

modern AQUARIUM



November 2021
volume XXVIII
number 9

Greater City Aquarium Society - New York

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Series III Vol. XXVIII, No. 9 November, 2021

ON THE COVER

Our cover photo this month features a 13.5 gallon Fluval Nano Reef tank containing hard and soft corals with a live rock foundation for the corals. The tank is self-contained with no outside filtration. It has built-in chambers on the left-hand side. Chamber 1 has a nano protein skimmer, the second contains mechanical and biological media, and the third contains a heater and a return pump, along with an automatic Tunze top-off which pumps fresh RODI water to make up for evaporation.

Photo by Joseph F. Gurrado

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From the Editor

by Dan Radebaugh

What with storms, pandemics and other tribulations, these past couple of years have been pretty tough for everyone. On the positive side, this month will mark our third straight in-person meeting since the enforced isolation caused by the Covid-19 pandemic. While we're not completely out of the woods yet, there does seem to be continuing progress on achieving sufficient vaccination numbers to eventually put this plague in our rear-view mirrors. Don't get cocky! If you haven't yet been vaccinated, don't wait. There's no glory in dying from this thing, or in causing someone else to.

Water events have played a significant role in our lives lately. I'm sure each of you know someone whose life and property were affected by the recent storm and its aftermath. Of course for us aquarists water events don't necessarily need to be storm related. They can also be related to our hobby—mistakes, acts of God, miscalculations, faulty equipment, you name it. Most of us in the aquarium hobby have had experiences to back that up, particularly with respect to water. Marsha and I had a recent unpleasant reminder of this.

I was awakened as usual by our cats ("Hey! Isn't it breakfast time?") at about 5:30 AM. I don't recall why I did so, but after providing their morning ration I happened to walk into the living room, where I noticed that things seemed somehow amiss. There was something "off" about the big (220) aquarium. Looking more closely, I discovered that it was completely empty of water! The floor in there however, was not. Less than an inch of water remained in the tank, and that seemed to have been the case for a while. Almost every fish in the tank was dead. Only the two big plecos and the gar were still OK. The Oscar was hanging on, but one side of his body had apparently dried out a bit too much. I put him, the plecos and gar into the 125 in the next room, but he only lasted about an hour before finally succumbing.

At first I thought that the cause had been the water return line from a canister filter that had somehow come loose from its connection (which it clearly had). Secure in that belief, I began to refill the tank, but then noticed what should have been obvious to me in the first place—that the hose was likely not the original problem, as the filter intake and output were both considerably higher from the tank bottom than was the water level, which was by then non-existent. So I cleaned up the flood *twice*; first by myself with some borrowed equipment from the apartment building staff, and then again with help from Marsha, when it became very clear that the tank itself was leaking—somewhere at the bottom and out of sight.

This is the second 200+ gallon tank I have had fail. The first one was a 210. I first noticed one day that the stand seemed to be failing—I could no longer completely close the stand door on the lower left side. I then noticed that the plastic cross-braces on the top had pulled apart, so that it was only a matter of time until the water pressure would finish the job.



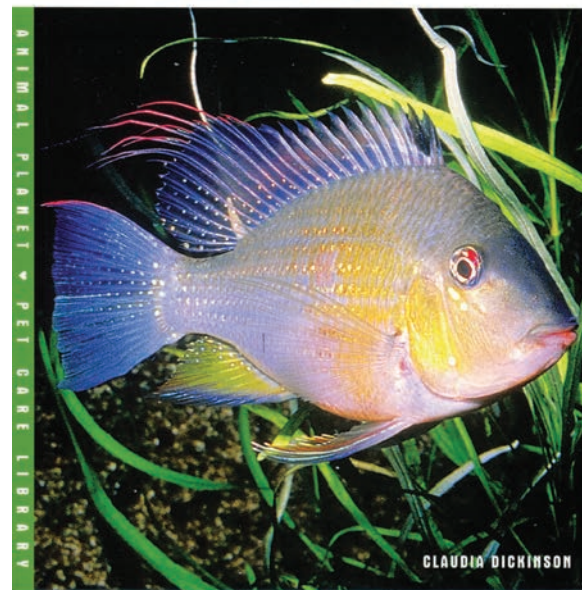
I replaced that tank and stand with this current setup. Earlier this year the cross-braces on this (relatively) new tank also began coming apart, so I emptied the tank and had the plastic top and braces replaced, which seemed to fix things until the other day.

So now my dilemma is whether or not to replace the big tank again—perhaps with something a bit smaller—I don't need any more floods. I like the bigger fishes, but they can have long lives, and I'm not getting any younger. We'll see.

On a more positive note, I recently received a phone call from a Rafal Wlazio, who loves our magazine and works with a company that even shares **MA's** name, and would like to advertise with us. More to come on this as it develops.



Aquarium Care of Cichlids



by Greater City member Claudia Dickinson
(Animal Planet® Pet Care Library)

Hardcover – Also available on Amazon Kindle

<https://www.amazon.com/Aquarium-Cichlids-Animal-Planet-Library/dp/0793837774>



GCAS Programs

2021

March 3	Joseph Ferdenzi <i>Lake Tanganyika Cichlids (via Zoom)</i>
April 7	Dr. Richard Pierce <i>A Second Look at Tetras (via Zoom)</i>
May 5	Joe Graffagnino <i>A Pond Grew In Brooklyn (via Zoom)</i>
June 2	Markita Savage <i>The Xiphophorus Genetic Stock Center (via Zoom)</i>
July 7	Sal Silvestri <i>Interesting and Unusual Fish I Have Worked With (via Zoom)</i>
August 4	Joseph Ferdenzi <i>A Tour of My Fishroom (via Zoom)</i>
September 1	"Welcome Back" Auction!
October 6	Dr. Ted Coletti (Via Zoom) <i>Summer Tubbing!</i>
November 3	Basil Holubis <i>Fish Foods, A to Z</i>
December 1	Dan Katz <i>Fish Breeding Experiences</i>

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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 to 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>.



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President's Message

by Horst Gerber

By the time you read this, summer will be gone, and we will have fallen into fall. I am back from my annual trek (vacation) to New Hampshire. Do any of you watch **North Woods Law** on TV? I can't brag enough about the autumn foliage in Vermont and New Hampshire. I never get tired of admiring the hues of buttery yellow, pumpkin orange and fiery reds—and even the secondary hues of deep scarlet, burnished copper and smoky purple! It's the time of year when we leaf peepers slow down while getting to our destinations, while natives zip around us, oblivious to the beauty surrounding us all. I know it's a cliché, but you really can tell the difference between the New Hampshirites and the tourists without reference to their license plates.



In a normal year the fishroom gets a bit neglected during the summer months. There are many more pressing and interesting things to do, like taking care of the grass (because your neighbor's looks better than yours). There is also gardening to be done—planting the tomatoes or peppers, or whatever else you may be growing, and then there's the never-ending job of weeding. Then comes harvesting—collecting the fruits of your labor. Wait a minute! Your neighbor's tomatoes are bigger than yours! He must have buried an old fish under the roots as fertilizer!

Maybe this year was a little different, what with our frustrating pandemic. Many vacations were cancelled, time shares closed down, flea markets, art and mineral shows—all the things I enjoy, indoor or outdoor—came to a standstill. Including our club meetings! Then came my sciatic nerve problem, my involuntary weight loss (35 pounds in six weeks), and even a minor depression problem that I didn't even realize until a friend pointed it out to me! So the energy level was at zero!

But slowly the wheels in the sky kept on turning, and we are getting back to some form of normalcy. We all tried to stay out of harm's way, and most of us succeeded. Now it's time to rev up our engines and start thinking (at least in my case) about our poor fish again!

Horst



HAPPY THANKSGIVING!

Fishy Friends' Photos

by Greater City Aquarium Society Fishy Friends

***B**elow 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!*



A Life In Fish -- Part III

'Georgia Discus'

by Jason Gold

As a child in Atlanta, my interest in fish didn't end with keeping and breeding tropicals in my aquariums. I loved anything water-y—a beach, a lake, a pool, a creek, a puddle. Just not the bathtub. And I also loved fishing. For years I'd been asking my dad to take me fishing. In fact, at one of the local department stores they had a sort of Santa's Workshop thing they did for the holidays where kids could go to buy gifts for their parents without their parents' being there—each child had an adult chaperone to take them through and help them make their selections. It was hard to decide what to get my mom and my sisters, but dad was easy. I got him some fishing flies. Way more for me than for him, I admit, especially since I wrote on the gift card, in all capital letters: "HINT, HINT." My Brooklynite parents did not get the fishing thing any more than they got my obsession with my aquariums and my garden. "Fishing is boring, you'll see" my dad warned me. "Golf is what's really boring," I peevishly thought, but kept it to myself.

I had been a member of the Greater Atlanta Aquarium Society for a couple of years at that point; attended the meetings regularly—usually solo, and I loved the monthly presentations, slide shows and auctions. One month the speaker talked about something I'd never considered—native fish. I mean, I knew that our tropical aquarium fish were all native to somewhere; all impossibly faraway places, places I'd read about in **TFH** and charted on the world map overleaf of Innes' **Exotic Aquarium Fishes**; places I totally over-romanticized and fantasized about visiting. But he was talking about fish that were native right here in Georgia. Go figure!

I'd been wandering around in the woods behind our suburban neighborhood ever since we'd moved from NYC to Atlanta when I was six, wading into creeks to scoop up minnows just to see if I could, coming home with Dixie cups of frogs' eggs to watch them hatch into tadpoles before releasing them back to the stream, turning a spare fishbowl into an impromptu terrarium for the mosses and ferns and snails I'd found. Once, we'd gone on vacation to Hilton Head and had this condo right on the water—not on the beach side of the island but on the estuary side. My eyes totally lit up at this, and I got my parents to rent me a fishing pole and buy me a bucket of worms in the nearby town, and I spent hours and hours casting into the estuary when the tide was high enough to bring the

water to our backyard seawall. On our last day there I finally caught three fish: a flounder and two redbfish. My parents were shocked, and honestly so was I! We put them in a cooler, Mom brought them to the seafood store in town to be cleaned and filleted, and we had them for our farewell lunch before piling into the car for the long drive back to Atlanta. And my dad did eventually take me fishing with a co-worker of his, a guy from the shipping department who lived out in the country north of the city, where fishing was a way of life. He took us to this dock on Lake Allatoona at night, where there were underwater lights to attract the fish. You could actually watch the fish take your bait! So sure, we caught fish, but it didn't feel like fishing—it felt more like harvesting. Although it didn't dispel my fantasy notions of casting into dark waters and feeling the tug of hidden quarry at the end of my line, I really did appreciate the effort. I thanked my dad and stopped nagging him about taking me fishing.

But back to the creek in the woods behind our house. I'd wade in where this cool, dark, and echo-y culvert allowed the water to run under our street on its way to Nancy Creek. That tunnel was a favorite hangout for the local frogs and salamanders, and for me as well. I'd cluck my tongue as loud as I could just to hear all the echoes. Just upstream, where the water backed up before running wide and shallow through the tunnel, there was a pool that was a few feet deep. There were always little minnows in there darting around in the shallows, and water striders delicately skittering across the surface. But even better was a little waterfall about a fifteen-minute slog upstream. I could also get there through the woods, but it was way more fun and interesting by the water route. I'd climb the rocks by the side of the waterfall, and at the top of the little cascade was a deep pool with a colony of huge goldfish that someone had released long ago. I'd sometimes bring some TetraMin® with me so they could have a little treat, and I could watch them suck the flakes off the surface. That was my experience of "native" fish.

The speaker at the GAAS meeting showed slides of his collecting trips in Georgia, Florida, and the Carolinas, but this guy's slide show didn't look like our local creek. It looked like something out of the far-flung collecting stories I read every month in **TFH**. When he said he'd be hosting a field trip to one of his favorite collecting spots not far from Atlanta, I was first in line to sign up. Only problem was, I couldn't go unaccompanied, being only eleven at the time.

My dad agreed to go with me on the GAAS collecting trip, no problem, and we showed up at the appointed time and place. We piled into a couple of vans and were off on our fish safari. We didn't go very far at all. After heading north on US 41 for about 20 minutes, we turned off, heading east, just beyond Dobbins Air Force Base, where Dad and I would stand along the highway some weekends to watch the enormous C5-A transport jets touch and go. That was something we both thought was super cool. That area is all suburbs now, but back then it was still farmland and countryside. We bumped along a dirt road, came to a stop, and tramped through a grassy meadow to where a wide creek was flowing through a red clay gully at the edge of the woods. This was the spot.

Our guide instructed us to be very quiet as we approached the bank. The sun was ahead of us, so our shadows didn't fall on the water. He first took out a long seine, and while we watched, he and another man carefully waded in, ran the net from bank to bank and pulled it upstream. I felt like I had just stepped into the pages of **Tropical Fish Hobbyist**! It was so exciting to me to see this whole operation, even though the catch was just some little grey shiners—the kind they sold in bait shops. But they went into a bucket for people to take home. After a few more hauls of the seine and a few more shiners in buckets, he described another strategy for finding fish that lived under the banks, not in the current. We spread out along the edge of the stream, all eagle-eyed, to see what we might spot. After a while, there was a lot of hand waving a bit upstream, and we all quietly made our way to the spot. There we saw a group of sunfish clustered in a deep pool under some overhanging roots. Our guide gingerly waded in, approached the fish, slipped a net under them and scooped. The fish scattered in flash, but there were three sunfish in the net. "What we've got here are some good ol' Georgia Discus," the guy declared in his good ol' Georgia accent. "If they were bigger, they'd make some good supper, too!" They also went into a bucket. I nearly went into the bucket too, as I stared down, fascinated, at the three terrified and hyperventilating fish.

And so it went for a few hours, until there were a whole bunch of buckets of whatever the creek and the nets had to offer. We all divided up the catch, and Dad and I headed home with two minnows and a sunfish. I put them all in the biggest spare tank I had, a ten-gallon. The water was muddy and the fish were traumatized and clearly not happy. I put in a box filter to try to clear up and aerate the water, did a big water change, fed them some TetraMin®, which they didn't even notice, and by the next morning they'd all died.

So the trip was not a success for the fish or for me as a keeper of Georgia Discus. I felt bad that we'd taken them out of their home only to meet this pointless end. At the next month's GAAS meeting, there were a few people who'd been on the trip whose native fish had made a successful transition to captivity, so that was at least some consolation. Then again, within a generation these fishes' entire biotope would be gone, the fields and forests and streams replaced by roadways and ranch houses and swimming pools and lawns. It was a doom as certain and inexorable as the disappearance of the woolly mammoths and the sabre-tooth cats after the arrival of humans in North America thousands of years ago. It was no different from the same dangers confronting fishes today as wild bettas and rasboras and gouramis lose their homes to palm oil plantations, and wild apistogrammas, tetras and loricariids lose their homes to cattle ranches. And yet, for these precious creatures, radiating madly in their evolutionary journeys, creatures whose very existence as species is threatened by human activity, could they also be saved by human activity? It may be too late to save the native haunts of many of these fishes, but they live on in our aquariums, like the beautiful Georgia native tree, *Franklinia alatamaha*, extinct in the wild but persisting in botanical gardens and arboretums and 19th century graveyards. Could our quirky hobby provide a bridge for these delicate animals from a precarious present to a more accommodating future?

It had been a great day. Even my dad, the aquarium skeptic, admitted that the experience had been really interesting—not boring at all. I was glad to have changed his opinion about fish stuff, if only just a little, even though my opinion of golf never did change a whit. For me though, an 11-year-old boy with a stack of aquarium books, an active imagination, and a bedroom like a jungle, it wasn't just interesting, it was a towering adventure as compelling and exciting as Darwin's voyage on the *Beagle* or Neil Armstrong's one small step for a man. It might have just been some minnows and sunfish pulled from a red clay gully in Georgia, but from then on, my fantasies of going to the places I'd read about in my aquarium books and magazines and carefully charted on maps and globes—places where the Earth teemed with life, barely touched by the impacts of man—all that quite suddenly seemed quite possible!



The Keystone Clash 2021

by Joseph Ferdenzi

The 2021 version of the Keystone Clash has come and gone. It was held on the weekend of September 24-26 in Morgantown, Pennsylvania. This unique show is co-sponsored by the Aquarium Club of Lancaster County and the Cichlid Club of York. The Clash includes speakers, vendors, a large Sunday auction, and a competitive fish show. Currently, it is the only fish show in the northeast.

Several Greater City members entered fish in the show, and they did very well. Foremost among our winners was John "Buzz" Buzzetti (who also happens to be my cousin!). John took a total of nine First, Second and Third place medals, but most importantly, John took home the prestigious Best of Show! The fish that took that prize was a very colorful cherry barb. That fish was also awarded the trophy as the Best C.A.R.E.S. Fish (the renowned C.A.R.E.S. program was started at Greater City by our very own Claudia Dickinson). And as if that were not enough, one of John's fish, a Lake Malawi cichlid, was voted by the show attendees as the People's Choice. This award, fittingly, was sponsored by Greater City!

While John's success was spectacular, other Greater City members also garnered numerous prizes. Tom Keegan not only took a total of six First, Second, and Third place medals, but his Lake Tanganyika cichlid (*Neolamprologus multifasciatus*) was judged the Best Cichlid in Show—quite a feat considering how many cichlids were entered in the show. Ed Vukich did us proud by taking First Prize in both the South American Cichlid and the *Corydoras* Catfish Class. Adding to the Greater City accomplishments was Tony Siano, who took Second Prize in the very competitive Guppy Class (Tony missed First place by one point!).

Congratulations are due to the two host clubs for putting on this marvelous show in the middle of the crisis caused by the COVID pandemic. Greater City was pleased to be a sponsor, and our participating members certainly made us proud. It is to be hoped that the 2022 version of the Keystone Clash will be even better!



From left: Tom Keegan and John "Buzz" Buzzetti model their well-earned hardware.



Greater City members will recognize a few familiar faces in the crowd: (from left to right: Tony Siano, Al Turrisi, Harry Faustmann, and Ed Vukich).

Former Heavyweight Champion ... Jack Dempsey

By Joel Antkowiak



Once the world champion of cichlids, the reign of the Jack Dempsey in the aquarium hobby spanned several decades in the early to mid 1900s. It has been known by several scientific names over the years, with the currently accepted name being *Rocio octofasciata*. The common name hails from its perceived aggressive nature in its early years in the trade, as well as its strong facial features, likening it to the great boxer Jack Dempsey. While many species of cichlids have been described since the Jack Dempsey that are much more aggressive, this species can hold it's own with most of them, and certainly with those that are of similar size.



A mature Jack Dempsey is a beautiful fish. The adult will have a dark purple-gray to black background contrasted with iridescent light blue or greenish spots all over its body. The male Jack Dempsey tends to have more of this iridescence than females, and they also have bright red edges on their dorsal and anal fins which make for a striking contrast. In addition to the normal wild coloration, several color varieties have also been developed and are available today.

Of course, the most notable is the electric blue Jack Dempsey which has been fixed from a natural color mutation in the species. It is one of the bluest freshwater fish in the hobby, and the electric blue pattern varies greatly. Its development has led to the development of several other "electric blue" cichlids, including the electric blue acara and electric blue ram. If trying to breed this variant though, remember that the electric blue gene is recessive, so you must at least have a female that is carrying the gene in order to get electric blue offspring. If not, you may be waiting a long time to get those electric blue young.

Another less commonly seen variant is the gold Jack Dempsey. This fish is really kind of bland in color compared to the normal and electric blue variants. It is not really gold, but more pinkish like an albino but with a black eye, with varying amounts of gold iridescence on the body.



The Jack Dempsey is native to slow moving waters in Central America, from the Yucatan peninsula in Mexico southward through Guatemala and into Honduras. Feral populations also exist in various locations in the United States, as well as Australia and Thailand. In Thailand, the fish is sometimes called the ‘Mexican Blue Frontosa.’

The Jack Dempsey is one of the easiest cichlids to keep and breed. It does get large and can approach 10 inches in length, so a large aquarium is necessary. While aggressive, as with most aggressive species you can crowd the tank to spread the aggression. They tend to be more territorial if the aquarium is sparsely populated. They are not too particular as to water conditions. Spawning can be induced in a well conditioned pair by a water change and raise in temperature into the 80s. They are very good parents,

with both male and female usually contributing to the care of the brood. The eggs will hatch in 3 to 4 days, with the fry becoming free swimming in another 2 days. They are easily raised on baby brine shrimp and crushed flakes.

While the popularity of the Jack Dempsey has waned over the years due mostly to a huge influx of newly discovered species, it still has a strong foothold in the hobby. The heavyweight champion may have been dethroned, but it remains in contention to reclaim the crown.



Photos:

Opp page top: Adult male Jack Dempsey from Cichlids.com

Opp. page LL: Adult male Electric Blue Jack Dempsey credit unknown

Above: Adult male gold morph—credit unknown



Everyone's First Pet?

from The Maritime Aquarium at Norwalk

They most likely were your first pet. You could win them at carnivals. Mom flushed them when they died. And there was a college craze in the 1950s of swallowing them.

But there's a lot more to goldfish than that. Delve into the underappreciated story of the goldfish in the special exhibit, **Think You Know Goldfish?**, which

opened Saturday, October 9 in The Maritime Aquarium at Norwalk. The 700-square-foot exhibit celebrates the cultural history of goldfish, clears up common misconceptions, and explains the proper methods and equipment for their care.



Fantail Goldfish

Displays in the creative exhibit range from traditional aquarium tanks to a living room with a properly equipped home aquarium to an open-water koi pond complete with wooden bridge. (Koi have an ancient history similar to goldfish, being derived from a species of carp in China; albeit a different species of carp.)

Besides the live animals, the new exhibit will include historic and contemporary prints, paintings and drawings depicting goldfish, offering fresh perspectives on the cultural inspiration these popular fish have provided over the centuries.



"Everyone knows goldfish, but most people actually don't know much about goldfish," said Barrett Christie, the Aquarium's Director of Animal Husbandry. "This is a fish that's about as common today as a penny, and is often treated with about the same respect. But they're actually an interesting and ancient species, and also a species that can cause serious issues when released into the environment."

Aquarium guests may be surprised to learn: there are more than 100 varieties of goldfish (seven live varieties are featured in the exhibit); goldfish are descended from carp (which also are displayed); they were selectively bred for their bright colors in China more than 1,000 years ago; they're trainable; and that keeping Goldie in an old-fashioned fishbowl is the worst way to keep a goldfish.

The exhibit also explains how goldfish – when illegally released into a pond or lake – can grow to the size of a football, degrade water quality, and outcompete native fish for food and space. That's why many states, including Connecticut, classify goldfish as an invasive or introduced species.



Panda Moor Goldfish

Think You Know Goldfish? will be free with Aquarium admission and open through spring 2022. Guests will find it adjacent to the "Meerkats" exhibit.



"Telescope" Goldfish



Article and photos from The Maritime Aquarium at Norwalk.

Carpy Diem!

Part I: The Old Guard

by Dan Radebaugh

If you've watched a lot of TV over the past couple of years, you'll almost certainly have noticed how much media attention has been given to—of all creatures—the carp. Stories have appeared on **60 Minutes**, **Monster Fish** (National Geographic) **River Monsters** (Animal Planet), and PBS programs, as well as in newspapers, magazines, and on conservation websites galore. Carp have even managed to push the horror-flick-starring snakehead out of the headlines. Forget being attacked by a sinister, toothy, snakelike Asian predator that wriggles up out of the river to eat your dog, children, and BMW. This newest threat (the carp) will not only put an end to all native aquatic life in the Mississippi River system, but will also eliminate pleasure boating and water-skiing forever, and eventually doom the Great Lakes to a population of only carp and sea lampreys (our only possible salvation, for if left unchecked, these now passé ghouls might be able finally to put an end to the carp's emerging reign of terror). So what is going on? Where did these undocumented aliens come from? Are we in the Final Days? Are we aquarists somehow to blame?

Well, the answer to the last question is no; the answers to the first two are more complicated. As to the Final Days, I don't think so, but check back next week. As to where these fish came from, read on.



Koi in a pond. Photo by Yumi Veliz.

To the best of my knowledge, there are no carp species native to the Americas. All are imports, just like chickens, cattle, horses, donkeys, pigs, pigeons, starlings, housecats, kudzu, soccer, dogs, and humans other than Native Americans, who, while not technically native, are certainly a lot closer to it than any of the rest of us immigrants and descendents of immigrants can claim to be.

The carp species longest resident in the U.S. is almost unquestionably the goldfish, *Carassius auratus*. Goldfish were developed by the Chinese

nearly 2,000 years ago from *Carassius gibelio*, the Prussian carp. Why they are called Prussian I do not know, as they are endemic to eastern Asia. The first officially recorded commercial shipment of goldfish into the U.S. was in 1878, but they were here quite awhile before that, as evidenced by newspaper reports of them living in the Hudson River and

other North American waters as early as 1826. By the 1830s goldfish food was being sold in stores.¹ These days goldfish are feral in nearly all fifty states, though generally not in sufficient numbers to cause serious problems. Once established in the wild, their descendents revert from the bright orange we're familiar with to a rather drab olive color. While edible (know any college-age partiers?), they aren't used significantly as a food fish.*

*As those of us in the aquarium hobby know, goldfish are used extensively as food for larger aquarium fishes. Walk into any fish store and you will likely see at least one tank full of small goldfish being sold as "feeders." There are reasons for and against this practice, but probably more against. For one thing, there's the danger of introducing pathogens—most notably ich—into your otherwise healthy tank. Also, the goldfish (being a carp) is one of a number of plants and animals that contain thiaminase, an enzyme that metabolizes thiamine (vitamin B1). Animals fed a diet high in thiaminase are known to develop often fatal neurological problems.² So if you feel you must feed goldfish to your big guys, be sure they're only an occasional part of a varied diet.

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ARE GOLDFISH REALLY STUPID?

Over the past couple of decades, we have read and heard that “scientists” have said that goldfish have a memory of only a few seconds. I don’t know where this ridiculous myth came from—maybe it’s an attempt to make it seem OK to treat them as disposable toys.

Fortunately, some actual scientists (as well as some schoolchildren) have thoroughly debunked this nonsense. What they’ve found is that fish in general are much smarter than previously believed, and our case in point, the goldfish, has been shown to have a practical memory of up to three months, can be trained to negotiate mazes, and can tell time.³ Moreover, goldfish have been trained to do tricks, AND, you can go online and buy an equipment kit and training guide so that you can learn to train your own fish!⁴

A carp species that was imported as a food fish—also in the early 19th century—is the common carp (sometimes called the European carp), *Cyprinus carpio* (*Cyprinus* is the Greek word for carp, and *carpio* is the Latin word for carp; so the binomial translates to *Carp carp*). There seem to have been two ancestral populations of this fish, one in eastern Asia, and the other the watersheds of the Black, Aral, and Caspian seas, as well as the Danube River.⁵ During Roman times they were introduced into Greece and Italy, and from there radiated throughout western Europe. There are also the mirror carp, and the leather carp. These are still *Cyprinus carpio*, but genetically distinct, having been produced by selective breeding during the Middle Ages. The mirror carp has very large (mirror-like?) scales, while the leather carp has large areas of skin with no scales. The mirror carp seem to grow somewhat larger; most catches of 60+ pounders have been mirror carp.



Common carp in a pond. Photo courtesy of Wikipedia.

Omnivores, carp feed heavily on aquatic vegetation, as well as on insects, crustaceans, and worms. Like goldfish, carp are social animals and prefer the company of their own kind. They do best in temperate climates, and can survive in ice-covered ponds as long as there is some free water available. Thanks to an abundance of the protein myoglobin, they can live in very oxygen-deprived conditions. Carp were in fact the first vertebrates found to have more than one type of this protein⁶.

Carp are very prolific. A single female can lay over a million eggs in a year. This would seem to indicate that in their normal environment predators take a heavy toll of the young fish. Consequently, if they are introduced into an ecosystem rich in food but lacking in predators, a population explosion is the likely result.

To better understand how and why this fish came to be here, and why so many other animal and plant introductions have taken place over the years, we need to understand people’s mindsets before the existence of a science of ecology (not that so much has really changed, practically speaking).



Photo of common carp courtesy of Wikipedia.

While we tend to think of conservation as a contemporary concept, even in the 18th century the decline in the cod fishery was being noticed, and overfishing, dam building, and pollution had produced a serious diminution in the numbers of fish (even species of fish) in our rivers, lakes, and streams. By the 19th century it had become clear that the increasing human population of North America was going to need an increasing supply of food, and so it became a matter of policy that the output from our fisheries would need to be significantly increased. With this end in mind, President Ulysses S. Grant in 1871 signed legislation creating the U.S. Fish and Fisheries Commission, and appointed Spencer F. Baird as its first Commissioner. One of the ten goals Baird set forth in an 1880 report to congress was “...stocking the various waters of the United States with the fish most suited to them, either by artificial propagation or transfer, and the best methods and apparatus for accomplishing this object.”⁷

Wasting no time, Baird set in motion plans for the propagation of pretty much any fish that could be eaten, and began stocking them in every body of water that might support them. Baird championed



Carp in Herbert Park Pond, Dublin, Ireland. Photo courtesy of Wikipedia.

HOW LARGE DO CARP GROW?

According to Wikipedia, the largest recorded common carp, caught by an angler in January, 2010 in Bordeaux, France, weighed 94 pounds.

the introduction of the common carp as an easily-cultivated food fish. Someone else had in fact already begun this on a small scale in 1831, but in the 1880s Baird set about it with a vengeance, importing carp from Germany, seeing to their propagation, taking bids from prospective purchasers from all over the country, and distributing them by rail. The railroads, eager to be of help, provided transport free of charge.

Despite some initial good reviews, this fish never caught on as a staple in the American diet. Some say this was because of its reputation as a food source “for the poor,” others because it’s too bony, and still others assert that, being an omnivorous bottom feeder, its meat can have a “muddy” flavor (which champions of the carp say can be avoided by proper preparation). While I have eaten carp at restaurants in Chinatown (where they absolutely *do* know how to prepare it) and found it quite delicious, I have no idea whether the species I was eating was *Cyprinus carpio* or some other.

Another variety of *Cyprinus carpio* that has found its way, whether by intentional or accidental release, into North American waters, is the koi (Japanese for carp). Most of us aquarists are familiar with these large, beautifully colored fish. They are often kept in aquaria when young, but their adult size makes them more suitable for ponds or water gardens. I’ve seen a recommendation of 200 gallons of water per fish as minimum to keep them in good health.

The koi that we know were developed by selective breeding in Japan around the 1820s. Both East Asian and European sub-species seem to have been used to gain the color combinations we see today. Like goldfish, after a generation or two in the wild, their color returns to one more suitable for evading predators, and they become indistinguishable from regular common carp.



Koi in a pond. Photo by Yumi Veliz.

The stocking of *Cyprinus carpio* throughout the country was not altogether without controversy. While states like Illinois, which were seeing substantial monetary benefit from the carp fishery continued to support carp stocking, other states demurred. When carp were introduced into southern Minnesota, there was an outcry from duck hunters, who complained that duck hunting had been hurt by the carp, which were eating aquatic vegetation that would otherwise have benefitted the ducks. Hmmm. Others speculated that the carp were likely eating the roe of indigenous sport fishes, though examination of carp stomach contents didn’t support this assertion.

At any rate, “interest in common carp culture and stocking had evaporated by the 1940s⁸.” Throughout the range of its U.S. distribution the common carp is now mostly considered just an invasive species, and various government agencies spend millions of dollars annually trying to control its population. Along

HOW LONG DO CARP LIVE?

Besides being a symbol of fecundity, carp enjoy a reputation for long life. Carp in various ponds in France are alleged to have lived for some 200 or more years, based on tickets or silver rings inserted in their gills bearing the date of insertion or name of the person who inserted (or directed someone else to insert) the fish into the pond. I have also seen an assertion that “growth rings” in the scales of a particular carp proved it to be over 200 years old. While it is true that analyzing the growth rings in scales is one way to determine the age of a fish⁹, albeit with a certain degree of inaccuracy¹⁰, one would think that, if this story were true, the results would have been officially submitted to some agency or other for validation. The current most generally accepted age limit for the common carp is around 65, but who knows?

this line, in addition to the predictable poisoning programs, there are also well-publicized carp fishing tournaments—some for anglers and some for bow-fishermen. Curiously, many of these tournaments (at least the ones for anglers) are “catch-and-release” affairs. Ironically, the wild populations in Europe are currently considered vulnerable to extinction.

In recent years, a far more serious threat to the common carp than fishing tournaments or even poisoning programs has emerged—the koi herpesvirus. Also known as cyprinid herpesvirus-3 or CyHV-3, this disease was first recognized in England in 1996.¹¹ Since then cases have been reported in nearly every country where common carp are cultured. The virus is capable of killing 80 to 100 per cent of infected fish. Those that survive still carry the virus, and may infect other fish. This is a very serious threat to common carp populations worldwide, and has been deemed responsible for a number of major carp kills around the U.S. since about 2006. Goldfish can also be infected, and can spread the disease, but don’t seem to be clinically affected by it. We’ll have to wait and see how this plays out over the next few years.

These “old guard” fish, the goldfish and the common carp, have been living in North America both domestically/commercially and ferally for close to two hundred years. The fish responsible for most of the current press (and hysteria?) are the so-called Asian carp: the grass carp (*Ctenopharyngodon idella*), the silver carp (*Hypophthalmichthys molitrix*), the bighead carp (*Hypophthalmichthys nobilis*), and the black carp (*Mylopharyngodon piceus*). These have only been in the U.S. since the latter part of the 20th century, but have made a big splash in a short time. They’ll invade **Modern Aquarium** in Part II.



¹ <http://www.suite101.com/content/goldfish-in-america-a55168>

² <http://en.wikipedia.org/wiki/Thiaminase>

³ <http://www.nootropics.com/intelligence/smartfish.html>

⁴ <http://www.super-science-fair-projects.com/fish-science-fair-projects.html>

⁵ http://en.wikipedia.org/wiki/Common_carp

⁶ <http://www.sciencedaily.com/releases/2006/06/060602073942.htm>

⁷ Stickney, R.R. 1996. **Aquaculture in the United States**. pp. 6, 39-47. John Wiley & Sons, Inc.

⁸ Stickney, R.R. 1996. **Aquaculture in the United States**. p. 203. John Wiley & Sons, Inc.

⁹ <http://www.fw.delaware.gov/Fisheries/Documents/agegrowth.pdf>

¹⁰ http://www.anglershaven.co.za/files/ublic/1238422126_190_FT10311_common_carp_age.pdf

¹¹ <http://edis.ifas.ufl.edu/vm113>



Tonight's Speaker: November 3, 2021

Basil Holubis: Fish Foods, A to Z



Basil has been a fish keeper for 50 years, and a member of the Norwalk Aquarium Society in Connecticut, where he is a two time Breeder of the Year, a past President, and currently a Board Member.

Basil retired after 42 years as a Union Local 3 Electrician. He specializes in generators and back-up power systems for many hospitals and other critical infra-structure systems that we depend on.

His love of breeding fish started with fancy guppies and now covers corys to killifish and rainbow fish. Basil currently runs about 30 tanks.



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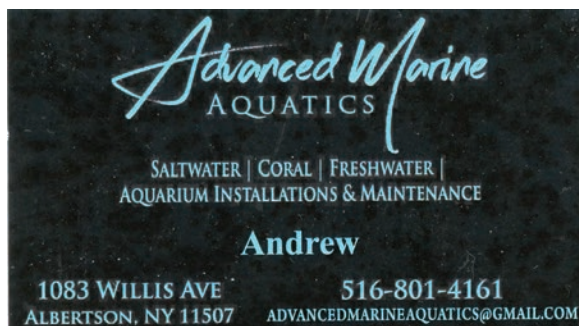
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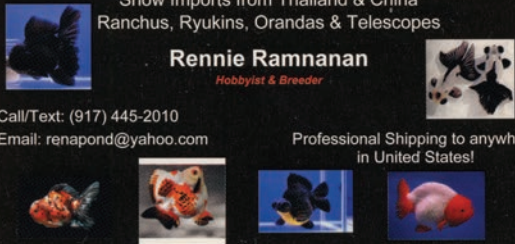
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Memories Are Made of This

A series by the Undergravel Reporter

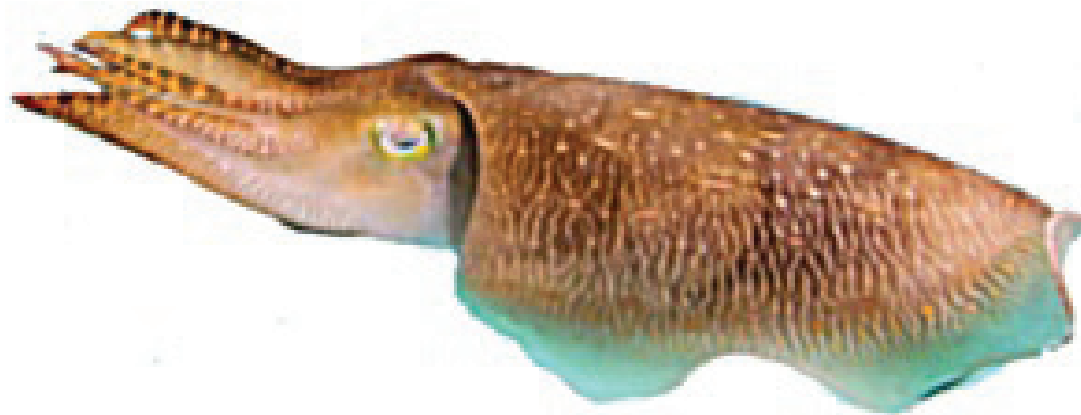
In spite of popular demand to the contrary, this humor and information column continues. As usual, it does NOT necessarily represent the opinions of the Editor, or of the Greater City Aquarium Society.

Cuttlefish are used by humans as food, as a source of ink, and for the cuttlebone, a dietary supplement providing calcium for caged birds. Recent research by researchers from the University of Cambridge, the Marine Biological Laboratory in Woods Hole, Massachusetts, and the University of Caen, France indicates that cuttlefish (*Sepia officinalis*) can remember events right up to their last few days of life.

marked with a black and white flag. They were taught that two of their regular foods were available at certain flag-marked locations.

At one location, they were offered a piece of king prawn—a meal they're not so keen on. Every three hours for four weeks, they were offered live grass shrimp from a different spot with another flag. (They like grass shrimp much more.) The two feeding locations were different each day to make sure the fish weren't just learning a pattern. The cephalopods watched to see which food appeared first and they could then work out which feeding spot was best each time a flag was waved.

The researchers watched to see how well the cuttlefish could remember which food would be available. Results indicated that, while human episodic memory—remembering experiences from times and places—tends to decline with age, the cuttlefish memory does not. This is thought to be due to the hippocampus—something



The study involved memory tests for 24 common cuttlefish and showed that their episodic memory does not decline with age, which is very different to what we see in humans as they get older. The research is thought to be the first evidence of an animal whose memory of specific events does not deteriorate as it gets older.

Memory tests were conducted on 24 common cuttlefish—half of them were 10-12 months old (i.e., not quite adults), while the others were between 22 and 24 months (equivalent to humans in their 90s). The fish were trained to approach a location in their tank

that human brains have, and cuttlefish brains do not. For a cuttlefish, the vertical lobe of the brain is linked to learning and memory and this does not deteriorate until the last few days of life.

I'm getting much older and... **DARN!**
I forgot what I was going to say!!!



Reference:

<https://tinyurl.com/dxxx68nk>



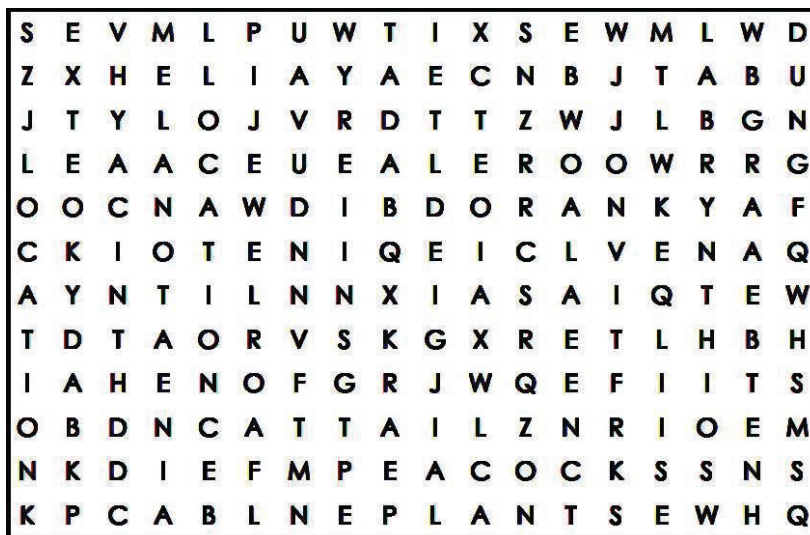
Fin Fun



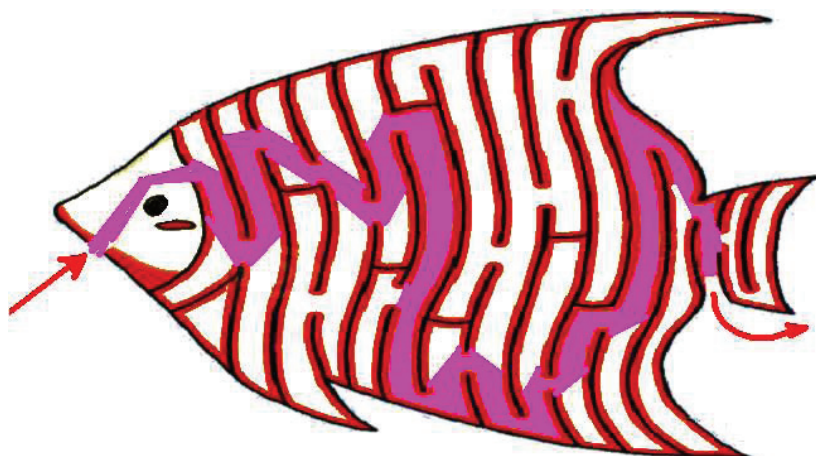
Take it outside!

Those of you who attended (virtually or in-person) last month's meeting and presentation by Dr. Ted Coletti on outdoor tub gardens should have no problem finding the words below, taken from that presentation. And, you'll understand why "LOCATION" is here three times!

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JEWEL
LABYRINTH
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LOCATION
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