

modern AQUARIUM



June 2024
volume XXXI
number 4

Greater City Aquarium Society - New York

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Series III Vol. XXXI, No. 4 June, 2024

ON THE COVER

Over the past few years there seems to have been an explosion of interest in keeping shrimp in our tanks. I myself have been keeping some for several years now. Our cover photo this month is from GCAS Fishy Friends member Angela Lee.

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From the Editor

by Dan Radebaugh

In the lead-up to our 100th anniversary a couple of years ago, we re-printed quite a few articles from earlier years, a practice which I have since continued in these pages. There have been a lot of really good articles in **Modern Aquarium** over the years, and I think it's worth the trouble to find and re-present some of them to the new generation of Greater City members. Some of those contributors to the earliest issues of **Modern Aquarium** are still contributing today, though some are, regrettably, not. Tempus does fugit, as they say. This writer is beginning to feel a bit creaky himself.

This month I want to particularly celebrate the tremendous contributions of Al & Sue Priest to the success of this magazine, going back to its earliest days! Both have written numerous high-quality articles on fish and fishkeeping, and both were instrumental in developing and keeping the "look and feel" of **Modern Aquarium** at a very high standard indeed.

There are a few traditions that I have not disturbed. For instance, The Undergravel Reporter has remained anonymous (Tom Warns has taken over that column from Al, but please don't tell anyone!), and Sue's Wet Leaves book review column has lately (until this issue) been quiescent. If any of you would like to submit an entry for this column in the future, let me know! The Fin Fun puzzle page is also now without a parent. If anyone would like to take that on, talk to me! It doesn't even necessarily have to be just one person. If you have something you'd like to submit, send it to me!

Remember, as always, we need articles! **Modern Aquarium** is produced by and for the members of the Greater City Aquarium Society. Our members are our authors, and with ten issues per year, we always, *always* need more articles. I know that several of you are keeping and/or breeding fish that I would like to know more about, and I'm certain other

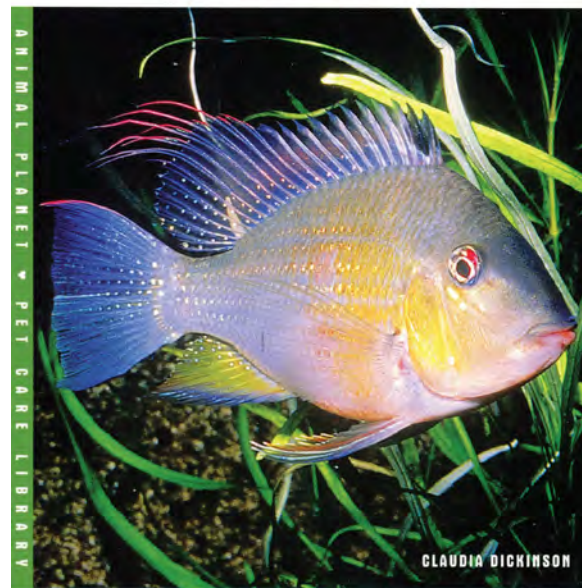


members would be interested as well. Share your experiences with us. Write about it! If you're a little unsure about the state of your writing technique, don't worry—that's why editors were invented!

If you have an article, photo, or drawing that you'd like to submit for inclusion in **Modern Aquarium**, it's easy to do! You may fax it to me at (877) 299-0522, email it to gcas@earthlink.net, or just hand it to me at a meeting. However you get it to me, I'll be delighted to receive it! 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

2024

March 6	Emperor Tetras
April 3	Inside Filters
May 1	Live Food Culture
June 5	Swordtails
July 3	Aquatic Plants
August 7	Night At The Auction
September 4	TBA
October 2	TBA
November 6	TBA
December 4	Holiday Awards 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 (347) 379-4984. Copyright 2023 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 in the mail or by email. For more information, contact: Dan Radebaugh at (718) 458-8437, email to gcas@earthlink.net, or fax to (347) 379-4984. For more information about our club or to see previous issues of *Modern Aquarium*, you can also go to our Internet Home Page at <http://www.greatercity.net>, <http://www.greatercity.org>, or <http://www.greatercity.com>.

President's Message

by Horst Gerber

It was a night to stay home, but Nooooooooo! We had to have a meeting that night. Gusty winds and rain! Powerful storm! Endless, unrelenting winds and rain. Flooded streets, large puddles! What did we do to deserve that kind of weather? Only one time have I experienced this kind of raging April shower. And two meetings in a row with rain! Hope the May flowers justify it!

I believe our new meeting procedure is working out well, particularly the time usage part. We got everything done in an expeditious way, and had plenty of time left at the end! We've also gotten five new members so far this year, so we must be doing something right! There were some great bargains at the auction! Everyone seemed to get something that they needed! At our raffle the most expensive item was \$100, won by a new member. Beginner's luck?

If you didn't read last month's Prez message you don't know about my picture mind-set (below). Take a look at it. Maybe it'll be an inspiration to create something or copy something funny and send to Dan. Writing this, I see that even a rainy day can do something for you!



Horst





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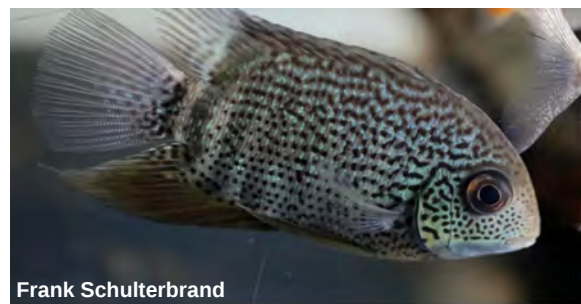
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Fishy Friends' Photos

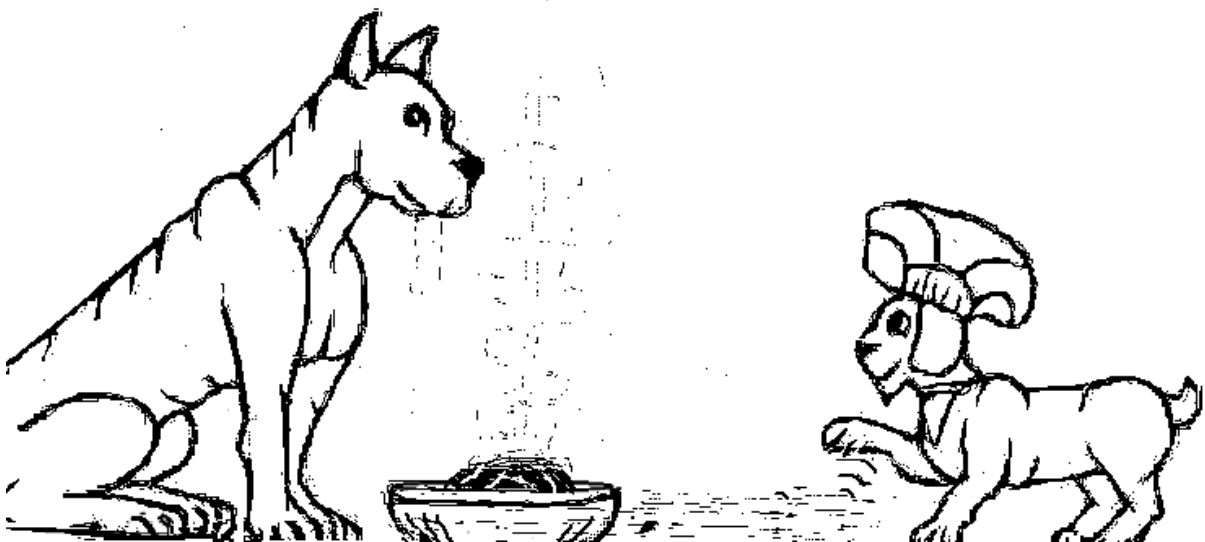
by Greater City Aquarium Society Fishy Friends

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!





May's Caption Winner: Donna Ansari



Bone Appetite!

The Modern Aquarium Cartoon Caption Contest

by Denver Lettman

*In this contest, 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:



<https://www.amazonasmagazine.com/>

Help for Endangered Sawfish?

from NOAA via AP



This image provided by NOAA shows a smalltooth sawfish. Endangered smalltooth sawfish, marine creatures virtually unchanged for millions of years, are exhibiting erratic spinning behavior and dying in unusual numbers in Florida waters. Federal and state wildlife agencies are beginning an effort to rescue and rehabilitate sawfish to find out why. The National Oceanic and Atmospheric Administration announced what it calls an “emergency response” focused on the Florida Keys starting next week. A NOAA news release called the effort unprecedented.

“If the opportunity presents itself, this would be the first attempt ever to rescue and rehabilitate smalltooth sawfish from the wild,” said Adam Brame, NOAA Fisheries’ sawfish recovery coordinator.

Sawfish, related to rays, skates and sharks, are named for their elongated, flat snout that contains a row of teeth on each side. They can live for decades and grow quite large, some as long as 16 feet (about 5 meters). They were once found all along the Gulf of Mexico and southern

Atlantic coasts in the U.S., but now are mainly in southwestern Florida and the Keys island chain as their habitats shrink. A related species is found off Australia.

Since late January, state wildlife officials have been documenting what they call an “unusual mortality event” that has affected about 109 sawfish and killed at least 28 of them. There have been reports of abnormal behavior, such as the fish seen spinning or whirling in the water. Other species of fish also appear to have been affected.

“We suspect that total mortalities are greater, since sawfish are negatively buoyant and thus unlikely to float after death,” Brame said.

Officials haven’t isolated a cause. The Florida Fish and Wildlife Conservation Commission reported Wednesday that sawfish necropsies have not revealed any pathogen or bacterial infections, nor problems with low water oxygen levels or contaminants such as chemicals, or toxic red tide. Water testing is continuing.



It is also not clear if the deaths and odd behaviors are related to a lengthy summer heat wave in Florida waters that experts say was driven by climate change. The superheated waters caused other marine damage, such a coral bleaching and deaths of other ocean species.

The wildlife agencies are working with three organizations that will rehabilitate sawfish that are rescued. One of them, Mote Marine Laboratory and Aquarium, said in a news release that even relatively small numbers of sawfish deaths could have a major impact on the population, listed as endangered since 2003.

“We have quarantine facilities ready to accommodate rescued sawfish where they would be under observation by qualified personnel under specific care and release guidelines,” said Kathryn Flowers, Mote Postdoctoral Research Fellow and lead scientist on the sawfish issue. “Attempts to solve this mystery call for robust collaboration.”

Brame said the effort depends on tips and sightings from the public of dead or distressed sawfish so rescuers know where to look for them. NOAA has a tipline at 844-4-Sawfish and FWC has an email, sawfish@fwc.com.

In recent years, threatened manatees also suffered a major die-off in Florida waters as pollution killed much of their seagrass food source. State and federal officials fed tons of lettuce to manatees that gathered in winter outside a power plant for two years, and the manatee numbers have rebounded some with 555 deaths recorded in 2023 compared with a record 1,100 in 2021.



© Provided by The Associated Press



Product Review: Rocks & Stones

Review and Photos by Stephen Sica



RS 5: Smaller and larger stones intermingle in a natural setting in foreground between the two petrified rocks. The larger stones are the ones sold by Walmart. I think they provide a subtle look at the randomness of the natural world.

My original title for a product review about rocks was “Aw, rocks!” World War II aficionados might recall that I am imitating Brigadier General Anthony McAuliffe when he was asked to surrender by the German military. The actual response was just “Nuts!” I thought that I would take a few liberties in my opening remarks because what can one say about rocks and stones? It’s like someone who likes aquatic plants authoring articles and reviews about duckweed. You know what they say, “Duckweed is duckweed.” No?

Last year I decided to aquascape a ten and a fifteen gallon aquarium without gravel. This would simplify matters and make it easy to siphon the bottom. A few months later, after a few plants began to die, Donna, my lovely wife with a scrupulous eye, began questioning my fishkeeping skills (again). She said something like, “those fish tanks don’t look good anymore.” Without informing her of my plans, I decided that gravel was still too messy, so I decided to think about alternative ideas. It seemed to me that a compromise might be to use small stones for the substrate. Obviously, it would be easier to cover the bottom of a tank using a larger size substrate. Also, it would require less substrate. Stones would be the

solution. The stones were bigger; they would require less work, which equals less fuss.

I researched the internet, but I found it difficult to get an accurate picture of the stone size without seeing it in person. When in the Riverhead, NY Petco I was able to find five pound bags of medium sized stones in shades of off-white, beige, and light brown—all realistic colors that I like. Every time that I was in a Petco, I would purchase a bag to bring home to Queens until I got smarter and bought two bags. I was planning to decorate four 5.5 gallon aquariums with one betta in each tank. I also like nano aquariums, and have a 4.7 gallon and another four gallon tank. After filling up these aquariums with Petco’s stones, I decided to do my “big” fifteen gallon tank. It had no fish for a few months while I was thinking about something exotic to put in it. I used to have a twenty gallon long tank with green swordtails in place of the fifteen. I always like to downsize to make cleaning easier. I was thinking about another livebearer aquarium. Guppies, anyone? Back to rocks and stones.

We all know that plants will not thrive in stones. They may not even survive! Many aquarists, including me, use rhizome plants exclusively, such as java ferns, moss and anubias so that soil and finer gravel are not required.

Once all my fish tanks were covered with a layer of stones, I decided that a few other decorations might be nice. Decorations mean more work when cleaning. I am quite fond of those lovely, planted tanks with an exquisite layer of white sand covering the bottom. How do you clean the bottom with no mess?



The bottom of Walmart's small sack of stones contains information as to weight, origin, and vendor.

One day Donna and I were in Walmart looking for inexpensive cat food for both our outdoor stray cats and our indoor house cat. The house cat also gets the good stuff, but when he lived outdoors he developed a taste for inexpensive dry food. Donna keeps it on a kitchen chair. He is always pawing it,



The larger stones sold by Walmart are good for small and/or subtle decorations in an outdoor aquarium of any size.

and has Donna trained to automatically open the bag and put a small handful in his dish. She must come under a hypnotic trance. I'm beginning to believe that cats are always hungry. Lounging around the house must make them hungry; just look at people! As usual, I digress. But whenever I am in or near a pet department, I like to look at the fish stuff too. This is when I happily discovered stones about twice the size of my stone gravel. The stone gravel that I had already placed into my small tanks was only one stone level deep in keeping with my no fuss philosophy, so there was plenty of room for more.

Walmart was selling a 2.37 pound plastic sack of "Large Bag River Rocks (100% Natural River Rocks)" for \$4.99. The name label was on the bottom of the sack with additional information: "made in China, imported by ..." for Walmart. I purchased a sack in the store. I bought a second sack when in the store a few weeks later, and even a third sack online to complete an order to spend enough for free shipping. You might say that I bought out the Westbury store, since they were the only two in stock. These larger stones would be a terrific addition and give the tanks' bottoms character, or in my own words, add a bit of supplementary simple to basic simple. A simple concept, yes? Well, it works for me.

Next, I went to the garage and found larger rocks that I had saved in a five gallon bucket. I threw in some here and there, albeit very gently, and soon decided that I was finished.



Petco's stones are branded Imagitarium and Chewy.com are called Spectrastone. Both brands seem identical to me.

Herein I have laid out a basic primer on how to write a rock and stone review, as well as how to decorate your fish tank with same. Follow these basic suggestions and you too will soon find that you have rocks in your aquarium. I have stones and you can too. Now get to it!



The Cardinal Tetra Story

by Alan Mark Fletcher

with a postscript by Rosario LaCorte

Introduction

The cardinal tetra, *Paracheirodon axelrodi*, is undoubtedly one of, if not the most, spectacular freshwater fish ever introduced into the aquarium hobby. The story behind its discovery and naming has been shrouded in mystery and controversy ever since its introduction in the mid 1950s. Here, for the first time, is the story as told to us by two men of unquestionable credentials. Alan Fletcher, at the time, was working with the legendary William T. Innes, author of the classic **Exotic Aquarium Fishes**, and editor and publisher of the best-selling **The Aquarium** magazine. Alan was also working as an editor on that magazine. Alan knew just about everyone who was anyone in the hobby at the time. He was a trained scientist, had gone on expeditions to South America, and was an accomplished author.

Rosario LaCorte was (and still is) one of the hobby's most accomplished breeders of aquarium fish. He rightfully enjoyed a nationwide reputation, and was friends or acquainted with virtually every prominent hobbyist of the day, including Herbert R. Axelrod, with whom he went on several collecting trips to South America. Like Alan, Rosario has also been a prolific writer of articles and books on aquarium fish. These two accomplished gentlemen have combined to present this story. Enjoy.

Joseph Ferdenzi



People have urged me to tell the story of Dr. Herbert R. Axelrod's (HRA) and Harald (the correct spelling!) Schultz's visit to our humble Cape Cod cottage in the Philadelphia suburbs in the mid-1950s.

Harald Schultz was a distinguished Brazilian



Photo of "*Paracheirodon cardinalis*" courtesy of Wikipedia



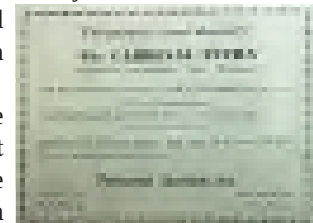
Alan Mark Fletcher*

ethnologist. Fortunately for our hobby, he was also an avid tropical fish enthusiast. In the course of his studies of native Brazilian tribal groups, he often found himself in very remote parts of Brazil. We have benefitted greatly, because he netted fishes when he was in those places. He also had a good knowledge of the Brazilian fish-collecting scene in general. HRA had visited Schultz in Brazil (along with Rosario!), so they must have been friends.

Schultz visited the U.S. as a guest of HRA, and said that, among others, he would like to meet me. I believe he also spent time with Rosario on that visit. So Herb arranged to drive Schultz down to our humble dwelling in Amber, PA on a Saturday. He arrived in a powder blue Cadillac, the largest model short of a limousine, and parked it on our front lawn. He came dressed in a suit and tie, and in his coat breast pocket he had five Corona Corona cigars, each carefully aligned so that you could read the label. For those of you who may not know it, Corona Coronas were Havana cigars that sold for a dollar each—a lot of money for one smoke in those times. It was obvious that he was trying to impress me with his prosperity, but I always suspected that the Cadillac might have been rented, because it was early in his career, and he could not have accumulated much wealth by that time.

Now for the cardinal tetra. I am sorry, but either I never knew, or I have forgotten, how the first cardinals got from the Rio Negro collecting site to Paramount Aquarium's plant in Ardsley, Westchester County, New York. Heiko Bleher gives one account in his cardinal article in **Nutrafin Aquatic News**, and Rosario says he got another story from Harald Schultz. If I had to choose, I would place more confidence in Rosario's version.

I would not be surprised if that first shipment did come via Louis Chung, in Georgetown, Guyana, as Bleher claims. Chung was Paramount's agent in Guyana. I don't believe there was air service between Manaus and Georgetown



This article originally appeared in the December, 2010 issue of *Modern Aquarium*.

at that time. Most likely, what happened was that Paramount's own plane picked them up in Manaus and carried them to Chung's establishment for a change of water, repacking, and a rest, before carrying them to Miami. That was a common practice when Paramount brought plane-loads of fish from the Amazon.

We received a phone call from Fred Cochu (president and co-owner of Paramount) saying that they had a new, more brightly colored neon tetra, and that he was going to send us some. He wanted us to find out if it was a new species or just a variant of the neon. Fred sent a carton of cardinals down to our house in Ambler, carried in Paramount's delivery truck. Some of them went to Innes for his color plate, and I preserved some of them and sent them to Dr. George Myers, at Stanford University. (I believe I preserved them in formalin, because I knew that alcohol dissolves out red and yellow pigments.)

Months went by, and we heard nothing back from Myers. He probably just put them on his shelf for when he got around to it, as is commonly done. One day Fred called again, saying that he had heard that HRA had gotten some of the cardinals, and that he was doing something with them through Dr. Leonard Schultz, at the Smithsonian. Could we please ask Myers to get going on his specimens? I called Myers, and he agreed to work on them immediately. I think it is likely that he actually passed them along to his graduate student, Stanley Weitzman. Stan could enlighten us on that. I have never asked him, but I understand that he has put the cardinal tetra affair behind him, and he does not talk about it. We all know that they found it to be a new species, and they named it *Hyphessobrycon cardinalis*. A paper describing the new species was written and scheduled for publication in **The Stanford Ichthyological Bulletin**.

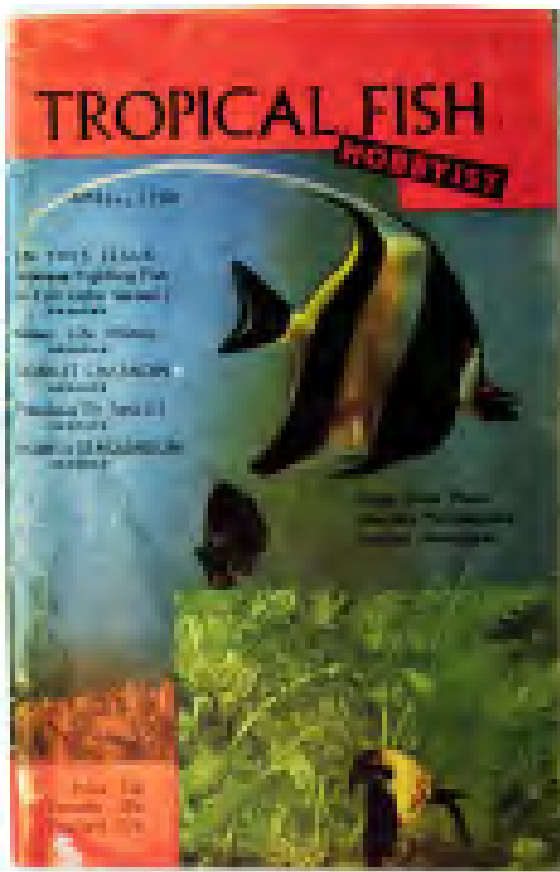
Dr. Schultz also found it to be a new species, and he named it *Cheirodon axelrodi*. His paper appeared in **Tropical Fish Hobbyist (TFH)** magazine. As it worked out, the **TFH** article came out (supposedly) a day or two before the Stanford journal. Joe Ferdenzi has pointed out that it was the only issue of **TFH** that ever had a month-day-year on it. Everyone suspected that Herb had rushed a hand-folded copy of **TFH** to the Post Office to validate a date. In any event, the contested names went to the International Commission on Zoological Nomenclature for adjudication. The first decision that had to be made was whether **TFH** (at that time) was a legitimate publication, acceptable for a description of a new species. They ruled that it was. The commission then ruled in favor of Schultz's paper, solely on the basis of the publication dates. Members of the commission later told either Innes or Myers that the commission was well aware that something shady had gone on, but they had no direct evidence of it. They had to rule on what was presented to them. If only Dr. Myers had gone to work on those specimens the day he had received them!

I had thought that we might never know how those first cardinals got from Paramount to Sol Kessler's fish shop in New Jersey, to Axelrod, but Rosario LaCorte's remarkable article which accompanies this piece sheds light on this part of the story. Herb admitted in some of his earlier writings that they had come from Kessler. In his later writings he told a grandiose story about how he had discovered them on a trip to the upper Rio Negro.

I have written elsewhere that Fred Cochu had gone to his grave resenting that "his" fish was named for someone who had nothing to do with its discovery or introduction. Considering that Fred had gone to so much trouble to bring in the fish, and that it turned out to be one of the most popular aquarium fish of all time, I think Fred's bitterness about it is understandable. Some have suggested that Fred's attitude was just ego, but it could not have been, since several aquarium fishes carry the scientific name *cochui*.

So that's it. And, oh yes, in an exquisite twist of fate, Myers's graduate student, Dr. Stanley Weitzman, succeeded Dr. Leonard Schultz as Curator of Fishes at the Smithsonian!

Alan Mark Fletcher



Cover of the April, 1956 issue of *Tropical Fish Hobbyist*

TROPICAL FISH	
CONTENTS	
Vol. 10	February 20, 1956
Price (U.S.)	1.00
Subscription (12 issues)	12.00
Single copy	1.00
Advertising rates	1.00
Back issues	1.00
Lost or damaged	1.00

Contents page of April, 1956 *TFH* (cover on facing page) showing "Scarlet Characin" article. Note "February 20, 1956" date.

Postscript

Sol Kessler, whom I knew very well, was the owner of the Irvington Fish Bowl. He had a very nice store—it was neat, and he always had some interesting fish, which was not common in other stores. Sol told me that he had a deal with a number of wholesalers, that whenever they got unusual fish, or "oddballs" collected as "by-catch," they would place them in a holding tank and save them for Sol. He would pay them some extra money for the consideration. Paramount contacted Sol when they received the first shipment for resale. Sol was a good businessman, and when he bought anything he would purchase a sufficient quantity to make a good first impression. Vic Hritz, of Crystal Aquarium, was another store owner who had a good business sense in knowing the importance of displaying numbers. In other words, a tank of several hundred cardinals or neons, rather than say twenty of the same fish, would impact the first-time viewer with, "Wow! Look at that!"



Rosario LaCorte**



From page 43 of the same issue of *TFH*, a footnote thanking Sol Kessler.

Upon purchasing the cardinals, Sol contacted Bill Vorderwinkler so that he could pick up some for the *TFH* office, which at the time was located in Jersey City. Bill lived in Elizabeth, NJ at the time (as did I), so he was not very far from the Fish Bowl, and it was quite easy for him to pick up the specimens for Herb. I was closely associated with Herb at that time, and I used to bring fish to his office at least twice a month for him to photograph (I was not yet into photography). Many of my fish appeared in his publications, though not once with the notation, "courtesy of R. LaCorte." Shortly after the naming of the cardinal, I asked Herb why he had not had a species of fish named after him by Leonard Schultz, since they were so closely associated. His exact words to me were, "Schultz offered to name a fish earlier, but I will select the fish that I want when I see it." Upon receiving the cardinal, he purchased an airline ticket to Washington, DC, and with fish in hand, flew to DC, and showing Schultz the specimens from Sol Kessler, said, "This is the fish I want named after me." That's how the cardinal got its name.

Rosario LaCorte



*Photo by Claudia Dickinson

**Photo by Jules Birnbaum

Florida
AQUATIC NURSERY



A One-Species Community

Trichogaster trichopterus

Article and photos by ALEXANDER A PRIEST

This article is about one species of fish that could create a "community tank" all by itself. This species is *Trichogaster trichopterus*, commonly known as either the gold gourami, the blue gourami, the Cosby gourami, the opaline gourami, the lavender gourami, or the three-spot gourami, depending on the color morph.

Trichogaster trichopterus are native to the marshes, swamps, canals, and lowland wetlands of Southeast Asia where they inhabit shallow, sluggish, or standing water with a lot of aquatic vegetation. During the rainy season, they migrate from permanent water bodies into flooded areas. During the dry season, they migrate back to permanent water bodies.

In their natural habitat, they feed on zooplankton, crustaceans, and insect larvae. (There is a classic photo of a Blue Gourami spitting at a fly, trying to knock it into the water.)¹

In the aquarium, they will eat almost anything, but painful experience has taught me not to feed blood, tubifex, grindal, white, or most any other type of worm to gouramis. I have had best results with plant (algae) based food and live adult brine shrimp.

Trichogaster trichopterus have a laterally compressed (flat), oval-shaped body and long thread-like pelvic fins (*Trichopterus* means hair fin). They use this "hair fin" to feel their surroundings, as well as other fish.

Depending the color morph, they may have two large dark spots—one in the center of the flank and the other at the caudal peduncle (base of the tail fin). The third spot in the three-spot variety is the eye, although some references, primarily

British, discount the eye and refer to the two-spot Gourami.¹

It appears the original (i.e., first described) color morph of *Trichogaster trichopterus* was the blue gourami, which is the same as the three-spot gourami. The opaline gourami is a color variant of the three-spot (blue) gourami, with darker blue pattern markings

instead of distinct body spots. The Cosby gourami, named after the American fish breeder who first

produced it, has a similar marbled dark blue pattern on a light blue body. The gold gourami lacks spots, and has a gold coloration.

Since these are all the same species, a gold gourami can breed with a blue gourami (or with an opaline gourami, a lavender gourami, etc.), and since there are likely no pure color morph strains, it's anyone's guess as to what will result.

(The drawing of the

fish on the Singapore postage stamp in this article shows both body spots and marbled patterning.) Thus, you can have a whole community of differently colored and patterned fish, all of which are the same species (so you don't need to worry about cross-breeding, because in this case that's acceptable!).



Scientific Name: *Trichogaster trichopterus*
 Common Names: Blue gourami, Cosby gourami, Gold gourami, Opaline gourami, Lavender gourami, Three-spot Gourami, among others
 Special consideration: anabantoid (air breather)
 Standard Length: 5"
 pH: Will tolerate from 6.0 to 8.8
 (optimum is 6.8 - slightly acidic),
 Water hardness: 5 to 35 dGH (very soft to soft)
 Temperature: 73° to 82° F
 Reproduction: Bubble-nester
 Temperament: Peaceful, but males will actively defend their bubble nests
 Environment: low-light tank with floating plants
 Nutrition: omnivore
 (plant-based food recommended)



A male gold gourami (note the long and pointed dorsal fin)



A female gold gourami (note the shorter, more rounded dorsal and wider body)

They are large enough to be considered a food fish in their native habitat. While I have seen references to them attaining six inches in length, I have never seen one over five inches.

They are omnivorous, and will accept almost any food offered (they are sometimes used to clean a tank of hydra). They tolerate a wide range of water conditions. While they do best in a slightly acidic environment, they can adapt to and survive in very soft to very hard water (but I would not expect much spawning activity in hard water).

The older (and larger) they get, the easier it is to determine their sex. Generally, males have a longer dorsal fin, which is more pointed at the end. Females have a shorter, rounder dorsal fin, and usually have a rounder body, due to the presence of eggs.

Spawning begins with a male building a nest of bubbles among plants floating at the surface of the water, and then swimming back and forth under it, flaring his fins to attract a female. A female approaches a male at his nest and nudges him on the side to indicate her readiness to spawn. To encourage spawning, floating plants should be provided. Since the male's nest consists only of bubbles and mucus, powerheads, power filters, spraybars, and other filtration methods that produce water surface agitation or movement should be avoided. Raising the water temperature and lowering the water level will also help trigger spawning activity.

The spawning act is similar to other bubble-nesting anabantids. The male curves his body around the female, the pair shake as the male presses inward, and fertilized eggs float up to the nest. This is repeated many times in a one or two hour period. The male then chases the female (and any other fish) away and tends his nest. He may sometimes put eggs in his mouth and look as though he is eating them, but he usually returns those eggs to the nest. While generally peaceful with similar sized fish, a male guarding his nest can be very aggressive and territorial, so I'd recommend removing the female now.

After the eggs hatch (usually within a day or two), the wigglers float upside down beneath their yolk sacs. Do not feed them at this point, as the yolk sac provides all the nutrition they need. However, this is the time to remove the male. A day or two after the fry have hatched, the yolk sac is absorbed, and they are free swimming. Now they are ready for you to feed them. If you don't have infusoria, microworms, or vinegar eels handy, extremely powdered flake food will do.

As are all gourami species, *Trichogaster trichopterus* is an anabantid, meaning that adults primarily rely on an accessory organ in their head to extract oxygen from air gulped at the water's surface. Since anabantids can survive outside of water for extended periods of time, as long as their bodies do not dry out, jumping into surrounding wet grass or mud to avoid a predator is hard wired into their being. So anabantids should always be considered a jumping risk in the aquarium, and tight fitting covers are essential.

This is a great choice for the beginning aquarist, but remember that they get fairly large, and an adult pair needs at least a 20 gallon tank (a "20-long" is even better). One or more varieties can usually be found in a local fish store. They are hardy, easy to feed, and come in a variety of colors and patterns. They will breed in the home aquarium (while at least one classic reference book³ indicates that breeding is very difficult, this is decidedly a minority view).

References

¹ Vierke, Jörg, Betta, Gouramis and Other Anabantids, TFI (1988), p. 18 - photo by Rada Zukal

² Davies, John, The Concise Encyclopedia of Popular Freshwater Tropical Fish, Paragon (1999), p. 178

³ Linke, Horst, Labyrinth Fish - The Bubble-Nest Builders, Tetra Press (1991), p. 137



Are You A Guilty Fishkeeper ?

by Susan Priest — photo by the author

You know how every book, magazine, and speaker on the topic of keeping tropical fishes expounds the same advice: “do a water change every week?” Well! If you are one of those people with a full time job, a full time family, and a full time schedule of attending aquarium club meetings, then weekly water changes might fall below Facebook and sleep on your list of things to do. Does this make you a guilty fishkeeper? Only you can say.

I confess! For a long time I was a guilty fishkeeper. When I was a beginner I would look at my aquariums and say to myself “that tank looks pretty clean; it can wait for a while.” Eventually the filter would start making belching noises. After about a week of listening to that, I would be annoyed to the point where I would decide to get my hands wet. While I was solving the filter problem, I would think to myself that I may as well do a water change. “Hmmm. Maybe that tank wasn’t as clean as it looked.”

Many variations of this scenario have played out over very many years. Then something happened that changed everything. I retired! Even then, the changes to my guilty habits didn’t take place right away. As I looked for activities to fill my newly available hours, it kind of happened on its own. One day I realized that I was spending twice as much time with one aquarium, and then another, and then another. It was at this point that I set up a simple schedule for myself, which included a weekly water change for all of my aquariums.

After a few weeks of this, I noticed that the water coming out of the knife fish tank looked less like coffee, and more like camomile tea. After a few more weeks it looked to me as if the moonlight gouramis had grown a bit, and that the population in the Endler’s tank had multiplied. Every tank I looked at looked better!

So now I’m coming to the part you won’t want to hear. If you just can’t get to every tank every week, then consider shutting down a tank or two. If that doesn’t solve the problem, then shut down a couple more. I know this

sounds harsh, however my experience has clearly demonstrated (at least to me) the many benefits of weekly water changes. BUT, don’t get rid of the empty tanks. Stack them upside down in a corner of your fish room

(to keep the dust out). Retirement will be here before you know it!

After more than twenty years of fishkeeping I have finally taken this advice to heart, to the benefit of my fishes as well as myself (no more guilt!). Once you have retired, don’t be surprised when you find yourself expounding this same advice. If you can free up enough hours from somewhere else to establish a weekly schedule, so much the better, but however you can arrange it, don’t be a guilty fishkeeper!



This article originally appeared in the August, 2015 issue of Modern Aquarium.

Snails in the Aquarium

-
By Rick Renfro

EVERYONE SEEMS TO have an opinion about snails in ponds and aquariums:

"They take over your tank, once they are in your tank you will never get them out!"

"They add too much biomass and are unhealthy."

Etc...

I have two of the "hated" three types of snails, the Malaysian trumpet snail, the ram's horn snail, and the pond or bladder snail. I raise and sell red ram's horn snails, but never knew much about them.

The main reason people don't want snails in their tank seems to be because it is nearly impossible to completely control them, and most likely everyone who has had one of these species their tanks has had the experience of turning on the lights, sitting down to look at your fish and seeing hundreds of snails all over the aquarium. In my tanks I probably have around a thousand ram's horn snails, and maybe the same number of Malaysian Trumpet snails- though they hide in the substrate so it is hard to tell.

I do feed what some may feel is too much, which supports a large population of snails. I colony breed guppies, keep nine species of corydoras, and have two types of Ancistrus. The guppies are always dropping fry, so I am feeding a lot of different sized

livebearers along with the catfish. ...and a large population of snails.

Snails can and do eat a lot if food is available.

What are these creatures and what is their role, good or bad, in nature as well as the aquarium? What are the benefits of having these animals in your aquarium or pond? Is there any way to control them? Are they useful as part of a clean-up crew?

Ramshorn snails are in the family of Planorbidae (ramshorn snails) in the class Gastropoda (snails & slugs) and grouped with the "*pulmonate*" snails,

"Never doubt the courage of the French. They were the ones who discovered that snails are edible."

-Doug Larson

because they breathe air by means of an organ that is like a lung, so they do not breathe water with gills.

There are various species of ramshorn, but the snails that are most popular in the aquarium hobby are the American ramshorn snail, also called the red ram's horn snail, that is said to originate in Florida. A ramshorn found in local streams is black and could come into aquariums as little bitty eggs on new aquarium plants.

These species of snails are mostly herbivorous eating decaying plant matter- though they are opportunistic feeders should they come upon a dead creature. I have never seen one eat a live healthy plant, though they do eat live algae. Mostly they are either sifting through the substrate, or scraping the glass for algae.

As a critical part of the clean-up crew, snails are a major aide to the cleanliness and stability of my tanks. My large tank is heavily planted, though I rarely find a decaying leaf or stem in this tank. I never see a dead fish, though this is a heavily loaded guppy tank and sometimes fish go missing. The snails are efficient and make short work of decaying organic matter in the tank. In the wild these animals serve the same role by consuming the waste that settles to the bottom of the stream or lake, and also serve as a nutritious food source for larger invertebrates and fish.

Snails absorb calcium carbonate in the water while living, and release it when their shells decay. Water hardness is an expansive subject, but it is basically the amount of calcium and magnesium dissolved in the aquarium water. As more of these chemicals are dissolved in the water the higher the alkalinity of the water, making it hard. Conversely, the lack of dissolved minerals causes water to become more acidic, more soft. When attempting to raise or lower the pH of the water in a tank, some people use chemicals that temporarily change the levels. This method is quick and causes wide variation in the pH of the water, which is not healthy for fish or invertebrates. The use of additives like crushed coral,



crushed oyster shell, cuttle bone, and Argonite tend to maintain a more consistent alkaline pH, and this consistent buffering benefits snails that are growing their shells. Softening water is much more difficult and the methods to do this are volatile and require intense monitoring, but that is another article.

There are actually three oxygen transport systems typical in snails.

The first two oxygen transport systems are a red hemoglobin bound to blood cells and a clear myoglobin also in the hemolymph, a liquid in the invertebrate that contacts all the cells of the animal. Most snails rely primarily on the third transport system, hemocyanins, as a transporter for oxygen. Hemocyanin is not bound to blood cells but suspended in the hemolymph. These hemocyanins bind one molecule of oxygen between two copper molecules to facilitate its movement. The blue/black color in most ramshorn is from these oxygenated hemocyanins, that otherwise are colorless when lacking oxygen when they have reverted to a state of only two copper molecules.

The red ramshorn is red because their blood contains primarily the hemoglobin

similar to human hemoglobin that is rich in iron instead of copper. They also have the hemocyanins but it is less predominant in the red types.

Here are a couple tested methods to control the snail population in an aquarium. One effective control in a planted tank is the use of fertilizers that contain copper which is poison to the invertebrates that rely on hemocyanin to transport oxygen.

The reason copper is so toxic to invertebrates is that their systems are designed to easily uptake copper. Copper is scarce in the wild and their systems have developed to be extremely efficient at taking in copper but have no system to guard against taking in too much. They also lack the ability to expel an overabundance of the metal. The presence of high levels of copper in any animal is toxic and to these snails high levels quickly damage cells and cause



widespread malfunction of the animals systems.

I added Osmocote capsules containing a small amount of copper to fertilize my plants in my large planted tank and almost wiped out the Malaysian trumpet snails, most of the common ram's horn (black) snails, and all of my mystery snails. The red ram's horns essentially unaffected. Aside from

completely cleaning out your tank, using all new substrate, new filters, and only tissue cultured plants, you probably won't completely rid your tank of all snails for good- though I don't know why you would want to.

To harvest my red ramshorns I bait them with algae wafers. They mob the wafers and I easily pick them up with a net or with my hand. The snails are neutrally buoyant and easily float out of your hand so I mostly use a small

net. Sometimes I put a cut water bottle containing a wafer and a rock in the tank and let that sit overnight.

Before I finished this article, I found on MASI's Buy/Sell facebook site a discussion about ridding a tank of snails. A "No-Planaria" product was recommended that is a nut palm extract and is supposedly safe for fish and snails but will kill snails and planaria in 72 hours. Such chemicals are another option, there are many products that advertise that they will kill snails but are safe for fish.

Some people throw excess snails into the trash, some feed them to snail eating fish, I sell mine on AquaBid and the MASI auctions.

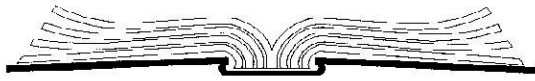
So far I have shipped snails to Missouri, Wisconsin, Washington, Michigan, West Virginia, Maryland, Minnesota, and Tennessee, and along with the MASI auctions, snails have paid for my premium fish food from Brine Shrimp Direct, one of our club sponsors and suppliers of amazing food that gets results.

Remember, almost everything that your tanks produce has value to someone in this hobby.



*This article originally appeared in the November-December, 2017 issue of **The Darter**, published by the Missouri Aquarium Society.*

WET LEAVES



A Series on Books for the Hobbyist

Review by Horst Gerber

Lost City of the Monkey God: A True Story

by Douglas Preston

While at the library recently, my eyes caught sight of a book, **The Lost City of the Monkey God**.

It's a documentary (not fiction) by Douglas Preston of the **New York Times**. The setting is a White City deep in the remote jungle of Honduras. The White City is in a valley surrounded by three mountainsides, with a small river flowing into the valley from the fourth side. On this fourth side is the largest undisturbed jungle on earth. Though there are no mosquitos there, there are insects whose bites take six months to heal!

The city was built by pure Mayan people that we know very little about, as nearly all of that civilization was wiped out by sickness and slavery when the Europeans arrived.

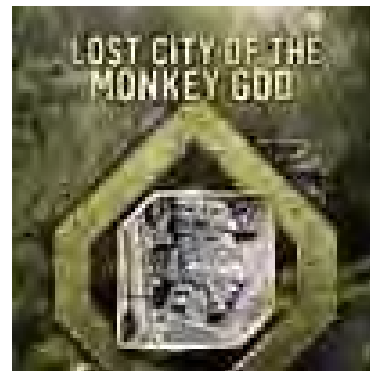
I'm writing this because I was fascinated by the book while I was reading it, and I of course wondered what kind of fish might live in such a remote area! It's so remote that we probably will never know. This book has it all—a five-hundred year old legend, an ancient curse, a medical mystery, and a pioneering journey into the unknown heart of the world's densest jungle!

Since the days of conquistador Hernán Cortés, rumors have circulated about a lost city of immense wealth hidden somewhere in the Honduran interior, called the White City or the Lost City of the Monkey God. Indigenous tribes speak of ancestors who fled there to escape the Spanish invaders, and they warn that anyone who enters this sacred city will fall ill and die. In 1940, swashbuckling journalist Theodore Morde

returned from the rainforest with hundreds of artifacts and an electrifying story of having found the Lost City of the Monkey God—but then committed suicide without revealing its location.

Three quarters of a century later, bestselling author Doug Preston joined a team of scientists on a groundbreaking new quest. In 2012 he climbed aboard a rickety, single-engine plane carrying the machine that would change everything: lidar, a highly advanced, classified technology that could map the terrain under the densest rainforest canopy. In an unexplored valley ringed by steep mountains, that flight revealed the unmistakable image of a sprawling metropolis, tantalizing evidence of not just an undiscovered city but an enigmatic, lost civilization.

Venturing into this raw, treacherous, but breathtakingly beautiful wilderness to confirm the discovery, Preston and the team battled torrential rains, quickmud, disease-carrying insects, jaguars, and deadly snakes. But it wasn't until they returned that tragedy struck: Preston and others found they had contracted in the ruins a horrifying, sometimes lethal and incurable disease.



Suspenseful and shocking, filled with colorful history, hair-raising adventure, and dramatic twists of fortune, **The Lost City of the Monkey God** is the absolutely true, eyewitness account of one of the great discoveries of the twenty-first century!



Pictures From Our Last Meeting

Photos by Marsha Radebaugh & Jason Kerner



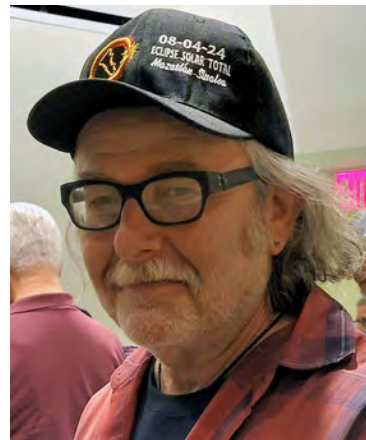
Everyone is ready! Well, almost everyone!
Photo by Jason Kerner



Welcome to new member
Mansing Wong!



Welcome to new member
Sandrine Katz!



Jason Gold - fresh from
eclipse viewing in Mexico!



Florence Gomes



The Alavardo family



President Horst with door
prize winner Lonnie Goldman



Lennie Ramroop & Ed Vukich, looking for a winning raffle ticket!



GCAS President Horst Gerber chatting with Jim Breheny



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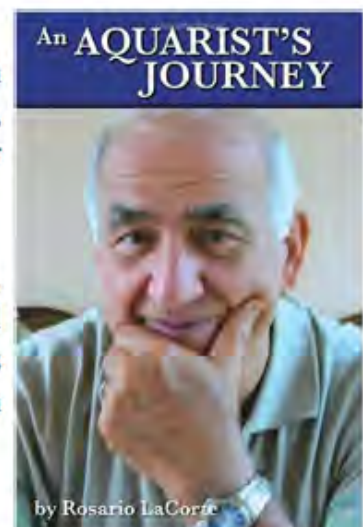


An Aquarist's Journey

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).

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O Fish Tank! My Fish Tank!

by William Amely

O Fish Tank, My Fish Tank, How Happy You Make Me,
You sit there in my room, waiting for me to
Come in and enjoy the view.

O Fish Tank, My Fish Tank, How Happy You Make Me,
Fully lit, you brighten my day and allow
Me to view you in all your splendor.

O Fish Tank, My Fish Tank, How Happy You Make Me,
With your filtration providing those who
Inhabit you with the vital oxygen they need
To breathe, and keeping their watery world clean.

O Fish Tank, My Fish Tank, How Happy You Make Me,
The plants you house look so green and
Beautiful and make your inhabitants feel as happy
As I am to look at them.

O Fish Tank, My Fish Tank, How Happy You Make Me,
You are a window to a wonderful watery world
Whose beauty words alone cannot fully
Describe.

O Fish Tank, My Fish Tank, How Happy You Make Me,
Look at how beautiful and plentiful your
Inhabitants are. How I wish could
Have all the different kinds there are in this
World and admire them in all their glory.

O Fish Tank, My Fish Tank, How Happy You Make Me,
When I turn off your lights at night so
I may sleep, I smile knowing that I will
Wake to your beautiful sight again with the
Next day's dawn.

This poem originally appeared in the April, 2009 issue of Modern Aquarium.



Wait! Those Fish Are Real?

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.

Seaside Aquarium, located in Oregon, confirmed last month that a Pacific footballfish had indeed washed up on a local beach. Pacific footballfish are extremely rare to encounter, as they typically live in complete darkness at least 2,000 feet below sea level. In fact, Seaside Aquarium confirmed that just 32 specimens have been recorded anywhere in the world (and never before in Oregon).

Pacific footballfish, so-called because they have been found throughout the Pacific Ocean and are similar in size and shape to a football, are anglerfish. That means they have a phosphorescent bulb (an *esca*) protruding from their forehead that attracts prey in the darkness of the deep sea. The bioluminescent glow actually comes from photobacteria that will flow into the pores of the *esca*, and multiply due to the protection and nutrition provided by the host.

While Pacific footballfish are rarely encountered in real life, their unusual appearance makes them somewhat popular in animated children's entertainment. Children may recognize these fish from an episode of *Spongebob Squarepants* (wherein *Spongebob* meets a Pacific footballfish after boarding the wrong bus and taking it to Rock Bottom) or from *Finding Nemo* (wherein *Marlin* and *Dory* become mesmerized by the light of one

and are almost eaten). In both cases, the production teams took liberties with their depiction of the fish.

Food is quite sparse in the deep sea, and Pacific footballfish are not great swimmers, so they are understood to be extremely indiscriminate when it comes to food—they will eat almost anything they can fit in their mouths! Perhaps even more interesting is the extreme sexual dimorphism exhibited by these fish. Female Pacific footballfish are much more active hunters than the males.

Males, who are up to ten times smaller than females, will fuse to females almost like a parasite. The male will eventually lose its eyes and internal organs, and siphon nutrients from the female, while providing the female with a steady source

of sperm in return (talk about a bad deal!). Researchers are still trying to understand how the males manage to reliably find female anglerfish in the dark and sparsely populated deep sea waters, but it is believed they have well-developed olfactory organs.

The Seaside Aquarium confirmed that the Pacific footballfish was not collected for further study, but that the individuals who spotted the fish left it on the beach “to become part of the natural lifecycle.”



Sources:

<https://www.foxnews.com/lifestyle/ultra-rare-fish-almost-never-seen-humans-washes-oregon-coast-first-time>

<https://www.calacademy.org/learn-explore/specimens-in-focus/pacific-footballfish>

From The Pages of Yesteryear

The Aquarium October 1935

2A

THE AQUARIUM

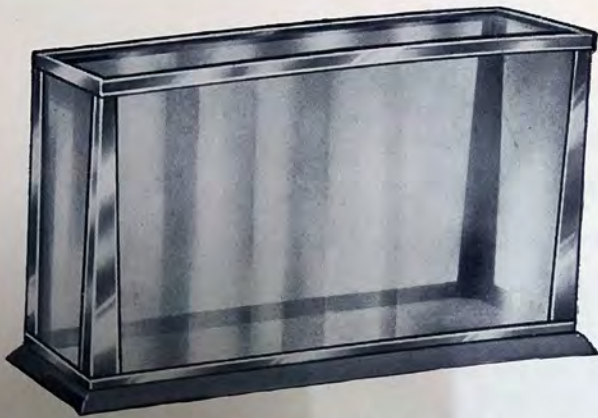
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