

modern AQUARIUM



July 2019
volume XXVI
number 5

Greater City Aquarium Society - New York

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Series III Vol. XXVI, No. 5 July, 2019

ON THE COVER

Our cover photo this month shows a whole lot of green stuff. I don't think you will be surprised when I tell you that it relates to Steve Sica's article, "Duckweed: Food For Thought," which begins on page 9. While I tease Steve a bit over his 'duckweed fetish', this article has some very serious undertones, what with the apparent inability of national and world leaders to seriously address how our species and many others will continue to thrive, or even survive, given current environmental trends. 'Duckweed steak' may not be as far over the horizon as we might suppose.

Photo by Stephen Sica

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From the Editor

by Dan Radebaugh

Do you ever go from feeling pretty competent about this fishkeeping hobby, only to suddenly find that things just somehow aren't working out in one (or more) of your tanks? Well, in this issue Sue Priest reminds us that, perhaps contrary to our desires and assumptions, "You Can't Tell A Fish What To Do." This is an article very much in Sue's inimitable style, full of seemingly simple, common-sense advice, but which if read carefully really challenges us to pay a bit more attention to the true needs of our watery charges. Check it out on page 7.

Then on page 9 Steve Sica presents us with a new article on one of his favorite subjects, duckweed! See his article on page 9, "Duckweed: Food For Thought." Yum!

On page 13, and in honor of the upcoming American Cichlid Association convention in Cromwell Connecticut, you'll find this month's Exchange article, "Cichlids From Lake Nicaragua," by Mike Liu of the New England Cichlid Association. Then, beginning on page 17, are the rules and details of our Breeders Award Program. These rules, as well as the entry form, are also available on our website, GreaterCity.net.

You'll find Pictures From Last Month's Meeting, on page 22, followed on page 24 and 25 by a listing of discounts offered to our members by fish shops in our area, as well as the GCAS Classifieds. See page 26 for GCAS Happenings and a list of meeting dates for other aquarium clubs in our area. On page 27 The Undergravel Reporter warns us "Where Not to 'Fish,'" and the issue closes with this month's Fin Fun puzzle, "Fun with Livebearers."

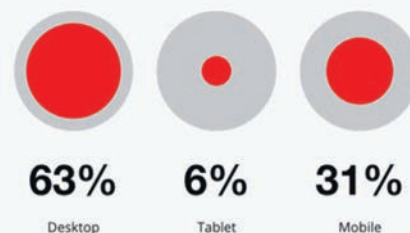
Remember, we need articles! We *always* need articles! **Modern Aquarium** is published every month, by and for the members of Greater City Aquarium Society. We have a lot of members in this club, and many of you really know a lot about what you're doing with keeping fish, plants, and invertebrates. Those of us here who maybe don't have quite as much knowledge and experience want to know too! That's why we joined and come to the meetings. So tell us about it! Write it down! Email it to me! Fax it to me! Mail it to me! Include pictures if you have them! It isn't that hard, and people literally all over world will read about it! This is not an exaggeration!

Last month in this column I promised to provide updated statistics on how many people who are not members of Greater City still read **Modern Aquarium** via our web site Greater City.net. So below are a few



stats regarding our online readers since we started posting our magazine online. The language of web reader statistics is a bit arcane, and I'm certainly no expert, but from what I've gleaned, 'Reads' represent the number of folks who have looked at some issue of **Modern Aquarium** online. Impressions refer to how many individual pages of the magazine have been opened by online readers. Followers are folks who have asked to be notified whenever a new issue of **Modern Aquarium** has been posted. The bottom figure shows what kind of platform viewers are using, and the bottom graphic shows where the online readers are located.

<u>Reads</u>	<u>Impressions</u>	<u>Followers</u>
17,033	502,334	82





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

Are we aquarists pleasure junkies, or are we in pursuit of happiness? Your new phone makes you happy, hanging around with aquarists talking about fish makes you happy—well, most of the time. Acquiring a new pair of fish makes you happy, binge-watching your fish makes you happy. Well guess what? According to research, you are not happy, you are just addicted to pleasure.

I admit that I don't quite agree with that assessment. Watching my fish spawn makes me happy, but I think that it goes beyond pleasure, because it's a feeling that stays with me for a long time. Now if you had been binge-watching TV and I asked if you were happy, you would most likely have been hacked. And I am not talking about email, robo-calls, or bank accounts! Your *mind* would have been hacked, by scientifically engineered efforts to stimulate your pleasure cravings. Daytime TV, for instance, is designed to pull you into the stories of those soap operas with their daily cliff-hangers: **As the World Turns**, **General Hospital**, **The Bachelorette**, and so on. I believe some people would kill you if you attempted to thwart them from watching the next episode!

Once when I was working in a hospital we had to shut down the electricity in the day room during lunch hour. To say we were almost lynched by an angry mob of nurses is putting it mildly! But I'm getting off track. Let's go back to fishkeeping. As with any addiction, the cycle of chasing pleasurable moments is a no-win game, but that's OK with me, because there's *always* a new fish to be had!

Scientists posit that pleasure leaves people unsatisfied, so they feel even unhappier than before, and so must continue chasing the next pleasure fix. I'm not so sure about that with fishkeeping. Happiness on the other hand is more of a rich feeling of peace, calm, and contentment, and comes from things such as watching your fish for a long time, and we all know that has a calming effect and reduces your heart rate. So what are we? Are we pleasure hunters, or are we happy? If there is such a fine line between pleasure and happiness, how do we spot the difference? Do we care? Both make us feel good.

Pleasure though, is short-lived. The day after you purchase that fish, the 'have to have a fish' syndrome sets in again (especially at auctions), and there you are yet again, searching for that new/rare fish you've wanted for a long time, all the while beating yourself up for having just bought the 'rare specimen' you just picked up, since you don't really have the tank space for it. But that's life, and I think we've all done it. Pleasure is exciting! It can be achieved by drinking coffee or having sweets. It causes your heart rate and blood pressure to go up. Or is that just the coffee? Happiness is calming that blood pressure and heart rate. So let's hope (and help) our bodies to keep on releasing those natural feel-good hormones for a long time.

How about *unhappiness* and *displeasure*? Well, let's see. Just think of floating fish, broken heaters, or a leaky tank! Just kidding. That's the German sense of humor coming through.

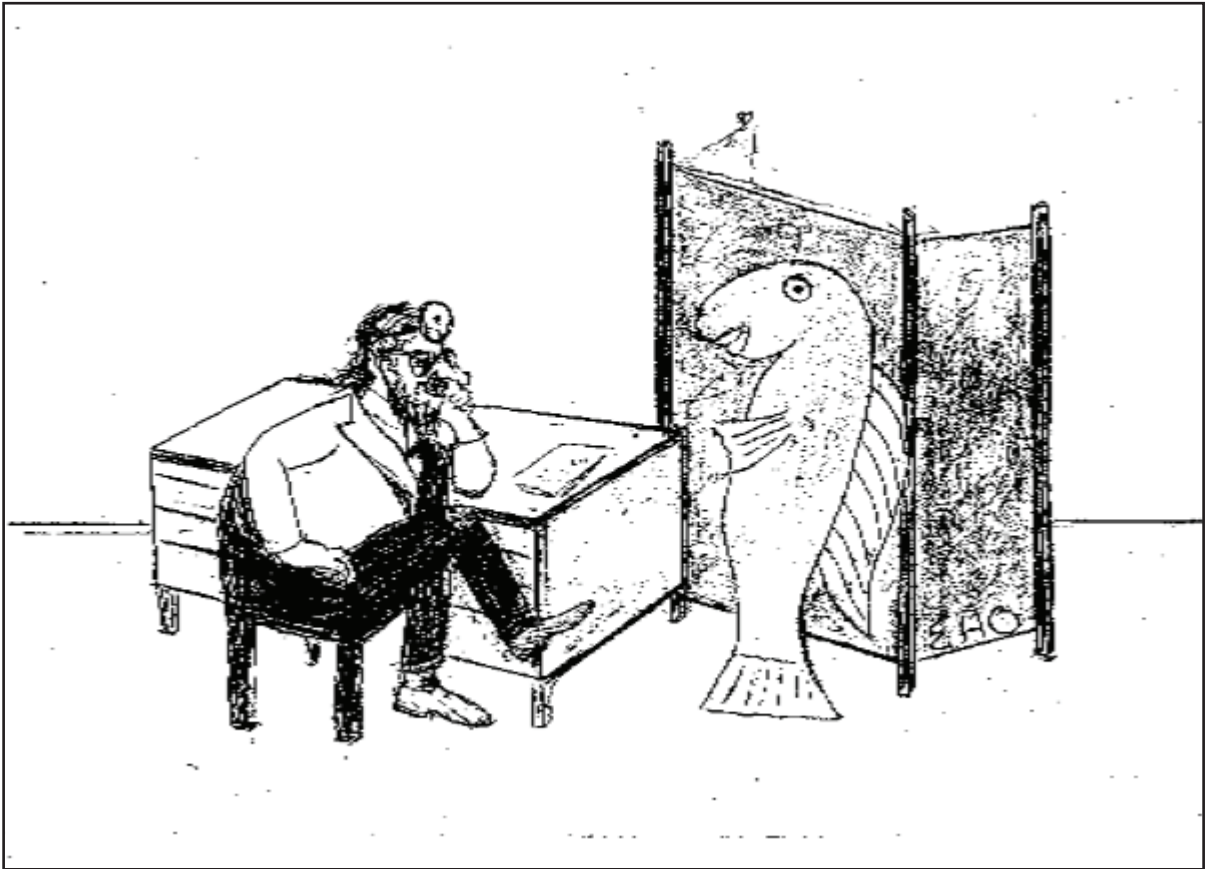
See you next month!

Horst

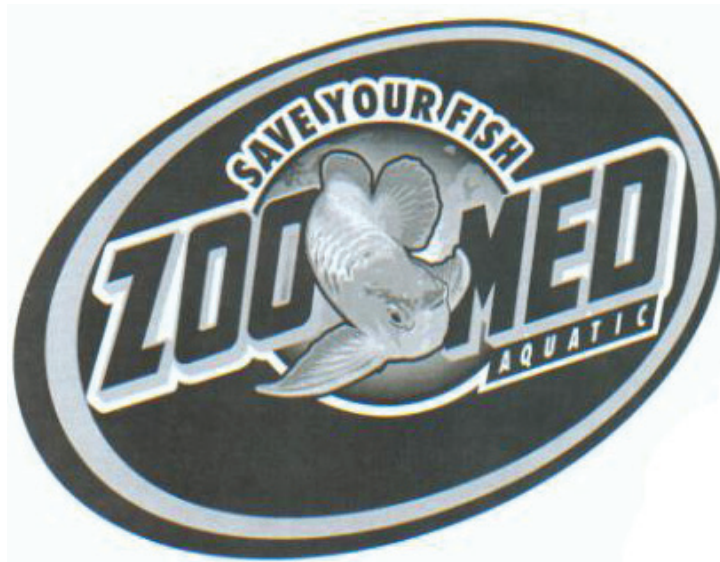


Our President.
Happy, or just pleased?

May's Caption Winner: Joe Ferdenzi

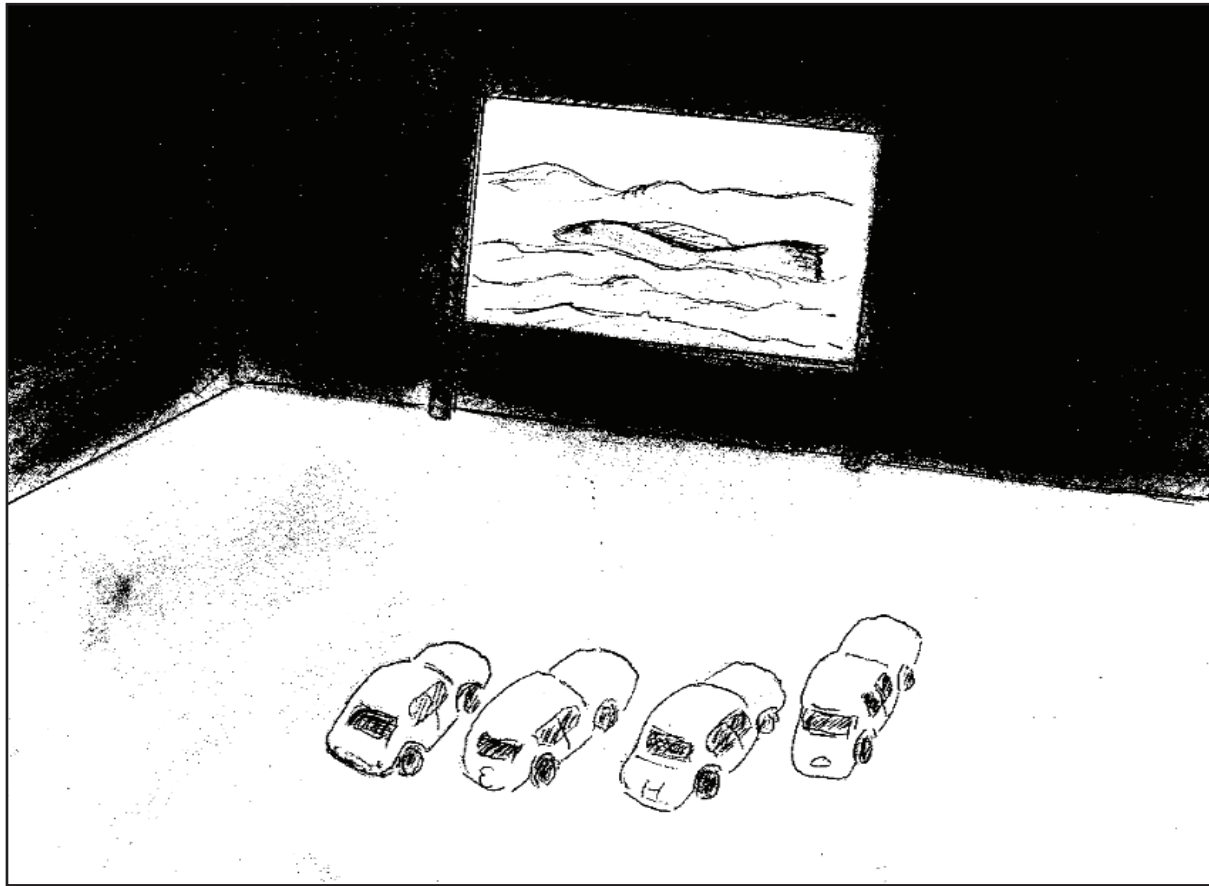


Thanks Doctor! I really did lose weight on that freeze-dried worm diet!



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:

You Can't Tell A Fish What To Do

by Susan Priest

Truer words were never spoken. Hmm, except maybe you **can** tell a fish what to do! If you are viewers of **The Zoo on Animal Planet**, then you know that if you tell an elephant to blow its nose, it will, and if you call to a blackbird in a tree, it will come down and sit next to you. O.K., they won't do it the first time you tell them. It will take some coaxing. But, if you can tell a giraffe to lift its **left** leg, then why shouldn't you be able to tell a giant danio to jump into a net?

Obviously our fish will not respond to verbal coaxing, so we have to be a little creative. Let's start by considering their environment. How can we use it to coax certain behaviors?

Temperature

The temperature of the water in our aquariums is a most important, albeit often overlooked, water parameter. So-called **tropical** fish live, thrive, and breed in a variety of temperatures in their natural environment. Just ask collectors such as Rosario LaCorte or Gary Lange. They will tell you that every lake, brook, stream, or puddle in which freshwater fish can be found will have a different temperature.

So let's examine the thermometers in our aquariums, as well as their occupants. If you want to coax your fish to breed, you need to do a little research. Some fish choose to breed when the temperature goes up a few degrees, and others when it goes down. Once you know what their preferred breeding temperature is, it might be as simple as adjusting their heater if you would like to see them breed.

Water Changes

If you want your fish to be active and healthy, take into consideration your

water changing routine. I hope you have been placing an emphasis on the word **routine**. This routine should also include vacuuming of substrate and cleaning of filters. Attention to these details will coax listless fish to a new level of liveliness. Of course I'm not telling you anything you don't already know, but when there is a new baby in the house, or suddenly you are retired and your routine includes a lot of scuba diving trips, you need to re-focus a bit.

Feeding

Feeding in general, and live foods in particular, are an important consideration when it comes to coaxing a variety of behaviors from your fish. If you have observed some of your fish taking a morsel of dry food into their mouths and then spitting it out, it is likely that they are undernourished. If you want to **tell** them to eat you need to give them foods to follow, chase, or otherwise take an interest in.

Some of the fish we keep are herbivores (plant eaters), but in nature most of them eat insect larvae, crustaceans, worms, etc., which share their environments. These things are the foods which Mother Nature has provided for them, and offer the perfect balance of nutrients. So, if you make the extra effort to provide live foods, you will be rewarded with fish that will be behaving as nature intended. It's **almost** like telling them what to do!

Tankmates

Dither fish are great conversationalists. They can communicate to skittish fish that there are no predators in the vicinity, and that they

can safely go about their activities. This isn't quite the same as **you** talking to your fish, but rather enlisting help from other fish to get your point across.

Community aquariums speak as many languages as there are species of fish housed within. In that environment it really isn't possible for you to find a way to tell the angelfish not to be fin nippers, or to tell the gouramis not to nibble at the eggs laid by the corydoras catfish. It is just too complicated. This is one example where it really is too difficult to try and coax a certain behavior out of a certain fish.

Even species aquariums (that is, tanks housing fish which are all of the same species) can be tricky business. Some fish have zero tolerance of other members of their own species. You can try using a physical barrier to let them know what **not** to do, which is almost the same as telling them what **to** do, isn't it?

Where Does This Leave Us?

Pondering the possibilities, setting some realistic goals, and then making a plan. Maybe your goal will involve what **not** to do, such as preventing hybridization from happening between similar (or not-so similar) species of fish in your care. Even simpler would be avoiding the purchase of the garish, artificially colored fish for sale in many pet stores.

As for me, I count on my fellow GCAS members to bring top quality home-bred fish to our auctions. After I bring them home, I enjoy watching their natural behaviors. However, if I could coax a few of them into posing nicely so I can photograph them, well, a girl can dream, can't she?

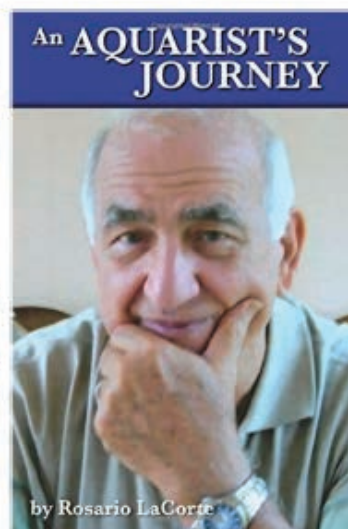


An Aquarist's Journey

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)



Duckweed

Food For Thought

Story and Photos by Stephen Sica

At the April meeting of the GCAS there was a high-quality auction of fish, plants and other items. Actually, there is such an auction at the end of every meeting. Near the end of the auction, Ed Vukich held up a bag of duckweed and offered it to me first for one dollar. Thanks Ed, but I wasn't paying attention, so Ed offered it to me three or four more times. Finally, I responded with a no thanks, stating that I already had plenty of it. I do admit that is very difficult to be contrary when it comes to Ed and duckweed, but I think I am learning to slowly wean myself away from the green stuff. I readily admit that Ed's smiley face and good-natured demeanor has a hypnotic affect on me at times, but I feel myself getting stronger and breaking away. I consider the April auction my first baby step forward. But now, about three weeks later, I am reconsidering. Maybe I should have invested that dollar.

If you have read my previous duckweed stories, you may recall that I was once considering becoming wealthy by selling duckweed for "a buck a bag." I know that Greater City would offer some competition, but I feel that I'm up to the job. Besides, how many people are silly enough to try to sell the stuff? (Oops! Hopefully my editor will delete the prior sentence, because if there is anything that I do not ever want

to be, it's silly.) I **do** have a certain image to uphold among people who don't know me well.

Ironically, a recent event has made me see duckweed in a whole new light. March 14th was the ninety-first birthday of Donna's uncle, and her sister Karen flew up from Florida to join the celebration. Karen brought along a magazine to which she subscribes, which she left with us when she returned home. Since Donna does most of the reading in the family, she read Karen's magazine, and told me that there was an article on duckweed. I found that very curious. Who in their right mind

would write about duckweed? Did someone write a duckweed article in a legitimate magazine? Well, I just had to read this article! "Raising The Steaks," by Marta Zaraska, was published in the April 2019 issue of **Discover**.

Rather than footnote everything, let me state for the record that most of the following information I learned from this article. It is about feeding the planet. Some scientists estimate that the earth's population of 7.5 billion people may be nearly 2 billion more by 2050. I venture to estimate that many citizens of our planet will still be living thirty-one years from now. The world's top agricultural research facility is a university located in the city of Wageningen in



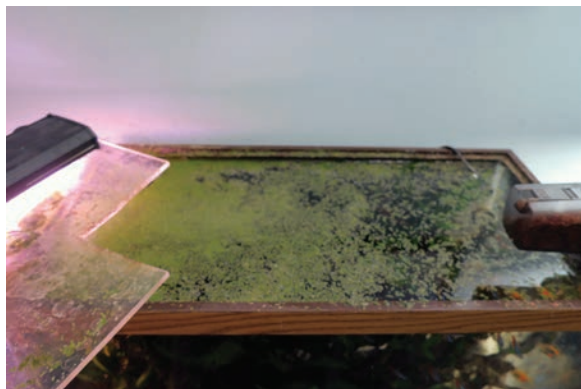
The last time that I had contact with massive quantities of duckweed was August 2017 in Charleston, South Carolina. The stuff covered the surface of small lakes, ponds and ditches on a former rice plantation.



Duckweed covered the surface of large and small lakes and ponds. If Charleston wants to send some to The Netherlands, it won't be missed. I prefer to look at it or put the stuff in an aquarium or backyard fish pond but please don't make me eat it!



I state in my article that duckweed sticks to everything. This is an absolute truth. The blue painted wall behind my 20 gallon aquarium reminds me of this fact. Rather than wash the wall for more duckweed to adhere to, I keep these speckles of the stuff as a buffer against even more. It sort of makes sense, no?



A mini Lake Maracaibo on the surface of my aquarium. Imagine hundreds of millions of tons of this stuff heading toward you like a tidal wave. Can the planet consume it fast enough before it inundates us?



A closer look at my duckweed. All it needs is sunlight or artificial light to grow. Don't worry about losing any of it if you put your hand or arm in the tank. It will adhere to your arm like glue, but just rinse it off in the sink. More will grow in a day.



A look at duckweed from below. For those old enough to remember, it reminds me of the 1950s and 60s genre of horror movies, such as *The Blob*. Run for your life—unless you're hungry and you want to eat it before it eats you!



From beneath the surface it is quite obvious that in only a twenty gallon aquarium a simple aquatic plant like duckweed is substantial when there is a large quantity of it.

The Netherlands. “Much of the institution focuses on how to feed humanity in the coming decades.” Wageningen University is “working hard to find alternatives to animal product substitutes other than soy, the current staple.” The university is working on plant-based steaks, microalgae, seaweeds, edible insects, and duckweed. The university is also creating “poop machines” to evaluate these new food sources.

A couple of experimental microalgae foods are ice cream and pizza. Unfortunately, the taste is a little on the fishy side, but I think that a fishy pizza is okay—I do believe that I’ve eaten anchovy pizza. Fishy ice cream though, is another story!

Some grasshoppers contain as much as seventy-seven percent protein. Pound for pound, grasshoppers produce only one-third of the carbon dioxide that raising beef cattle does, plus there’s no methane. A restaurant in the town of Wageningen offers bagels baked with crickets, mealworms and grasshoppers. I wonder if they get their water from New York.

Seaweed offers the most food products. According to the United Nations, we already consume about nine million tons of seaweed annually. There are seaweed farms in The Netherlands, and it is very easy to cultivate in the North Sea. Biogas and ethanol can be extracted; also, health care products and plastics

can be manufactured.

In 2015, a fifteen pound steak was made entirely from plants. This was the first “piece of mock meat so large that it could actually be sliced and carved.” The university scientists invented a machine that makes “meat” out of protein powders, water and gluten, while steaks are mostly made from soy.

Duckweed is a pinhead-sized plant. A few scientists at Wageningen University who have sampled it as food claim that it has a nutty taste. They admit that it is difficult to work with because it sticks to everything, but it is one of the fastest growing plants on earth. Its biomass is able to double in size in a mere sixteen hours. It can grow so rapidly that in 2004 Venezuela declared a state of emergency due to duckweed spreading and covering Lake Maracaibo. From space, the lake looked like an “enormous green glob.”

“Although duckweed is a nightmare for environmentalists, it may also be one of the best shots at an environmentally friendly future food.” Duckweed can produce ten times more protein per hectare per year compared to soybeans. Dutch scientists prefer to call the plant “water lentil” (from the Old Dutch *waterlinsen*). They feel that it’s a better name when considering potential future consumers. Ingrid

van der Meer, the lead duckweed scientist at the University, is researching how to efficiently and safely harvest it. She is also investigating how good it really is as a protein source for humans. Volunteers have been sampling boiled duckweed which could be mistaken for a bowl of spinach. Blood samples are taken from the volunteers to determine amino acid levels, providing insight into how well duckweed protein is digested. The results haven't been published yet. Van der Meer states that duckweed also contains many vitamins.

Wageningen University is collaborating with several Dutch companies to introduce duckweed to consumers. Products planned include ready-to-eat

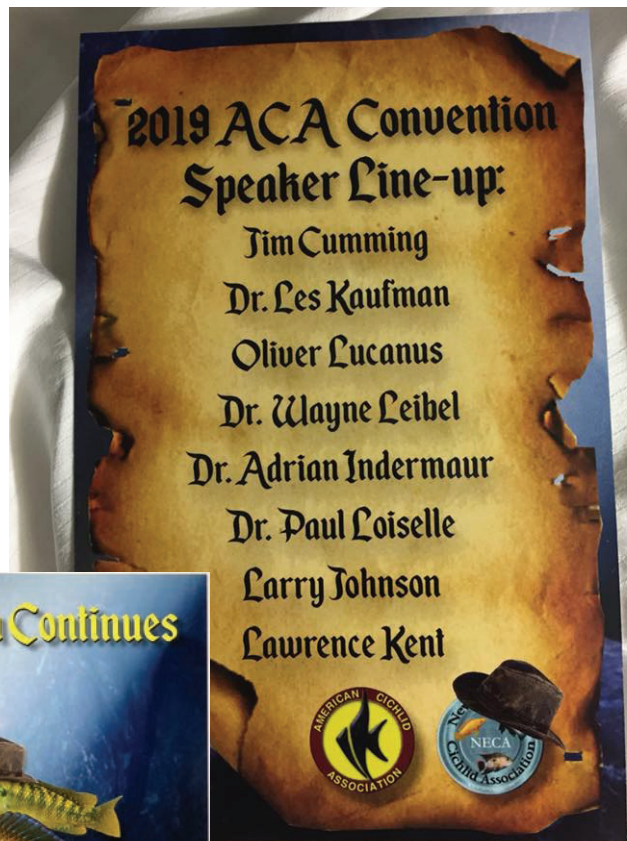


I keep Java moss in a small fish carrier in a basement window facing the sun in the west. I decided to "save" some duckweed by topping off the surface with a few plants. I completely understand now why most aquatic plant fanciers do not save extra duckweed for a rainy day or keep it under guard by a pet rock!

mixes of mashed potatoes and duckweed, as well as soy-based "meats" with water lentil protein.

On a personal note, I do not think that I am ready to eat duckweed, insects, or "fake meat." In my opinion, these new "foods" are sufficiently distasteful to make a person become a vegan (even though most of these products are based upon vegetation)! Does a grasshopper count as meat? How hungry does one have to be to eat a grasshopper—or any insect? Perhaps I

should reconsider my new ability to snub duckweed. In any event, the next time Ed dangles a dollar bag of duckweed before me, I just might buy it. After all, you are what you eat!



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!

Joe Gurrado



Joe Gurrado



Gilberto Soriano (for Michael Vulis)



Dan Radebaugh



Ron Webb

Debra Sellitti



Cichlids From Lake Nicaragua

Story by Mike Liu



Nicaragua is a Central American nation located between the Caribbean Sea and the Pacific Ocean. The country is known for its lakes, volcanos and beaches. Many well-known Central American cichlids in the hobby are also found in the country. Some are very common, such as the Convict Cichlid (*Cryptoheros nigrofasciatus*), while others are rare and hardly seen in the hobby, such as the Arrow Cichlid (*Amphilophus zaliosus*). There are some species that are almost totally unknown, such as *Amphilophus astorqui*, which is related to the Midas Cichlid (*Amphilophus citrinellus*).

Lake Nicaragua is a large fresh water lake situated in the southwest end of the country, and has a diverse population of cichlids. The lake is rather shallow, with an average depth of only 40 feet. There are several old, volcanic islands in and around the lake. A larger island, Ometepe, contains two volcanos, Concepción which is active, and Maderas which is considered dormant. Concepción rises up over 5000 feet, and Maderas rises up over 4500 feet above the lake. Together, they create a mysterious and picturesque backdrop.



Ometepe Island; Concepcion in foreground, Maderas in background

Many people keep cichlids from Lake Nicaragua in small groups, pairs, or as single fish. Most of the time I try to maintain a single breeder pair in a tank. For obvious reasons, most people cannot keep large schools of these relatively large and boisterous cichlids in a single tank. But the relationship between these fish is quite complex and diverse in the lake. For instance, *Astatheros rostratum* is reported to practice “crèche” spawning behavior, which describes colony-type or group nesting in a species. *Astatheros rostratum* adults will group their fry into a large colony, thereby dividing the parental duties of guarding and finding food for the fry. This strategy also provides protection, because large groups reduce the ability of a predator to focus on one fish, creating confusion. In another unusual behavior, the small but fierce *Hypsophrys nematopus* is reported to help protect fry of the much larger *Parachromis dovii* from marauding cichlids. In turn, the *P. dovii* do not eat fry of the *H. nematopus*.

I have never observed cichlids in the wild, but what a fascinating experience it would be to sit back, relax and watch what happens at the bottom Lake Nicaragua, or other bodies of water where cichlids are plentiful. My closest encounter watching wild cichlids was at the zoo in San Antonio. There I watched huge Texas cichlids spawning on the concrete sides of the hippo exhibit pen. About every 48 inches, another large pair of Texas cichlids was guarding a plaque of eggs, and swimming between the hippos. As I strained over the barrier to get a closer look at the cichlids, I realized I was also looking down the gut of a huge hippo with mouth wide open. It could have easily swallowed me whole had I fallen into its mouth.

The numerous cichlid species found in the lake occupy every ecological niche, having evolved specific and complementary feeding strategies. The above mentioned *Hypsophrys nematopus* is an algae scraper, and is found in areas where algae is abundant. *Hypsophrys nicaraguense* naturally forages over sandy bottoms and is mostly found near rocky habitats close to large sand beds. *Amphilophus citrinellus* is a generalized feeder, or omnivore, and can be found in a variety of habitats. Like all animals and plants, cichlids evolve to fit their environments, and cichlids are unusually adept at adaptation, giving them tremendous advantages in the fight for survival and reproduction.

Reprinted from *The New England Cichlid*, December 2015 - New England Cichlid Association



Underwater scene with Midas Cichlids

In Lake Nicaragua there are cichlids that are defined as omnivores, herbivores, insectivores, and piscivores. Luckily for us, these cichlids will eat almost anything offered in the aquarium. Any commercial food is eaten with gusto. But it is never a good idea to feed only one kind of food. For instance, cichlids that eat mostly vegetable matter may develop bloat if given too much protein. Conversely, a sand sifting cichlid that eats snails still consumes vegetable matter found in the bottom detritus. I feed a variety of commercial foods to all my cichlids, whether Central American, South American, West African or East African. I tend to use foods with a high level of shrimp or krill, and foods with a spirulina base. These seem to work well for daily cichlid maintenance. Many people have their own favorite fish foods and supplements, but it's always a good idea to provide variety.

There are fourteen species of cichlids from Lake Nicaragua that are routinely found in the hobby. Below is a photo log and summary of each.



Parachromis dovii, commonly known as the wolf cichlid, is a piscivore; that can grow to over 24" and is one of the largest cichlids known. It is a robust cichlid with a very large gape-type mouth. Males can develop a large nuchal hump. Having kept this species, I can attest that it is easy to keep and will spawn at a much smaller size of 5 to 6 inches. It does, however, require a very large tank, and any tankmates must be equally large and robust, or they will almost certainly be consumed. *P. dovii* is found rather commonly in the hobby, but many times it outgrows its tank and its owner.



Parachromis loisellei, Loiselle's cichlid is a piscivore; they can grow to 9" or 10" and are an attractive yellow fish with intricate black markings. This fish is often confused with *Parachromis friedrichstahli* and *Parachromis motaguense*, which both look very similar. (Editor's note: *P. loisellei* has recently been declared synonymous with *P. friedrichstahli*.)



Parachromis managuense, the jaguar cichlid, is a piscivore; which can grow up to 18". The intricate markings vary from one fish to another, but they are very attractive as well as rather aggressive. It used to be a very popular "pet" fish, developing strong bonds with their keepers. They need very large tanks, and like other large piscivores must have tankmates of equal size, which makes keeping them even more challenging.



Vieja maculicauda, the black belt cichlid, is an herbivore which can grow to 12 or 14 inches. Coloring often varies from one population to another, and it has one of the widest distributions of Central American cichlids, even able to live in brackish and saltwater.

I have found this cichlid to be rather aggressive, and have only kept the species once.



Amphilophus citrinellus, the Midas cichlid, is an omnivore which can grow to 14" or more. Like many cichlids, dominant males can develop a large nuchal hump (enlarged forehead bump), the purpose of which is still not certain. Most wild caught fish are olive-to-beige with darker vertical barring, while a few are orange, orange and white, or orange piebald. The orange varieties are popular in the hobby. They are relatively easy to keep, but care must be taken when a pair is preparing to spawn. Males get extremely aggressive at that time, and often damage or even kill the female.



Amphilophus labiatus, the red devil cichlid, is an herbivore which can grow to 12" or more in a large tank. It closely resembles the Midas cichlid, but is more streamlined and less high-bodied than the Midas. They have enlarged fleshy lips, indicating they forage over algae covered rocky areas. This trait disappears in the aquarium. You will find solid orange, orange and white, and piebald varieties in the hobby.



Astatheros longimanus, the rose-breasted cichlid, is an herbivore which can grow to 8 or 9 inches. Males are larger than females, with more turquoise spangles in the unpaired fins. Both sexes have a rosy pink belly. These are docile fish that should be seen more in the hobby. They are easy to keep, and will spawn at about 2.5" in size.



Astatheros rostratum, the spangled cichlid, is an herbivore which can grow to 9 or 10 inches. Many consider this fish to be one of the most attractive Central American cichlids. As they get older, their iridescent spangles become more intense. They spend a lot of time sifting through the substrate looking for food. Not often seen, this fish is always scooped up when available.



Archocentrus centrarchus, the flyer cichlid, is an herbivore. They can grow to 8 or 10 inches, but is more commonly seen at 5 inches or even smaller. It is very peaceful, and swims about more than other cichlids, making it an excellent aquarium resident. The yellow coloring can vary in intensity, but it typically always shows several dark vertical bars extending from the ventral region up to the base of the dorsal fin.



Cryptoheros nigrofasciatus, the convict cichlid, is an insectivore which can grow up to 8" but is more commonly seen at 3 to 4 inches in the hobby. They are ferocious when guarding fry and exhibit excellent parental behavior. There are many variants from all

across Central America, and many wild strains have been collected. It isn't considered a desirable fish by experienced fishkeepers, but it is the consummate cichlid when it comes to spawning behavior. Its major fault is that it breeds too successfully!



Cryptoheros spilurus, often called the blue-eyed cichlid, is an insectivore that grows up to 5 or 6 inches. They are fairly peaceful, and are excellent parents. There are many related fish also called the blue-eyed cichlid, but this is the original. It does not have flashy colors, and is rarely seen in the hobby anymore.



Herotilapia multispinosa, also known as the rainbow cichlid, is an herbivore that stays small, growing up to 4". They are peaceful, and can be mixed with many types of larger cichlids. Most are primarily yellow, but some specimens develop an orange-yellow color. This would be considered a beginner's cichlid, but it worthy of a place in a mixed community cichlid tank. It's quite an attractive fish, and is easy to keep and spawn.



Hypsophrys nicaraguense, the Nicaragua cichlid, is an herbivore which can grow to 9 or 10 inches. Males are larger than females, and the scales are edged in black, giving it an attractive reticulated pattern. Females' fins are not edged in black, but they generally have a more intense turquoise coloring in the head. With the yellow-orange body color, it is one of the most attractive Central American cichlids.



Hypsophrys nematopus, usually called 'Neets,' is an herbivore that can grow to 3 or 4 inches, and has a white body with one black vertical band. When spawning, the colors reverse, with the body turning black and the vertical band turning white. It is much more attractive when spawning, and is a fierce parent. It also has the nickname "The Poor Man's Tropheus," because the spawning coloring resembles a *Tropheus duboisi*.



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 any member of the GCAS Board of Directors.

The program has two divisions: the Basic Program and Specialty Program. The Basic Program has five recognized levels; Breeder, Advanced Breeder, Master Breeder, Grand Master Breeder and Senior Grand Master Breeder and classifies fish as to the degree of difficulty and respective point value. Additional levels may be created, if necessary at the 1,000 point level and beyond, as required. The Specialty Program, however, does not recognize point value and only recognizes mastery in one specific category of fish.

All Members, please note: Listed below are the rules currently in place. Our board of directors is working with new BAP Chairman Joe Graffagnino to update these rules and point values. We also ask you, our members, to review these current rules and let us know about any updates or changes you think we should make to them. If you have any thoughts or concerns regarding potential changes to these rules, please contact Joe Graffagnino (joeGraffagnino@yahoo.com). Thank you!

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 Breeder800 points

POINT CLASSIFICATION

ANABANTOIDS

5 points	None
10 points	All species not listed otherwise.
15 points	All <i>Macropodus</i> except <i>opercularis</i> , all <i>Betta</i> except <i>splendens</i> and <i>macrostoma</i> , all <i>Belontia</i> , all <i>Trichopsis</i> and <i>Helostoma</i> .
20 points	<i>Osphronemus gourami</i> , all <i>Sphaerichthys</i> and <i>Betta macrostoma</i> .

CATFISH

5 points	None
10 points	<i>Corydoras aeneus</i> and <i>paleatus</i> , including albino forms.
15 points	All <i>Ancistrus</i> , <i>Aspidoras</i> , <i>Brochis</i> , <i>Dianema</i> , <i>Hoplosternum</i> and "Whiptail" <i>Loricariids</i> and all <i>Corydoras</i> not already listed.
20 points	All species not listed otherwise.

Please note: Effective January, 2014, 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

- 5 points *Cichlasoma nigrofasciatus* and *Herotilapia multispinosa*.
- 10 points All species not listed otherwise.
- 15 points All Lake Tanganyika Cichlids not listed otherwise, “Red Devil” complex, all *Etroplus*, all *Apistogramma* complex (*Apistogramma*, *Apistogrammoides*, *Nannacara*), all *Geophagus*, all Lake Victoria Cichlids, *Cyrtocara moori*.
- 20 points All *Symphysodon*, all *Uaru*, all *Crenicara*, *Astronotus ocellatus* (all color forms,) all Lake Tanganyika mouth brooders except *Tropheus* and *Tilapia*, *Cichlasoma* group *Parapetinia* (except *salvini* and *trimaculatum*), all Madagascar cichlids.

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 semifasciatus*, all *Rasboras*.
- 20 points *Barbus schwansfeldi*, all Cyprinid “Shark” complex, Koi.

KILLIFISH

Due to the spawning habits of killifish, all species of killifish to be bred must be reported to the BAP Committee Chair prior to spawning so that proper witnessing techniques may be applied. All spawnings must be reported so that the date may be recorded.

- 5 points *Aphyosemion australe** and *gardneri**, all *Oryzias*, *Aplo. Panchax*, *Epiplatys dageti** and *sexfasciatus**, all *Rivulus* not listed otherwise.
- 10 points All species not listed otherwise.
- 15 points All annuals except *Nothobranchius guentheri* and those not listed otherwise, *Fundulopanchax sjoestedii*, *Pseudoepiplatys annulatus*, *Aphyosemion* “Diapteron” complex, all *Procatopus*, *Lamprichthys tanganicus*.
- 20 points *Cynolebias dolichopterus*, *Nothobranchius rachovii**, *Pterolebias zonatus*, *Rivulus xiphidius*.

*all color 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*.

ALL OTHER SPECIES

- 5 points None.
- 10 points All species in the family *Badidae*, all Sticklebacks, Peacock Gudgeon (*Tateurnida ocellicauda*).
- 15 points All species not listed otherwise.
- 20 points *Scatophagus argus*, all *Monodactylus*, all Loaches, all Eels, all *Mormyrids*, all Lungfish complex, all freshwater Stingrays, Dogfish and Sawfish, all freshwater and brackish Puffers, all Arowanas, Bowfins, *Arapaima*, Mudskippers.

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

First time within GCAS Additional 10 points

First time within the U.S.A. Additional 50 points*

First time in the hobby Additional 100 points*

* You must write an article and have it published in an established periodical.

For first breeder points the fish must be identified by both genus and species. At the discretion of the BAP Committee Chair, first GCAS breeder points may be given for a fish that has not been bred at GCAS for a period of no less than 10 years.

GENERAL INFORMATION

SPECIES:

Points are awarded only once for each species or subspecies. "Mollies" are a genus which contains several species: *Poecilia latipinna*, *P. sphenops* 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, likewise, will 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 new experience or conditions. 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 and 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 as soon as possible after they are free swimming.
 - 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 (60 days after free spawning for egglayers), except for species as may be from time to time designated and approved by the Board of Governors. These fry must be brought to a meeting and presented for witnessing.

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 taken to the B.A.P. Chairman.

THE SPECIALTY PROGRAM

Please note: Effective September 2015, the Specialty Program has been discontinued. The rules have been kept in this document in the event that the Specialty Program is re-activated in the future. In the Specialty Program, point values are not counted. However, the same requirements must be met as in the Breeders' 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.

SPECIALITY 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**

Below 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	
Cichlids (Old World)	8	No more than 4 species may be mouth brooders.
Cichlids (New World)	8	
Characins	4	
Catfish	4	1 species must be other than <i>Corydoras</i> , <i>Aspidoras</i> or <i>Brochis</i> .
Livebearers	8	
Cyprinids	8	1 species must be other than a 5-point fish.
Killifish	7	At least 2 species must be Annuals.

Questions about the Breeders Award Program should be referred to BAP Chairperson Joe Graffagnino (joegraffagnino@yahoo.com).





GCAS Thanks You!

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Our Panel of Experts listens carefully to member questions.
(From left) Joe Graffagnino, Warren Feuer, Harry Faustmann, Jeff Bollbach, and Ed Vukich



Joe Ferdenzi with President Horst Gerber, explaining how the Panel of Experts will operate.



Raffle prizes await their winners.



Marsha Radebaugh speaking with new members and handing out copies of *Modern Aquarium*.

Our Last Meeting



President Horst Gerber Congratulates Bowl Show winners Chris Koenig and Richard Waizman.



Modern Aquarium Editor Dan Radebaugh presents Joe Ferdenzi with his two author awards from the NEC Articles Competition, and Leonard Ramroop receives his daughter Lauren's award.

A good evening for Leonard, as he wins the Door Prize.



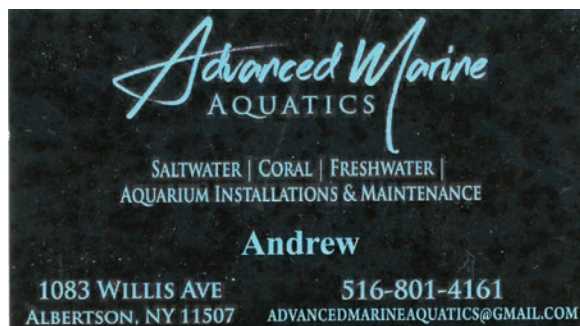
Gifts to our members from Monster Aquarium



Leonard Ramroop, taking a break with Jules Birnbaum.



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10% Discount on everything.



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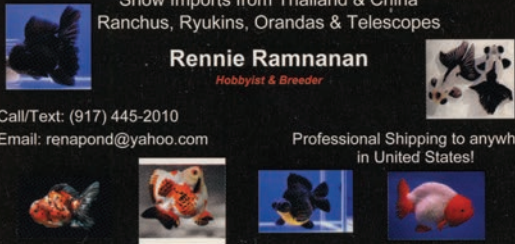
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GCAS Classifieds

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

July

Last Month's Bowl Show Winners:

- | | |
|-------------------|-----------------------|
| 1 CHRIS KOENIG | KOI BETTA |
| 2 RICHARD WAIZMAN | BLUE / RED BETTA MALE |
| 3 RICHARD WAIZMAN | FEMALE BETTA |

UNOFFICIAL 2019 BOWL SHOW TOTALS:

RICHARD WAIZMAN	22	CHRISTOPHER KOENIG	5	JOHN BUZZETTI	5
TOM KEEGAN	3	WILLIAM AMELY	1		

A WARM WELCOME BACK TO RENEWING GCAS MEMBERS FLORENCE GOMES, BASIL HOLUBIS, JASON KERNER, DONITA MAYNARD, ARTIE PLATT, RICHARD WAIZMAN, HERB WALGREN, AND LARRY D. WHITFIELD!

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



GREATER CITY AQUARIUM SOCIETY

Next Meeting: Wednesday, August 7, 2019

Event: A Night At The Auction

Topic: N/A

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.brooklynaquariumsociety.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: July 20, 2019

Speaker: Mike Hellweg

Topic: Live Food Culture, Micro-Gouramis

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/>

Where **NOT** to “Fish!”

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”

Fishkeepers can acquire specimens at aquarium society auctions, at pet/fish stores, or even on collecting trips. However, “shopping” at public aquariums is generally frowned upon.

Recently, three people snatched a small shark from a pool at the San Antonio Aquarium and smuggled it out in a baby carriage.

Security video shows the sharknappers strolling through the aquarium's hallway pushing the baby carriage along on a Saturday before they drove off with the 16-inch shark in a red pickup truck.

The aquarium said the thieves brought their own net with them to snag the shark from an interactive “touch pool” at the tide pool exhibit while an attendant was assisting other visitors.

They then ducked into a filter room and emptied out a bleach bucket, into which they deposited the shark, and used the bucket to transfer the shark into the stroller.

Police tracked the vehicle to a nearby house where they were able to recover the shark and get confessions from two of the suspects.

Reference:

<https://www.nbcnews.com/news/us-news/thieves-snatch-shark-san-antonio-aquarium-wheel-it-out-baby-n895956>

It was obvious that the man who stole the shark had knowledge of how to care for that type of animal. When police got into the garage and into the house, it looked like almost a mock-up of the aquarium. The aquarium was lucky that it was dealing with someone who knew how to care for sharks.

It did not appear that he was planning on selling the shark. He didn't say that, but from looking at the other animals there, more than likely it was something he wanted.

Jamie Shank, the aquarium's assistant director of husbandry, said the shark, who is named Miss Helen, is “a tough little horn shark.”

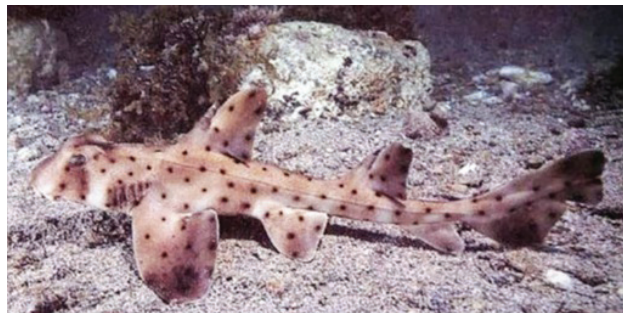
“When this happened all the staff was very heartbroken simply because we did not think that she would even survive that in itself,” she told reporters. “I’m really proud of her and I’m so overjoyed to have her back.”

She added that Miss Helen will go into quarantine for an observation period to ensure that she is unharmed before being returned to the exhibit.

The horn shark is a small, slow-swimming member of the bullhead shark species, found mainly off the West Coast from California to the Gulf of California. They mostly eat mollusks, crustaceans, worms and sea anemones.

“We value the lives of all of our animals and take pride in the care that we are able to give them as well as the education that we are able to give to the general public about these treasured species,” the aquarium said.

Moral: if you want to take a fish out for a “stroll,” make sure it’s one you own and legally acquired. (At least the sharknappers did not eat their prey!)



A horn shark at the San Antonio Aquarium

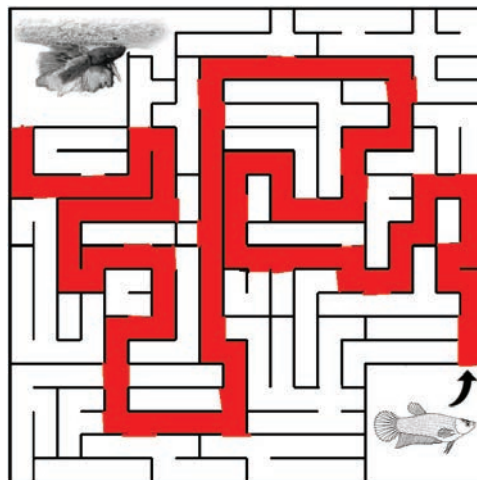




See if you can find all the listed livebearers in the puzzle below.

Z	F	O	Q	M	U	G	K	T	P	H	D	F	V	A	J	S	F	ENDLERS
X	W	J	E	C	O	M	J	S	R	H	L	W	M	H	D	L	Y	GOODEID
S	S	Q	H	N	D	S	E	U	X	B	P	G	U	P	P	Y	M	GUPPY
L	E	S	A	F	D	D	Q	S	A	B	P	L	A	T	Y	W	H	LIMIA
I	A	T	L	T	X	L	F	U	J	O	O	Y	P	Y	V	Y	G	MOLLY
M	H	M	G	I	T	S	E	P	I	P	E	F	I	S	H	G	O	MOSQUITOFISH
I	O	A	O	D	A	S	Z	R	Q	T	Y	Z	N	H	P	X	O	PIPEFISH
A	R	L	V	L	P	G	K	H	S	R	O	P	L	S	Q	R	D	PLATY
D	S	Q	P	J	L	X	U	I	I	L	I	F	K	E	V	Z	E	SEAHORSE
R	E	O	K	G	D	Y	E	C	E	R	H	K	I	L	B	D	I	SWORDTAIL
V	S	W	O	R	D	T	A	I	L	J	N	U	D	S	O	E	D	
T	Q	H	W	V	C	X	S	W	T	Y	W	H	R	K	H	G	S	

Solution to our last puzzle: *Meet the Mate*



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 due 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.

