

modern AQUARIUM



August 2019
volume XXVI
number 6

Greater City Aquarium Society - New York

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Series III Vol. XXVI, No. 6 August, 2019

ON THE COVER

Our cover photo this month shows a lot of green and orange—the orange being provided by a group of ember tetras (*Hyphessobrycon amandae*). For more information on these small, colorful fish, see Steve Sica's article, "The Ember Tetra," on page 11.

Photo by Stephen Sica

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From the Editor

by Dan Radebaugh

After a recent conversation (email exchange really, but that qualifies these days as a conversation) about some of our regular features in **Modern Aquarium**, I became curious and looked back to the beginnings of Series III (our generation's version of the magazine). There have been, as most of you know, earlier versions, but the current incarnation is the one that's most directly connected with today's Greater City membership. I've talked several times in this column about the ambitious group that embarked on this project, and occasionally reprint articles from our younger selves, but this time I was curious about the evolution of the magazine itself.

When Al Priest decided that he needed to step down as Editor, I was asked if we could affordably print the magazine in color (other than only on the covers). I was able to do so; though with my retirement from the publishing business there have been a few kinks to work out. I would point out, however, that there was a certain amount of color used even in the earliest issues of this current series. For example, this photo (below left) of *Haplochromis* sp. "firehap" from the June, 1994 issue, or the *Betta splendens* photo from



the October issue of that same year (above right). Also of interest to me was the style of the magazine. As you can see when you look at the older issues (available online), I've kept the basic design pretty similar to the way it began, though with some minor adjustments here and there. This past winter I explored some more noticeable design changes, but in the end I decided to leave well enough alone. Let the next Editor think about that.

What I've found really striking is the continuity **Modern Aquarium** has enjoyed. The Undergravel Reporter appeared in the very first issue, and has been a popular continuous staple ever since. GCAS Happenings and FIN FUN closed out the very next issue. All three of these are still important elements of **Modern Aquarium** today. While 'Happenings' is fluid info that's updated monthly, the other two,



FIN FUN and Undie, represent a real intellectual investment, not to mention the talent and commitment to come up with new material ten out of twelve months every year since 1994! Do the math. I'm not sure I could successfully put together even *one* puzzle, much less ten times 26 years!

Our content has also changed in certain ways over the years. The older issues didn't have as many photos, possibly because those didn't reproduce all that well in black & white, but they did have a lot of art work, which we don't have so much of these days. Of course that doubtlessly had a lot to do with us having members during those years who could really draw well, and who were generous with their talents. I'll reprint a few examples in upcoming issues; they're quite impressive!

One thing that has *not* changed is that to publish a magazine we need articles. We *always* need more articles! **Modern Aquarium** is published ten times each year, by and for the members of Greater City Aquarium Society. Our members have been doing this since 1994. Some of the folks who started this project are still with us and still contributing, while others are with us no longer. We'd like to hear from some of our newer members. You probably joined Greater City to make friends with other fishkeepers, and perhaps learn from our more experienced members, but the best case scenario is that we old-timers learn a few things from you, too. That's why we all joined this club and come to the meetings. So tell us about your projects! Write it down! Email it to me! Fax it to me! Mail it to me! Include pictures if you have them! We wouldn't all be coming to these meetings if we didn't want to learn and share! It isn't that hard; we have editors and proof-readers to help you out, and people literally all over world will read it. This is not an exaggeration!





GCAS Programs

2019

It is our great fortune to have another admirable cast of speakers who have so graciously accepted our invitation to join us throughout the coming season, bringing us their extensive knowledge and experiences. You certainly won't wish to miss a moment of our prominent guests, not to mention the friends, fish, warmth, and camaraderie that accompany each meeting.

March 6	Gary Lange <i>Cruising Papua - Following New Roads and Exploring "The Bird's Head"</i>
April 3	Mark Denaro <i>Cichlids I Hate</i>
May 1	Harry Faustmann <i>Live Foods</i>
June 6 (Thursday)	Breeders' Forum <i>Moderated by Joseph Ferdenzi</i>
July 3	Joseph Ferdenzi <i>The Story of Endler's Livebearer</i>
August 7	A Night at the Auction
September 4	Tom Keegan <i>Spawning Various Types of Tropical Fish</i>
October 2	Jim Cumming <i>TBA</i>
November 6	Greg Steeves <i>TBA</i>
December 4	Holiday Party!

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 (877) 299-0522. Copyright 2019 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 at (877) 299-0522. 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

They have service dogs. They have service cats. They even have service pigs! It's time for Greater City members to design a fish harness for our larger fishy friends so that we can take them with us anywhere! We can sell it online and make millions for Greater City! Someone should call George Foreman and see if he can get us a patent.

Thank you for being with us for another meeting, and another issue of **Modern Aquarium!** This summer we want to continue to bring you inspiration, helpful tips, and stories from novices and experienced fishkeepers alike. For 97 years (yes, you read this right) Greater City has been committed to bringing you first class information, stories, and speakers for a lifetime of memories and friendships. We value your membership, and want to see you again each month. Remember, the heart of GCAS is you!

Tonight is of course our third annual Night at the Auction, and I'm sure there'll be more happy winners again this year! You never know what you'll find. Maybe something you've been searching for for years, at a bargain price. For sure there'll be an endless array of new aquarium items, to say nothing of a terrific selection of fish from our top breeders that you'll have a hard time finding in stores!

None of the items you will see is used equipment or store-bought. They are strictly donations from our members and sponsors. All these donations make this the place to be in August to pick up great buys for your fishroom!

Meanwhile, summer is here, and we at GCAS are heating up for an unparalleled auction experience! This is the third anniversary of our Night at the Auction format. Due to the large volume of goodies, to speed things up we'll follow the bidding process we've used for many years. If an item comes up that you're interested in, simply raise your hand and keep it up until the item exceeds your bidding limit. Last man standing—I mean last hand up will be the successful bidder.

Good luck, and see you next month!

Horst



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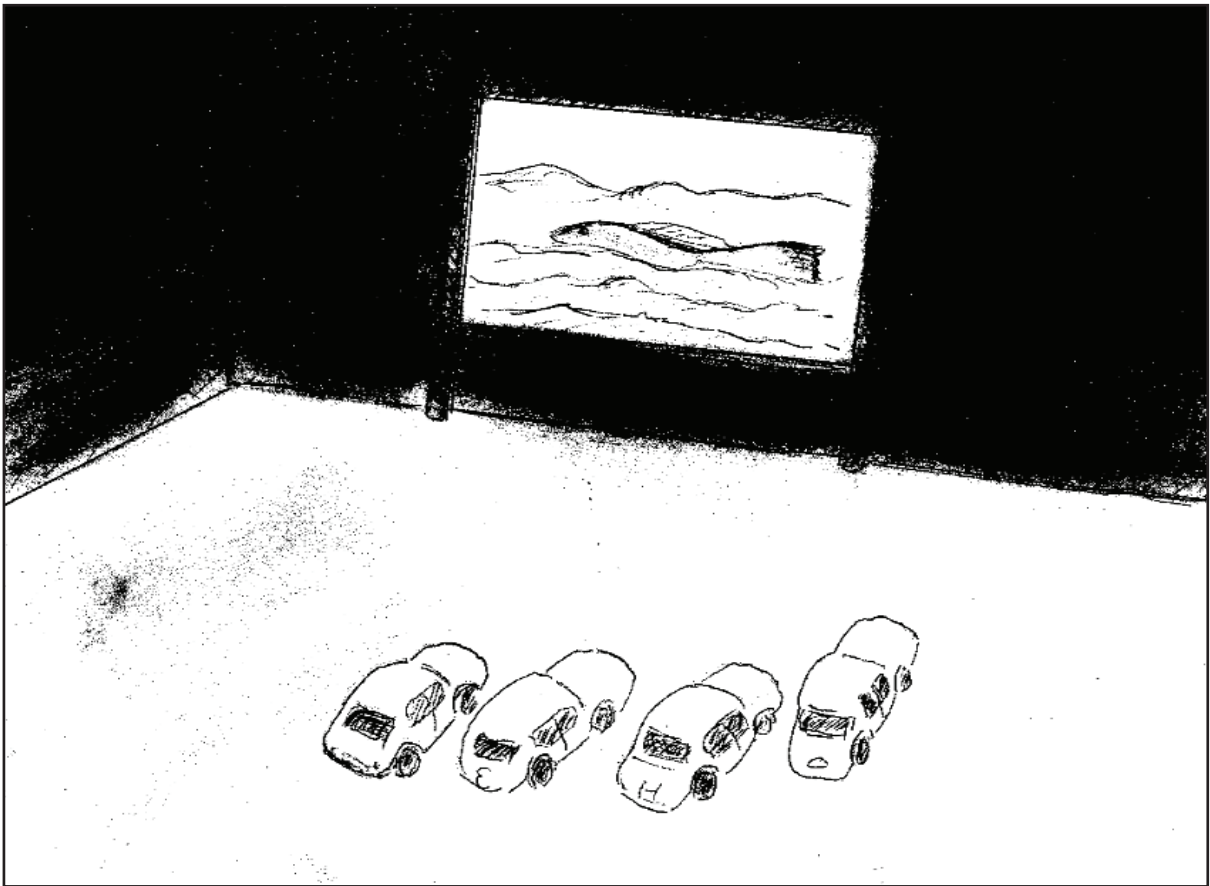
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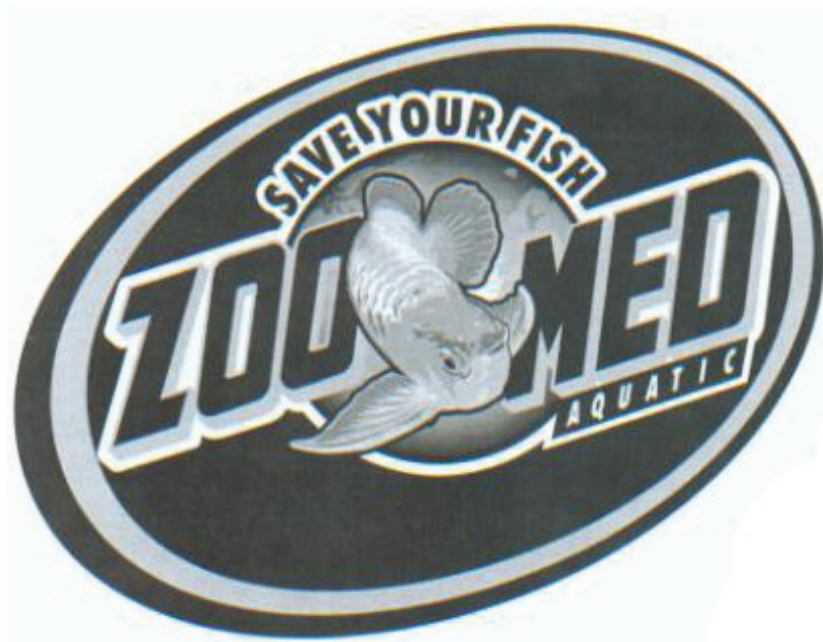
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July's Caption Winner: Ron Webb

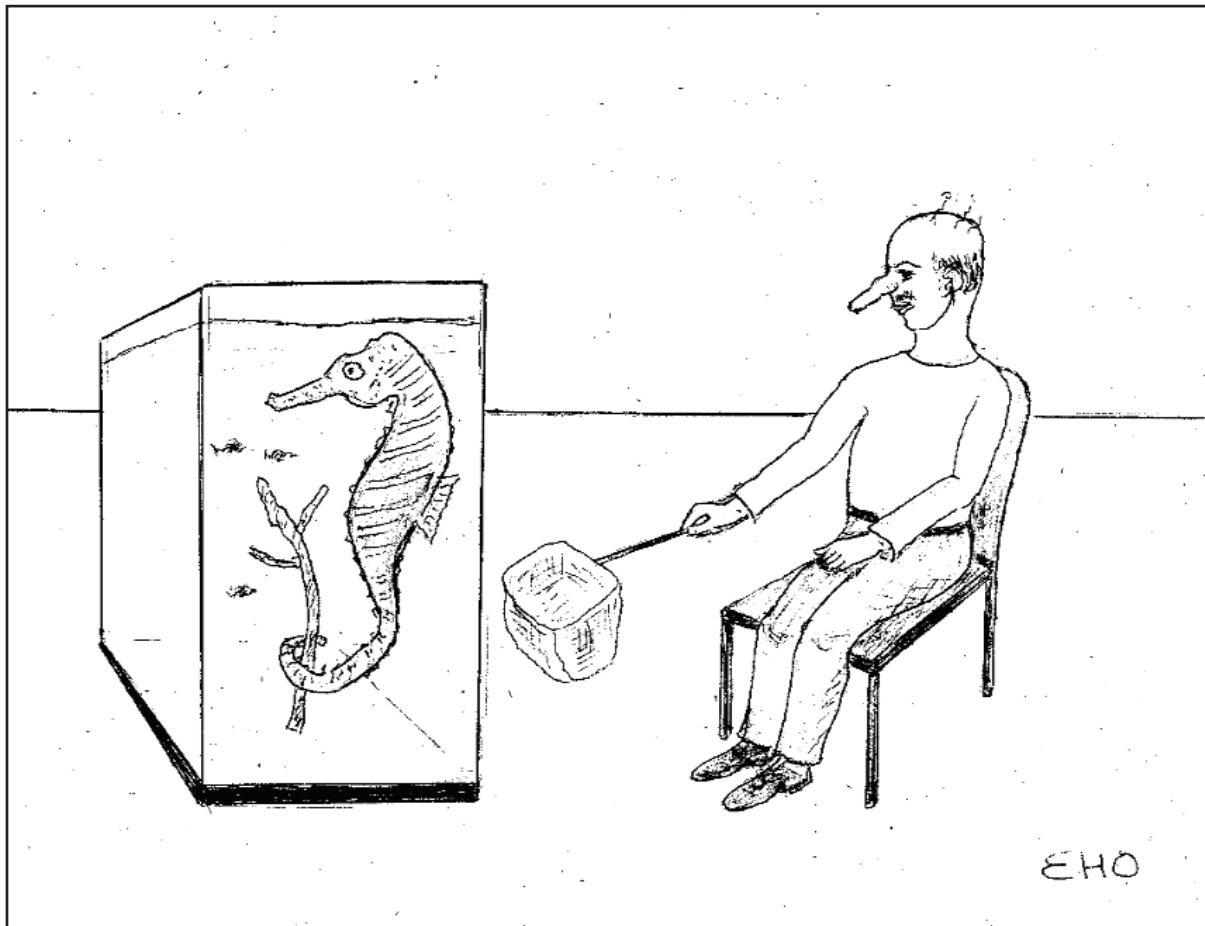


Attack of the Giant Pleco was, alas, not a box office hit.



The Modern Aquarium Cartoon Caption Contest

Modern Aquarium has featured cartoons before. This time though, you, the members of Greater City get to choose the caption! Just think of a good caption, then mail, email, or phone the Editor with your caption (phone: 347-866-1107, fax: 877-299-0522, email: gcas@earthlink.net. Your caption needs to reach the Editor by the third Wednesday of this month. We'll also hand out copies of this page at the meeting, which you can turn in to Marsha before leaving. Winning captions will earn ten points in our Author Awards program, qualifying you for participation in our special "Authors Only" raffle at our Holiday Party and Banquet. Put on your thinking caps!



Your Caption:

Your Name:

The Fabled Blue Gularis

by Joseph Ferdenzi



The photo taken by William T. Innes and published in the First Edition of *Exotic Aquarium Fishes* in May of 1935.

I can still remember it as though it was yesterday. Unfortunately it wasn't; it was 1966. That year my friend and fellow tropical fish enthusiast Mike Graziano gave me my first hard-cover aquarium book. It was the Metaframe edition of the classic William T. Innes book **Exotic Aquarium Fishes**. In it was a reproduction of the first color photo that Innes had ever taken of an aquarium fish (see above). What fish did he choose to be the subject of that photo? The fish he selected was none other than the fabled blue gularis.

Some of you may be saying to yourselves, what is a blue gularis? And if you were saying that to yourself you are probably not alone, and it is completely understandable. It is not a common fish in the hobby. I would not be surprised if you said that you have never seen one in a pet shop. Indeed, in all my years in the hobby I have only seen them for sale in a few stores, and these were famous shops that catered to aquarium hobbyists.

I suppose that its rarity was one of the factors that intrigued me about the blue gularis. But clearly, the other was the sheer exotic beauty of the fish. Just look at the photos accompanying this article! Have you ever seen a freshwater aquarium fish that looked

more exotic? The caudal fin has three colors almost evenly divided in three parts, with those long trailing filaments! No other freshwater fish has such a feature. The body of the fish itself is a streamlined thing of beauty with ornate markings, beautiful fins, and (oh yes!) that blue sheen from which it derives its name. Of course to see that blue sheen you have to start with good stock, and have the lighting bounce off the front of the fish, as seen in my photo (next page). By the way, I should mention that I have been only writing about the males; females are brown/beige with clear fins and no filaments.

The beauty and mystique of the male fish is such that when it came time for the American Killifish Association to select its emblem killifish, it chose the blue gularis, even though it is not an American killifish (it comes from Africa—the west coast, to be more specific). That choice does not surprise me, because it is one of the most distinctive and beautiful killifish known, and this was certainly the case in 1962, when the AKA was formed.

Thanks largely to that Innes photo, I became fascinated with the blue gularis and killifish in general. However, it was only after I joined the AKA and the local killie club (the Long Island Killifish Association)



Photo taken last month by the author, of a male raised from stock bred by Rosario LaCorte

that I finally acquired a pair and eventually spawned them.

Breeding them is not that difficult, though I certainly wouldn't call them a beginner's fish. To start, they are somewhat large, as killifish go, with males easily achieving five inches in length. Also, males can be rough on the females, so you have to be sure to separate them if she starts to look beaten-up. Lastly, like almost all killifish, they are notorious for jumping out of aquariums. A tank housing blue gularis that does not have all its openings covered will soon be empty.

On the plus side however, their size and appetite make them easy to feed. They will eat just about anything that fits in their mouths, and it does not have to consist of 'live' food—that's a killifish myth. They do prefer to eat from the surface. As their morphology indicates, they are indeed 'topminnows.' Nor are they fussy about water quality; anything in a normal range will do. As for temperature, once again, normal to cool (75° F to 70° F) will suit them fine.

My standard method for breeding them has been as follows. Using a 10 or 15 gallon aquarium, I introduce a female on one side of a divider, and a male on the other side (though sometimes I keep the male in his own 5½ or 10 gallon tank). I then fatten up the female with food such as freeze-dried mysis shrimp or krill, live brine shrimp, and live blackworms. After a week of that, I place a sinking spawning mop in the tank, and then introduce the male. Within a matter of days you should find a bunch of eggs on the mop. You can pick these off with your fingers, and place them in a small plastic container with water from the parents' tank. After a few weeks at room temperature (70° to 75° F), the eggs should start hatching. The fry are large enough to start them on newly-hatched brine shrimp or if those aren't available, vinegar eels. You can also use finely crushed flake food—just remember

to remove uneaten food. Keep moving the fry to progressively larger containers as they grow, and be sure to do partial weekly water changes. Foul water leads to disease and premature death. Otherwise, you will find the fry to be very hardy.

The most successful breeder of beautiful blue gularis that I know is Rosario LaCorte of New Jersey. Not only are his blue gularis spectacular looking (my photo is of one that I raised from stock I received from Rosario), but they are prolific. Interestingly, Rosario does not use spawning mops. Instead, he breeds them over regular number 3 gravel, which he periodically siphons off into a 5-gallon bucket. He then swirls a small net over the gravel in the bucket, thereby obtaining copious quantities of eggs. Rosario's fish are fed a rich and nutritious diet that includes frozen brine shrimp and freeze-dried krill.

Up to now you will have noticed that I have avoided discussing the scientific name of the blue gularis. It's current Latin binomial is *Fundulopanchax sjostedti* (what a mouthfull!), but in the past it has had many others, which may complicate looking it up in older sources. There is no mistaking, however, what it looks like—it's unique! I leave you with one caveat however, on that topic. Not all photos are created equal. Over the years I have seen many published photos of the blue gularis. Many of them, sadly, are not very good. In fact some of them are so poor that you would be justified in asking: why it is called a *blue* gularis, and why is it such a fabled fish? I hope that the photos accompanying this article will answer these questions. To my mind, even though the Innes photo is the first color version to be published, it still remains the most remarkable. And despite my poor photographic skills, my photo should show you why *blue* is in the name. By the way, those of you who know me do not have to be told that the idea that *I* could somehow enhance a photo is utterly ridiculous!





Mangroves are found in almost all tropical and subtropical countries. It is a widespread plant that adapts to changing conditions. Mangroves belong to the family Rhizophoraceae, the genus *Rhizophora*. There are several species of *Rhizophora*. The most common one that we are familiar with is the red mangrove (*Rhizophora mangle*). There are other genera of plants in the mangrove group that are not “true mangroves.” These include *Avicinia* (black mangrove) and *Laguncularia* (white mangrove). Both are quite common and are often found alongside the true mangrove in coastal areas and swamps.

The typical characteristic that comes to mind when we think of mangroves is the arching roots that emerge from the water, forming a dense thicket in which many fish and wildlife take refuge. It is these roots that allow the mangrove to survive in rather hostile environments. These plants are members of a



small group of plants called halophytes. This simply means that they are very tolerant of salt water conditions and can survive in brackish to full marine water. The cells of the roots have an amazing salt filtration ability that allows them to take in fresh water while excluding the salt. They are also well

adapted to substrates with very low oxygen levels. In other words, waterlogged mud. These amazing adaptations do not mean that the mangrove can only exist in salty environments. In fact, we can grow them in brackish and fresh water just as well. So now let's look at how to grow these fascinating plants.

The most unfortunate part of growing mangroves is that they require a lot of light. Most species will not thrive unless they are given supplemental artificial light. The more light you can give them the better they will do. That being said, if you can start your mangroves from seed or propagules, then they can adapt to lower light and humidity conditions. Remember, they are a very adaptive plant. The one drawback in this case is that growth will be very slow. However, since mangroves can grow to be very large, the slow growth may be a bonus.

What are propagules you ask? Well, mangroves go through a process called vivipary. This is where the seeds begin to grow before they are dispersed from the fruit or parent. The long, narrow pod-like structures seen on mangroves are not seeds or fruit, but are in fact a modified radicle (primary root). These are called





propagules. The seed has germinated while attached to the tree and formed these structures. Propagules are the way most of us will purchase mangroves to grow. In nature the propagule will fall from the shrub and float around in the water until it comes to rest on the shore.

If conditions are right, a secondary root will begin to grow from the base of the propagule, anchoring it into the substrate. Soon after, the first shoot will be produced on the upper end of the propagule.

Mangroves are plants that do not grow under water; they need to be fully or partially above the water level, and therefore are especially suitable for open aquariums where they can grow out of the aquarium. When we receive our mangrove propagules, we will mimic nature by pushing the base of the structure down into the substrate in an aquarium or pot. Once we give it the right conditions it will just do its own thing. The substrate required isn't terribly specific. The propagule will grow in just about any kind of gravel, sand, or clay. However mud or garden soil is not suitable. Also, we must provide enough nutrition. This can be done with the addition of fertilizers. There are commercial mangrove substrates available, generally called "mangrove mud", but these are not essential.

Plant your new mangrove propagule as you would an emerged pond plant. You want to have the top of the propagule OUT of the water and the lower part UNDER the water. As long as you keep the roots very wet, but not waterlogged (you don't want anaerobic conditions) the plant will be happy. The anaerobic conditions are not really detrimental to the mangrove, because they are adapted to low oxygen environments. However, the smell of anaerobic bacteria doing what they do is not pleasant, so it's best to have a well aerated substrate. If you want to grow mangroves in the aquarium, you can plant them directly in the substrate, if they are long enough, but the best method is to plant them in a mesh pot and place that in the aquarium. This is the recommended method.

Other methods include attaching them to wood or rocks, as we do with plants such as Java fern and *Anubias*. Remember that if attaching to rocks, the plant will not be able to take nutrients from the substrate. It will be totally reliant on nutrients in the water. Since mangroves are heavy feeders, we will need to keep the nutrient levels in the water quite high. This has been done successfully in many marine and fresh water aquariums. Mangroves also do very well in a recirculating hydroponics system.



The basic conditions that must be met to successfully grow mangroves are:

- 9 – 13 hours of high light per day. Sun plus supplemental light may be necessary.
 - Temperature of 25°C – 30°C and at the very least, above 20°C all day, all year. Water temperature can be a little cooler than air temperature. Ideally, 25°C – 30°C air and 23°C – 27°C water.
 - Humidity as high as possible and, at the very least, not below 50%. Frequent misting helps.
 - Nutrient rich substrate made of sand or clay or crushed coral if growing in marine environment. A good substrate will have a variety of trace elements and chelated trace elements, calcium, strontium, magnesium and iron, as well as the all-important nitrogen, phosphorous and potassium.
 - Substrate of 10cm – 30cm depth depending on the size of the plant.
-

So although mangroves are not the easiest of plants to grow, they can be a gorgeous and advantageous addition to an open aquarium, terrarium, vivarium or paludarium. Bringing mangroves into your aquarium will improve the well-being of all critters in your setup by improving the water quality. Mangroves remove and filter pollutants like nitrite, nitrate, and phosphate out of your aquarium water. Remember, mangrove forests play vital role in nature; they act as filters and nurseries for a huge variety of animals. Mangroves have even proven to remove heavy metals from the water. A truly amazing plant!



The Ember Tetra

or

Good Things Do Come In Small Packages

Story and Photos by Stephen Sica

When I was a child, if someone gave me a present I was usually impressed by its size, especially if it was nicely wrapped and unexpected. Oh, what a surprise! When I was young I usually believed that the bigger the gift, the better the gift. As I grew and matured, I learned that some really good stuff comes in a small size. But there are conundrum gifts too, for example an engagement ring. I never received one but I have bought one. It is both small and big. Plus, the ring has an added bonus when it comes to size—a big diamond is usually best! This is a good example that size is relative. If you don't believe me, you can ask Albert Einstein. Well, you can ask him in theory anyway.

Sometimes my goal is to be just a bit confusing to my reader; that is, I try to think “outside the box” about a topic, if only for a second or two. I believe that it was established many years ago that the average person has an attention span of only a few precious seconds. There are also fish that can match this attention span, but since I don't pretend to be the Undergravel Reporter, please don't ask me to elaborate.



8.6 gallon nano aquarium and the home to a small school of ember tetras, *Hyphessobrycon amandae*.



Typical of most tetras is to stay together and in cover, or more specifically hide in aquatic plants.

Nonetheless, I think that you would agree with me that there are lots of superior fish that are small. I happen to have recently “discovered” one such fish at a pet store near Roosevelt Field in Nassau County. As stated in my title, it is the ember tetra, *Hyphessobrycon amandae*. I actually had my eye on this fish, and some similar ones, for a few years while my 8.6

gallon nano tank was reposing, unused, on a shelf in the basement. I have a book about nano fish and aquariums. I would gaze longingly at the ember tetra.

When I researched this fish on my computer, I only found it for sale online. I was hesitant to spend the money to ship, and I was concerned with survival of the fish. Last winter, when we were shopping near Roosevelt Field, I asked Donna if we could browse Pets Warehouse on Glen Cove Road in Carle Place. She agreed, and I

studied their tanks intently in search of a nano fish. I was disappointed in not finding a satisfactory nano fish so I decided to purchase three rummy nose tetras, *Hemigrammus rhodostomus*, to start off my small tank. However, I had a school of these many years ago and wanted a different fish. I decided to scan the tanks one last time before paying for the rummy noses. On a shelf of small tanks below eyelevel I found a tank with glass shrimp. Near it was a smaller tank with a handful of ember tetras. I think that they were priced at four dollars each or three for ten dollars, so I purchased six. I subsequently purchased nine more during the next few weeks. After three or four months, only ten



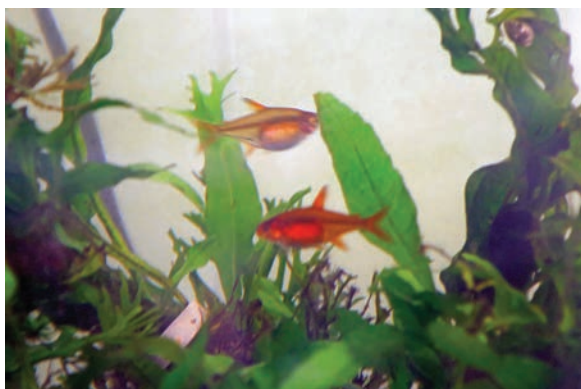
A full size ember tetra, *Hyphessobrycon amandae*, is about one inch in length. This small fish often stays where it feels protected. It will hide among plants and in other places where it is not noticeable. When it feeds, it will swim to the surface and often dart back to cover.



In most tetras, and similar fish with an elongated body, the female has a fuller abdomen and is usually a bit larger. The two lower fish are females. The lone male is in the upper left of this photograph. Also note that the orange-red coloring of these fish does vary.



An adult female ember tetra, *Hyphessobrycon amandae*. This is as colored up as they get. Their primary diet is Omega One Color Flakes and Tetra Tropical Color Granules. I also add a dash of Omega One Freeze Dried Blood Worms and San Francisco Bay Brand Freeze Dried Tubifex Worms.



Some ember tetras are a bright orange-red color, while others just show a hint of it. I think that even the "bland" fish are attractive. Maybe the colorful ones get more or the best food, or is it the fish itself?



When socializing, the ember tetra prefers to stay in a close-knit school of its own species. I have two rummy nose tetras, *Hemigrammus rhodostomus*, that share the embers' aquarium. The two species often school together, but not always. When they do, the rummy nose seek out the embers.

have survived. I put the three rummy noses in with the embers. One was stressed from the purchase and transfer and soon succumbed, but the two remaining rummy noses and ten embers are doing well. I littered the bottom of their small tank with numerous small Java fern, species *windelov*, and a few small *Annubias*. I think they are the dwarf species *nana*. Hopefully, these plants will help to clean and purify the water, as well as provide cover for the tiny fish. The embers prefer to swim in a school at the midrange water level.

The ember tetra is probably one of the smallest tetras kept by fish enthusiasts. While it was fairly difficult to obtain a few years ago, its popularity has increased as it has become easier to obtain. In fact, every time that I visited Pets Warehouse they had the fish in stock, albeit in limited quantities. I have seen this fish in the Carle Place store and the main store in Copiague. It does not require special conditions, so if you have good water quality, you're set to go. I don't know why my fifteen-fish school is now ten, as all water parameters are good. Perhaps the extremely small size of the ember tetra makes it delicate, though this is purely conjecture, as these fish seem hardy. None of the fish were stressed from their relocation, so it's probably my mediocre fishkeeping skills.

From researching a website called meetthepet.com that I found via a Google search, I learned a few interesting facts about the ember tetra. It was discovered in 1986 by Heiko Bleher in the Araguaia River basin and its tributary Rio das Mortes River in Brazil. The fish inhabits slow moving forested streams and tributaries that have leafy bottoms and tree branches below the forest canopy. Tannins can be present in these waters. Being small, the ember tetra is peaceful, with a length of 0.8 inch. The pH is 6.5 to 7.5. In a home aquarium, some experts suggest floating plants to provide cover and shade that may help the fish feel safe.

When showing its true colors, the ember tetra has a shiny orange-red body. Males and females share the same coloring. As with most fish, the females have a larger, rounded body. Websites state that the ember tetra is easy to breed. Since the fish inhabits slow moving waters, filtration should not be strong. I use a small sponge filter powered by a typical air pump. Recommended water temperature is 73 to 84 degrees Fahrenheit. The fish is omnivorous. Its small mouth requires very fine food—flake and/or live. It is not particular. It is a very peaceful fish, and can live with other small peaceful fishes and shrimps.



Another glimpse of part of the school. Note the dull coloring of the male at the bottom.



Kissing cousins? Two ember tetras meet face to face in a close encounter. The fish in this species are very social with each other, but I conjecture this observation is true about all tetras.



These fish readily adapt to and bond with each other. For such small fish it seems that there is strength in numbers.



Rummy nose tetras swim with ember tetras. Their small 8.6 gallon aquarium offers these opportunities, especially during feeding time.

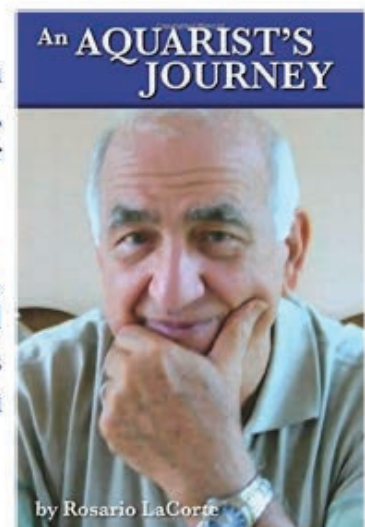


An Aquarist's Journey

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)



GREATER CITY AQUARIUM SOCIETY

NIGHT AT THE AUCTION RULES

SELLERS

In the interest of time, auction lots will be limited to fish, plants, live fish food/cultures and **brand new/unused aquatic equipment and dry goods**. No other dry goods or used items will be accepted.

All items for the auction will be our normal 50/50 split or a 100% donation to the club. Payouts will be available at our next meeting.

Description of your fish for labeling the bag. Samples are below.

Proven pair – they spawned and the eggs hatched.

Pair – sexable adult fish, one female and one male.

Trio - sexable adult fish, combination of males and females indicated on the label.

Breeding Group - sexable adult fish, some combination of males and females indicated on the label.

All fish lots should be properly bagged. Please do NOT use zip lock bags.

Please try to arrive early to set up your fish/plants for the auction, as we wish to start promptly.

The GCAS has the right to refuse any lot for any reason, including but not limited to size, visible defects, sickness, or improper bagging.

Minimum bids are not allowed.

The seller must pick up any lots that fail to sell at the end of the auction. Any items left will become the property of GCAS.

BIDDERS

GCAS will process bidder purchases in only one way; cash on delivery.

You pay the runner when he or she delivers the lot to you. The runner will return with the change if there is any. Sorry, no checks or credit cards; cash only.

GCAS will do its best to ensure that all items at the auction are what they are stated to be, but GCAS cannot be held responsible for any mislabeled items.

The auctioneer has the FINAL WORD on all bids.

Recycling: Are We Almost There Yet?

by Dan Radebaugh

Reduce, Reuse, and Recycle! For decades now, this has been a mantra of the environmentalist movement. We have been inundated with often conflicting instructions on recycling the various personal and commercial wastes that we as individuals, families, businesses and societies, produce with literally everything we do. By the way, notice the order of those three words. So how is it all going? If you read Jules Birnbaum's article in our July 2018 issue on the subject of microplastics in the environment, and if you've paid attention to all the large ocean creatures being found dead with stomachs full of *non-micro* plastics, you probably suspect that it isn't all going terribly well. So why not? We've all been recycling like mad, right? Well...

I recall back in the late early 1990s being told by the management of the apartment where I was living that we were all now required to put our paper trash in the so-labeled container, the plastic trash likewise, and anything else in the regular old garbage. While that is still being done in many buildings in this city, others are being told to just put everything indiscriminately into the now non-labeled containers, and that they would be sorted online. Except for plastic shopping bags, which have now been declared non-recyclable, and which, if you are a good citizen, you should now be taking to certain stores in your area that are responsible for collecting and disposing of them because the stores use them to contain your purchase. I'm not sure to what end, if as we are being told they are not recyclable, but that is what I have been doing.

Meantime, I can't help but notice that the non-recyclable garbage being left out on the street for pickup is all contained in heavy-duty plastic bags (the alleged recyclables go into *clear* plastic bags)! So what's the logic here? If we don't want to put

plastics in our landfills, why is everything we are sending to said landfills being wrapped in plastic? I'm getting a headache here! Maybe I should get a couple of blood-pressure pills from their plastic containers that I just carried home from the drug store in a plastic bag. I wonder if those plastic pill containers are recyclable. Back in the 1980s we were told to take them back to the pharmacy for re-use. *Really?* But I don't hear that any more.

The Sierra Club to the rescue! Their most recent (July/August) issue of **Sierra**, entitled 'Trash Talk,' explores these very questions. Some of the article titles are, "Life in Landfill," "You're Recycling Wrong," "Is There Earth-friendly Dishware?" "Boom Goes the Plastics Industry," "You Can't Recycle Garbage," and "Trash for Cash." Each of these articles contains valuable, up-to-date

information. For example, bottle caps and plastic bags are the bane of recycling plants, because they jam up the equipment. Also this tidbit: "Bottle bills are the single most effective means of boosting recycling; it's no coincidence that the states that have them also lead the nation in recycling rates."

To me one of the really interesting stories is about China's role in our own current mess. Starting back in 1992 and lasting until just recently, half of the plastic and a whole lot of the paper we put into our recycling



bins did not go to our local recycling plants, but was sold and shipped to China, which was at that time desperate for raw materials. That practice lasted until just last year, when in a crackdown on domestic pollution, China banned the import of dirty foreign garbage. The stuff we were sending them included poorly sorted plastics and food-stained paper. As it turned out, these were never recycled; they just got dumped, finding their way down China's rivers and into the oceans to the Great Pacific Garbage Patch.

In his article, "You Can't Recycle Garbage," Edward Humes, looking on the bright side, points out that the current situation actually provides us an



A redemption center in Brooklyn, New York. Bottle bills like the one in New York boost recycling rates and provide needed income to homeless and other marginalized people. Photo by Spencer Platt/Getty Images

the plastic bag you don't use."

opportunity to remake our domestic recycling industry, though we may need to confront the proposition that we can't recycle everything. Some things are actually less environmentally problematic if we just put them in landfills. Going back to the "Reduce, Reuse, Recycle" mantra at the beginning of this article, Reduce and Reuse come before Recycle. Remember, "You don't have to recycle



This issue of **Sierra** is available online at sierramagazine.org. Photo on preceding page by Dan Radebaugh.

Meeting Reminders



Almost every month at least one meeting reminder postcard is returned undelivered. Sometimes the member moved and just forgot to update his or her contact information with Greater City. Other times, well it's a mystery—the address was correct, but the Post Office marked it as "undeliverable."

Unlike some aquarium societies, at Greater City there is never a charge for non-members to attend, there is no "bidder card fee" to bid on items in our monthly auctions, the refreshments are free to everyone at the meeting, and anyone can purchase raffle tickets. But membership does have its privileges, including this award winning magazine, door prize chances, the ability to participate in our bowl shows, and advance reminders of our meetings. If you have an e-mail account, please consider getting your meeting reminders by e-mail, instead of by postcard. You will be getting two notices (one a week in advance, the other a day in advance) instead of only one, and the chances of non-delivery are virtually none (unless you change your e-mail address). While it's a very small thing, you'll even help the environment by using less paper. An e-mail sign-up sheet is at the membership/Modern Aquarium table, or send an e-mail to gcas-webmaster@usa.net.

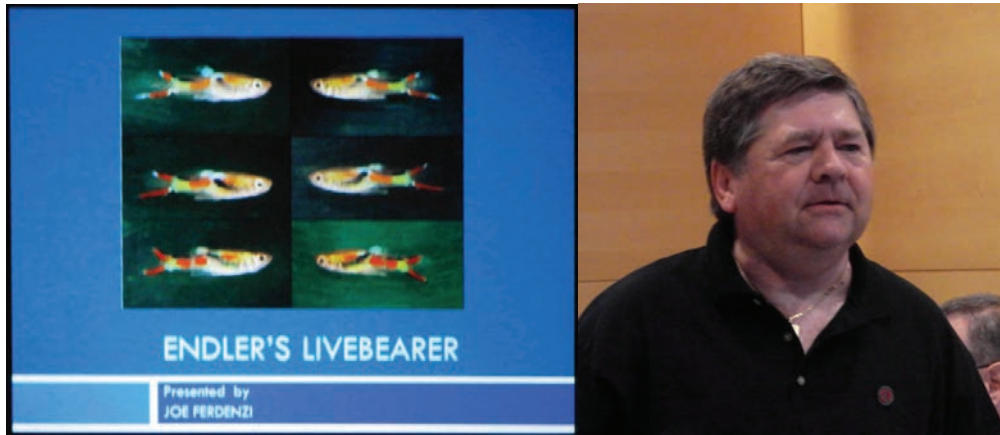
Fishy Friends' Photos

by Greater City Aquarium Society Fishy Friends

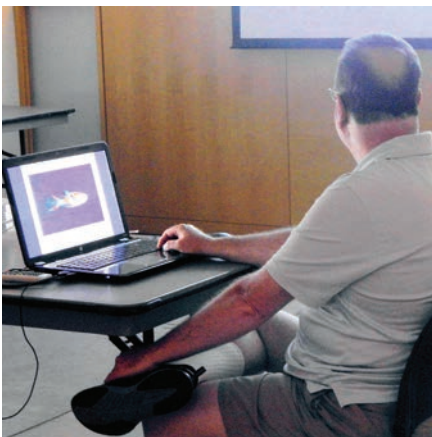
Below are photo submissions to our "Fishy Friends" Facebook group. I've left the subjects unnamed, but not the photographer. If you see a shot you like, and want more info, ask the photographer about it! I'm sure he or she will be delighted to tell you!



Pictures From



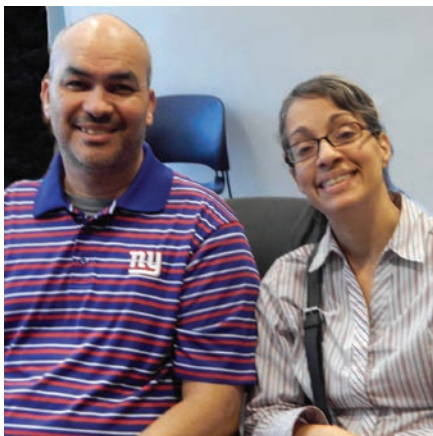
Tonight's program is on a well known livebearer (by) a man who needs no introduction



Jason Kerner mans the machinery



A close-up photo of an Endler's Livebearer



Sue and Al's "Hippy-Dippy" neighbors, Rick & Evelyn



Joe Gurrado, your usual photographer, as seen from the other side of the camera

Our Last Meeting

Photos by Sue Priest

We warmly welcome our newest member:



Lonnie Goldman and his son Matthew

Bowl Show Winners:



**2nd Place:
Rich Waizman**

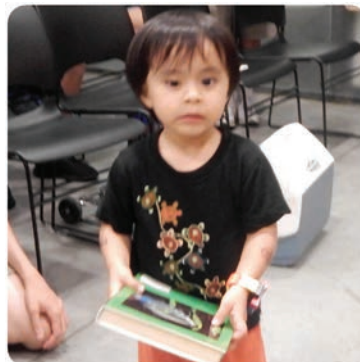


**1st Place:
Bill Amely**



**3rd Place:
Bill Amely**

Door Prize Winner:



Logan Soriano



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Greater City Aquarium Society

Breeders Award Program

The purpose of the Breeders Award Program (BAP) is to give our members the opportunity to gain enjoyment as well as experience in the entire range of fish breeding and maintenance. Questions about the BAP should be referred to BAP Chairperson Joseph Graffagnino (joeagraffagnino@yahoo.com). The BAP program and forms are available on the Greater City website (www.GreaterCity.net in the Contact page).

As of August, 2019

The program has two divisions: the Basic Program and Specialty Program. The Basic Program has seven recognized levels; Breeder, Advanced Breeder, Master Breeder, Grand Master Breeder, Senior Grand Master Breeder, Advanced Grand Master Breeder and Senior Grand Master Breeder. The Basic Program classifies fish as to the degree of difficulty and respective point value. Additional levels may be created if necessary.

The Specialty Program is designed to recognize mastery in one, or more, specific category of fish.

THE BASIC PROGRAM LEVELS

Breeder	50 points
(At least 20 points must be from the 10, 15 or 20 point categories)	
Advanced Breeder	100 points
(At least 40 points must be from the 10, 15 or 20 point categories)	
Master Breeder	300 points
(At least 30 points from each of the 5, 10 and 15 point categories, and 40 points accumulated from the 20 point category. 170 points may be from any category.)	
Grand Master Breeder	500 points
Senior Grand Master Breeder	800 points
Advanced Grand Master Breeder	1,200 points
Advanced Senior Grand Master Breeder	2,000 points

POINT CLASSIFICATION

ANABANTOIDS

- 5 points – none
- 10 points – All species not listed otherwise.
- 15 points – All *Macropodus* except *opercularis*, all *Betta splendens* and species not listed otherwise, all *Belontia*, all *Trichopsis* and *Helostoma*.
- 20 points – *Ctenopoma* & *Microctenopoma* species, *Macropodus opercularis*, *Osphronemus gourami*, all *Sphaerichthys* and *Betta foerschi*, *gladiator*, *hendra* and *macrostoma*.
 - **Prohibited in NYS are all *Channa* species (Snakeheads) and *Parachanna* species (African snakeheads) and *Clarias batrachus* species (Walking Catfish).**

BRACKISH WATER

- 5 points – none
- 10 points – none
- 15 points – none
- 20 points – All species, to include *Archiris* species, Archer fish, *Brachygobius* (bumblebee goby) species, monos, mudskippers, puffers, and scats.
 - **Prohibited in NYS are *Neogobius melanostomus* (Round Goby) and *Proterorhinus marmoratus* (Tubenose Goby), *Tinca tinca* (Tench/Doctor fish).**

CATFISH

5 points – none

10 points – *Corydoras aeneus* and *paleatus* (including albino forms)

15 points – All *Ancistrus*, *Aspidoras*, *Brochis*, *Dianema*, *Hoplosternum* and “Whiptail” *Loricariids* and all *Corydoras* not already listed.

20 points - All algae eaters, and other species not listed otherwise.

* **Please note** : All C-, CW- and L- number catfish will be awarded BAP points in the same manner as catfish that have been identified with a Genus and Species name, including all defined First Time Spawning Bonus points listed in this document.

CHARACINS

5 points – none

10 points – All Emperor Tetras.

15 points – All species not listed otherwise.

20 points – *Exodon paradoxus*, *Hyphessobrycon herbertaxelrodi*, all members of the “Hatchet Fish” complex, all *Prochilodus* complex, all *Anostomus*, *Paracheirodon axelrodi*, all *Phenacogrammus*, all *Serrasalminae* including *Metynnis*, *Myleus* and *Serrasalmus*.

CICHLIDS NEW WORLD

5 points – *Cichlasoma nigrofasciatus* and *Herotilapia multispinosa*.

10 points – All species not listed otherwise.

15 points – *Herichthys*, Central American and South American species unless otherwise noted.

20 points – All *Symphysodon*, *Uaru*, *Crenicara*, *Pterophyllum altum*, all *Retroculus*, *Taeniacara*, *Tahuantinsuyoa* and *Teleocichla* species, and all Madagascar cichlids.

CICHLIDS OLD WORLD

5 points – None

10 points – All Lake Victoria cichlids, Lake Malawi cichlids

15 points – All Lake Tanganyika Cichlids and West African species, all *Etoplus*, all Lake Cameroon type cichlids.

20 points – None

CYPRINIDS

5 points – *Tanichthys albonubes*, all *Danio* complex, all Australian Rainbows (except *Pseudomugil*.)

10 points – All species not listed otherwise.

15 points – *Barbus nigrofasciatus*, *Barbus semifasciolatus*, all *Rasboras*.

20 points – *Barbus schwanfeldi*, all Cyprinid “Shark” complex, Koi, goldfish.

- **Prohibited in NYS are All types of *Hypophthalmichthys* species and *Mylopharyngodon piceus* (Carp), *Tinca tinca* (Tench/Doctor fish).**

KILLIFISH

5 points – *Aphyosemion australe** and *gardneri**, all *Oryzias*, *Aplocheilichthys*, *Aplocheilus*, *Panchax*, *Epiplatys dageti** and *sexfasciatus**, all *Rivulis* not listed otherwise.

10 points – All species not listed otherwise.

15 points – All annuals and those not listed otherwise, *Fundulopanchax sjoestedii*, *Pseudoepiplatys annulatus*, *Aphyosemion* “Diapteron” complex, all *Procatopus*, *Lamprichthys tanganicanus*.

20 points – *Cynolebias dolichopterus*, *Nothobranchius guentheri*, *Nothobranchius rachovii*, *Pterolebias zonatus*, *Rivulis xiphidius*.

* Means all color, types and location forms.

LIVEBEARERS

5 points – All species not listed otherwise.

10 points – All *Goodeidae* complex, all *Belonesox*.

15 points – All livebearing Halfbeaks.

20 points – *Anableps anableps*.

- **Prohibited in NYS are *Gambusia affinis* (Western Mosquitofish) and *Gambusia holbrooki* (Eastern Mosquitofish)**

MARINE FISH

5 points – none

10 points – none

15 points - none

20 points - Any true salt water fish species.

- **Prohibited in NYS are *Petromysus marinus* (Sea Lamprey).**

ALL OTHER SPECIES

5 points – None.

10 points – All Sticklebacks, Peacock Gudgeon (*Tateornida ocellicauda*)

15 points – Leaf fish and all species not listed otherwise.

20 points – All *Badidae*, *Dario* and *Nandus* species, *Scatophagus argus*, all *Monodactylus*, all Loaches, all Eels, knife, ghost, elephant nose species, all *Mormyrids*, all Lungfish complex, all freshwater Stingrays, Dogfish and Sawfish, all Arowanas, Bowfins, *Arapaima*.

- **Prohibited in NYS are *Misgurnus anguillicaudatus* (Weather Loach), *Proterorhinus semilunaris* (Western Tubenose Goby), *Petromysus marinus* (Sea Lamprey).**

The C.A.R.E.S. Preservation program: the Greater City Aquarium Society supports this program. As a symbol of our support, any fish that is part of the C.A.R.E.S. program and is bred as part of the GCAS BAP will receive **an additional 10 points**. It is the responsibility of the breeder to notify the BAP Committee that the species that has been bred is part of the C.A.R.E.S. program. The committee will verify that fact and award the bonus points.

First Time Spawning Bonus Points

1st time within GCAS Additional 10 points.

1st time within the U.S.A. Additional 50 points*.

1st time in hobby Additional 100 points*.

- * You must write an article and have it published in *Modern Aquarium*.
For first breeder points the fish must be identified by both genus and species.

GENERAL INFORMATION

Questions about the BAP should be referred to BAP Chairperson Joe Graffagnino (joeGraffagnino@yahoo.com).

SPECIES:

Points are awarded only once for each species or subspecies. "Mollies" are a genus which contains several species: *Poecilia latipinna*, *P. sphynops* and *P. verifera*. Being separate and distinct species, these are awarded separate point values, whereas the different color varieties of the common Molly are not.

Gold, Silver, Ghost, Marble, Black, Black Lace, Blushing, Veiltail, etc., Angelfish are all members of one species *Pterophyllum scalare*. If you spawn *Pterophyllum altum* or *P. dumerili*, these are separate species. A location or color morph variation will likewise not be considered a new species nor awarded first breeder points.

CHANGES IN POINT VALUE:

From time to time the point value for a species may be changed due to scientific discoveries or species rarity, or difficulty in fry maintenance. If the number of points is increased, the new point value will go into effect immediately. Should a point value be decreased, a cut-off date will be announced which gives sufficient time to allow breeders who are in the process of qualifying to complete their work. No point increase or decrease shall be retroactive from the date of that change.

BASIC PROGRAM AWARDS

Breeder's Award Committee certificates will be presented to every individual for a successfully completed and witnessed spawning. Distinctive certificates will be issued for the breeder, and plaques or trophies for the Advanced Breeder, Master Breeder, Grand Master Breeder, Senior Grand Master Breeder, Advanced Grand Master Breeder and Advanced Senior Grand Master Breeder.

To qualify for an award, the following rules for the correct witnessing procedure must be observed:

Witnessing

- 1) Fry are to be witnessed after they are free swimming and are at least 60 days old.
 - A. Eggs must be spawned by the breeder's own fish
 - B. If witnessed in the breeder's tank, the witness must see the breeding pair.
- 2) The aquarist must raise at least 10 fry to 60 days of age (The fry must be brought to a meeting and presented for witnessing, or the breeder must present a video of the 2 month old fry that show at least 10 fry, or a high-quality photograph with a clear identification of 10 fry of that species, or at the breeders location of spawn by an approved witness.

When an aquarist wishes to have a witness verify fry, he/she should contact a member of the B.A.P. committee or the Board of Governors, who will then designate or suggest a suitable witness. Note that all members of the B.A.P. committee and of the Board of Governors may be witnesses.

Breeders will supply the form which is to be the official record for the Breeders Award. It is the breeder's responsibility to be sure that all information is complete and that all signatures are properly entered. The completed form will then be given to the B.A.P. Chairperson.

THE SPECIALTY PROGRAM

In the Specialty Program, point values are not counted. However, the same requirements must be met as in the Breeder's Award Program for each class of fish. For example, if, as part of an effort to achieve the Catfish Specialist Award, you spawn *Corydoras aeneas* (a 10 point fish), you must abide by the requirements of notifying a witness, 10 fry minimum, etc. If all the requirements are met, the fish is then eligible in both programs.

SPECIALTY PROGRAM AWARDS

Awards in the Specialty Program are given to each participant upon fulfilling the requirements for certification in a class. The following Specialist awards are also given:

Senior Specialist Award **4 Classes**
Expert Specialist Award **7 Classes**

Here is a list of classes in the Specialty Program and the requirements that must be met for certification in each class:

<u>Class</u>	<u># of Species Required</u>	<u>Notes</u>
Anabantoids	4	
Brackish Water	2	
Catfish	4	1 species must be other than <i>Corydoras</i> , <i>Aspidoras</i> or <i>Brochis</i>
Characins	4	1 species must be other than a 5 point fish
Cichlids (New World)	8	
Cichlids (Old World)	8	No more than 4 species may be mouth brooders
Cyprinids	8	1 species must be other than a 5 point fish
Killifish	7	At least 2 species must be Annuals
Livebearers	8	
Marine fish	2	

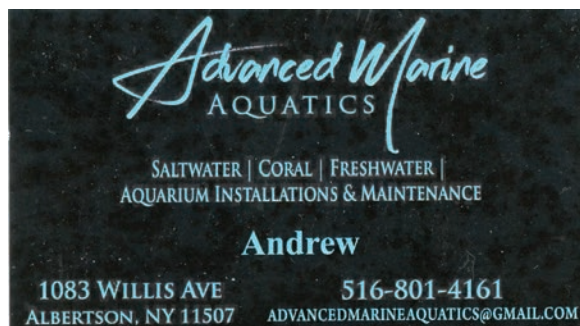




BOWL SHOW RULES

- Only current GCAS members may enter fish in the Bowl Show.
- There is a limit of 2 entries per member per meeting.
- Unlike some other clubs, every month is an “open” Bowl Show at the GCAS (i.e., there is no “theme,” such that one month cichlids are judged, the next livebearers, the next anabantoids, etc.).
- Any fish that wins any prize (1st, 2nd, or 3rd) may not be entered again in the same meeting year.
- The current Bowl Show Coordinator is Leonard Ramroop, who usually also serves as judge (although guest speakers are often asked to do the judging honors).
- 2.5 gallon containers are available for use (brought to the meetings by the Bowl Show Coordinator), but entrants are responsible for providing enough (and suitable) water for their fish.
- For a fish too large (or too small) for those containers, entrants must supply a suitable container, which must be clear on at least three sides.
- Only one fish per container (i.e., no “pairs”).
- No plants, ornaments, or equipment (filters, airstone, etc.) are allowed in the judging tank (an external mirror, or opaque cards between containers is acceptable, as is a cover that does not obstruct side viewing).
- Points are awarded: 5 points for 1st Place, 3 for 2nd Place, and 1 for 3rd Place.
- Ribbons are awarded: blue for 1st Place, red for 2nd Place, and green for 3rd Place.
- The person with the most points at the end of the meeting season receives the Walter Hubel “Bowl Show Champion” trophy at the Awards Banquet.
- The decision of the judge(s) is final.
- A running UNOFFICIAL total of the points awarded is printed in **Modern Aquarium**. Only the tally of points maintained by the Bowl Show Coordinator is official.
- **In case of ties:**
 - 1st Tiebreaker – most 1st Places
 - 2nd Tiebreaker – most 2nd Places
 - 3rd Tiebreaker – most entries

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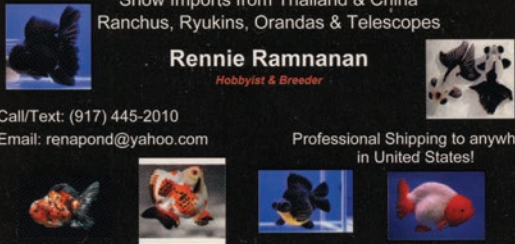
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FOR SALE: African cichlids -- all sizes, as well as tanks and accessories.
 Call Derek (917) 854-4405

FOR SALE: Coralife 9-Watt Turbo-Swift U/V, bulb recently replaced.
 Call Kris: 516-282-6677



GCAS Happenings

August

Last Month's Bowl Show Winners:

- | | |
|-------------------|----------------------|
| 1 WILLIAM AMELY | BI-COLOR MALE BETTA |
| 2 RICHARD WAIZMAN | PINK HALF-MOON BETTA |
| 3 WILLIAM AMELY | FEMALE KOI BETTA |

UNOFFICIAL 2019 BOWL SHOW TOTALS:

RICHARD WAIZMAN	24	WILLIAM AMELY	7	CHRISTOPHER KOENIG	5
JOHN BUZZETTI	5	TOM KEEGAN	3		

A SPECIAL WELCOME TO NEW GCAS MEMBER LONNIE GOLDMAN!

Meeting times and locations of some of the aquarium societies in the Metropolitan New York City area:



GREATER CITY AQUARIUM SOCIETY

Next Meeting: Wednesday, September 4, 2019

Speaker: Tom Keegan

Topic: *Spawning Various Types of Fishes*

Meets: The first Wednesday of each month

(except January & February) at 7:30pm:

Queens Botanical Garden

43-50 Main Street - Flushing, NY

Contact: Horst Gerber (718) 885-3071

Email: pilotcove43@gmail.com

Website: <http://www.greatercitysociety.net>

BIG APPLE GUPPY CLUB

Meets: Last Tuesday each month (except Jan, Feb, July, and August) at 7:30-10:00pm.

Alley Pond Environmental Ctr.: 228-06 Northern Blvd.

Contact: Donald Curtin (718) 631-0538



BROOKLYN AQUARIUM SOCIETY

Next Meeting: September 13, 2019

Speaker: Tullio Dell Aquila

Topic: *The Facts Of Life*

Meets: 2nd Friday of the month (except July and August) at 7:30pm:

NY Aquarium - Education Hall, Brooklyn, NY

Call: BAS Events Hotline: (718) 837-4455

Website: <http://www.brooklyn-aquarium-society.org>



LONG ISLAND AQUARIUM SOCIETY

Next Meeting: September, 2019

Speaker: TBD

Topic: TBA

Meets: 3rd Friday of each month (except July and August) at 8:00 PM. LIAS Meetings are held at SUNY Stony Brook's Maritime Science area. Room 120 in Endeavor Hall on the State University at Stony Brook Campus, Stony Brook, NY 11790

Email: president@liasonline.org

Website: <http://liasonline.org/>



EAST COAST GUPPY ASSOCIATION

Meets: 2nd Tuesday of each month at 8:00 pm at Alley Pond

Environmental Ctr.: 228-06 Northern Blvd.

Contact: Gene Baudier (631) 345-6399



NASSAU COUNTY AQUARIUM SOCIETY

Next Meeting: September 10, 2019

Speaker: TBA

Topic: TBA

Meets: 2nd Tuesday of the month (except July and August) at 7:30 PM. Molloy College, at 1000 Hempstead Avenue, Rockville Centre, NY, in the PUBLIC SQUARE BUILDING, room 209A. See website for directions.

Contact: Harry W. Faustmann, (516) 804-4752.

Website: <http://www.ncasweb.org>



NORTH JERSEY AQUARIUM SOCIETY

Next Meeting: September 21, 2019

Speaker: Tony Terciera

Topic: *Killifish Husbandry, Fish Photography*

Meets: 12:30 PM - 3rd Saturday of the month, at Clark Public Library in Union County, just off the Parkway at exit 135

Contact: NJAS Hotline at (732) 332-1392

Email: tcoletti@obius.jnj.com

Website: <http://www.njas.net/>



NORWALK AQUARIUM SOCIETY

Next Meeting: August 15, 2019

Speaker: Brian Kimbark

Topic: *Dirted Tanks*

Meets: 8:00 P.M. - 3rd Thursday of each month except for July & December at: Earthplace - the Nature Discovery Center - Westport, CT

Contact: Sal Silvestri

Call our toll free number (866) 219-4NAS

Email: salsilv44@yahoo.com

Website: <http://norwalkas.org/>

Bettas Gone WILD!

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.

A series by "The Undergravel Reporter"

The Adelaide River in northwestern Northern Territory, Australia is having an invasive species problem. No, it's not the Nile Perch or Lionfish, it's the Siamese fighting fish! *Betta splendens* have "gone rogue" in the Adelaide River and floodplains near the city of Darwin. Breeding by the thousands, the fish have reverted back to their most natural territorial form, losing their bright ornamental fins and instead flaunting brown camouflage scales.

"We are not sure how far they have bred at this stage, nor their impacts on our ecosystem," said Dr. Michael Hammer, Curator of Fishes at the Museum and Art Gallery of the Northern Territory. "But due to their breeding we can only assume they are a pretty tough fish. ... It's almost a form of reverse natural selection — they can't survive with long ornamental fins as they are vulnerable to predators, so it's the short finned fish that are thriving in the wild."

Originating from Thailand, the fish were once bred for fighting, but after being kept as pets for many years they have become more or less tame. But, Dr. Hammer said that

once they are released in the wild, their survival instincts kick in, and it is a different story.

"People assume because they are fancy looking fish they must be weak fish, but they have specialist skills like a labyrinth lung allowing them to breath oxygen in shallow water," he said. "In the wild they can be a very territorial, aggressive, tough fish ... we just need more opportunities to research them on the ground."

"Because of where they are and the limitations of crocodiles and getting to the areas where these animals are likely residing during the dry season, it makes it very difficult to get in and control them," Evan Needham, Manager for Marine Biosecurity at the NT Department of Fisheries, said. "As a result, we haven't seen them for the last two years. Without constant monitoring there could be a significant impact from these species."

Due to these challenges, Mr. Needham said total eradication may no longer be an option. Although the Siamese fighters may be feeding on small native fish and invertebrates, Mr. Needham also witnessed larger fish snacking on the pest



Wild Siamese Fighting Fish

photo by Dr. Michael Hammer

species.

"These fish are only three or so centimeters — although they may be impacting our wetlands, they are also becoming a food source, and this may control the situation," he said.

I've read that there are no "pure" *Betta splendens* due to hybridization and selective breeding. Yet, I wonder about this Adelaide River strain. Were they able to revert back to their original genetic state? I'd really like to know.



Reference:

<https://www.abc.net.au/news/2019-07-04/rogue-siamese-fighting-fish-invade-top-end-waterways/11277180>

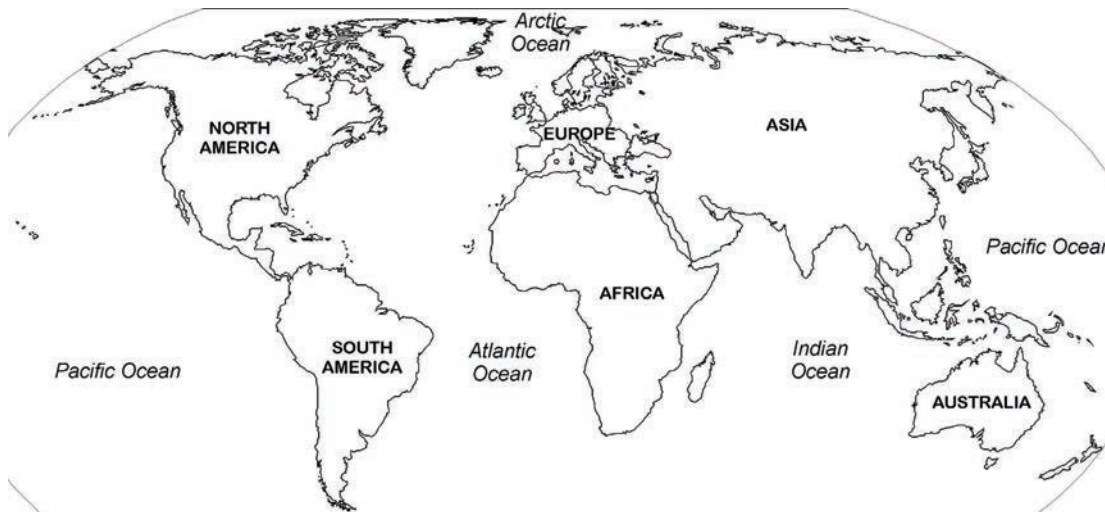


Fin Fun



Continental Divide

See if you can match the fish with the continent to which it is endemic.



Asia	<i>Melanotaenia duboulayi</i> (Crimson spotted rainbowfish)
Africa	<i>Astronotus ocellatus</i> (Oscar)
Europe	<i>Notropis lutrensis</i> (Red shiner)
North America	<i>Knipowitschia punctatissima</i> (Italian spring goby)
South America	<i>Mastacembelus armatus</i> (Tire track eel)
Australia	<i>Barbus trimaculatus</i> (Threespot barb)

Solution to our last puzzle: **Fun** with Livebearers

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