

modern AQUARIUM

Series III Vol. XXVIII, No. 4 June, 2021

ON THE COVER

Our cover photo this month features a group of catfish: *Corydoras sterbai* and some albino *Ancistrus*. During this time of isolation I've noticed that more of the photos from our Fishy Friends are directly related to the hope and even necessity of selling some of the fish that are living and breeding in our tanks. This is certainly understandable, and I commend our members for finding ways to continue participating in our hobby in the face of this catastrophe. Besides, I think we all still like to see good photos of one another's fish!

Photo by Geri Domingo

GREATER CITY AQUARIUM SOCIETY

BOARD MEMBERS

President.....Horst Gerber
Vice-President.....Edward Vukich
Treasurer.....Jules Birnbaum
Assistant Treasurer.....Ron Wiesenfeld
Corresponding Secretary.....Open

MEMBERS AT LARGE

Pete D'Orio.....Joseph Graffagnino
Al Grusell.....Jason Kerner
Dan Radebaugh.....Marsha Radebaugh
Leonard Ramroop

COMMITTEE CHAIRS

Bowl Show.....Joseph F. Gurrado
Breeder Award.....Joseph Graffagnino
Early Arrivals.....Al Grusell
Membership.....Marsha Radebaugh
N.E.C. Delegate.....Open
Programs.....Open
Social Media.....Gilberto Soriano
Technical Coordinator.....Jason Kerner

MODERN AQUARIUM

Editor in Chief.....Dan Radebaugh
Copy Editors:
Alexander A. Priest.....Susan Priest
Donna Sosna Sica.....Thomas Warns
Advertising Manager.....Robert Kolsky

In This Issue

From the Editor.....	2
G.C.A.S. 2021 Program Schedule.....	3
President's Message.....	4
Our Generous Sponsors and Advertisers.....	5
Tonight's Speaker: Markita Savage.....	6
The Xiphophorus Genetic Stock Center	
The Amusing Aquarium.....	6
MA Classics by Bernard Harrigan	
<i>Pelmatochormis buettikoferi</i>	7
by Joseph Graffagnino	
Fishy Friends' Photos.....	8
Some Aquarium Firsts:.....	9
Silicone and Power Filters by Joseph Ferdenzi	
Fish Ponds of My Youth.....	11
by Dan Radebaugh	
<i>Macropodus operculatus</i>	13
The Paradise Fish Exchange Article by Mike Hellweg	
The Not So Simple <i>Salvinia</i>	16
Exchange Article by Glen Roberts	
G.C.A.S. Member Discounts.....	18
The Undergravel Reporter.....	21
Prehistoric Piscines	
Fin Fun (Puzzle Page).....	22
A Pond Grew In Brooklyn	

From the Editor

by Dan Radebaugh

Fed up with cowering at home, seeing no one and doing next to nothing? Well, there seems to be a light at the end of the tunnel. Thanks in large part to more and more people being vaccinated, the rate of infection seems to be going in the right direction.

We have been in touch with the Queens Botanical Garden regarding when we might resume our regular monthly meetings there. They have held all of our scheduled meeting dates for this year, it's just a question of when we and they are ready to commit to resumption. I probably won't have that information prior to our June meeting, so needless to say, June isn't going to be the magic month, and I may not know what month is possible in time for publishing that info in this issue.

One thing that we can do to be prepared for the resumption of meetings is to get vaccinated. This would seem to be a no-brainer. Many members of Greater City belong to the demographic (older folks) who have seen in our own lifetimes the value of vaccinations. When I was much younger than now, our family had recently moved to Florida. My mother brought the four of us (me and my three sisters) to the pediatrician to have us all checked up and inoculated prior to the beginning of the new school year.

My youngest sister was very much against getting the smallpox vaccine. At that time it was administered by using a needle to make scratches on the skin, and then putting some of the (liquid) vaccine onto the scratches. The site could really itch for about a week, and many children's vaccination sites became inflamed and ugly from them scratching the itching site, and my sister was fearful of that happening to her. So my mother questioned the doctor, "Does she really need this vaccine? Nobody gets smallpox anymore," to which he replied, "And why do you suppose that is?"

While I never met anyone who had contracted smallpox, I did know a few kids (even younger than I or the same age) who had polio. Not good.

My thoughts also go back to my Navy basic training. Talk about shots?! And some of them actually hurt! At that time and in that place the Navy's—all the services'—biggest worry was an outbreak of spinal meningitis. There was no vaccine for that, but there were several preventative measures in place. At our very first morning quarters (all companies assembled for inspection) we were each given a very large oral



dose of a sulfa drug (those who knew or suspected themselves to be allergic to sulfa could opt out). A couple of weeks later we also receive a *large* injection of penicillin. Again, we could speak up if we knew we were allergic.

You could always tell when a company was in its third week of training—they marched with a slight limp from receiving that huge shot of (cold) penicillin into their *gluteus maximus*. There were many other vaccinations as well, some depending on where you were likely to be sent following basic training. I recall that the yellow fever vaccine burned a lot for a few minutes after the injection. That one was administered by regular needle, but many were done using air pressure 'guns.' We lucky recipients would often have a corpsman on our right and another on our left, each with a pressure gun, take the double hit, then step down to the next duo. While there was some whining, there wasn't very much, and no one expected to be 'excused' other than by medical reason (allergy to penicillin, for example).

As to this current situation, there are several different vaccines available. My wife Marsha and I received the Pfizer vaccine back in February and March without incident. On both occasions I was impressed by how painless the actual shot was. We were kept a little while for observation, but experienced no significant discomfort.

The next day I did feel some discomfort in the arm that had received the shot, and I was a bit lethargic. After the second shot the following month, there was again some discomfort the following day in the arm that had received the shot. This time I had work to do on the day following the shot, and I did experience some lack of mental acuity. I took a nap after returning home, and was recovered by the next day. Your experience of course may vary, but I would advise against planning anything physically or mentally challenging on the day after the shot.





GCAS Programs

2021

While because of the Covid19 situation we cannot yet predict when we will be able to resume our normal meeting schedule at the Queens Botanical Garden, we do hope to be able to resume in-person meetings sometime this year. We will post updates to this schedule as we are able to do so. Hope to see you all soon!

March 3	Joseph Ferdenzi <i>Lake Tanganyika Cichlids (via Zoom)</i>
April 7	Dr. Richard Pierce <i>A Second Look at Tetras</i>
May 5	Joe Graffagnino <i>A Pond Grew In Brooklyn</i>
June 2	Markita Savage <i>The Xiphophorus Genetic Stock Center</i>
July 7	Sal Silvestri TBA
August 4	TBA TBA
September 1	TBA TBA
October 6	TBA TBA
November 3	TBA
December 1	TBA

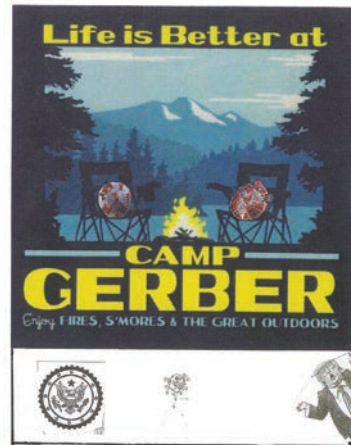
Articles submitted for consideration in **Modern Aquarium** (ISSN 2150-0940) must be received no later than the 10th day of the month prior to the month of publication. Please email submissions to gcas@earthlink.net, or fax to (347) 379-4984. Copyright 2021 by the Greater City Aquarium Society Inc., a not-for-profit New York State corporation. All rights reserved. Not-for-profit aquarium societies are hereby granted permission to reproduce articles and illustrations from this publication, **unless the article indicates that the copyrights have been retained by the author**, and provided reprints indicate source, and that two copies of the publication are sent to the Exchange Editor of this magazine. For online-only publications, copies may be sent via email to gcas@earthlink.net. Any other reproduction or commercial use of the material in this publication is prohibited without prior express written permission.

The Greater City Aquarium Society meets every month except January and February. Members receive notice of meetings in the mail or by email. For more information, contact: Dan Radebaugh at (718) 458-8437, email gcas@earthlink.net, or fax to (347) 379-4984. For more information about our club or to see previous issues of **Modern Aquarium**, you can also go to our Internet Home Page at <http://www.greatercity.net>, <http://www.greatercity.org>, or <http://www.greatercity.com>.

President's Message

by Horst Gerber

Change, they say, is unavoidable, but that doesn't mean we have to like it. What we call normal is out the door, the new normal is in, and sneakily becomes "normal." I can only hope that it doesn't remain "normal" for very much longer. These masks can be outright annoying, the way they fog up your eyeglasses! But what I am really getting at is the changes this new normal may be making to our club. I worry that we haven't seen each other in such a long time that we may fall into a rut of not going anywhere or doing anything, and so our club may be hard-pressed to find members who are willing and able to get back into the swing of things once we are cleared to resume real meetings. Or we may fall into the trap of just sitting around and doing nothing—though many of you tell me that you're practically dying to really have something to do!



So let's think about getting ready! I know that many of you are *ready* to come and sell your fish or buy more to replace the ones you may have lost during all this forced inactivity. That of course is our perspective from the individual member's point of view. But we also need to look at the view as members of "the club." What should we be doing to hit the ground running? A good place to start might be to look at the masthead of your copy of **Modern Aquarium** that you just received in the (e)mail. On the first page, in the blue box, you'll see our list of Board members, members at large, and committee chairs. Take a close look at that list! All those names are the people who make sure that what we as club need to do to help our club run even better actually gets done! You'll notice that a couple of those names are "open." That means that right now there is no one to do those things when we start back up. Please look over those "open" jobs and consider helping your club do a better job for its members (including you)! Be brave! Say, "I'll try it! Show me what I need to do to make this a better club for all of us!" Like the slogan for the pandemic goes, "We're all in this together!" So please! Ask me, or Dan, or Joe, or Marsha (to name only a few) how you can help too! We need you!

Jason Kerner is another example of people stepping up! Thanks to his efforts we have been able to have our meetings live online! I've gotten a lot of good feedback on how these have been going, and I thank Jason for stepping up and helping us do it!

Don't forget! Greater City is approaching our 100th anniversary. That's 100 years of continuous operation! That's really something we can smile about!





GCAS Thanks You!

Our Generous Sponsors and Advertisers

The Greater City Aquarium Society extends our heartfelt thanks to the following manufacturers for their generous donations. Thanks also to our advertisers, whose contributions to our success as a Society are deeply appreciated. Please patronize our supporters.

Aquarium Pharmaceuticals

Aquarium Technology Inc.

Aqueon

Brine Shrimp Direct

Carib Sea

Cobalt Aquatics

Coralife

Ecological Laboratories

Florida Aquatic Nurseries

Fritz Aquatics

HBH Pet Products

Hydor USA

Jehmco

Jungle Labs

Kent Marine

Marineland

Microbe Lift

Monster Aquarium, Inc.

NorthFin Premium Fish Food

Ocean Nutrition America

Oceanic

Omega Sea

Penn-Plax

Pet Resources

Pisces Pro

Red Sea

Rena

Rolf C. Hagen

San Francisco Bay Brand

Seachem

Sera

Spectrum Brands

Zilla

Zoo Med Laboratories Inc.

Your Fish Stuff.com

Tonight's Speaker

Markita Savage: The *Xiphophorus* Genetic Stock Center

Markita began her employment with the *Xiphophorus* Genetic Stock Center as a Grant Specialist in 2005 and was promoted to Operational Manager in 2008. Markita has since overseen all daily operations of the Stock Center including *Xiphophorus* species maintenance as well as maintenance of Japanese medaka (*Oryzias latipes*) lines housed at the center. Prior to working at the Stock Center, Markita was a volunteer aquarist with the Dallas Zoo & Aquarium for 4 years, where she was responsible for shark interaction, education, and feedings for the public. Markita graduated from Texas State University with a B. S. in Marine Biology and also has a B. S. in Criminal Justice from University of North Texas.



MA CLASSICS

THE AMUSING AQUARIUM

From *Modern Aquarium*, June 1997



B. Harrison 6/97

“So tell me Oscar, how long have goldfish reminded you of your mother?”



Pelmatochromis buettikoferi

by Joseph Graffagnino



This interesting species is a riverine cichlid that thrives in the coastal rivers of northern Africa, predominantly in the upper Casamance River in Senegal to the Saint John River in Liberia. They can reach a maximum length of 6 ½ inches. They are substrate spawners, not mouthbrooders. Water temperatures from 78 - 82 F. and a pH of 6.8 - 7.2 will start their spawning attempts.

I found these interesting fish while attending a North Jersey Aquarium Society event. Joe DiBartolomeo had bred this species and brought in fry for the Breeders Award Program (BAP). I was the high bidder during the auction and won the bag of six two-inch fish. I brought them home and housed them in a 50-gallon breeder aquarium. After several months they were growing quickly. I could not sex them, since I saw no differences in color, finnage or activities. I added caves of various sizes, broken flower pots, etc., but nothing gave them the urge to spawn.

Another month went by, and I noticed that one pair was fighting with the rest. Besides this pair, I had three remaining fish and was short on tank space, so I moved the three fish to a 10-gallon tank with riverbed gravel and an overturned broken flowerpot. Within two days one of the three fish was dead. I thought that I had another pair of fish and that they were going to spawn. After another week the pair in the 50-gallon breeder tank was standing guard over the gravel and wouldn't move. They took turns grabbing pellet food or frozen bloodworms, but they remained on guard over a small patch of gravel. I could see no eggs or

anything else in that spot, but a week later a cloud of fry emerged from the gravel, and as a group began to follow the parents around the tank as they foraged. A couple of days later the pair in the 10-gallon tank also had an eruption of fry. Their eggs must have been hidden under the flowerpot.

After a couple of weeks I traded the pair in the 10-gallon tank for a different species and moved their fry into the 50-gallon breeder with the other fry. The parents didn't mind at all, and the new fry mingled immediately with their cousins. I maintained the pH at 7.2 and the temperature at 80 degrees F. The fry grew quickly and like their parents, would eat anything offered to them.

If you are looking for an interesting, friendly and easily maintained African species, I would highly recommend *Pelmatochromis buettikoferi*. They are colorful and peaceful. Enjoy them!



References:

Fishbase.com

Fishy Friends' Photos

by Greater City Aquarium Society Fishy Friends

Below are photo submissions to our “Fishy Friends” Facebook group. I’ve left the subjects unnamed, but not the photographer. If you see a shot you like, and want more info, ask the photographer about it! I’m sure he or she will be delighted to tell you!

Rob McAllister



Joseph Gurrado

Jim Cumming



Jules Birnbaum



John Sciacca



Gilberto Soriano



Some Aquarium Firsts: Silicone and Power Filters

by Joseph Ferdenzi

The U.S. aquarium hobby has come a long way since its humble beginnings in the 1850s. The range of products that are available today were unimaginable in those early days of fishkeeping, but thanks to the perseverance of those hobby pioneers, successive generations of aquarists have seen wonderful developments. In this article I will write about the appearance of two such developments: silicone and modern power filters.

Nowadays it would be unthinkable to have glass aquariums without silicone. For almost a century, however, glass aquariums were built in a variety of ways that did not involve silicone. Suffice it to say that when I began keeping tropical fish in the mid-1960s, virtually the only kind of tanks you could buy in local pet shops were the kind where the glass was held together by a black putty cement and a stainless steel frame—the most famous brand of which was Metaframe. These tanks had four glass sides and a slate bottom. Many of these tanks are still in use today because they are virtually indestructible (I have at least 10 such tanks still in use, including a 100 gallon beauty). But they had one major weakness: as they age, or if you let a tank sit empty for a while, the putty will weaken or dry out and they will be prone to leaks. Also, some people were not crazy about the stainless steel frame because the view in the corners was partially blocked and the steel frame would zap you if say, you had a faulty steel light strip on top.

So when did silicone tanks begin to appear? Well, my earliest recollection of seeing a silicone tank in a pet shop was in 1970. With it being a new technology, and in order to assuage a wary public, most of the early silicone tanks had frames—not just on top and bottom (like today)—but on the corners too. Granted, these frames were made of plastic, and were therefore not as strong as steel, but they added another level of assurance (and also protected the glass corners from getting chipped, a feature I think would be desirable even today).

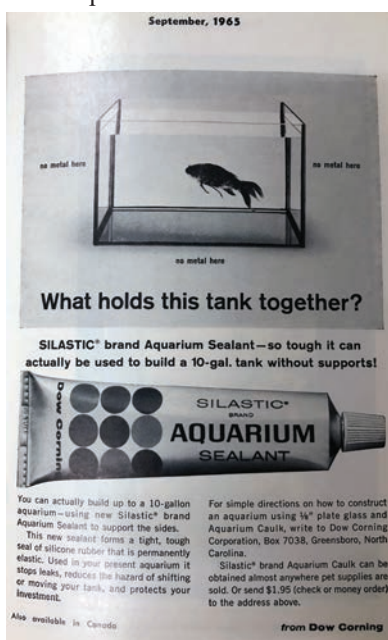
But 1970 is not actually the first year in which silicone for aquariums made its appearance. As far as my research discloses, that happened around

September of 1965, when the accompanying ad from the Dow Corning Corporation appeared in *Tropical Fish Hobbyist* magazine. There are some interesting points in this ad. For one, they are not selling a tank made with silicone. Rather, they are selling the silicone product itself, and inviting the hobbyist to build one. But note their caution, for they write: “You can actually build up to a 10 gallon.” Of course

nowadays we know you can build much, much larger aquariums with silicone. Also note that in the photo in that ad they tout “no metal here” several times. This speaks to the fact that almost all tanks at the time were indeed framed in metal.

The advent of using silicone for making fish tanks was a huge leap forward. It meant that tanks could be made much more cheaply (no expensive stainless steel), lighter (ditto), and virtually leak proof (even if stored dry for lengthy periods of time). Additionally, most hobbyists preferred the “clean” look of an “all-glass” tank—one without corners that partially obstruct your view of the interior of the aquarium.

The year 1965 also gave us another important development in fishkeeping: a modern power filter. In the October 1965 issue of *Tropical Fish Hobbyist* magazine I found one of the first ads for such a power filter: the Supreme Aquamaster, manufactured by the Eugene Danner company of Brooklyn, NY. This was quite a technological advance in its day. Before that, almost all filtration devices worked with air pumps. This meant that even filters that were meant to hang on the outside of your tank had to be powered by air. But even with the largest air pump, this meant that their water flow was rather modest, and certainly not superior to old-fashioned box filters that sat inside the tank. Their chief advantage was of course an aesthetic one—they didn’t clutter up your aquascape. Their limited filtration capacity though, meant that any tank larger than say, 20 gallons, would require more than one filter, and would probably still be underserved. With the advent of the Supreme power filter, aquarists would now be able to adequately filter very large tanks and their proportionately larger or greater quantity of fish. Additionally, the Supreme Aquamaster was a



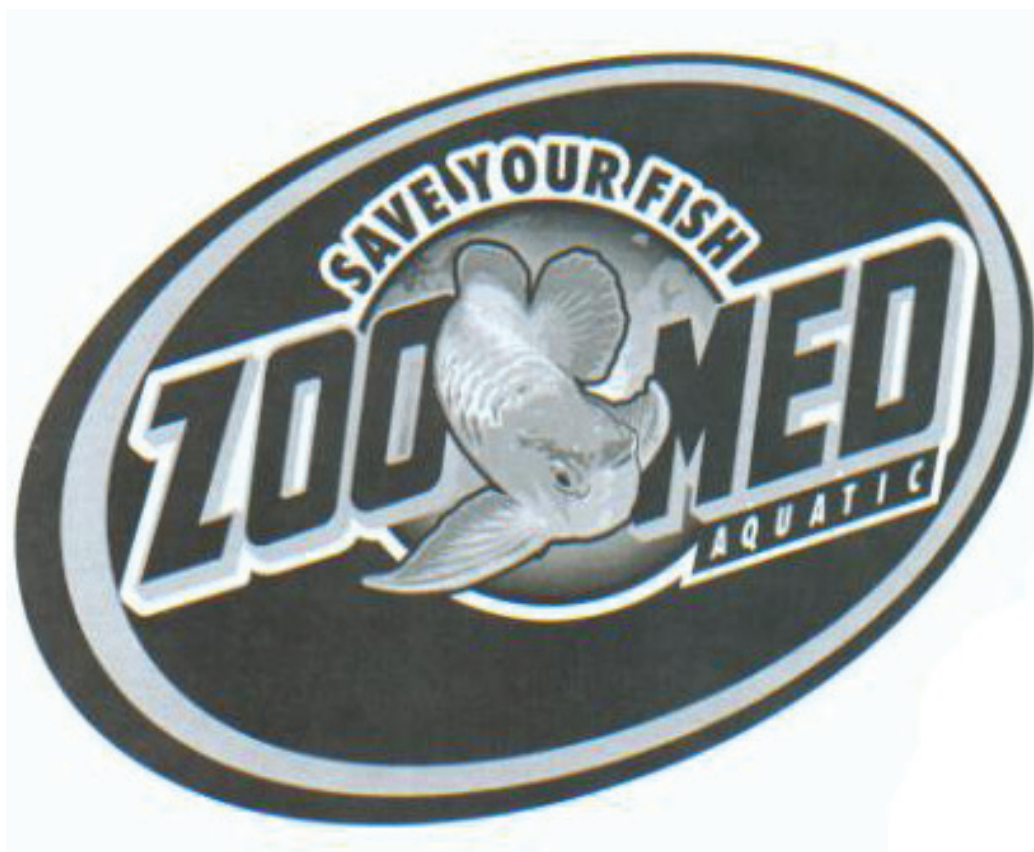
technological advance in its use of a one-piece all-plastic filter box. Prior to this, there were some smaller power filters that used a box that was made like the tanks of the day, i.e. glass and metal frames. Supreme's filter box was therefore more lightweight and less prone to leaking. Indeed, I still have many of these filter boxes which I use for all kinds of purposes, such as containment boxes for fry or injured fish, for acclimating new fish, or for holding fish and bags during the bagging process.

Of course these early power filters had a few drawbacks. For one, the motors consumed a great deal of electricity and were somewhat noisy. For another, these filters used siphons that would cease to carry water if the level of water in the tank fell below the siphon's inlet



discharge. Also, if you suffered a power outage, the filter had no ability to automatically restart, because the siphons would lose their suction. Nevertheless, these early power filters heralded all the amazing power filters we have on the market today, both in the form of hang-on-the-side and canister filters. Today even the largest of such filters use around 10 watts or less, most restart automatically, and nearly all keep working even if your water level drops by a lot.

There can be no doubt that we've come a long way since these developments in the mid-1960s. Nevertheless, these earlier steps are testament to the road aquarists have been treading for over a century, one in which great strides have been made to keep our hobby today as glorious as it ever was.



Fish Ponds of My Youth

by Dan Radebaugh

While enjoying Joe Graffagnino's pond presentation last month, I was reminded of my own pond experiences long ago and far away. I didn't actually build any ponds; I took advantage of a couple already extant. Whether or not they were constructed with fish specifically in mind I can't say.

The first of these was in Tampa, when I was thirteen or thereabouts. We had recently moved to a new subdivision fairly near Al Lopez Field, where the Reds and the White Sox held their spring training. It was eventually replaced (though not quite on the same spot) by what is now Raymond James Stadium. Anyway, I did mention that this was a newly constructed neighborhood, so there weren't much yet in the way of trees or fences (or in those days, air conditioning).

The guy who lived next door was fairly young, and may have just gotten out of the Air Force—I don't exactly recall. Anyhow, we had planted, or were about to plant a privet hedge along the borders of our back yard, and in that same time period he (our neighbor) began constructing a pond. I do not know whether he intended to eventually put fish in it.

He seemed to know what he was doing. It was circular; my estimate is that it was about eight feet (maybe less) in diameter and somewhere between two and three feet deep, with a hose running underground from the water faucet on the side of the house to beneath the not-yet-poured pond, where it was attached to a copper tube which in turn connected to a small fountain in the center. Painted a light aqua, the pond was very professionally finished and nice-looking.

Sadly, not long after finishing this, he moved away, and the house stayed vacant for some time. I was looking at it one day and lamenting that this nice little pond had since his departure been transformed into a junk-filled breeding habitat for mosquitoes.

The house didn't seem as though it was going to be bought anytime soon, so I decided to clean the pond up and put a few goldfish in it. The fountain had by then been broken off where the copper tubing came out of the bottom of the pond, but I could still use the hose he had buried to fill the pool.

Once I got the pool cleaned up, I added a few cinder blocks here and there, walked to a nearby



shopping center where there was a Woolworth's and a Grant's (remember those?), bought a few goldfish along with some *Anacharis* and a few *Corydoras* cats, and introduced them to their new home.

Surprisingly, this all worked out pretty well, aside from some neighborhood kids catching a couple of sunfish and putting them in there. No real harm done though, and this arrangement was stable for at least a year or so, which at my age then didn't seem like so short a time.

Eventually the house was bought and I had to find a way to bring my charges indoors. A

neighbor gave me a fairly large glass container—not designed to keep fish in, but it worked out fairly well.

There were of course immigrants and squatters who showed up. Neighborhood toads laid eggs in the pond, and once they grew out of the tadpole stage they had to be netted out and released. Some water boatmen (family *Corixidae*) somehow took up residence, but they didn't really do anything but look like swimming bugs, which of course they are. The goldfish didn't seem interested in eating them any more than they had the tadpoles, though they did do a good job of eating whatever mosquito larvae showed up.

An interesting live food that I accidentally discovered was earthworms. Not the large adults, mind you, that could be purchased at many gas stations. Where we were living there weren't curbs along the street, just simple gutters to allow the copious rainfall to drain quickly and efficiently to the storm sewers. In December those troughs became full of juvenile earthworms (red wrigglers) that were washed out of the lawns by the rains—in Florida it generally doesn't just drizzle. So at that time of year I could gather plenty of good live food for my fish just by going out to the curb after a heavy rain.

After graduating, doing my active duty with the Navy, and completing graduate school I got a job in Savannah, GA. I still had a couple of small fish tanks, but I noticed that the previous owner had built a large-ish planter by the carport. Made of concrete blocks, it was about eight feet long by maybe 2½ feet wide and about an arm's length in depth. About three inches down from the top there was a small tube for overflow prevention.

continues →

There was at that time nothing in the planter but weeds, so I shoveled out the weeds and the dirt, filled it with water, and added a few goldfish. It was in the shade enough of the day to avoid too much green water, but did require regular water changes. I did not add a filter.

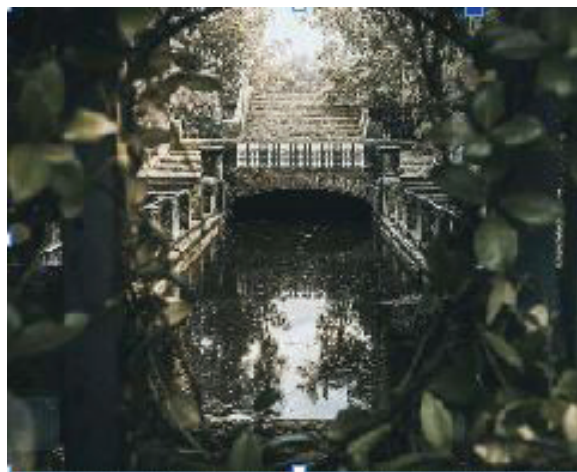
Unlike Tampa, Savannah could occasionally stay cold enough for a covering of ice to last longer than a few days, but this was relatively easily dealt with, and I don't recall losing any fish to the cold weather.

Another pond I had some responsibility for had been back in Tampa, where my father was in the automatic car wash business. When our original location was run over by I-4 (now I-275), we eventually opened another, in a different part of town. The car wash business is very dependent on traffic. A major part of due diligence when scouting a location is to do traffic counts to be sure you'll have enough potential customers.

We named this one the Fountain Car Wash, and installed a large oblong pond with three fountainheads. The front of the building was red brick with white reliefs, so we made the pond white using Spraycrete.

We thought briefly of putting some fish in it, but decided against it. First of all, every now and then some idiot would pour soap or bubble bath into it so we'd have to totally clean it out. We didn't want any fish to die from this kind of idiocy. Also, since it was white, after a while algae would build up heavily, which we would have to deal with. Muriatic acid worked well, and we had it on hand; you just didn't want to breathe the fumes. So no fish was the decision there, and I think it was a wise one.

Regarding the photos presented here, I know it may seem a bit strange to include photos of such grand fountains in an article on home goldfish ponds, but there is a connection, if only inspirational. Back in the early sixties my family was visiting my mother's brother and his wife, who were at that time living in the southern part of Florida. Since we were "in the neighborhood" we decided to stop in to see Villa Vizcaya—the James Deering estate. In addition to the large fish ponds and fountains such as the ones pictured in this article, and other rather royal aspects of the estate, there were also tree-shaded walking paths, bordered by ponds containing goldfish and/or koi, some of quite large size. Naturally we took plenty of photos. Unfortunately I don't presently know where those are. My sisters down in Tampa have some of them, but finding and identifying them is proving to be a challenge, and will take some time.



My father and his eldest brother were both very accomplished and prolific photographers—my uncle in particular was very active with a major camera club in Chicago, and had accumulated more prizes and awards than I could count. The two had rather different styles, but were both very well versed in developing and printing as well as just taking the shots. So wherever we went many photos were taken.

When we camped in the Smoky Mountains my father took several series of photos, including such subjects as moths, mushrooms, blossoms, bears, berries, you name it. It's a given that a lot of these photos still exist, but since most were developed as 35-millimeter slides and stored in largely unidentified boxes, finding and cataloging them all has been a challenge. Even my own photos, taken with a not-so-expensive reflex camera, are proving difficult to find. So I'm pretty sure that I do have photos of the Deering Estate and its fish ponds, but who knows where, when, or if I'll find them?



Photo (page 11) of Villa Vizcaya By Tom Schaefer - English Wikipedia, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=24274883>

Photo (top right) www.vizcaya.org/ig

Photo (lower right) by Patricia Radebaugh

Macropodus opercularis

The Paradisefish

by Mike Hellweg, CFN
(Certifiable Fish Nut)

The Paradisefish has the distinction of being the first recorded “exotic tropical fish” imported solely for the purpose of the pleasure of observing them—and led to the beginnings of the aquarium hobby as we know it today. Even more interestingly, St. Louis, Missouri played a part!

Paradisefish were first imported to France from China in the mid to late 1860s, but by 1876 our own beer brewing magnate Adolphus Busch’s penchant for exotic animals had brought them to St. Louis. They were considered a very attractive novelty, but the goldfish hobbyists of the day quickly labeled them as “nasty,” as male paradisefish tend to be a bit nippy, and quickly shredded the fins of their beloved golden beauties when kept in the same pond or container. Unfortunately, that label from nearly a century and a half ago has stuck, and even today you’ll hear that they can’t be trusted with other fish, which simply isn’t true.

They make excellent community tank residents as long as there are no fish with flowing fins in the tank. Barbs, rasboras, tetras, killies, danios, rainbows, platies, swordtails, plecos, catfish and many medium sized cichlids all make excellent companions. Avoid angelfish, lyretail swordtails, Bettas and fancy guppies. Keep them as pairs, trios, or in groups of 5 or more. It is probably best to keep only one male to a tank unless the tank is large. You can mix color variants, but I would avoid mixing albinos with others, as their poor eyesight will put them at a competitive disadvantage.

There are currently seven recognized species of paradisefish in the genus *Macropodus*, though



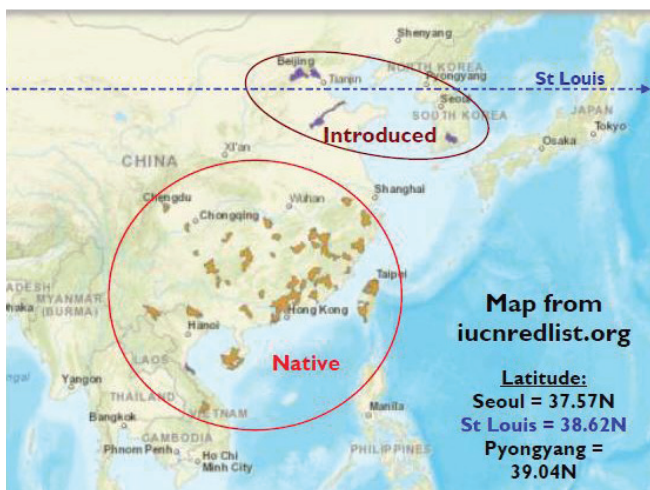
in this article I’ll stick to *Macropodus opercularis*, as THE paradisefish. The other six species are also called paradisefish, but with a location or color trait attached, such as *M. spechti* (the black paradisefish), *M. hongkongensis* (the Hong Kong paradisefish), etc.

Macropodus literally means “big foot,” referring to their relatively long and large anal fin; and “*opercularis*” refers to the large spot on the operculum, or gill cover. Wild fish have a beautiful metallic blue and rusty orange striped pattern, with mostly rusty orange unpaired fins.

I don’t see a reason to improve upon these wild beauties, but to each his own, and of course some breeders have found sports in their grow-out tanks that have become established in the trade. There are several established color variants, including one where blue is more dominant, one where red is the dominant color, and an albino form.

In the wild they are found in slow-flowing streams, ponds, lakes, swampy areas, and even rice paddies in coastal Eastern Asia from Vietnam to as far north as Shanghai, but they have been introduced and become established in both Japan and Korea, where winters can be harsh, snowy and cold, and shallow waters nearly freeze solid. Obviously they do not require heaters. This made them popular with early hobbyists, as the electric heater as we know it didn’t become popular until the post WWII years, and this temperature tolerance makes them popular with frugal hobbyists even today.

In many areas they will do well in outdoor ponds and tub gardens for much of the year. I’ve even had them successfully spawn and raise fry outdoors in a tub garden in mid-November in



Reprinted from the Missouri Aquarium Society's *The Darter*, September/October 2018 - Volume 44, number 5.

O'Fallon, Missouri —definitely not a tropical locale! I raised nearly 400 healthy fry from that massive batch, and didn't get a chance to remove them to the indoors until after Thanksgiving. In case you've missed my Anabantoid talk where I discuss the myth of labyrinth fry needing warm air above the water, where it came from, and how it spread, this simple anecdote also once and for all should bust that hobby-myth!



As most of you know, in November here in St. Louis there are many nights when the air temperature dips into the 30's and the water temperature drops to near 60° Fahrenheit. I did add a submersible heater to the tub set at 50 degrees to keep the water from freezing, but not to keep the water at a tropical temperature, and it definitely did nothing to warm the air above the water!

Paradisefish are stout fish for their size, with a thick, solid body. Females generally reach about 2-1/2 inches standard length (without the tail), and males are about a half inch or so larger, again not including the tail. The dorsal and anal fins of adult males can be huge, and their caudal fins can be half again as long as their body. Males can be a bit scrappy amongst themselves, especially once they start thinking about mating, but they are nowhere near as aggressive as the fighting fish, and as mentioned above they are generally not a threat to other species.

Males displaying for each other or for females are a sight to see. Fortunately they display like this frequently throughout the day, right in the front of the tank, putting on a spectacular show for their viewers. Pairs can be kept in the breeding tank, and oftentimes the female will help with brood care. Due to their larger size, paradisefish do best in larger tanks. A 15 gallon tank would be the optimal minimum size for a pair, and a 20-long or larger would be even better.

Being larger fish, they produce a correlating larger amount of waste than a fish of similar length but with less body mass. That means they need a good filter that is maintained on a regular basis as recommended by the manufacturer. That also means more water maintenance. For paradisefish, water parameters aren't too important, even for breeding. Given their wide natural distribution, they are incredibly adaptable and will likely prosper in your local water, as long as you keep up on the water changes and keep their water clean.

They will prosper in planted tanks, and might even surprise you by spawning under the leaf of an out-of-the-way plant. They will pick off young algae eating shrimp, so these are probably not good choices

as tankmates. They generally ignore adult snails, so any of the popular "fancy" aquarium snails will do well with them. They sometimes eat small snails, but with most of the snails (ramshorns, tadpole snails, pond snails) in the hobby, having a fish that munches on a few young snails is a good thing.

Feeding is easy. They will take all types of commercial foods. Feed them a variety of flake and floating pellet foods, and include some meaty frozen or freeze-dried food several times a week. I usually feed them frozen bloodworms and brine shrimp two or three times a week each, and add live blackworms to their diet when I have them.

When well fed and provided with some sort of floating cover, a pair of paradisefish will do what comes naturally and spawn. The male will build a large, sometimes massive nest of mucus-coated bubbles in amongst floating plant leaves. Plants like water hyacinth, water lettuce, water sprite, frogbit, *Salvinia* and similar floating plants work very well. A styrofoam cup, cut in half from top to bottom, also works in a pinch.

As they get ready to spawn, the male will begin constructing his nest of bubbles. He has a special gland in the roof of his mouth that excretes sticky mucus, with which he coats the bubbles as he blows them. This allows the bubbles to remain intact for up to several weeks. The structure of leaves, roots or other materials also helps to hold the nest together.



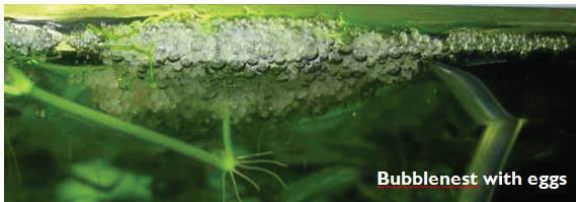
When his nest is ready, he will coax the female under the nest. If she is ready to spawn, he will wrap around her body in a U shape, they will do a barrel roll, and with her vent right under the nest, she will lay up to a couple dozen eggs and he will immediately fertilize them. Some breeders report the eggs will float, but I have seen just the opposite—the eggs sink and scatter as the pair breaks apart from the spawning embrace.

The male, sometimes aided by the female, will gather the eggs and spit them into the bubble nest. After the female is spent, the male will sometimes court another female and add her eggs to the nest, too. With smaller females, a couple dozen eggs is about what to

expect, but with large females, a couple hundred eggs is not unheard of. The male, again sometimes aided by the female, will take up a position under the nest and begin to guard the eggs.

Depending on temperature, they will hatch in one to three days. As they hatch, the fry will hang from the nest for another day or two. They have a special sticky gland that allows them to stick without exerting any effort.

On the second or third day they will begin trying to swim. At this point the male will try to catch them and spit them back into the nest. After a couple days he gives up and starts looking for food. As long as there is plenty of surface cover and the adults get a good feeding each day, they pretty much ignore the fry. It is probably best to then remove the adults and let the fry grow on their own.



Bubble nest with eggs

The fry are large enough to eat baby brine shrimp when they start swimming. I usually mix in some infusoria and some fine powdered egg layer food for the first few days to make sure the runts get some food, too. Otherwise you'll get a few fry that get most of the food and thus grow more quickly.



Hanging fry in Bubble nest

After a week or so they are large enough to eat their smaller siblings. This is natural behavior with anabantoids, as often they spawn in isolated areas where food is scarce. Consuming their siblings (adelphophagy) is a quick way for fish to get a good meal until they are big enough to hunt insects, etc. There is little need to raise a large batch of fry as paradisefish are always available in the trade. If you raise a small, high quality batch with good color and size, it is likely you'll be able to find a shop that will be willing to accept them in trade for food or other fish. You can also find a ready market for healthy young fish with your fellow club members.

The paradisefish is an interesting and beautiful fish, with fascinating spawning behavior, good parental care, and will do well in a larger community tank. Why not give them a try?

Photos © at SeriouslyFish.com

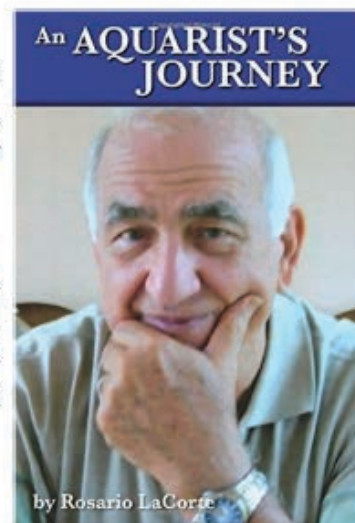


An Aquarist's Journey

Rosario La Corte is one of the world's leading authorities on breeding fish and he has written numerous articles and books, contributing greatly to our understanding of fish and their habits.

Now, for the first time, here is a compilation of his travels, adventures, successes (and, very occasional failures) all relating to collecting, keeping, and breeding fish, and in his own words (and edited by **Modern Aquarium's** Editor, Dan Radebaugh).

Available in softcover at [Amazon.com](https://www.amazon.com)



The Not So Simple *Salvinia*

Article and Photos by Glen Roberts

We are probably all familiar with *Salvinia*, the floating plant that spreads and covers the surface of the water in our tanks with amazing speed.

A speed probably only second to Lemna (Duckweed). However, the two plants could not be more different. Lemna is a flowering plant, *Salvinia* is a fern that does not produce flowers or seeds, but reproduces sexually by spores. There are 12 species of *Salvinia* occurring all over the African continent. It has been introduced to many countries where it has often become an invasive pest species. The two that we are most familiar with is *S. natans* and *S. auricularia*.



The parts of a typical plant are well known to us, but the terms used to describe ferns are much more complicated. The floating green plant that we see is called the sporophyte, meaning that it is the structure that produces the spores. The leaves of the plant are fascinating. They usually occur in 3s attached to the floating rhizome. Two of the leaves are green and float, but one is extremely dissected and is submerged, often seen hanging down under the green leaves. These submerged leaves look like roots, but *Salvinia* does not have any roots, only the submerged modified leaves that resemble roots. These leaves are thought to protect the spore-producing structures and provide a sort of ballast that stops the plants from moving around too much on the water surface. They also aid in nutrient uptake. The green leaves are covered with hairs called trichomes,

which repel water and stop the leaves from getting wet. Try pushing some *Salvinia* under the water and see what happens when it returns to the surface. Water will bead off. The cell structure inside the leaf is very spongy and full of air, allowing the plant to float very successfully.

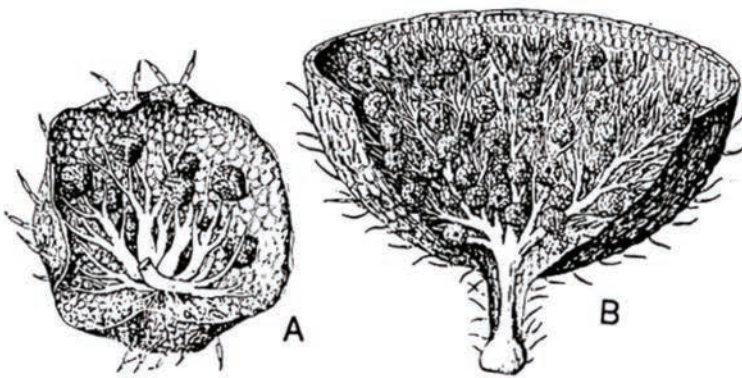


Fig. 182. *Salvinia* : Reproductive Structures
A. Sporocarp with Megasporangia. B. Sporocarp with Microsporangia

As with all ferns, *Salvinia* reproduces by spores. Spore production is a very complicated process, but I will simplify the development. The sporophyte (the floating form we are familiar with) reproduces through sporangia. The sporangia are aggregated into sporocarps that appear in clusters ranging in number from 4 to 20. The sporocarps are usually borne on the inner segments of submerged leaves. A single

apical cell differentiates into the sporocarp which looks like a goblet, holding the spores. There are two types of this goblet shaped structure; one holding large spores and the other holding much smaller spores. The spores are attached to a stem-like structure called a sporangium that sticks up in the middle of the goblet.

Once the sporocarp and the spores are mature, they detach from the parent plant and sink to the bottom of the pond. As the walls of the sporocarp decay, the spores are released into the water and float to the surface. But this is not the end of the process by far. The spores now produce an entirely new structure called an archegonium. You may have seen archegonia before if you have ever watched ferns grow. In terrestrial ferns, the archegonia are typically a heart-shaped green leaf-like structure that is very flat against the soil. This tiny structure is where all the magic happens. In *Salvinia*, the archegonium is produced on the surface of the water. Within the safety of it, eggs and spermatozoids are produced, that combine to create the new *Salvinia* plant! Now just how cool is that?!

There are no real economic uses of *Salvinia*. One particularly invasive species, *S. molesta*, can cover entire bodies of water very quickly. In such areas, it is used as mulch on farms but is still difficult to control. Some success has been found by using a weevil that feeds on the plant. One possible use that is being considered is using the plant to mop up oil spills. Since the leaves are hydrophobic, meaning they repel water, the tissue will absorb the oil while leaving the water undisturbed.



Remember, NEVER release non-native species into the wild, under ANY circumstances as they can cause major problems in the environment.



NEED COMPUTER HELP?

Virus/Spyware Removal \$79.00*

Wireless Setup \$49.00**

Optimization Special \$39.00*

Test Hard Drive and Memory
Eliminate Windows build-up
Remove Internet activity and accumulation
Accelerate Windows start-up



All Work Guaranteed
Professional, Friendly Service
On-Site Service in Your Home,
Office or Business

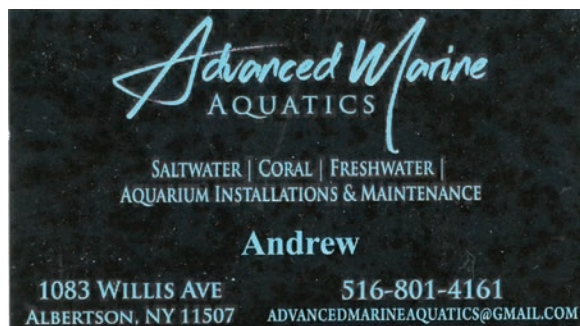
CompTIA® A+ Certified

Repairs & Upgrades • DSL & Cable Modems Installed • Home & Office Networking
Wireless Networks Installed • Computer & Peripherals Set Up • Troubleshooting & Optimization
Virus & Spyware Removal Specialist • Data Recovery • One-on-One Training

* \$15.00 Mobile charge
** Labor only. Equipment additional

Call: 718-469-5444 • jasontech1@verizon.net

GCAS Member Discounts at Local Fish Shops



10% Discount on everything.



20% Discount on fish. 15% on all else.



10% Discount on everything.



10% Discount on everything.



10% Discount on everything.



10% Discount on fish.



10% Discount on everything.



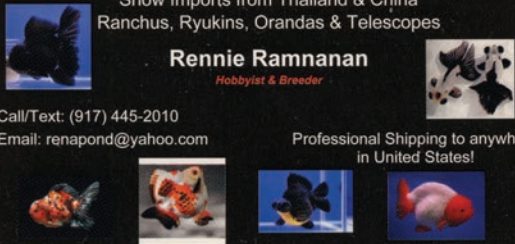
10% Discount on everything except 'on sale' items.

High Quality Exotic Goldfish
 Show Imports from Thailand & China
 Ranchus, Ryukins, Orandas & Telescopes

Rennie Ramnanan
Hobbyist & Breeder

Call/Text: (917) 445-2010
 Email: renapond@yahoo.com

Professional Shipping to anywhere
 in United States!



10% Discount on everything.

FISHWORLD
 USA
QUALITY AND SERVICE

152-69 10TH AVENUE
 WHITESTONE, NY 11357
 TEL: 718 902-6117
 WWW.FISHWORLD1.COM

STORE HOURS
 MON - FRI 11AM - 8PM
 SATURDAY 10AM - 7PM
 SUNDAY 10AM - 6PM



10% Discount on everything.

JUNGLE BOB ENTERPRISES, INC.

JUNGLE-BOB Reptiles  **JUNGLE-BOB** Aquatics 

4130 Sunrise Hwy
 Oakdale, NY 11769
 ph: 631-319-6592
 www.JungleBobAquatics.com

Manufacturer of Quality Reptile & Aquarium Supplies

15% Discount on everything in store, or online at:
<http://www.junglebobaquatics.com> Use coupon code gcas15.

NATURE'S REEF & REPTILE
 PET SUPPLY CO.



☎ 917-300-2293

📍 124-11 Jamaica Ave
 Richmond Hill, NY 11418

🌐 naturesreefandreptile.com

🕒 Mon-Sun
 10 am - 8 pm

📷 natureeefandreprs

📱 nature_reef_reptile

10% Discount on everything.



Enjoy the 2021 American Cichlid Association Convention in St Louis, MO, July 23-25!



Cichlid enthusiasts of all ages and experience will be there for all things Cichlid, fishy talk and fellowship and have access to world class speakers, manufacturer & vendor booths, an ACA hospitality suite and fish being sold throughout the event.

Everyone is bringing their newest acquisitions, spawned and ready to distribute! Party with your Buddies and go home with new fish!

This event features a slate of 5 special speakers, an extra special vendor room, a tank rental room and a hopping hospitality room. Attendee room sales, found throughout the venue, will be intense.

The ACA will not have a Show but the Convention will finish with a large Cichlid only auction!

In 2021 make up for staying at home in 2020!

<https://convention.cichlid.org/>

Use the convention website for Convention & Vendor registration, additional details and offers.



21 Co-Sponsors

- **Rusty Wessel** - Rusty speaks about the Central American Fishes he successfully collected in Belize, Costa Rica, Cuba, Guatemala, Honduras, Panama, Mexico and Uruguay.
- **Pam Chin** - Shares stories and videos about Cichlid Safaris to both Lake Malawi and Lake Tanganyika. She is a founding member of "Babes In The Cichlid Hobby" whose goal is to make a difference in cichlid keeping.
- **Steve Edie** - Banquet Keynote Speaker, believes that attending conventions all over the US is one of the best means of finding friends, information, and rare species and plans to make Conventions fun for all with "The Talk".
- **Dave Schumacher** - Speaking nationally about basic cichlid genetics and nomenclature, in 2006 Dave bought a fish store and turned it into the Dave's Rare Aquarium Fish specialty store, currently, selling more than 200 cichlid species.
- **Don Danko** - Don has collected extensively throughout Mexico on more than a dozen visits. An accomplished photographer, he has gathered an extensive collection of award winning cichlid photos.



Holiday Inn®

Airport West - Earth City
3400 Rider Trail S
Earth City, MO 63045
US Reservations 314-291-6800

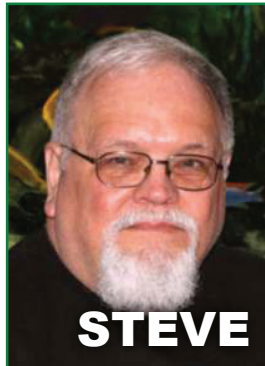
Within easy driving distance for most and good flight connections for everyone.



RUSTY



PAM



STEVE



DAVE



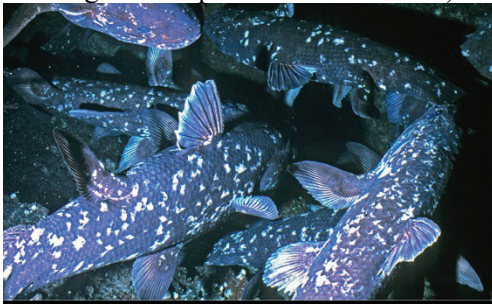
DON

PREHISTORIC PISCINES

A series by the Undergravel Reporter

In spite of popular demand to the contrary, this humor and information column continues. As usual, it does NOT necessarily represent the opinions of the Editor, or of the Greater City Aquarium Society.

Mongabay.com reports¹ that, beginning in the 1980s, a new commercial market in China for shark fins and oil prompted fishers off the southwest coast of Madagascar to set large-mesh gill-nets known as jarifa in deeper waters: a startling number of coelacanths have been landed as by-catch. (Coelacanths are found in undersea canyons about 328 to 492 feet below the water's surface.). These fishers are finding previously unknown populations of these West Indian Ocean livebearers (yes, these fish, which can grow up to 200 pounds, give birth to live young after a gestation period of 36 months!).



Coelacanths in a cave off Grand Comore.
Image by Hans Fricke

The coelacanth has been called the “four-legged, living fossil fish.” It was thought to have been extinct until 1938, when the first living coelacanth in recent memory was discovered off the South African Coast.

Their morphology has remained unchanged over 420 million years and are the only living animal to have a fully functional intercranial joint, which is a division separating the ear and brain from the nasal organs and eye.

The Coelacanth Conservation Committee has recorded 34 catches off Madagascar, including several specimens held privately or in museums. A further 40-50 anecdotal reports were left off. While sharks have been targeted in the Indian Ocean for more than a century, the rapid growth of the Chinese economy during the 1980s had led to an “explosion” of incidental coelacanth captures in Madagascar and other countries in the western part of the Indian Ocean. A few dozen captures may not immediately seem significant, but the Western Indian Ocean species, *Latimeria chalumnae*, is classified as Critically Endangered by the IUCN, while a similar species found in the seas around Indonesia (*L. menadoensis*) is classified as Vulnerable.

You don't need to go to Madagascar to find a “living fossil fish.” Two friends were fly fishing in Tennessee's Caney Fork River for bass, but what they reeled in was a 5-foot long, 55 pound paddlefish.

According to officials with the



5ft long – 55 pound Paddlefish
Image by the Tennessee Wildlife Resources Agency

Tennessee Wildlife Resources Agency, this is a prehistoric fish that can live over 30 years, and weigh up to 200 pounds.²

As the saying goes: “Everything old is new again!”



References:

¹ <https://news.mongabay.com/2021/05/ghost-fish-after-420-million-years-in-the-deeps-modern-gillnets-from-shark-fin-trade-drag-coelacanths-into-the-light/>

² <https://www.rfdtv.com/story/43866416/tennessee-man-reels-in-prehistoric-fish>



Fin Fun

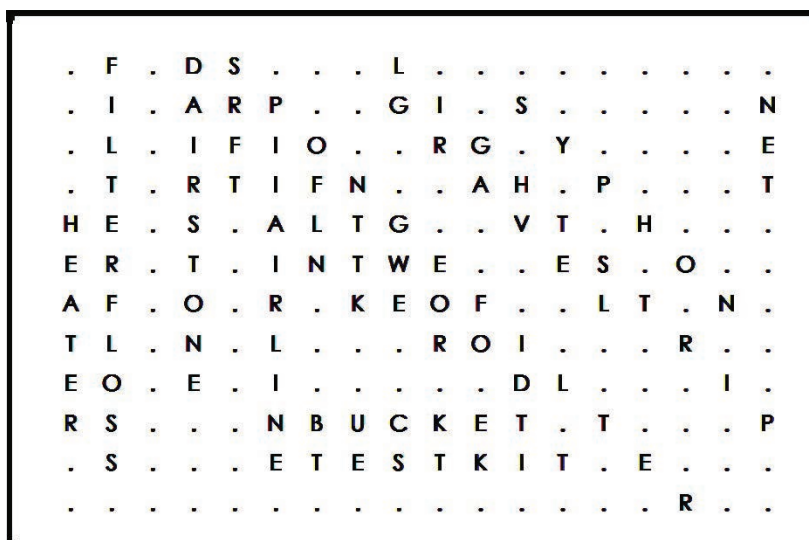


A Pond Grew In Brooklyn

Based on last month's presentation, here are two views of Joe Graffagnino's pond. Can you spot the seven differences between these two photos?



Solution to our last puzzle: **IN MY FISHROOM**



AIRLINE
AIRSTONE
BUCKET
DRIFTWOOD
FILTER
FILTERFLOSS
GRAVEL
HEATER
LIGHTSTRIP
NET
SPONGEFILTER
SYPHON
TANK
TESTKIT