn country only a few decades ago. However, in recent years, the country had become much safer and inviting to tourists. Unfortunately, most of the country's population lived in staggering poverty. This made it a popular destination for charitable mission trips such as our own: relatively safe to travel, but in dire need of help.

While the prospect of this trip revived my inherent desire to help people in need, I'd be lying if I tried to deny that I was already thinking about collecting fish while there. Being the fanatical

A PROLOGUE TO COLLECTING IN NICARAGUA

fish-keeper that I am, I figured it would be a travesty of justice to travel to Nicaragua and NOT go fish-collecting. So, I began my search into this possibility. I reached out to my many contacts in the aquarium world and came up with essentially nothing. I did find a few individuals who had been to Nicaragua in years past, but they were less than helpful. So, if I was determined to do this, I'd have to do it myself.

My first useful contact I found simply via Google search. I found an individual on a cichlid forum who claimed that she lived in Nicaragua. I contacted her, explaining what I wanted, and asked if she knew anyone who could assist me. To my pleasant surprise, she replied, and said she lived on the opposite side of the country from where my group would be working, in the capital city of Managua, but she knew two people that might help: one ecologist, and one pet-shop owner. I contacted both in turn, asking if they'd be willing to assist me. The pet store owner, Benjamin Hagen, was very friendly, and we corresponded about the aquarium hobby in Nicaragua, but he had no experience collecting wild fish. The ecologist seemed very knowledgeable and willing to help, and so I made tentative plans to have him guide me around the countryside.

I'd been collecting in Missouri on numerous occasions, so I was familiar with the process itself. However, given the nature of the trip, I had to adopt a minimalist approach to my preparations, while also maintaining high levels of portability and discretion. My finalized list of fishing supplies consisted of these items:

- 2 disposable mesh laundry bags with a pvc-pipe frame (an inexpensive design given to me by Jeff Cardwell)
- set of Kordon breather bags
- small aquarium net
- collapsible 5-gal water tank
- insulated backpack
- 10' seine net (minus the poles, which I would obtain there)
- bottle of Stress Coat
- set of 4-cup plastic deli cups
- collapsible camping wash-basin
- telescoping fishing pole with tackle

With exception of the pvc pipes,

everything could be folded tightly and packed into the insulated backpack and weighed only a few pounds. The wash basin, made of thick, transparent plastic with handles and two compartments, was an inclusion of my own, which I encountered while at the main Bass Pro Shop in Springfield, MO. I saw this item and thought it would make an ideal sorting station for fish while in the field. My notion turned out to be correct, as this item proved very useful on the trip, and will surely be a mainstay for my future collecting.

I researched extensively on fish-collecting in Nicaragua, and was never able to get any definitive answer. I decided to follow advice by Jeff Cardwell: just don't draw attention to yourself.

Everything was coming together nicely, and I informed the other leaders of the trip of my extra plans. I didn't want to impact the rest of the group's schedule, so I amended my plane ticket to return two days later than the others, so I could explore the countryside at my leisure. However, roughly ten days prior to my departure, the ecologist stopped returning my emails. By this point, it was too late to amend my flight again without exorbitant fees, and I had to concentrate on preparing for my trip, so I simply hoped that everything would work out. I'd have an entire week to get to know the people and the area, so I figured surely I could handle things.

Finally, the day came when we departed for Nicaragua. I was filled with apprehension and excitement, after preparing for this day for nearly eight months, and finally leaving the country for the first time. My team departed from our church for Kansas City early on Saturday morning. After checking in, we flew to Houston, where we endured an exhaustive layover, including multiple delays, before finally departing for Nicaragua. Although I typically have no fear of flying, I have to admit I felt a small twinge of concern during the stewardess's instructions regarding a water landing. I realized we would in fact fly an appreciable distance over the Gulf of Mexico. Fortunately, the flight was a mere three hours and uneventful.

Upon arriving in Nicaragua late at night, we were processed through the airport with scans of our luggage, stamping of our passports, facial photographs and

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filling out customs forms and tourist permits. After completing all that, we met our host, Mr. Henry Vargas, who took us to his residence. Henry lived the American dream, immigrating from Venezuela to the US, where he achieved considerable success as a professional chef catering to the rich and famous. However, he eventually left all that behind, and returned to Latin America to build a school to serve the underprivileged children of Nicaragua.

We lived with Henry for the next week and he fed us extraordinarily well (he had not forgotten his skills as a chef). We worked during the day at the Managua Christian Academy. This is a nondenominational, donation-funded institution, which serves hundreds of impoverished and abandoned children. Although just ten years old, it has performed well above the public schools in Managua, and is now being used as a model to improve these schools.

We determined the greatest need was drainage of the school property. Western Nicaragua receives rain only three months per year, roughly from June through August, but these seasonal rains can be quite heavy. Consequently, the school would often flood, causing both property damage and closure of the school for days on end. We built and installed concrete drain-boxes and laid 10" pipe around the school, diverting water to the street. It was a monumental task, and is a worthwhile story in its own right, but now my story about the fish…

Throughout the week, as we toiled in the equatorial sun, my anxiety was growing as each day passed without hearing back from the ecologist. Finally, on Thursday of the week, the ecologist replied, apologizing for not answering sooner, but informing me that he was too busy right now, and wouldn't be able to help. I pleaded for his assistance, or at least his advice and a recommendation on someone else who might guide me. To this day, I have never received further communications from him.

To make matters worse, around this same time, I'd started to develop a sore throat. By the next day, I was in the depths of a horrible cold, complete with fever. This wasn't some Nicaraguan influenza I'd contracted – one of the girls on our team had come on the trip while on the downhill-side of this cold, and by the end of the week, several of us had gotten it. In desperation, I'd tried calling Benjamin at the pet shop, but he hadn't yet returned my calls. As Saturday approached, I was probably as close to the brink of a legitimate nervous breakdown as I've ever been. I was wracked with fever, my group was leaving the next day, and I was facing the possibility of being alone for two days in a foreign country. I told so many people about my fish-collecting addendum to the trip, and now it seemed as though it would slip through my fingers. However, the absolute worst part of the whole ordeal would be returning home, without even so much as a memory of the experience of fish collecting in the tropics.

Before my last shred of sanity failed on Saturday evening, Benjamin's business-partner called me back, apologizing and saying that they'd been overly busy that day, and that Benjamin would be glad to help me. He knew nothing of fish-collecting, so I'd have to provide the expertise, but he was willing to furnish the transportation on Sunday. I eagerly accepted. This gave me another 24 hours to recollect my thoughts and composure.

The next day, I would travel with Benjamin to Laguna Xiloa, a beautiful, small volcanic lake just outside Managua; and on Monday, Guillermo would drive me south to Granada, on the shores of Lake Nicaragua, the great lake of Central America (the adventures there to be regaled in a future article). Although collecting was considerably smaller and less interesting than the original excursion I had planned into the rainforests of central Nicaragua, I could go home content. After a progression of stressors ranging from annoyances to fiascos, everything had fallen into place, and allowed me to fulfill my goal I'd set so many years ago. Of equal importance, I had also gained substantial experience regarding the planning, preparation, and execution of a trip like this, which will definitely serve me well in future adventures. I am sincerely indebted to Henry and Benjamin for salvaging the chance to make my collecting trip possible. Hopefully, I shall return someday in the not-too-distant future, and with a better knowledge of the country and some contacts, I can build on my experience.

To Be Continued

BETTER LUCKY THAN GOOD

By Michael Pyle

Reprinted from "Cichlid Communique", Pacific Coast Cichlid Association, May/June 2015, No. 208

I am slowly but surely trying to breed different kinds of Tanganyikans starting with the species that are easiest to breed. My most recent success was with a pair of Julidochromis regani "Sumbu," one of the so-called "giant Julies" from Lake Tanganyika that has been in the hobby for a long time. The location name "Sumbu" refers to Sumbu Island in Lake Tanganyika.

It is an attractive Julie with yellow fins edged in light blue; whether they are the prettiest variety of J. regani is in the eye of the beholder. This variety reportedly is called "Zambia gold" or "Sumbu gold" by some.

I obtained my pair in two different PCCA auctions. I first bought a female, which was wild and large (5"). At the next meeting I sought to find some potential mates. Being unable to sex small Julies I bought three small (1") J. regani. Two of the three were promptly killed by tank mates and one survived. I figured my odds of having a breeding pair were low, but through luck it turned out (a few months later) that I had a pair.

My pair live in a 55 gallon tank with the usual hard water and kept at about 78°F . They have tolerated (and perhaps even benefited from) water changes of about 25% per week. I maintain the tank as a community Tanganyikan tank with a breeding pair of Neolamprologus pulcher "Daffodils" (and their offspring) as well as a small group of Neolamprologus leleupi. The pair of Daffodils dominate the tank but the female J. regani was

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sufficiently large that she held her own and the Daffodils and Julies seem to have made a truce and occupy different sides of the tank.

Unlike some other Julies that I have in other tanks, the J. regani are not tied to the rocks but rather swim confidently and slowly through the bottom two thirds of the tank. They are generally peaceful with the other fish in the tank. They eat algae off of the rocks in my tank and I alternate between feeding them a variety of flakes and frozen brine shrimp. I have found that they are more active when I periodically deprive them of food for 1-2 days.

I did not see the fish spawn, but a few days before they hatched I was cleaning the tank and saw the eggs attached near the top on the inside of two pieces of slate that are set at an angle to form a triangular cave. There were approximately 30 eggs. My pair did not display any signs of aggression or otherwise give any clues to the fact that they had bred. From the beginning the female had made the slate cave her "home" and she would retreat to that location whenever threatened but she did not "disappear" into the cave prior to the breeding.

At the time I saw the eggs I thought they had to be from a different fish in my tank. The mismatch in size (a 5" and very thick female with a 2" and thin male) combined with the absence of any behavioral clue that they had formed a pair left me convinced that it could not have been the Julies who bred.

As soon as the eggs hatched, however, it was clear that the babies were J. regani. After hatching, the fry remained in the cave and picked algae from the sides. I used a turkey baster to get some baby brine shrimp into the cave, feeding the fry three or more times per day with small amounts of baby brine shrimp. The fry gradually moved out of the cave and were probably 3/8" in size when they began to spend most of their time out of the cave. The fry have grown quickly (a little over 3 months to reach an inch in size). They now roam around the tank and graze algae off of the rocks in my tank; the fry seem to be bolder than their parents and do not cling to them. I try to keep the glass free from algae but let it grow on the rocks in my tank so that the fry (and their parents) can graze on the rocks to supplement their diet.

I have found J. regani to be an attractive addition to my Tanganyikan community. As an added bonus, they are easy to breed if, like me, you luck into having a breeding pair and provide some caves for them to use for spawning.

CORYDORAS LEOPARDUS

By Stan Chechak

Reprinted from "Finformation", Nov 2014, The Greater Pittsburgh Aquarium Society

Our subject, on Day 0:

Background

I won a bag of five Corydoras leopardus at the Greater Pittsburgh Aquarium Society Inc. (GPASI) Spring 2013 Auction. Ian Fuller's book "Identifying Corydoradinae Catfish" states this species of catfish as being native to various areas of Brazil, Ecuador and Peru. It was difficult to tell the genders of the fish even though they appeared to be adults at approximately 2" total length. I hoped to spawn these Corys, but at the very least they would be an attractive community fish for one of my larger tanks.

Tank & Equipment

Spawning Tank: 10 gallon (20" x 10" x 12")

Spawning Tank Water: Approximately nine gallons of "aged" water (pH = 6.8, Ammonia = 0 ppm, Nitrites = 0 ppm, Nitrates = 5 ppm, General Hardness = 7 dGH, Carbonate Hardness = 4dKH, Temperature = 80°F).

Spawning Tank Accessories:

- One Sponge Filter plus Air Pump and Tubing
- One 50W Heater (to maintain the water temperature between 76oF - 80oF) plus a thermometer
- Black aquarium sand (~3/4" deep)
- Plants - Java Ferns (attached to rocks) and Java Moss
- Full hood reflector with two 15 watt helical fluorescent bulbs

Discussion

After a week in a quarantine tank the five Corys were placed in my 29 gallon community tank since I did not have a spare 10 gallon tank available for spawning. They remained in the community tank for about 10 months until I had a spare tank and decided to try spawning them. The Corys seemed to be a somewhat shy fish in the community tank and proved to be even shyer when placed in the 10 gallon tank. They spent most of the time hiding under the sponge filter except during dinner time.

The good news was now that the fish were older it was easier to tell their genders. One fish had an obviously longer and heavier body than the other four, so I figured there was at least one female. However, after about five months of nothing resembling spawning or even pre-spawning activity in the 10 gallon "spawning" tank, my enthusiasm waned. I estimated the fish were at least two years old and I started to wonder if they were getting too old to spawn.

In May 2014 while I was debating whether to put the Corys back into a community tank and use the 10 gallon for spawning a more promising species, I spotted about two dozen eggs on the glass. Most of the eggs were on the sides and back of the tank and were "fungused". I wondered if the fish had spawned other times out of sight (maybe in the back of the tank) and I never noticed. Now that I knew they had spawned I paid more attention to their activities.

Less than three weeks later I spotted about three dozen eggs on the front glass of the tank when I came home from work. I spent the next 45 minutes watching as the big (heavy) female and a male would "T – up" and she would subsequently deposit eggs on the front and sides of the tank. It was not possible to tell if more than one

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male was involved in the spawning activities. After dinner I checked on the Corys and noticed they were busy searching for food in the bottom of the tank. Their spawning activities were over for now so I removed the approximately 75-80 eggs from the glass with a razorblade. The eggs were evenly distributed between two different 1-pint plastic containers, which were floated in an available 5 gallon tank. A drop of Methylene Blue was added to each container to minimize fungus growth on the eggs and an airline was also placed in each container to gently circulate the water. I wrapped brown paper from a grocery bag around the 5 gallon tank to further control the amount of light getting to the eggs. Having the eggs develop in the dark would minimize the growth of fungus on any unfertilized eggs and/or spread to the viable eggs.

Four days later I removed some of the brown paper to check on the eggs. Approximately half the eggs had hatched in each container and some of the remaining eggs were in the process of hatching. Since the water parameters were the same in the containers and the 5 gallon tank, I released the newly hatched fry and eggs into the tank. The fry sank to the bottom. Their large yolk sacs made them appear to be little BBs with tails.

Raising the Fry

It took about 3-4 days for the fry to absorb their yolk sacs and become free-swimming. The approximately 50 fry were fed powdered fry food and microworms for their first meal. My wife always enjoys watching Corydoras fry since their appearance and foraging in the sand are "so cute". I continued to feed the fry powdered food twice a day for the first month with microworms added every other day.

At the start of the second month I moved about half of the fry to a 10 gallon tank, which was fortunate. Over the next week about half the fry in the original 5 gallon tank died even though I had been doing 50% water changes every 3-4 days. I now had about 15-20 fry in the 10 gallon tank and only 8 fry in the 5 gallon tank.

Since the fry had grown sufficiently, at six weeks I started feeding them a sinking pellet twice a day. The pellets which "dissolve" within 30 minutes attracted both the fry and the janitors (i.e., pond snails). Once the fry were big enough to start eating "adult food" (i.e., the algae pellets) their growth rate increased noticeably.

When the fry were seven weeks old, I moved the remaining six fry from the 5 gallon tank to the 10 gallon with their siblings. Also at seven weeks I supplemented one feeding every five days with cropped-up live black worms. The fry seemed very interested in the treat, and the pond snails finished off any remaining chopped-up black worms. I continued 40% water changes in the 10 gallon tank every 4-6 days.

Conclusions

The Corydoras leopardus fry were moderate in their growth rate compared to other Corys I have spawned. At six weeks old they were approximately 3/8 inch long. Once they started eating "adult" foods (i.e., pellets and crushed flakes) plus the chopped live black worms their growth rate jumped. By 8 weeks the smaller fry were at least 3/4 inch long. It should be noted I did not lose any more fry once they were large enough to eat the more nutritious "adult" foods.

I've stated before that my wife feels I spend too much time "hovering over" my fish and that maybe I should just leave them alone and they will spawn (i.e., "a watched pot never boils"). This time she may have been wrong. If I had spent more time observing the Corydoras leopardus adults I may have spotted eggs in either the community tank or the 10 gallon spawning tank. Most of my fellow aquarists would probably agree at one time or another we have been guilty of ignoring some of our fish. By doing so we have most likely missed some interesting events.

LED SPOTLIGHT

BY MARK ENGLAND

LED technology is advancing rapidly and prices are falling. It may be a little early to say fluorescents and metal halide are dead, but for most applications, LED is now the preferred choice. The latest lights are brighter, can produce any mix of colors you desire, and offer a level of control never before available. You can have sunrise/sunset cycles, moonlight, cloud cover and lightning effects. Want to make your fishes' colors really pop? Just custom blend the spectrum to emphasize the colors you want. Add to all this attractive fixtures, low operating costs, a lamp life of 10+ years, and competitive pricing, and your next light is likely to be LED.

When shopping for LED's or comparing to other types of lighting, important specifications are PAR ratings and color temperature. Forget watts per gallon – it's no longer relevant. PAR (Photosynthetically Active Radiation) measures the useful light available to plants. While there are some technical nuances, published PAR values are the best ratings commonly available to compare intensity. What's a good number for your tank? Plantedtank.net suggests:

- Low light: 10-30 PAR
- Medium light: 30-80 PAR
- High light: 80-120 PAR

High light levels are typically for reef tanks and CO2 injected planted tanks.

Color temperature is measured in degrees kelvin and refers to the spectrum of light produced. Most planted tank hobbyists prefer lighting in the 6500-10,000° K range while reef tanks may have up to 20,000° K. Like PAR, color temperature generates a lot of debate and affects how plants grow and how fish look. To simulate different color temperatures, LED lights use a mixture of LED emitters with different colors. The latest lights allow you to adjust the mix to create different color effects, another advantage of LED's.

Finnex and BuildMyLED seem to be generating the most buzz currently. This is a time when the latest may be the greatest, so do your homework when shopping.

Make	Current	Finnex	Marineland	Aqueon	BuildMyLED.com
Model	Satellite + Pro 4013 (48-60")	Planted + 24/7 KL-48A (48")	Aquatic Plant LED Light with Timer	LED Aquarium Light Fixture, 48-Inch	Dutch Planted Tank 6300K
Depth – PAR rating	12" – 100+*	12" – 75*	12" - 172 max, 72 avg.*	12" - 20-30*	12" - 145 @90° beam*
White LED's / Temperature RGB=red, green, blue	40 white (6500° K), 20 RGB	96 white (7000° K), 48 RGB	46 white (6500° K), 8 blue	Not available from mfg.	32 white (6500°K), (8) 625nm Red, (4) 470nm Blue, (4) 505nm Cyan, (4) 525nm Green, (4) 615nm Orange/Red, (4)60nm Deep Red
MSRP	$319.95	$179.99	$611.99	$161.00	$269.00
Amazon (June 1)	$287.95	$130.28 (ships in 1-4 mo)	$319.99	$92.35	Available only on mfg. website
Fixture	Aluminum extruded body serves as heat sink. Adjustable mounts fit most tanks. Water resistant rating.				
Features	Integrated timer with sunrise/sunset ramping. Adjustable color mix and intensity. 6 preset effects including cloud cover, fading lunar, storm, and lightning. 4 preset color mixes. 2 memory locations for custom color spectrums. IR remote control and programming.	Automated day/night cycle with sunrise/sunset ramping. All LED's are manually adjustable for intensity giving a full range of color mixing. Preset effects include thunderstorms, cloudy days, sunny days, and moonlight. 4 memory locations save custom settings. IR remote control and programming.	Integrated Timer controls daytime and lunar settings Specially Designed polycarbonate lens to maximize light penetration within the aquarium Slim profile	One Day White LED is included, expansion slots for two additional easy-to-install LED lamps Plug and play connections are moisture-resistant Includes pre-installed, adjustable mounting legs and three-position power switch: day, night and moon glow	It has the light (PAR) levels needed to grow the most light-hungry plants in a properly fertilized, CO2-injected environment. When using this fixture in a Lo-Tech, non-CO2, "medium" light environment, we recommend purchasing a dimmer when ordering to produce lower light levels as needed.
Notes	* manufacturer's rating	*hobbyist rating at http://www.plantedtank.net/forums/showthread.php?t=871385	* manufacturer's rating	* manufacturer's rating	* manufacturer's rating. Note this mfg. will custom build lights with any mix of LED colors. Dimmers not included.

2015 INTERNATIONAL AQUATIC PLANTS LAYOUT CONTEST

The IAPLC (http://en.iaplc.com) claims to be the world's largest aquascaping contest and this year it received 2,545 entries from 69 countries. 17 judges from 5 continents graded each of the works which were submitted by photograph. The grand prize is 1,000,000 Japanese yen ($8,400 USD). The contest was begun by Takeshi Amano in 2009 and entries heavily favor his style of aquascaping, "The Nature Aquarium". Indeed, Japan, China, Brazil, and France dominate the top awards. There were 13 US entrants. Below are some winners to inspire you.

1. Longing by Takayuki Fukada, Japan ^

2. Hidden Land by Bowen Fan, China v

3. Follow In by Yufan Yang, China v

2015 INTERNATIONAL AQUATIC PLANTS LAYOUT CONTEST

4. Deep Nature by Paulo Pacheco, Brazil ^

5. Metempsychosis by Yi Ye, China v

6. A Hunting Ground by Josh Sim, Malaysia ^

7. Mysterious World by Yong Liu, China v

TOO TOUGH TO KILL— THE SERGENT MAJOR, ABUDEFDUF SAXATILIS

By Anthony P. Kroeger

Reprinted from Aquatica, Vol. 28, No. 5. The Brooklyn Aquarium Society, May - June, 2015

"Bar none, this is the toughest Damsel I know"

We continue our survey of beginner fish that will handle any mistakes thrown at them and still survive. My #1 choice in Damsels is the Sargent Major. In my opinion, this is the hardiest Damsel. Most Sargent Majors in stores come from Florida or the Caribbean. They can grow to about 5" inches, but usually remain smaller. Majors have a silvery/yellow body with 5 vertical black stripes over it; the tail is a smoky black. Young fish are especially yellow.

Majors eat any food offered. Once I fed them cracker crumbs just to see if they'd eat them. They loved them! Any normal water at pH 8.0, a temperature between 72˚ - 80˚F and salinity between 1.020 and 1.024 will suit them fine. A 20 gallon or larger tank will be just fine. I use Majors to cycle tanks because they turn black when their water quality goes bad. If this happens during cycling, change 20% of the water and they will recover. They behave like Tomato Clowns when cycling a tank. Majors also do fine alone, or you can keep them in schools. But a school is basically a collection of Ebenezer Scrooges all in one room. They are grouchy with each other but still tolerate the company. Majors tolerate wide temperature fluctuations. I once had a heater thermostat stick, the tank temperature went to 103˚F and the Majors were the only fish to survive.

Although breeding habits of this damsel are known, it is not raised commercially. All specimens available in stores are wild caught. Juveniles of this fish will sometimes exhibit "cleaning" behavior. That is, they will pick parasites off other fishes. This is not a common behavior with this fish, but I have seen it on occasion. So if you see them pick something off another species of fish don't worry. However, if the behavior is constant, badgering, belligerent or chasing, that is not a "cleaning" behavior, that is aggression and must be dealt with.

This fish is not the cheapest damsel to buy, but compared to other fish, it is usually cheaper. Majors are also good "dither" fish for shy fish. Majors constantly swim and move about the aquarium. They're bold feeders that are always first to the chow line. A Major that hides is stressed, in trouble and this indicates that something is wrong. Because of their constant (dither) activity, they help fish that can be shy to feel more comfortable and safe. If it's safe for the Majors to be out in the open, then it's safe for the shy fish, too. Majors' boldness at feeding time also helps other fish feed better too. Do not keep two Majors together. One will bully the other. Always keep Majors either alone or in schools of 3 to 6 fish. Bar none, this is the toughest Damsel I know. This fish has earned its stripes as a beginner's fish. Try some next time you set up or cycle a marine tank. Until next time and toughie #3, a fish with lots of color.

PREPARING YOUR TANKS FOR WINTER

By Jeremy Phillips

Reprinted from Michiana Tropical Times, Michiana Aquarium Society, November, 2015,

"...isn't it worth having a backup plan that could keep your prized aquarium from disaster?"

Winter is just around the corner, and for Michiana, that usually means snow! And with snow and ice comes power outages. Many of us have probably experienced a power outage at one time or another, but in the winter they can be particularly long if it involves snow and or ice. Since this is bound to happen at one time or another, why shouldn't we all be ready for it to happen?

Why is it that a power outage can be so dangerous to our aquarium inhabitants? One major problem is a loss of water circulation. Without proper movement, water can quickly stagnate and prevent proper oxygen concentrations. This is especially important in heavily stocked aquariums that use oxygen in the water column quickly or high heat aquariums that do not keep dissolved oxygen as easily as colder ones.

Adequate oxygen concentrations are also important for biological filtration. Aerobic microbes require oxygen to metabolize ammonia and nitrite into nitrates. Over longer periods of time, a decrease in oxygen will allow anaerobic bacteria to thrive in your bacterial media, but not before the aerobic bacteria colonies crash and dump all their stored ammonia, phosphates and other cellular waste back into the water. Longer term outages may also cause a buildup of hydrogen sulfide, which is also dangerous to your fish.

Another factor, especially in the winter, is the aquarium temperature. Thankfully, most if not all fish can survive for a short time at varying temperatures, with cooler waters being easier than warmer (think of some of the temperatures they may have survived in shipping). A positive note for cooler water temperatures is the increased dissolved oxygen content (although the change may not be that significant), but we still don't want fish ice cubes!

What would be the easiest and most effective method to prevent fish loss during a power outage? How about keeping the power on in the first place? Uninterruptible Power Supplies (UPS) commonly sold for desktop computers can be easily purchased and put in place to run full systems for a period of time. For longer term use, using only the required life support systems can be plugged into charged backups to last for a few days depending on the wattage and power requirements.

Whether or not you use a UPS or other method of backup power (I've used my car battery and a power inverter in a jam once) you will need efficient equipment to add airflow and provide adequate temperature. A simple pump driving an airstone works wonders for adding water circulation and oxygen. For long term use, the aquarium heater can be turned down to keep the tank somewhat warm.

What if you don't happen to have any backup power? You can wrap your tanks as well to keep heat in by using an insulating blanket, towels or cut Styrofoam. The addition of 3% hydrogen peroxide from the pharmacy section can also introduce oxygen into the water as it breaks down over time. One mL per ten gallons an hour can work in a pinch, but will start to destroy your bacterial filtration after a few doses.

Also, remember to prepare your tank for when the power comes back on. If your filters have crashed, dumping this back in the tank could be worse than starting with a cleaned filter with little bacteria at all. A water change will help after the power comes back on as well to remove any reintroduced ammonia. If you did allow your aquarium to drop in temperature, make sure you allow the tank to raise back up to normal temperatures slowly; you don't want to stress your fish any more than they already have been!

Power outages can happen at any time of the year and don't have to be weather related. Spring and summer thunderstorms can bring damaging winds that tear down power lines, so why not prepare for those as well?

If the power is out for only a couple of hours your fish should be fine. But we are never guaranteed power outages will be only short term. If you have a significant investment in your aquarium livestock (or are really sentimental about your fish), isn't it worth having a backup plan that could keep your prized aquarium from disaster?

Ed Millinger

The 12 Days of Fishmas

1 On the first day of Fishmas my true love gave to me, a pleco in a pleco cave.

2 On the second day of Fishmas my true love gave to me, two tuxedo swords and a pleco in a pleco cave

3 On the third day of Fishmas my true love gave to me, three feather fin rainbows, two tuxedo swords and a pleco in a pleco cave.

4 On the fourth day of Fishmas my true love gave to me, four cardinal tetras, three feather fin rainbows, two tuxedo swords, and a pleco in a pleco cave.

5 On the fifth day of Fishmas my true love gave to me, five... gold... rams...., four cardinal tetras, three feather fin rainbows, two tuxedo swords and a pleco in a pleco cave.

6 On the sixth day of Fishmas my true love gave to me, six Geophagus a laying, five...golden...rams..., four cardinal tetras, three feather fin rainbows, two tuxedo swords and a pleco in a pleco cave.

6 On the sixth day of Fishmas my true love gave to me, six Geophagus a laying, five...golden...rams..., four cardinal tetras, three feather fin rainbows, two tuxedo swords and a pleco in a pleco cave.

7 On the seventh day of Fishmas my true love gave to me, seven sevrums swimming, six Geophagus a laying, five...golden...rams..., four cardinal tetras, three feather fin rainbows, two tuxedo swords,and a pleco in a pleco cave.

8 On the eighth day of Fishmas my true love gave to me, eight catfish meowing, seven sevrums swimming, six Geophagus a laying, five...golden...rams..., four cardinal tetras, three feather fin rainbows, two tuxedo swords, and a pleco in a pleco cave.

9 On the ninth day of Fishmas my true love gave to me nine leaf fish raking, eight catfish meowing, seven sevrums swimming, six Geophagus a laying, five...golden...rams..., four cardinal tetras, three feather fin rainbows, two tuxedo swords and a pleco in a pleco cave.

10 On the tenth day of Fishmas my true love gave to me, ten loaches a leaping, nine leaf fish raking, eight catfish meowing, seven sevrums swimming, six Geophagus a laying, five...golden...rams..., four cardinal tetras, three feather fin rainbows, two tuxedo swords and a pleco in a pleco cave.

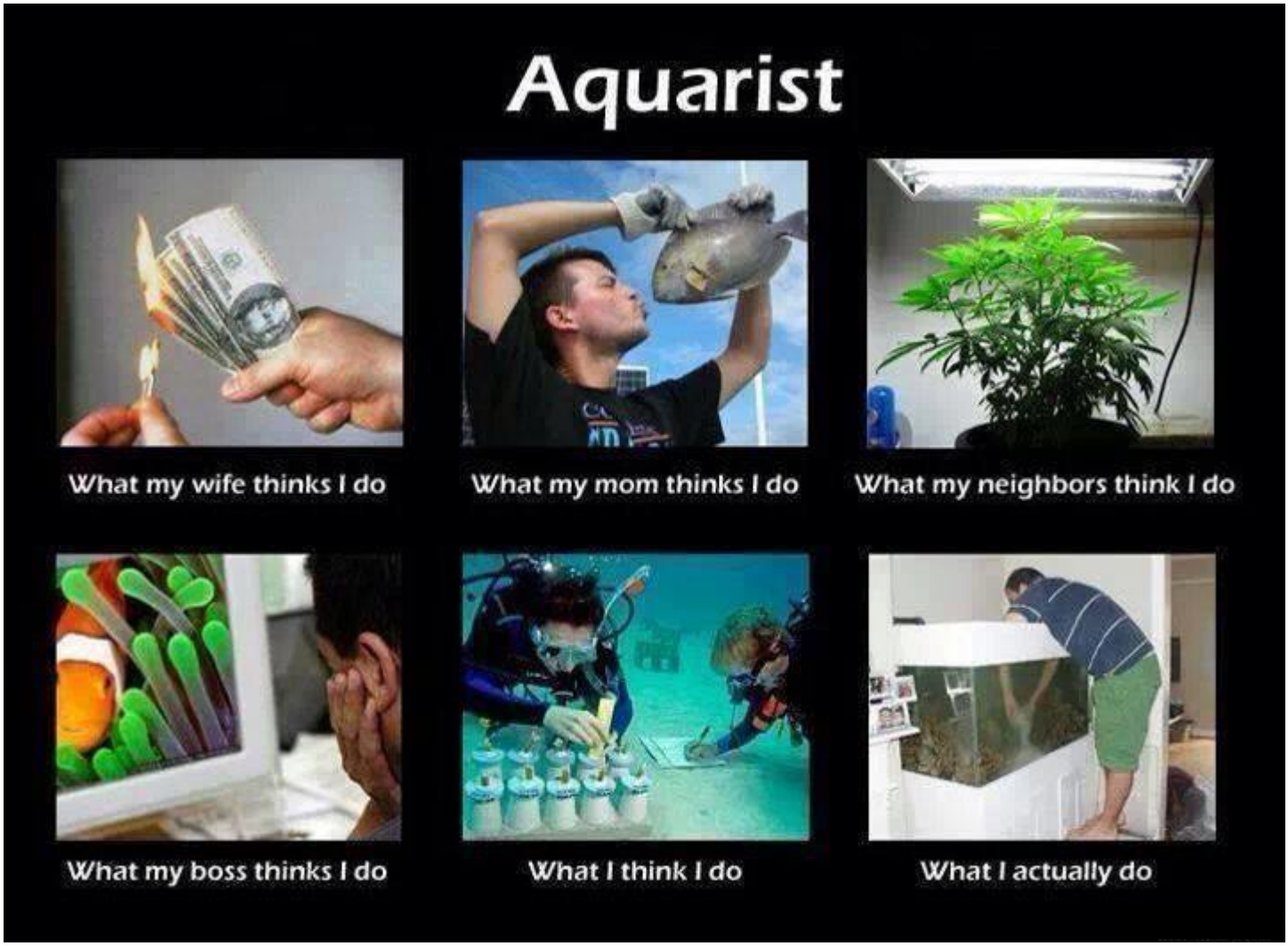
11 On the eleventh day of Fishmas my true love gave to me, eleven piranhas preying (the fish being chased praying), ten loaches leaping, nine leaf fish raking, eight catfish meowing, seven sevrums swimming, six Geophagus a laying, five...golden...rams..., four cardinal tetras, three feather fin rainbows, two tuxedo swords and a pleco in a pleco cave.

12 On the twelfth day of Fishmas my true love gave to me, twelve discus discussing, eleven piranhas preying (the fish being chased praying), ten loaches a leaping, nine leaf fish raking, eight catfish meowing, seven sevrums swimming, six Geophagus a laying, five...golden...rams..., four cardinal tetras, three feather fin rainbows, two tuxedo swords and a pleco in a pleco cave.....

ODDBALLS

ABSURD AQUARIUMS

See something fishy that makes you laugh?
Send it to editor@missouriaquariumsociety.com



FISHES AS DISHES

PATRICK A. TOSIE, SR.

Baked Tilapa and Angel Hair Pasta

We all love our fish! This column will be dedicated to using our fish for something tasty to enjoy. Try it, you may like it. If you have leftovers, bring it to a monthly meeting for others to enjoy!

Ingredients:
2 tablespoons extra-virgin olive oil, twice-around-the-pan
1 small onion, finely chopped, about 1/3 cup
2 cloves garlic, chopped
1/2 cup dry white wine
1 (15-ounce) can stewed tomatoes
3 tablespoons chopped flat-leaf parsley
2 pounds tilapia, rinsed and dried
Salt and pepper
2 tablespoons butter
1/2 pound angel hair, cooked just shy of al dente, about 4 or 5 minutes

Directions:
To a small skillet preheated over medium heat, add extra-virgin olive oil, onion and garlic. Cook onions 5 minutes, until translucent. Add wine to the pan and reduce for 30 seconds. Add tomatoes and break up the sliced stewed tomatoes with a wooden spoon as they heat through. When the sauce comes to a boil (2 or 3 minutes) remove it from the heat and stir in the parsley. Season the fish with salt and pepper. Pour a few spoonfuls of sauce into the bottom of a shallow baking dish. Add fish to the dish in a single layer. Add remaining sauce and bake 15 to 17 minutes until fish is firm and opaque.

Remove fish to serving plate or dinner plates. Spoon a few bits of tomato and sauce over the fish. To the remaining sauce in the baking dish add 2 tablespoons butter cut into small pieces. Add hot pasta to butter and sauce and turn pasta in dish to coat evenly and to allow pasta to absorb juices. Pile pasta alongside fish and serve. If you are entertaining, try bundling portions of pasta around a large, 2-pronged meat fork, by twisting the fork in the pasta allowing it to curl up the fork. Shimmy the twisted pasta off the fork on to a plate you will create pasta "nests." This simple "twist" adds a lot to the plate presentation.

Total Time: 30 minutes (Preparation: 10 minutes, Cook: 20 minutes) Yields 4 servings

Sep/Oct Horticulture Award Program by Mike Hellweg

Aquarist	Species	Common Name	Key	Points	Total	Note
Chuck Bremer	Azolla caroliniana	Fairy Moss	V	5	400	
	Marsilea crenata	Water Clover	V	15		
Daniell Kinder	Eichhornia crassipes	Water Hyacinth	V	5	60	
	Eichhornia crassipes	Water Hyacinth	OB	5		
Ed Millinger	Lomariopsis lineata	Susswassertang	V	5	325	
Mike Huber	Alternanthera ficoidea Raspberry Swirl	Raspberry Swirl Hedge	OB	15	3,515	
	Alternanthera ficoidea Raspberry Swirl	Raspberry Swirl Hedge	V	15		
	Colocasia esculenta Mojito	Mojito Taro	V	15		MASI First
	Cyperus alternifolius gracilis	Dwarf Umbrella Palm	V	10		
	Cyperus alternifolius	Umbrella Palm	V	10		
	Cyperus papyrus	Giant Papyrus	V	10		
	Echinodoras bleheri compacta	Compact Sword	IB	20		
	Echinodoras bleheri compacta	Compact Sword	S	15		
	Eleocharis montevidensis	Giant Hairgrass	OB	10		
	Eleocharis montevidensis	Giant Hairgrass	S	10		
	Eleocharis parvula	Dwarf Hairgrass	V	10		
	Fissidens fontanus	Phoenix Moss	V	20		
	Justicia americana	Water Willow	S	5		
	Myosotis scorpioides	Water 'Forget-me-not'	OB	10		
	Myosotis scorpioides	Water 'Forget-me-not'	V	10		
	Peltandra virginica	Arum Arrow	V	10		
	Pistia stratiotes variegata	Variegated Water Lettuce	V	5		
	Typha latifolia variegata	Variegated Cattail	V	5		
	Typha latifolia	Common Cattail	OB	5		
	Typha latifolia	Common Cattail	S	5		
	Typha latifolia	Common Cattail	V	5		
	Alternanthera reineckii cardinalis	Cardinal Weed	V	15		
	Cryptocoryne cordata blassii	Heart Crypt	V	15		
	Ludwigia palustris	Red Water Purslane	OB	10		
	Ludwigia sp. palustrus x natans	Ludwigia sp. palustrus x natans	V	10		MASI First
	Nuphar luteum	Cape Fear Spatterdock	V	20		
	Pistia stratiotes ruffled	Ruffled Water Lettuce	V	5		
	Vallisneria spiralis leopard	Leopard Val	V	5		

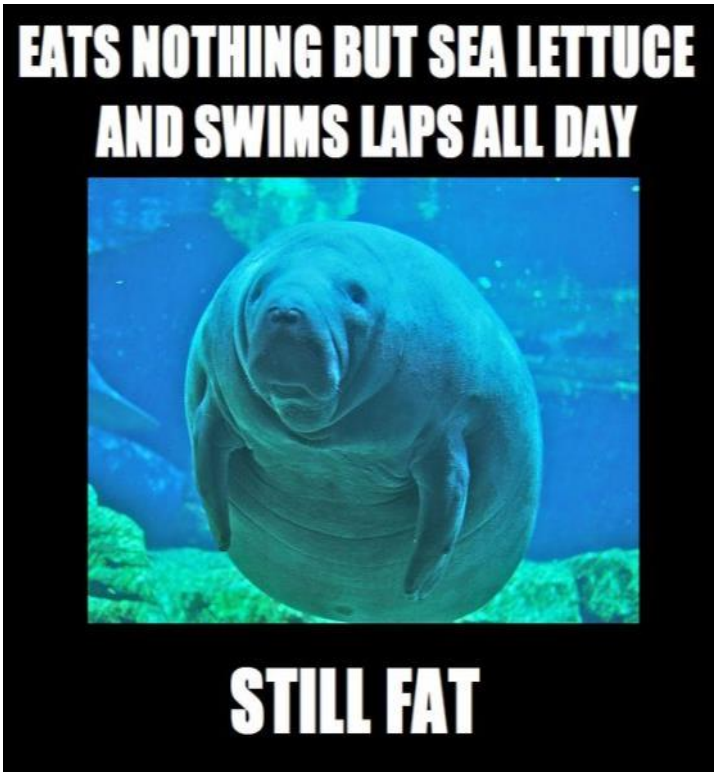
Reproduction Key: V = Vegetative, OB = Outdoor Bloom, IB = Indoor Bloom, S = Seedling

Sep/Oct Breeders Award Program by Steve Edie

September	Species	Common Name	Points	Bonus	CARES	Total
Chuck Bremer	Chapalichthys encaustus @	Barred Splitfin	15		15	402
	Danio rerio	Zebra Danio	5			407
Scott Campbell	Julidochromis regani "Kipili Yellow"		10			40
	Melanochromis auratus		10			50
	Pseudotropheus elongatus "Chailosi" *		10	5		65
Mike Huber	Ameca splendens @	Butterfly Goodeid	15		15	519
	Ancistrus sp. "Albino Bristlenose"		10			529
	Ancistrus sp. "Calico Bristlenose"		10			539
	Cnesterodon decemmaculatus	10 Spot Livebearer	10			549
Ed Millinger	Amatitlania siquia	Honduran Red Point	10			865
Holly Panoi & Kevin Wise	Neolamprologus multifasciatus		10			709
October	Species	Common Name	Points	Bonus	CARES	Total
Chuck Bremer	Phallichthys quadripunctatus @#	Four Spot Merry Widow	0		5	412
	Zoogoneticus tequila @	Crescent Splitfin	15		15	442
Debbie Sultan & Tom Corradini	Otopharynx auromarginatus *		10	5		610
Pat Tosie	Apistogramma bitaeniata "Rio Ucayali" *		10	5		4925

* = 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

Safety Tip Of The Month



Classifieds

Buy/Sell	Member	Item	Bid/Asked	Contact
Sell	Jim Miller	Bloodworms and brine shrimp. Brine Shrimp eggs 16 oz. can.		314-638-1134
Sell	Charles Harrison	Thiosulfate crystals (Chlorine Remover) - pound	$4.00	
		OTO double strength Chlorine/Chloramine test kits - 4 ounce	$12.50	(314) 894-9761
		Flubendazole, 10% powder 25 grams	$20.00	charles@inkmkr.com
		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	
Buy	Mike	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

MASI Members can place a classified ad in the Darter for free. Ads may be up to 30 words in length. Send your ads to the editor. The ad will run for one issue unless you specify how long to run it, in which case it will run as requested.

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