

modern AQUARIUM



July 2022
volume XXIX
number 5

Greater City Aquarium Society - New York

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Series III Vol. XXIX, No. 5 July, 2022

ON THE COVER

Our cover this month shows a reef aquarium made up of organisms collected by Emiliano Spada in the Mediterranean Sea, and then set up as a reef aquarium. Emiliano, who lives in Rome, also took the photo.

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From the Editor

by Dan Radebaugh

Well, we do seem to be making progress in our quest to return to a more normal meeting climate. The mask mandate is of course still in effect, but it seems to this viewer that the general anxiety level has somewhat stabilized. Not that the threat has completely passed, but here in NYC, people for the most part seem to be willing to do what's necessary to help us all remain alive and well.

The auctions have continued to grow—a lot of folks got some really good buys last month. As for **Modern Aquarium**, I think you'll like what you see in this issue. This being our 100th anniversary year, we've continued to include outstanding articles from past issues of **Modern Aquarium**, as well as re-viewing cover photos from past years. This month we're looking at the cover photos from 2004—see page 28. We're also re-viewing a wonderful article from Al Priest, on "The Fish from Bung Borapet Swamp," which you'll find on page 20!

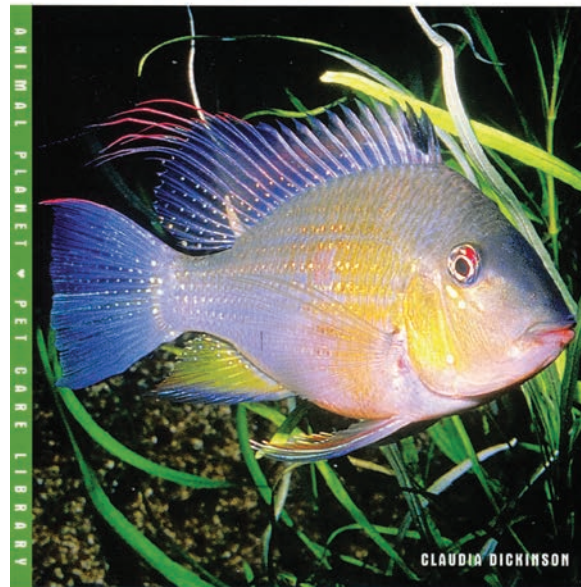
Not that we're ignoring the present! On page 11 Jules Birnbaum treats us to some fishroom tips and tricks that he's accumulated over the years. Joe Ferdenzi follows this by telling us about new ways to revitalize our ancient stainless steel tanks. We don't have to just permanently relegate them to the attic anymore. This could be *really* useful info for many of us! Our Exchange Article this month (see page 15) is "14 Fun Facts About Piranhas," by Helen Thompson.



Following our Fishy Friends' Photos on page 23, Dan McKercher gives us some thoughts on how to win the battle against mold and odor in our fishrooms. See "Dehumidifier or Air-Exchanger?" on page 24. The issue closes with the Undergravel Reporter telling us about "The Largest Plant," followed by our Fin Fun puzzle, "Clowning Around." Enjoy!



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

2022

March 2	Scott Dowd <i>Project Piaba</i>
April 6	Rosario LaCorte <i>Images From A Lifetime of Fish Breeding</i>
May 4	Warren Feuer <i>Shell Dwelling Cichlids</i>
June 1	Dr. Enea Parimbelli <i>Voyage in Lake Tanganyika</i>
July 6	Joseph F. Gurrado <i>Reef Keeping</i>
August 3	A Night at the Auction
September 7	TBA TBD
October 7	Gala Buffet Dinner <i>Douglaston Manor</i>
November 2	TBA TBD
December 7	TBA TBD

Articles submitted for consideration in **Modern Aquarium** (ISSN 2150-0940) must be received no later than the 10th day of the month prior to the month of publication. Please email submissions to gcas@earthlink.net, or fax to (347) 379-4984. Copyright 2022 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 (one copy if sent electronically). 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 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>.

President's Message

by Horst Gerber

One hundred bottles of beer on the wall, one hundred bottles of beer! If one of those bottles should happen to fall, 99 bottles of beer on the wall... We've all probably heard or sung that song at one time or another, but no matter how many bottles fall we are still 100 years old this year. We are as old as the Lincoln Memorial in Washington, D.C. and older than the mouse—or should I say Mickey? My German humor is what we old Krauts call a dry wit, from the northern part of Germany. People have said “I don't get it,” or “I can't edit your humor; it's different than mine! Can I correct your humor?” No! My jokes are a delicate thing. Part knowing humor and part lack of humor, its only requirement is that it doesn't produce a laugh from your audience, only an annoyed reaction.

I've written a few jokes in the past five years that you will never see. According to our Editor and proof readers they were not funny or appropriate, or they were xxx. But I think they were good, and would have produced a chuckle! Well, what can I say? German humor is German humor. But enough of all that. It's fun to laugh out loud and use German humor! We seniors need a chuckle just like anybody else, especially when we forget where we put our glasses (on our head) or misplace our Prez Message that we wrote on the back of our heart medication prescription, or on the back of the grocery list.

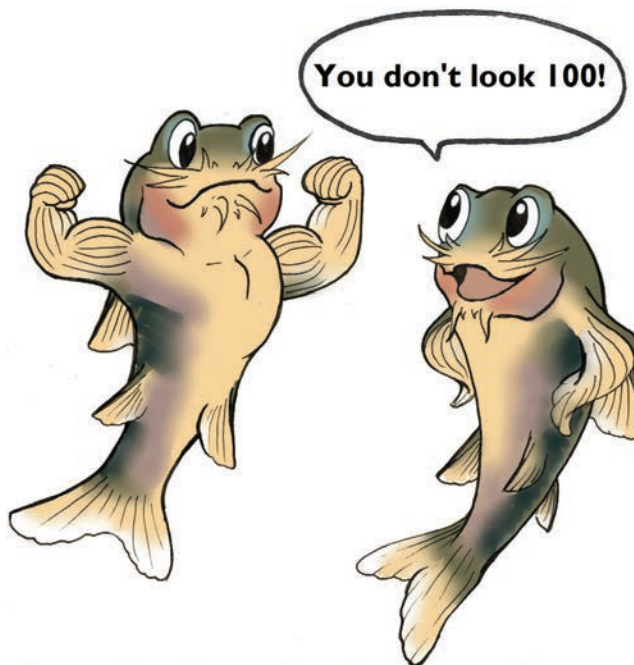
After writing 60+ Prez messages, getting old ain't so bad. For one thing, you always make new friends at Greater City because you don't remember them, and then there are the senior moments you would rather forget. What moments? I started to think about the importance of this part of our lives (I mean mine of course, you are too young). We all need an occasional pick-me-up—at least I do these days. To that end I try to combine humor with serious writing. I trust you are smiling right along with me as we stumble through those great senior moments (I hate them) that are common to all of us as we grow older and wiser. It's OK to make a mistake or to misstep. Never happens to me, of course. There are also plenty of tender moments in your senior years, like when you show affection to your dog. What was his name again?

I hope you enjoy our monthly magazine as much as I enjoy writing my Prez Message. If you believe that I'll sell you the Brooklyn Bridge for a mere dollar! For real, I have fun writing the Prez Message, even though it is sort of a pain in the buttocks. Supporting one another during these trying times is one of the best ways to get through them, so keep on smiling when those senior moments hit. Go ahead and laugh at yourselves. That's how I get through it all.

Horst



Congratulations on your 100th anniversary!



From the Norwalk Aquarium Society



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Tonight's Speaker: July 6, 2022

Joseph F. Gurrado



retired from the NYCDOC in 2020, and since retiring has had more time to pursue his aquarium and photography hobbies. Joe has kept aquariums for over 40 years and has pursued photography for even longer. A regular contributor to Greater City's Fishy Friends Facebook page, you can see many examples there of his saltwater and freshwater photography. You'll notice from our masthead that Joe is also in charge of our Bowl Show competition. He has also written for **Modern Aquarium** and photographed many of our meetings. Besides being a member of GCAS Joe is also a member of the Brooklyn Aquarium Society. The subject of Joe's talk tonight is **Reef Keeping**.



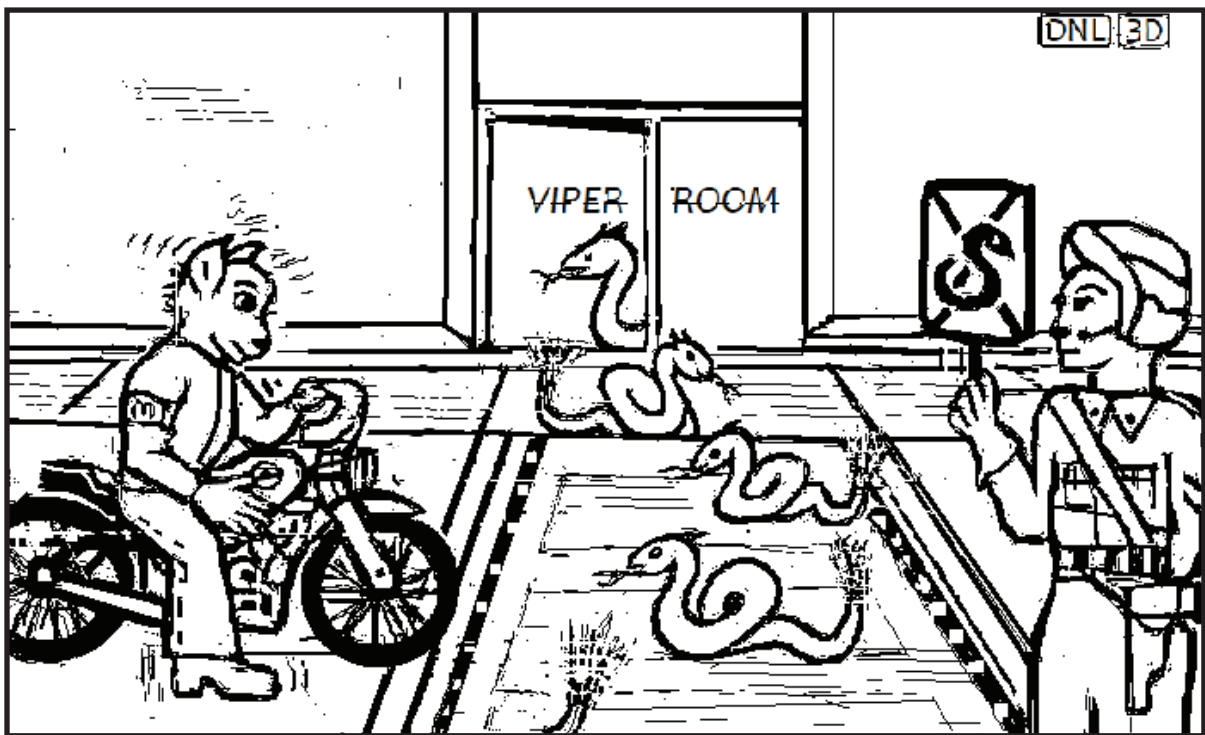
June's Caption Winner: Thomas Warns



This is why you never ask a fish nerd about his hobby...

The Modern Aquarium Cartoon Caption Contest

*Modern Aquarium has featured cartoon contests before, and they're back! 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 may turn in to Marsha or Dan 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:

Pictures From Our Last Meeting

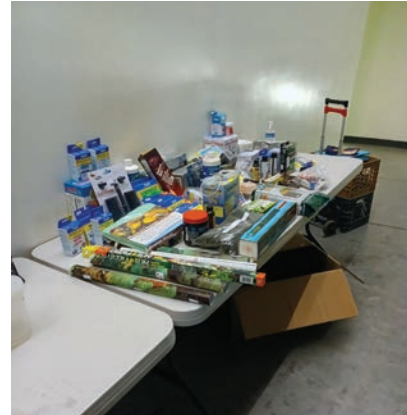
Photos by Leonard Ramroop



The hall begins to fill up for the evening's festivities.



Our speaker, Dr. Enea Parimbelli.



Some of the evening's raffle prizes.



Al Grusell giving Dan R tips on which cake is the tastiest.



Mario Bengcion receiving his Bowl Show ribbon from judge Joe Gurrado.



May Bowl Show Winners:

- 1 Tony Siano
- 2 Richie Waizman

June Bowl Show Winners:

- | | |
|------------------|-----------|
| 1 Richie Waizman | Frontosa |
| 2 Tony Siano | Angelfish |
| 3 Mario Bengcion | Betta |



Come join us at the
Greater City Aquarium Society's

100th Anniversary Gala!

Friday, October 7th, 2022 7:30 PM

at

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SOME TRICKS FROM MY FISHROOM

by Jules Birnbaum



After over 75 years in the hobby, (I had a small basement fish room at age 12) you learn many “tricks.” There were interruptions of college and several years in the Air Force. My present fish room was built 13 years ago in a converted garage. I am using things I have learned from others in the hobby and of course experiments I have tried. I say over and over, “whatever works for you.” I’m no scientist, but I do like to experiment. These “tricks” or ideas are listed below in no particular order. I hope something is worth using to help make your hobby easier for you.

1) If you want less aggression use larger tanks. I increase my bio-load so the aggressors will not know whom to attack next. Also, I have lots of hiding places such as plants, rocks, caves and driftwood.

2) LED lighting with built in timers I’ve found to be more economical than fluorescent bulbs. All my tanks have them. The technology keeps getting better, and the prices have come down over time.

3) A varied diet for my fish—including occasional live foods, makes for healthier, better looking fish. I feel that feeding live brine shrimp daily is a must to keep my small fish and fry looking interested because of the moving live food. There are several good brine shrimp hatcheries selling online. The color, fins, and

size of my fish are worth the effort. I do have a culture of vinegar eels for very small fry, such as rainbows.

4) I have a central air pump purchased from JEHMCO that runs sponge, box filters, and a central heating unit (a Mitsubishi heat pump), which eliminates separate filters and heaters. The heat pump gives the room heat in winter and air conditioning in summer. My fish room is in a converted street-level attached garage, and temperature control is not as simple as having fish tanks in a basement.

5) When fish are difficult to catch I place some pellets in a Snapple bottle and place it in the tank on its side, at the bottom of the tank. When fish go in there to get at the food I place my hand over the bottle opening. This works very well to catch *Ancistrus*. Some aquarists use a soda bottle cut in half, then turn the top half upside down into the bottom half of the bottle.

6) I use low light plants and keep my lights on approximately 6 hours a day. Low light plants don’t need much light, which seems to cut down on the amount of algae. Fertilizer can be expensive, so I use a powdered fertilizer purchased from Select Aquatics. I mix it with water placed in a 1 gallon plastic bottle, and use a turkey baster full for each tank. A double dose of Seachem’s Flourish Excel is used occasionally to cut down on any hair algae.

7) I have no central water change system. 50% of my tank water is changed each week. I have two pumps, attached to hoses, that pump water to our laundry room sink. I fill the tanks with water by use of a filling gadget and hose attached to the laundry room sink. The unit and pumps are from JEHMCO, the fish room supply house. I also use a powdered dechlorinator purchased from JEHMCO that comes in 5 or 10 lb. cans. This does save money.

8) I use just a thin layer of pool filter sand or crushed coral. My plants are attached to rocks or driftwood, and some are grown in clay pots. This makes the tank bottom easier to keep clean.

9) Marine Land sells an internal polishing filter with a micron cartridge and a powerful water pump that I run in tanks that look dirty. This unit stirs things up and filters the water. After a few hours the filter is removed and the micron cartridge is cleaned with a pressure nozzle attached to our laundry room faucet. It is amazing the dirt that is removed by having an internal polishing filter. The filter is about \$55 and well worth it.

10) I do clean my sponges and box filters (I have one of each in most of my tanks). The clear box filters show me how dirty they are. I clean my filters every 6 months. Sponges are rinsed in our laundry room sink using aged water. I replace floss in the box filters at the same time. Keep in mind that filtering becomes less efficient as time goes on. Water finds the easiest way around the clogged part of the filter. If water cannot get through easily the filter will slow down.

11) I label my tanks with the scientific name of the fish, as well as any other reminders that help me remember things.

12) I use a meat thermometer to take the temperature of all my tanks instead of having a thermometer in each tank. I keep a small flashlight to look into my tanks when the lights are out. I keep pH strips handy, but rarely use them. We have great well water on Long Island for raising tropical fish.

13) When I decided that building a fishroom was the way to improve my hobby, John at JEHMCO and Joe Ferdenzi gave me all the advice I needed to get started. If you are starting a fish room I recommend you get in touch with one of our club's many fishroom experts. I sent John the room measurements (9x11), and he designed racks for my tanks. My carpenter was easily able to follow the design. One important piece of advice I received was from Joe Ferdenzi, who told me to not make the lower rack too low. It is very difficult to service or look at tanks that are too low. The one mistake I made was making the electric outlets too low. I had to run heavy duty extension cords.

14) Every fishroom should have its own small refrigerator. I don't want my wife getting upset over my keeping live, frozen, or even dry fish foods in the family refrigerator. I make my wife happy by keeping some of her extra frozen and sealed foods in the fish room refrigerator.

15) I do most of my breeding the easy way, using a breeding tank loaded with Java moss & Water Sprite with water temperature about 78° and plenty of live foods. I don't look for a big spawn, since there is usually no room to raise the fry. I either remove the parents or remove the fry. Livebearer fry are usually left with the parents if the tank is heavily planted. *Ancistrus* are given caves and plenty of plants. I've bred Angels by simply removing the wide leafs they might prefer to lay their eggs on and placing the eggs in the same tank in a floating incubator purchased from Swiss Tropicals. I've had a spawn of 100 Angel fry this way. The two keys are water changes and plenty of live foods, such as brine shrimp and blackworms. I chop up the blackworms for my smaller fish so as not clog up their digestive systems.

16) The tools I usually use are long tweezers and scissors, and a long rake for moving gravel. There are several nets, including one small one for harvesting live brine shrimp. I disinfect all my nets with a bleach solution. I also wash my hands before and after entering my fishroom just as a precaution. A number of magnetized glass scrapers are around to handle the algae. Medications kept are a general cure, and medications recommended by a medication expert named Charles Harrison, though what seems to work best for any sick fish are a small quarantine tank and fresh, clean water, and raising the water temperature.

17) Adding new fish to a community tank or to breeding tanks is done when the tank is dark and when all lights in the room are out. This gives the present and new fish time to acclimate themselves to one another. If buying online it is best to have a quarantine tank to determine if the new fish have any diseases. I've never had any problem getting new fish from a friend or from our GCAS auctions.

18) My lower tanks, even after making them a little higher per Joe Ferdenzi's suggestion, present a problem because of all the bending needed to service them. I recently purchased a rolling shop chair with a good seat that can be lowered or raised as needed. It has been a big help.

You now have all the "tricks" I can think of for now. If I think of more I'll let you know.



Stainless Steel Tanks Revitalized!

by Joseph Ferdenzi



When I started in the hobby in the mid-1960s, there was basically only one type of tank available—stainless steel framed with a slate bottom. These tanks had a lot of advantages. For one, they did not rust or leach harmful metal toxins into the water. For another, the stainless steel frames made them almost indestructible—no seams or corners to give way. The slate bottoms were so dark and natural that fish would feel very comfortable even without gravel. But they had one major Achilles' heel—the putty that made the seams watertight. If you let the putty dry out, by say, keeping the tank in dry storage for a lengthy period of time, or if there were other imperfections in the putty, the tanks would leak, and be difficult to repair.

Fast forward to the present and you will find that most of the stainless steel tanks that you come across have been kept in

dry storage for many years, if not decades. Hence almost all of them will leak unless you do something to repair them. Of course those old-fashioned putties are not available, so you have to try other ways to fix them. I've tried several methods with varying degrees of success. Bear in mind that just using modern day silicone from a tube does not solve the problem—especially in larger tanks. Why? Because of the slate. Regular silicone does not adhere well to the slate, and eventually it will separate and cause leaks in the bottom of the tank.

Recently however, I have used a product to repair stainless steel tanks that works very well and is easy to use. I owe this discovery to a conversation I had with my dear friend and hobby great Rosario La Corte.

The conversation came about because some years ago Rosario gave me four vintage stainless steel 30 gallon breeder tanks. This



size is very rare, and currently no commercial outfit makes this size. They are wonderful tanks, but of course they are from the 1960s, and one of them started to leak.

Rosario and I have discussed how to repair stainless steel tanks many times. In fact, some 20 years ago he and another old-time great hobbyist, Bill Jacobs, did a live demonstration on how to do it using heated roofing tar (!). Yes, it works and is not toxic to fish. I tried that method once, but it is tricky and I didn't care for the fumes.

During this latest conversation, Rosario mentioned seeing a commercial for a product that was a type of putty that sealed holes and made them watertight. It turns out he was talking about a substance that goes by the trade name of Flex-Seal. Rosario thought it would be worth a try if it were not toxic to fish.

After giving his idea some thought, I did some online research and came to the conclusion that the product, once cured, was not toxic to fish. So I decided to give it a try. But instead of the putty version I decided to try their "liquid" version, based on the theory that it would be easier to work with.

I emptied the 30 gallon tank and dried it out. Then, using an inexpensive one-inch paintbrush, I applied the "liquid" Flex-Seal to all the corners and bottom seams. The product has a viscosity that allows it to be easily applied, fills all the crevices very nicely, but it's thick enough so that it doesn't "run" like ordinary paint. It is certainly much easier to use than ordinary silicone.

After applying it, I let it dry for a week. By then, the "liquid" is nice and firm, and no longer has any pronounced odor. I use a cheap paint brush so that I can just dispose of it rather than going through the laborious process of cleaning it.

That's all there is to it. Months later, the tank doesn't leak and the fish are all fine (and breeding in that tank). I've since used it on some other tanks, including a rare 3 ½ gallon stainless steel tank that I use for breeding killifish. I've also learned to use it on the outside seams of stainless steel tanks, and to cover the entire slate bottom from the inside and outside. Doing that essentially encases the slate and prevents it from leaking in any way from the bottom. It also protects the slate from deterioration (some tanks were made with poor quality slate that develops cracks and sheds layers).

Another point I would mention is that I believe the product comes in different colors, but I stick to black. That happens to be the color of the old-fashioned putty, so the black Flex-Seal really blends in well. In fact, most of the time you can't even tell the tank has been repaired.

If there are other products that have the same properties as Flex-Seal, by all means you can try them. I am not here to endorse a particular product. But thanks to the intuitive wisdom of Rosario, I now have a great new way to repair these magnificent tanks that ruled the aquarium world in the 1950s and 60s.



14 Fun Facts About PIRANHAS

by Helen Thompson - Staff Writer, Smithsonian Magazine

Piranhas have never had the most darling of reputations. Just look at the 1978 cult film **Piranha**, in which a pack of piranhas escape a military experiment gone wrong and feast on unsuspecting lake-swimmers. Or the 2010 remake, where prehistoric piranhas devour humans in 3D detail. Then and now, Hollywood certainly hasn't done the piranha any favors. But are these freshwater fish the vicious river monsters they're made out to be? Not exactly.

Piranhas do indeed have sharp teeth, and many are carnivorous. But there's a lot of diet variation among species. That's one reason piranhas have proved hard to taxonomically classify. Piranhas are also hard to tell apart in terms of species, diet, coloration, teeth, and even geographic range. This lack of knowledge adds a bit of dark mystery to the creatures. They may not be cute and cuddly, but they are very misunderstood, and scientists are rewriting their fearsome stereotype. Here are some facts about them:

1 Piranhas' bad reputation is partially Teddy Roosevelt's fault - When Theodore Roosevelt journeyed to South America in 1913, he encountered several different species of piranha. Here's what he had to say about

them in his book, **Through the Brazilian Wilderness**; "They are the most ferocious fish in the world. Even the most formidable fish, the sharks or the barracudas, usually attack things smaller than themselves. But the piranhas habitually attack things much larger than themselves. They will snap a



finger off a hand incautiously trailed in the water; they mutilate swimmers, and in every river town in Paraguay there are men who have been thus mutilated; they will rend and devour alive any wounded man or beast; for

blood in the water excites them to madness. They will tear wounded wild fowl to pieces, and bite off the tails of big fish as they grow exhausted when fighting after being hooked."

Roosevelt went on to recount a tale of a pack of piranhas devouring an entire cow. According to Mental Floss, however, locals put on a show for him, extending a net across a river to catch piranhas before he arrived. After storing the fish without food, they tossed a dead cow into the river and released the fish, which naturally devoured the carcass. A fish that can eat a cow makes a great story. Given that Roosevelt was widely read, it's easy to see how the piranha's supervillain image spread.

Reprinted from The Raleigh Aquarium Society March 2019 Vol. 38, No.3, via The Brooklyn Aquarium Society's *Aquatica*, November-December 2019





2 Piranhas have lived in South America for millions of years. They inhabit the freshwaters of South America from the Orinoco River Basin in Venezuela up to the Paraná River in Argentina. Though estimates vary, around 30 species inhabit the lakes and rivers of South America today. Fossil evidence puts piranha ancestors in the continent's rivers 25 million years ago, but modern piranha genera may have only been around for 1.8 million years. A study suggests that modern species diverged from a common ancestor around 9 million years ago. Also, when the Atlantic Ocean rose around 5 million years ago, expanding into the flood plains of the Amazon, the high salt environment would have been inhospitable to most freshwater fish. It is likely that some, like piranhas, escaped upriver to higher altitudes. Hence, genetic analysis suggests that piranhas living above 100 meters in the Amazon region have been around for 3 million years.

3 Piranhas found outside South America are usually pets on the lam - Piranhas attract a certain type of pet lover, and sometimes when the fish gets too large for its aquarium,

said pet lover decides its much better off in the local lake. In this manner, piranhas have shown up in local waterways around the globe from Great Britain to China to Texas. It's legal to own a piranha in some areas, but obviously it's never a good idea to release them into the wild, as the species could become invasive.

4 Piranha teeth are pretty intense, but replaceable — Piranhas are known for their razor-sharp teeth and relentless bite. The word piranha literally translates to “tooth fish” in the Brazilian language Tupí. Adults have a single row of interlocking teeth lining the jaw. True piranhas have tricuspid teeth, with a more pronounced middle cuspid or crown, about 4 millimeters tall. The shape of a piranha's tooth is frequently compared to that of a blade, and is clearly adapted to suit their meat-eating diet. The actual tooth enamel structure is similar to that of sharks. It's not uncommon for piranhas to lose teeth throughout their lifetime. But, while sharks replace their teeth individually, piranhas replace their teeth in quarters multiple times throughout their lifespan, which reaches up to eight years in captivity. A piranha with half of its lower jaw chompers missing isn't unusual.

5 A strong bite runs in the family - Though they are hardly as menacing as fiction suggests, piranhas do bite with quite a bit of force. In **Scientific Reports**, researchers found that black (or redeye) piranhas (*Serrasalmus rhombeus*)—the largest of modern species—bite with a maximum force of 72 pounds (three times their body weight). Using a tooth fossil model, they found that piranhas’ 10-million-year-old extinct ancestor, *Megapiranha paranensis*, had a jaw-tip bite force (the force that jaw muscles can exert through the very tip of its jaw) of as high as 1,068 pounds. For reference, the *M. paranensis* when alive weighed only 10 kilograms (about 22 pounds), so that’s roughly 50 times the animal’s body weight. Science notes that *T. rex*’s estimated bite force is three times higher than that of this ancient piranha, but the king of reptiles also weighed a lot more. *M. paranensis* had two rows of teeth while modern piranhas have just one. It’s not clear exactly what this ancient fish ate, but whatever it was, it must have required some serious chomps.



6 Humans and capybaras are only part of the diet if these prey are dead or dying. The idea that a piranha could rip a human to shreds is probably more legend than fact. For the curious, **Popular Science** spoke to some experts who estimate that stripping the flesh from a 180 pound human in 5 minutes would

require approximately 300 to 500 piranhas. Cases of heart attack and epilepsy that ended with the afflicted drowning in a South American river do show evidence of piranha nibbles, but in those instances the victim was already deceased when piranhas got involved. While the myth of the man-eating piranha belongs to movies, the Internet has a wealth of mysterious footage of piranha packs taking down capybaras. Some piranhas do eat small mammals, but as with humans, it’s usually when the unfortunate animal is already dead or gravely injured.

7 Some piranhas are carnivores - A typical piranha diet consists of insects, fish, crustaceans, worms, carrion, seeds, and other plant material. A red-bellied piranha (*Pygocentrus nattereri*) eats about one-eighth of its average body mass daily. Crustaceans, bugs, and scavenged scraps make up the largest chunk of their meals, but the balance of this diet can shift depending on the fish’s age and the food sources available. Occasionally when resources are low and competition for food is high, piranhas have been known to take a chunk out of a fellow piranha, living or dead. Even weirder, wimple piranhas (*Catoprion mento*) feed on fish scales, which contain a protein mucus layer that’s surprisingly nutritious.

8 And some are vegetarians - Despite their flesh-eating reputation, many piranhas are omnivorous, eating more seeds than meat, and some even subsist on plants alone. For example, in the Amazonian rapids of the Trombetas basin in Pará, Brazil, scientists discovered that *Tometes camunani* lives solely off of riverweeds. Piranhas’ closest relative, the pacu or tambaqui fish (*Colossoma macropomum*), also lives on a mostly meatfree diet. Pacus closely resemble some piranha species in size and coloration, and thus are often sold at fish markets as “vegetarian piranhas” as well as other, less flattering nicknames.

9 **When hunting prey, piranhas go for the tail and eyes** - A 1972 study of redbellied piranhas found that the fish most frequently attacked goldfish in a lab setting beginning with their prey's tail and/or eyes. The researchers concluded that such an attack strategy would effectively immobilize piranhas' opponents and prove useful for survival.

10 **Piranhas bark** - From anecdotes and observational research, scientists have known for a while that redbellied piranhas make bark-like noises when caught by fishermen. Upon further examination, a team of Belgian scientists found that they make three distinctive types of vocalization in different situations. In a visual staring contest with another fish, they start making quick calls that sound similar to barks, meant as a warning along the lines of, "Don't mess with me, buddy." In the act of actually circling or fighting another fish, piranhas emit low grunts or thud sounds, which researchers believe communicates more of a direct threat to the other fish. The fish makes these two sounds using its swimbladder, a

gas-containing organ that keeps fish afloat. Piranhas contract and relax muscles around the swimbladder to make noises of different frequencies. The third vocalization? Should the opposing fish not back down, the piranha will gnash its teeth together and chase.

11 **Piranhas stay in packs for safety, not strength** - Part of piranhas' fierce reputation stems from the fact that they often swim in packs or shoals. Redbellied piranhas are particularly known as pack hunters. Though it might seem an advantageous hunting technique—more fish could theoretically take down a larger foe—the behavior actually stems from fear. Piranhas aren't apex predators; they themselves are prey to caimans, birds, river dolphins, and other large piscivorous fish. So traveling in shoals has the effect of protecting the inner fish from attack. Further, shoals tend to have a hierarchy of larger, older fish towards the center and younger fish on the outer edges, suggesting that safety might be the true motivation. In 2005, researchers looked at shoal formation in captive redbellied piranhas and found that the fish both breathed easier in larger shoals and responded



more calmly to simulated predator attacks. The researchers also observed wild piranhas forming larger shoals in shallow waters where they might be more vulnerable.

12 They'll only attack you if you mess with them or their eggs - Though piranhas have a reputation for attacking, there's not much evidence to support the legend. Like grizzly bears, wolves, sharks, and pretty much any large scary thing with teeth, piranhas will leave you alone if you leave them alone. Black piranhas and redbellied piranhas are considered the most dangerous and aggressive toward humans. Nonetheless, South American swimmers typically emerge from piranha-infested waters without loss of flesh. For swimmers, the danger comes when the water level is low, prey is scarce, or you disturb its spawn buried in the riverbed basically situations where the fish either feel really threatened or really hungry, and thus become more aggressive. For fishermen, untangling a piranha from a net or a hook is where things get dicey. In most cases, if they bite you, they usually bite you once and usually go for the toes or feet.

13 Piranhas are attracted to noise, slashing, and blood - A 2007 study linked noise, splashing, and spilling food, fish, or blood into the river with three instances of piranha attacks on humans in Suriname. Piranhas might be naturally attuned to pick up on the sound of fruits and nuts falling from trees and hitting the water and thus mistake splashing children for the noise associated with food. As for blood, it likely does not render a piranha senseless as the movies would suggest, but piranhas can smell a drop of blood in 200 liters of water. So, if you are a bleeding rambunctious child, a cool dip in the Amazon might not be the best idea.

14 They're great grilled or in soup - In some parts of the Amazon, eating piranha is considered taboo—a common cultural perception for predatory fish—while others are convinced it's an aphrodisiac. Piranha soup is popular in Brazil's Pantanal region, but many choose to serve the fish grilled on a banana leaf with tomatoes and limes for garnish. Put the myth of evil piranhas to bed, and instead enjoy a nice bowl of piranha soup.



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The Fish from Bung Borapet Swamp

Rasbora borapetensis - the Brilliant Rasbora

by ALEXANDER A. PRIEST

This article first appeared in the August, 2009 issue of *Modern Aquarium*, Series III, Volume XVI number 6, August, 2009.

Most of the fishes native to Southeast Asia are fascinating to me. While I keep mostly anabantoid species (and most, but certainly not all, anabantoids are native to Southeast Asia), I'm always looking for new species from this part of the world to care for, observe, and, hopefully, have spawn in one of my tanks. This article is about a small and relatively easy to keep cyprinid: the "brilliant rasbora," (*Rasbora borapetensis*) that I'd like to recommend to all aquarists, beginner and expert alike.

Before I describe this fish and its care, I want to alert you to one possible pitfall should you decide to research them (I like to research all new species I acquire). I had no problem finding information about this fish when I searched the Internet for: {"brilliant rasbora" "*Rasbora borapetensis*"}. Then I decided to write this article and the waters, as they say, got a bit muddy. While "brilliant rasbora" is one of the common names attributed to *Rasbora borapetensis*, I discovered that this same common name is also associated with another species, *Rasbora einthoveni*. In fact, *Rasbora borapetensis* has quite a few common names associated with it, including (but not necessarily limited to) brilliant rasbora, redbtail rasbora, blackline rasbora, Bora Bora rasbora, magnificent rasbora, and Borapet rasbora.

As some of these common names suggest, *Rasbora borapetensis* have a golden (upper) and silver (lower) colored body divided by a horizontal black stripe extending from the gill cover to the base of the caudal fin, and with red in their caudal (tail) fin. Adults reach a total body length of about two inches. The only external difference between males and females is that mature females will generally have a rounder body, due to the presence of eggs. The caudal fin is in a "scissor" (or "V") shape, the mouth is upturned, and, except for the caudal fin (which, as I mentioned has some red in it), the other fins (i.e., dorsal, anal, and pectoral) are mostly transparent.

The upturned mouth is an indication that *Rasbora borapetensis* feeds mostly at or near the surface of the water, and can generally be found in the upper third of an aquarium. These are very fast moving fish that prefer to swim in groups. When I first transferred them from quarantine to my 90 gallon community aquarium, I feared that they might suffer the same fate as the neon tetras, cardinal tetras, and *Otocinclus affinis* (a dwarf suckermouth catfish) that ultimately became

expensive "feeder fish" for the several large angelfish in that tank. But (fortunately!), that has not happened. At two inches in total length, adult *Rasbora borapetensis* are too large for my angelfish to eat, and the juveniles are simply too fast to be caught. They are an excellent choice to add to a community of



Rasbora borapetensis

photo by Susan Priest

peaceful fish. Because *Rasbora borapetensis* prefer soft (dH <12) neutral to acidic water (pH 6.5 to 7.0), with a preferred temperature range between 72° to 78°F, and a dimly lit and heavily planted tank, they are also excellent tankmates for most gouramis, and many other Southeast Asian species, most of which share these same environmental preferences.

Rasboras are cyprinids. Members of the Cyprinidae family include barbs, danios, minnows, red-tail sharks, and carps, among many others. Nearly all rasboras are native to Southeast Asia (but at least one species, *Rasbora gerlachi*, comes from Africa). There are about 70 species in the genus *Rasbora*¹.

The name *Rasbora borapetensis* literally means "fish from Bung Borapet Swamp." (*Rasbora* is an Indian word, also used in the Malay peninsula, for "fish." *Borapetensis* refers to the Bung (or Buang) Borapet (or Boraphet), the biggest freshwater swamp in central Thailand, to which this species is native.) *Rasbora borapetensis* is probably the most common species of *Rasbora* in Thailand².

In a tank with enough swimming room, *Rasbora borapetensis* is a very easy to keep fish for the aquarist. They will eat almost any food you give them (so far, I haven't found anything they will **not** eat!). They do not, however, readily spawn in the home aquarium. If you want them to spawn in your aquarium, they need to be the only species in the tank. You should have a group of at least a half-dozen (and I should not have to mention it, but I will anyway: you **do** need both sexes in that group!)

A bare-minimum spawning setup would be six (eight to a dozen being preferable) fish, with at least two females to every three males (a 50% balance being the ideal), in at least a 20 gallon tank (preferably, a "20 gallon Long" or larger), heavily planted with both floating and rooted plants (but with a center area being clear for swimming). The tank should be dimly lit (the best plants for this would be an *Anubias* species and/or Java Fern), and the water should be slightly acidic and as soft as possible. Live food should be provided for conditioning. Live or frozen worms and brineshrimp closely approximate their native diet (in the wild, *Rasbora borapetensis* feed on zooplankton, insects, worms, and crustaceans). The tank should be well-filtered (good water quality is especially important to induce spawning), but filtration that causes large water movement should be avoided (*Rasbora borapetensis* is native to swamps, ponds, streams, and drains, usually in slow flowing, sometimes muddy water).

Once the fish have been conditioned by feeding live foods, and one or more females appear to be full of eggs (they will become noticeably

"fatter"), spawning may be induced by adding small amounts of cool water every few hours (thereby simulating the "rainy season" in their native habitat). Several spawning episodes will usually result in from 5 to 12 eggs from each female being produced, with a typical spawn total, per female, of 30 to 50 eggs.

As is true for many cyprinid species, *Rasbora borapetensis* are egg scatterers. They provide no parental care and, in fact, will readily eat their own eggs. Large pebbles on the bottom of the tank will

allow the eggs to fall through and (hopefully) not be eaten. Supposedly plastic mesh will serve the same purpose but, in my experience, if the mesh has openings wide enough to allow most of the eggs to fall through, hungry adults can and will use those openings for a "snack" and could potentially

be trapped under the mesh, so large pebbles are my choice, even though some eggs will be exposed to ever-hungry adults. (Since adults will eat any eggs they can find, adults should be removed once you have evidence that a spawning has occurred in a tank.)

Anyone who has read any of my prior articles on care and breeding of fish knows that I am a strong advocate of

having a sponge filter in every tank, regardless of what other filtration you may use, and this is no exception. Any filtration in the now fry/egg "grow-out" tank (as you should have removed all adults) should be discontinued, except for a mature sponge filter. Depending on the water temperature, the eggs will hatch between 18 and 48 hours (the warmer the water, the sooner the eggs will hatch, but high temperatures are best avoided), with the fry free-swimming between 24 to 48 hours afterwards.



Scientific Name: *Rasbora borapetensis*
Common Names: Brilliant Rasbora, Redtail Rasbora, Blackline Rasbora, Bora Bora Rasbora, Magnificent Rasbora, Borapet Rasbora
Adult Size: about 2 inches (TL)
Water temperature: 72° - 78°F (22° - 26°C)
Hardness: <12dH
Acidity: 6.5-7.0 pH
Nutrition: Omnivore; small live, frozen and dry foods
Native Habitat: SE Asia: Mekong, Chao Phraya Mekong basins; northern Malay Peninsula
Sexual dimorphism: Adult females rounder body
Temperament: Peaceful, very active, schooling

The first fry food should be extremely small, such as green water, paramecium, newly hatched brineshrimp, or microworms. (Commercial fry food for egglayers will also work, but this type of food can more readily foul the water if left uneaten.) Even if you don't have green water or paramecium handy, if your sponge filter is sufficiently mature (meaning that it has been running in a tank containing fish for a while), then the fry can graze on the naturally-occurring microorganisms on the sponge. Frequent water changes are essential for the fry tank. Initially, when the fry are very small, a length of airline tubing with an airstone on the end works well as a "mini-syphon." This will allow you to make water changes without endangering the fry, as water will pass through the airstone without syphoning out even the smallest newborn fish. This, however, will not remove solid waste, so a water change that suctions up accumulated detritus should be performed as soon as it is safe to do so.

All in all, this is a very attractive and small fish that will add color (and considerable action) to any peaceful community tank whose basic water parameters match its requirements. It is also excellent by itself in a species tank. But, to show them at their best, any tank you put them in should be long enough (and while well planted, have an open area wide enough), to allow these fish to school.



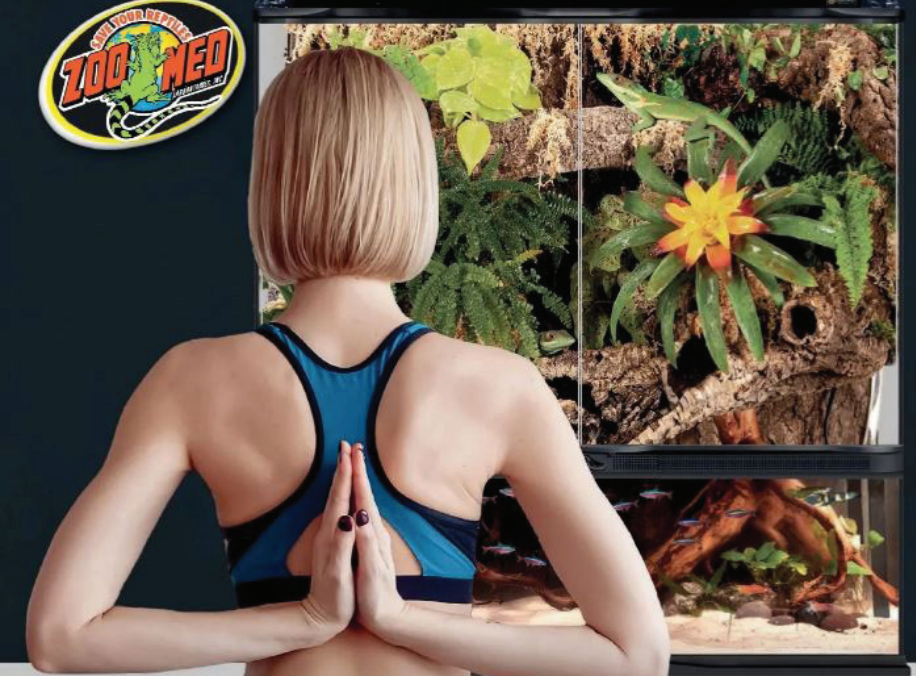
References

¹<http://en.wikipedia.org/wiki/Rasbora> (as of 7/19/2009, 04:35 EDT)

²Brittan, Martin R., *Rasboras, Keeping & Breeding Them In Captivity*, T.F.H. Publications, Inc., 1998



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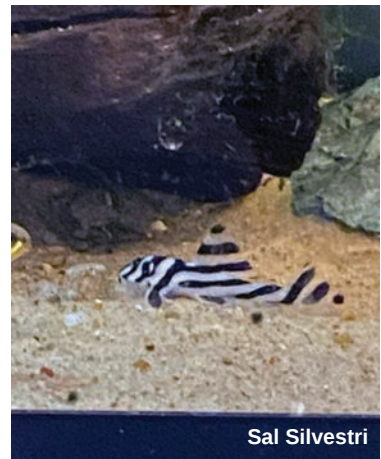
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Fishy Friends' Photos

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!



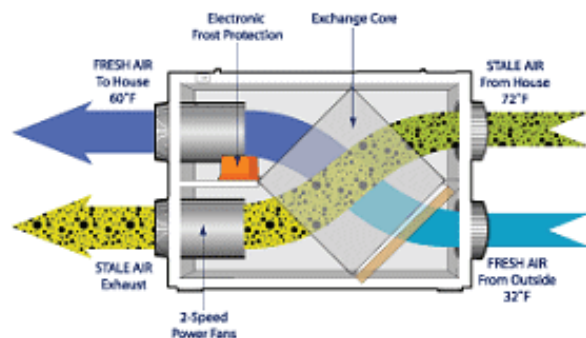
Dehumidifier or Air Exchanger?

The Battle Against Mold and Odor

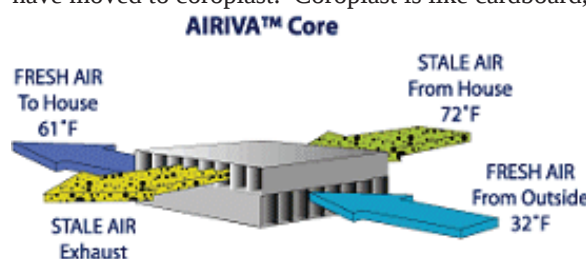
by Dan McKercher

While back I wrote about my battles with stench and dampness in my fishroom and how it led me to look into a heat recovery system “air exchanger.” Reviews were mixed on the fishy chats because of the cost of energy to make up for the heat loss. My thought was that if you only exchange a little air, the cost would come down to a manageable level. So off I went to look into making such a purchase. I quickly got sticker shock! The thought of spending well north of \$1,000 to recover heat from stale air seemed to be rather crazy! Time to put on my DIY hat!

I poked around on the internet to find out what magic was under the hood of an air exchanger. I found that it is not much more than a radiator of sorts. The science is rather simple. Move heat from one thing to another. A radiator transfers heat from a liquid to air, effectively cooling the liquid. In the case of an air exchanger all that is needed is to pass warm stale air across cool air, effectively recovering the heat while getting rid of the stale air. The magic is making sure that the fresh air and the stale air don't mix just like a radiator.



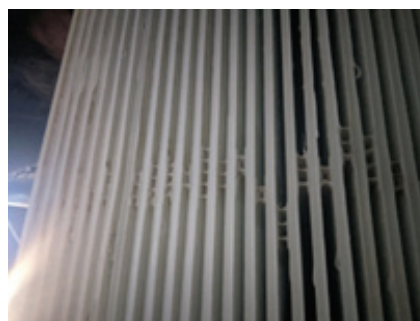
So how does one fabricate an air exchanger core? After all, it is the most important part of the air exchanger. The picture above demystifies the magic. You need to use something that easily transfers heat. Many think right away—Aluminum! Well, that certainly will do the trick. Only problem is if you can get corrugated aluminum it will cost a bushel full of \$\$\$ if you can get it at all. Aluminum cores are so expensive that some air exchanger manufacturers have moved to coroplast. Coroplast is like cardboard,



except it is made of plastic. You know all those “vote for me” signs on the streets during election times? Yup, the same stuff. It is real good at allowing heat transfer. That is what I used to make my heat exchanger. It comes in many sizes. I used 20" x 20" x 4mm. I used 45 sheets. I bought 20x20 because it was a deal. I would imagine even a 12x12 core would do the job just fine, BUT the more area that you have to allow the transfer of heat the better. I used about 50 to build my exchanger core.

Building the core.

I used medium CA glue to glue the coroplast together. It can be purchased at any quality hobby shop that sells balsa airplane kits. You should use with caution, as you can glue your fingers together with this stuff. Personal experience! So using a razor blade, I cut a few sheets into $\frac{1}{2}$ to $\frac{3}{4}$ inch strips along the fluted length. I used them to separate the sheets, one on either end and one in the middle. I didn't correctly center the middle one. It did make the core a little less effective. You will see later. Notice in the picture how the flutes of the separators are going. This is the magic part, as the stale air can't mix with the fresh air. Some have used a torch to burn off the residual oil that is left behind from the manufacture of the coroplast. I used rubbing alcohol. Seemed to work just fine. Be sure to have the sheets square when gluing them together.



Building the box

The first box that I built was made out of 1-inch aluminum coated foam board. It worked well and was very easy to work with. The downside was I couldn't access the core because I failed to think about how to clean the core. OOPS! So I built box 2.0. I used $\frac{1}{4}$ inch pressure treated plywood along with 1x3 furring strips. I could have used $\frac{1}{2}$ inch plywood, but I wanted to be able to pick it up. I measured the core and built the box to accommodate the core. I measured the core from corner to corner on both sides and added $\frac{1}{4}$ - $\frac{3}{8}$ inch to it so there was some space for error. I then measured the thickness of the core and allowed about $\frac{3}{8}$ inch for error, and foam sealant for the door.

Before assembling the cabinet I cut out 4 6-inch holes for the air to flow through the cabinet.



I then drilled 2 holes in the bottom of the cabinet big enough for a half-inch female connector. I then cut 2 pieces of 2x3 and drilled holes in

them large enough to fit the half-inch pvc female connectors. After inserting the connectors I screwed them to the bottom of the cabinet so condensate could be properly drained from the cabinet. After screwing the cabinet together I painted it with an oil based gloss paint. I gave 4

coats of paint to be sure the wood would be protected from water.

I then used AB epoxy and completely

covered the bottom of the cabinet and sealed in the half-inch female connectors covering the holes with painters' tape so the inside of the pvc connectors won't get destroyed by the epoxy.

I used a miter saw to cut the holes. I inserted 4 6-inch Starting Collar Take Off so I could connect the 6-inch flex pipe to move the air where I wanted it.



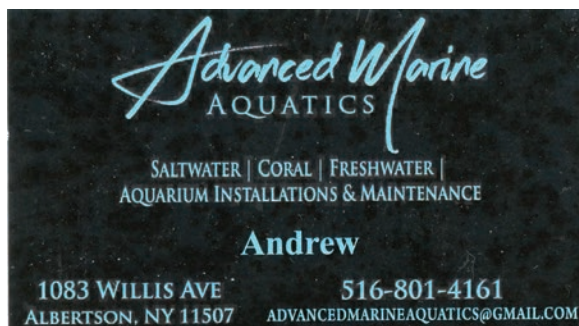

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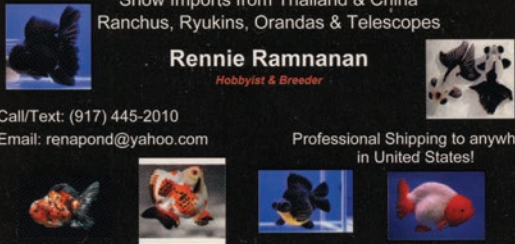
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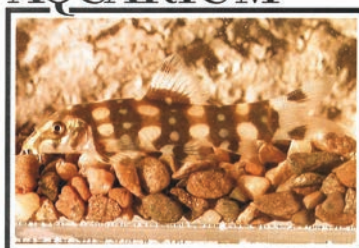
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THE LARGEST PLANT

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.

The biggest plant anywhere on Earth belongs to a species called *Posidonia australis*. It is commonly known as fibre-ball weed or ribbon weed and can be spotted along the southern coastlines of Australia.

According to scientists, this plant has sprung from a single seed, which was a merger of two different seagrass species about 4,500 years ago.

The Earth's biggest plant covers about 200 sq km, which is more than three times the size of Manhattan Island.

The existing 200 sq km of ribbon



Aquarium hobbyists often read or hear claims that a certain species is the smallest, or the largest, or the oldest, species of plant or animal.

With new species being discovered all the time (and regrettably, more and more existing species becoming extinct), the record-holders for the title of “smallest,” “largest,” etc., keep changing. But, there is one record not likely to be broken any time soon, and that is the “largest aquatic plant.”

weed meadows appear to have expanded from a single, colonizing seedling. The same plant appears to have spread in a large area using rhizomes, just like a lawn spreads (or an *Anubias* plant in your tank).

The plant has now become the habitat for many marine species, including dolphins, turtles, crabs, and fish. As per the authors of the research, the plant must have taken 4,500 years to expand this far.



References:

<https://www.dnaindia.com/science/report-scientists-spot-the-world-s-biggest-plant-which-is-more-than-thrice-the-size-of-manhattan-island-2957364>

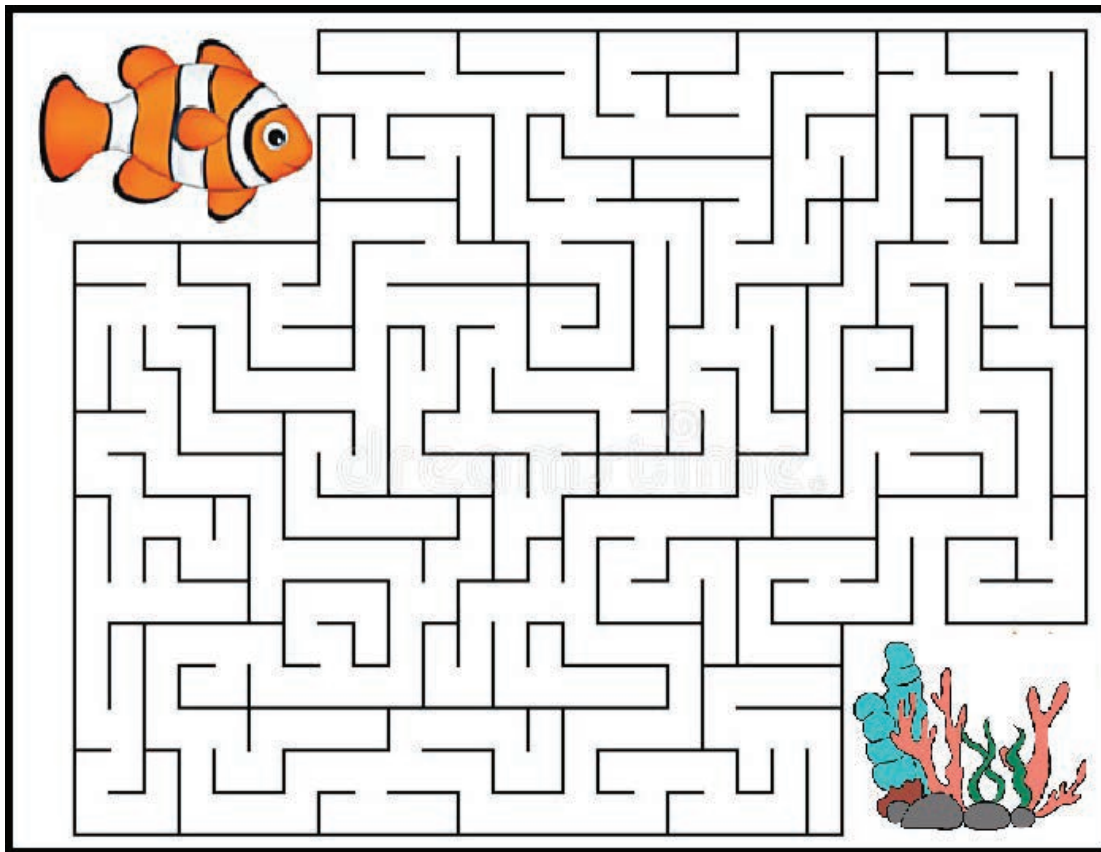


Fin Fun



CLOWNING AROUND

Clownfish live in coral reefs, mainly around certain kinds of anemones. See if you can guide the clownfish below to its home among the anemones and coral.



Solution to our last puzzle: TANGANYIKA TANGO

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RIVER
TANGANYIKA
TANZANIA
ZAMBIA

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