

modern AQUARIUM



May 2020
volume XXVII
number 3

Greater City Aquarium Society - New York

長江水族館

專營各國熱帶觀賞魚和全套優質水族器材



131-08 40th Road, Flushing

Skyview Mall 天景豪苑旁

347.732.0373

monsteraquarium@hotmail.com



歡迎參觀 七天營業

Open 7 Days • 10am-8pm



LIKE AND FOLLOW US ON FACEBOOK

WWW.FACEBOOK.COM/MONSTERAQUARIUMINC

modern AQUARIUM

Series III Vol. XXVII, No. 3 May, 2020

ON THE COVER

Our cover photo this month features a family of discus, *Symphysodon aequifasciatus*, long a favorite in our hobby. Kudos to Tom Warns for the apparently happy family!

Photo by Thomas Warns

GREATER CITY AQUARIUM SOCIETY

BOARD MEMBERS

President.....Horst Gerber
Vice-President.....Edward Vukich
Treasurer.....Jules Birnbaum
Assistant Treasurer.....Ron Wiesenfeld
Corresponding Secretary.....

MEMBERS AT LARGE

Pete D'Orio.....Walter Gallo
Al Grusell.....Victor Hritz
Jason Kerner.....Leonard Ramroop

COMMITTEE CHAIRS

Bowl Show.....Joseph F. Gurrado
Breeder Award.....Joseph Graffagnino
Early Arrivals.....Al Grusell
Membership.....Marsha Radebaugh
N.E.C. Delegate.....Joe Gurrado
Programs.....
Social Media.....Gilberto Soriano
Technical Coordinator.....Jason Kerner

MODERN AQUARIUM

Editor in Chief.....Dan Radebaugh
Copy Editors:
Alexander A. Priest.....Susan Priest
Donna Sosna Sica.....Thomas Warns

Advertising Manager.....Robert Kolsky

In This Issue

From the Editor.....	2
G.C.A.S. 2020 Program Schedule.....	3
President's Message.....	4
Cartoon Caption Contest.....	5
Our Generous Sponsors and Advertisers.....	6
Wild Angels.....	7
by Jules Birnbaum	
The Balanced Aquarium Experiment	9
by Joseph Ferdenzi	
Tonight's Speaker: Lawrence Kent.....	10
Water Quality and Water Conditioners.....	11
by Timothy A. Hovanec, Ph.D	
Fish Named After Former GCAS Member	13
Fishy Friends' Photos.....	14
<i>Astatotilapia latifasciata</i>	15
"Zebra Obliquidens".....	
by Joseph Graffagnino	
What I Learned From the Aquarium Hobby.....	17
MA Classics.....	
by Pat Piccione	
Bahamas Cruising.....	19
by Stephen Sica	
Growth Study Focused on <i>Lepomus cyanellus</i>	23
by Dalton Stoner	
G.C.A.S. Member Discounts.....	24
G.C.A.S. Classifieds.....	25
G.C.A.S. Happenings.....	26
The Undergravel Reporter.....	27
Incest is Best	
Fin Fun (Puzzle Page).....	28
Angelic Maze	

From the Editor

by Dan Radebaugh

As I began writing this, we still didn't know if there would be a May meeting. Well, now we know. We're still in the 'no gatherings' phase of the Coronavirus situation, and we don't yet see a predictable end point. So once again this issue of **Modern Aquarium** will be sent to you via hyperlink.

I think you'll find this to be a fairly well-rounded issue. We have articles on a couple of cichlid species, one from the New World and one from the Old. Jules Birnbaum goes first, telling us about his new group of "Wild Angels." It's been a really long time since I've kept angelfish, and I must admit that this article makes me wonder if I should do something about that. The other cichlid in this issue is introduced to us by Joe Graffagnino. *Astatotilapia latifasciata* is a CARES fish, and hails from Africa, specifically Lake Victoria. This is a gorgeously colored fish, so you don't have to feel that you're just doing a good deed by keeping it in your collection.

We have two exchange articles this month. The first is "Water Quality and Water Conditioners," by Timothy A. Hovanec, and is reprinted from the American Cichlid Association's **Buntbarsche Bulletin**. The second, reprinted from the September, 2019 NEC Bulletin, is an NEC award winning article by Dalton Stoner, age 16.

Our MA Classics article is "What I Learned from the Aquarium Hobby," by Pat Piccione. I think you'll enjoy it. And speaking of enjoyment, Steve



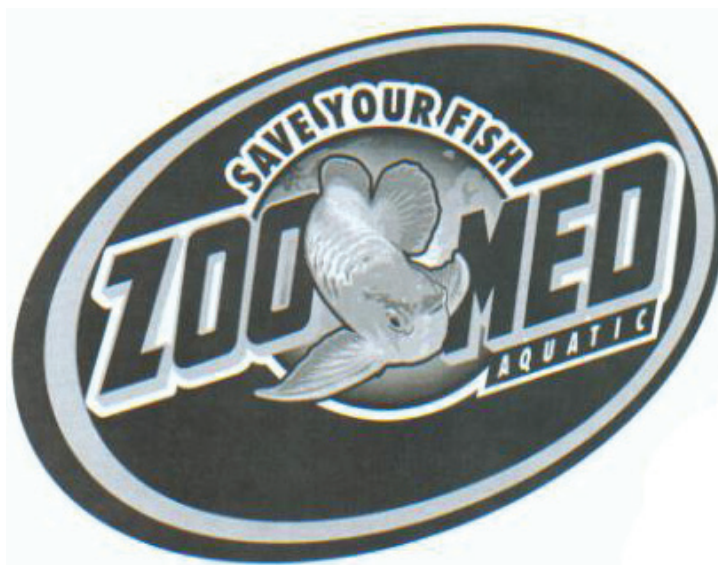
Sica gives us a welcome if vicarious break from the chilly weather in "Bahamas Cruising."

For you livebearer fans, the Undergravel Reporter assures us that there are times when "Incest Is Best." Hmmm. What sort of livebearer? Then we can all breathe a sigh of relief as our Fin Fun puzzle returns to Angelfish for inspiration.

We don't yet know the status of our June meeting. I'll keep you posted on our website (GreaterCity.net), on Facebook, and via email. I'll also distribute a link to the April issue of **Modern Aquarium** so that you can view it online.

Exciting news! Almost *at* printing, we learned that former GCAS member Dominic Isla has had a fish named after him. See page 13!

One last note. We have a new fax number: (347) 379-4984. It is also listed on page 3 of this issue, and is already in service. The old one will no longer be good after June 15. I hope to see all of you again in June!





GCAS Programs

2020

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

March 4	Joseph Ferdenzi <i>Aquascaping</i>
April 1	Meeting Cancelled <i>Covid-19</i>
May 6	Lawrence Kent <i>Holy Grail Cichlids, Friends, and Other Fish: Two West African Stories</i>
June 3	Mike Tuccinardi <i>TBA</i>
July 1	Peter Izzo <i>Getting to Know the Genus <i>Gymnogeophagus</i></i>
August 5	A Night at the Auction
September 2	<i>TBA</i>
October 7	Larry Johnson <i>TBA</i>
November 4	<i>TBA</i>
December 2	Holiday Party!

Articles submitted for consideration in *Modern Aquarium* (ISSN 2150-0940) must be received no later than the 10th day of the month prior to the month of publication. Please email submissions to gcas@earthlink.net, or fax to (347) 379-4984. Copyright 2020 by the Greater City Aquarium Society Inc., a not-for-profit New York State corporation. All rights reserved. Not-for-profit aquarium societies are hereby granted permission to reproduce articles and illustrations from this publication, **unless the article indicates that the copyrights have been retained by the author**, and provided reprints indicate source, and that two copies of the publication are sent to the Exchange Editor of this magazine. For online-only publications, copies may be sent via email to gcas@earthlink.net. Any other reproduction or commercial use of the material in this publication is prohibited without prior express written permission.

The Greater City Aquarium Society meets every month except January and February. Members receive notice of meetings in the mail or by email. For more information, contact: Dan Radebaugh at (718) 458-8437, email gcas@earthlink.net, or fax 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

I am sitting outside on my porch in the warm afternoon sun. It's 3 PM and sixty degrees, and my mind is wandering back to April 10 of 1961, when I came to this country. The weather on that day was a balmy 32 degrees, with one to two inches of snow on the ground. We were all bundled up to keep warm. Today we are walking around with our noses and mouths covered, not to keep warm, but to protect ourselves from the Coronavirus.

With this epidemic in full swing and America almost at a standstill, life feels rather like a game of Pac-man. You run through the pet store to the aquarium section, grab a container of fish food, and stay away from everyone while returning safely home with the food for your swimming treasures. You won the game another day!

Scientists are working around the clock to develop a vaccine and/or an effective treatment for this dangerous new virus. The rest of us are making our own contribution by staying home and enduring weeks or perhaps months of confinement. We aquarium nuts (hobbyists) are lucky. We can always stay occupied with our hobby. Most of the GCAS members I've talked with tell me that their tanks have never looked so good! So let's give ourselves a round of applause! We humans (even aquarists) can be stupid, selfish, and short-sighted, but at our best we can put all that aside and do what needs to be done (social distancing), and be terrific at it!

We're going to try something new this (May) meeting. While 'gatherings' are still forbidden we'll have the meeting online.

See you next meeting!?

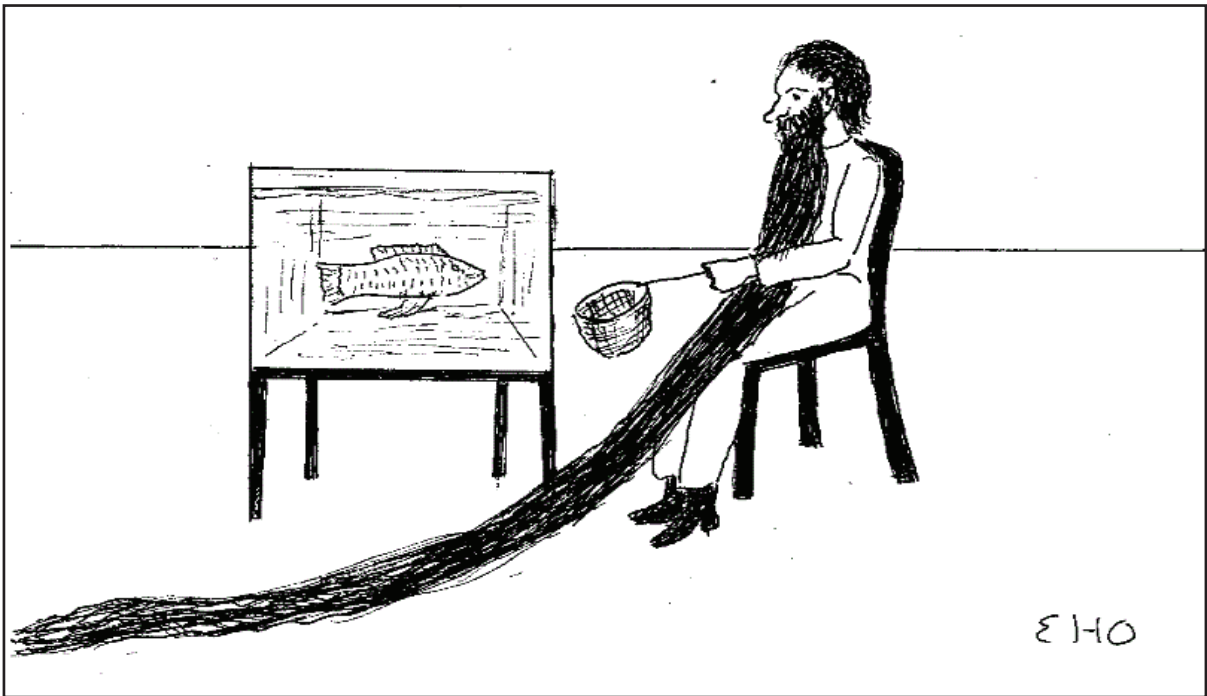
Horst



German humor: Before the realization of how deadly the Coronavirus was going to be, this float built for a parade in Dresden shows the Carnival virus squaring off against the Corona virus.

The Modern Aquarium Cartoon Caption Contest

Modern Aquarium has featured cartoons before. This time though, you, the members of Greater City get to choose the caption! Just think of a good caption, then mail, email, or phone the Editor with your caption (phone: 347-866-1107, fax: (347) 379-4984, email: gcas@earthlink.net. Your caption needs to reach the Editor by the third Wednesday of this month. We'll also hand out copies of this page at the meeting, which you can turn in to Marsha before leaving. Winning captions will earn ten points in our Author Awards program, qualifying you for participation in our special "Authors Only" raffle at our Holiday Party and Banquet. Put on your thinking caps!



Your Caption:

Your Name:



GCAS Thanks You!

Our Generous Sponsors and Advertisers

The Greater City Aquarium Society extends our heartfelt thanks to the following manufacturers for their generous donations. Thanks also to our advertisers, whose contributions to our success as a Society are deeply appreciated. Please patronize our supporters.

Aquarium Pharmaceuticals

Aquarium Technology Inc.

Aqueon

Brine Shrimp Direct

Carib Sea

Cobalt Aquatics

Coralife

Ecological Laboratories

Florida Aquatic Nurseries

Fritz Aquatics

HBH Pet Products

Hydor USA

Jehmco

Jungle Labs

Kent Marine

Marineland

Microbe Lift

Monster Aquarium, Inc.

NorthFin Premium Fish Food

Ocean Nutrition America

Oceanic

Omega Sea

Penn-Plax

Pet Resources

Pisces Pro

Red Sea

Rena

Rolf C. Hagen

San Francisco Bay Brand

Seachem

Sera

Spectrum Brands

Zilla

Zoo Med Laboratories Inc.

Your Fish Stuff.com

Wild Angels!

Story and Photos by Jules Birnbaum

In 2018, as I frequently do, I looked at Aquabid online to see what various fish were selling for. For some reason, “Silver Blood Wild” Angels looked interesting to me. I contacted the seller, Gordon Bennett, in Florida, who assured me these fish were wild caught. The price was right, and I ordered six juvenile angels. I received them in good shape, and placed them in their own 29 gallon tank. These fish looked like zebra angels, with a little red later to appear at the tops of their bodies.

The tank was well planted and had two SwissTropicals sponge filters to provide good water flow. I kept the temperature at approximately 76 degrees, and the pH at 7.2. After a quarantine period I added a few emperor tetras and a pleco. I did lose one angel from an unknown cause.

I performed weekly water changes of 60%. Angels and discus do much better when their water is changed often. I fed my new angels brine shrimp flakes in the early afternoon and live blackworms or frozen bloodworms at night. This angel variety seems to grow slowly, but becomes fairly large as adults.

After about a year I added an 8” x 3” breeding slate that I had picked up years ago from Angels Plus, a breeder and seller of quality angels. When purchasing fish, my magic number is 6, thus I am usually assured of getting a breeding pair. Sure enough, I observed one angel chasing another around the tank. A pair had formed, and the female (the smaller fish with a prominent breeding tube) laid eggs on the slate. Sometimes a little luck is involved, as the pair could have picked a heater, plant leaf, tubing, or even the tank walls.

I leaned some slate against the tank wall at an angle. Before the female laid the eggs, one of the pair cleaned the part of the slate where eggs were to be deposited. The female then deposited adhesive eggs while rubbing against the slate. The male then came over to fertilize the eggs. From then on the pair guarded the eggs and kept the water around the eggs circulating. Fungus on the eggs is always a problem, especially if water circulation is poor. I used a night-light to make sure the parents could keep the pleco away from the eggs. This went on for a day or two.

This was their first spawn, and as can happen with a first spawn, one morning the eggs were gone.

After three or four weeks the pair spawned again, right after a water change. This time I acted like a parent. Taking no chances, after the male fertilized the eggs I removed the slate with the attached eggs to a 20 gallon tank containing a heater which maintained an 80°F temperature. I placed the slate near the lift tube for one of the two sponge filters to duplicate the parents keeping a water flow around the eggs.

There were several eggs that had fungus on them and had turned white, but I took a chance and did not remove them. I expected a few eggs would hatch, but to my surprise the results were amazing. Close to 100 fry hatched after 3 days, and they were free swimming in one week.

It is important to get the fry eating all kinds of food as soon as possible. I recommend feeding the fry at least 3 times a day. I start with Golden Pearls powder, 100-200 micron (over 50% protein). I mix this powdered food with water, and use a turkey baster to inject the food down to the fry (at this stage the fry will not go near the surface). I purchase Golden Pearls from either Brine Shrimp Direct or Your Fish Stuff. Golden Pearls is a wonder food recommended by such top breeders as Gary Lange. I also feed the fry newly hatched brine shrimp, and I can see the their bellies turning the color of the shrimp. After a month I use 300-500mg of Brine Shrimp Direct’s KillieFeast, which is over 50% protein. It was formulated for killifish, but all my small fish love it. It is a very fine pellet food suitable for killifish or fry.

Since many of my tanks have a good bunch of Java Moss, I made sure to have a nice bunch of this plant for the fry to nibble on. I will soon chop some blackworms to small size to feed along with the KillieFeast and brine shrimp. If you want healthy adult fish, feeding them well when they are fry is very important.

To maintain water quality I siphon the fry tank bottom with the turkey baster and change a small 10% of the water every day. The fry at first stayed in a swarm, then changed to a school, and after three weeks were swimming all over the tank. Some breeders like





to start raising fry in a smaller tank, such as a 2 1/2 gallon, to make it easier for the fry to find the food. The small tank also makes it easier to keep it clean, which is a must, and to do water changes. However, in a small tank water quality can go downhill fast. The breeders who use small starter tanks begin moving the fry to larger containers after a week or two. When old enough, my juveniles will appear at local auctions, and I will only keep a few.

This article discusses only one way to breed angels. Some breeders keep seasoned pairs to raise

the fry, which I find very interesting, but there is a chance the parents will eat the fry when they are upset, hungry, or ready to spawn again. Other breeders remove the parents and leave the eggs to hatch in the breeding tank. I have bred angels by letting them hatch and then syphoning the fry with some of their tank water to a small 2 1/2 gallon tank. Remember, "whatever works for you." Angels are not difficult to breed if you follow a few simple rules. If you want to try, I'm available for some advice.



NEED COMPUTER HELP?

Virus/Spyware Removal \$79.00*

Wireless Setup \$49.00**

Optimization Special \$39.00*

Test Hard Drive and Memory
Eliminate Windows build-up
Remove Internet activity and accumulation
Accelerate Windows start-up



All Work Guaranteed
Professional, Friendly Service
On-Site Service in Your Home,
Office or Business

CompTIA® A+ Certified

Repairs & Upgrades • DSL & Cable Modems Installed • Home & Office Networking
Wireless Networks Installed • Computer & Peripherals Set Up • Troubleshooting & Optimization
Virus & Spyware Removal Specialist • Data Recovery • One-on-One Training

* \$15.00 Mobile charge

** Labor only. Equipment additional

Call: 718-469-5444 • jasontech1@verizon.net

The Balanced Aquarium Experiment

Story and Photo by Joseph Ferdenzi



In April of 2018, I set up this 10 gallon tank with a small population of wild-type Trinidadian guppies and some plants. The tank has a cover under that hood with no openings. There is no filter or air stone. I have not done a single water change. I've added one cup of water since it was set up. The fish are fed once a day.

As of now, the fish have multiplied by about 10% because, I suspect, many fry are predated upon. Plants have not thrived except for the water sprite. The plants that did not were a red swordplant and some unidentifiable plant I started from seeds. Today (March 26, 2020) I did my first pH test: it was 7.0 or higher. As you can see, water is clear, much mulm on the bottom, but not much algae. No snails. A thin layer of quartz gravel and one piece of slate make up the decor.

The idea for this experiment came when I purchased a hand-made wooden canopy at an auction of the Danbury Aquarium Society. I had not seen it prior to bidding on it, but hand-made objects always interest me. Plus, it sold for a very modest price.

When I got it home I examined it carefully. The woodwork was superb, and it was clearly made to fit on top of a 10 gallon tank. Whoever had made it was manifestly good at working with wood. However, I soon realized that the person was probably not an aquarist. The hood had no openings of any kind. No hinged lids were present either. You could not even find an opening for an airline tube. To feed fish, you'd have to lift the entire hood off. And there was no light fixture inside the hood.

Clearly this was not a very practical piece of equipment. I certainly did not feel like making major alterations to the canopy and ruin the woodwork. That's when I became inspired by something I remembered from my childhood—the famous “balanced” aquarium that sat in the window of the Nassau Pet Shop in Manhattan (it was called that because it was located on Nassau Street).

That aquarium boasted that no water changes had been done since it was set up decades earlier (I was seeing it in the mid-1960s). Anyway, I've previously written about the Nassau Pet Shop and its

famous aquarium in the June 2014 issue of **Modern Aquarium**.

The concept of the “balanced” aquarium was something much in vogue in the early days of the hobby. The idea was simple: plants and fish could live for years in the same water as long as the ratio of plants and fish were “balanced.” In practice this was difficult, because people tended to put too many fish in the tank, and sometimes, over feed them. That was a recipe for disaster without water changes, and later, filtration.

This accounts for why I started with just a handful of small fish and more plant mass. It also explains the one feeding a day, and on occasion may even entail skipping a feeding. I also deliberately chose not to introduce snails. While they are great scavengers, they can sometimes overrun a tank if conditions are

to their liking. Besides, guppies are great at picking at food and algae at all levels of the aquarium. So far I am pleased with the results.

The one modification I made to the hood was to insert a two-sided incandescent light socket under the top of the hood. This necessitated drilling a small hole on the back-side of the hood for the light cord. Two LED bulbs are used to illuminate the tank. This was a necessary modification because without light you cannot grow plants, and without plants you cannot have a balanced aquarium.

The tank is nearly two years old as of this writing. We’ll see how it goes, and maybe I’ll write a follow-up in another year or two. Perhaps the balanced aquarium myth is not a myth.



Tonight’s Speaker:

Lawrence Kent on

“Holy Grail Cichlids, Friends, and Other Fish: Two West African Stories”

Lawrence Kent has been a grateful member of the Greater Seattle Aquarium Society for 13 years. He has made fish presentations in twenty cities in North America, Europe, and Africa, collected fish in 23 countries, and published two dozen articles in **Tropical Fish Hobbyist**, **Cichlid News**, the **Buntbarsche Bulletin**, and very recently the German magazine **DATZ**. He currently serves as an Associate Editor of **Amazonas** magazine. Lawrence keeps 27 tanks at home filled with African cichlids, Southeast Asian labyrinth fish, and self-collected native fish.

This presentation will cover his recent trip to the Islamic Republic of Mauritania, and other forays into the wild world of Nigeria. He found some interesting fish in both of these strange and rarely visited countries,



and not just cichlids, but also characins, mormyrids, and catfish. If you like African fish, or just funny stories, this one's for you!



Water Quality and Water Conditioners



Timothy A. Hovanec, Ph.D.*

Water straight from the tap, and sometimes even from a well, is rarely fit for use in an aquarium as it may contain chemicals toxic to fish. Over time the water in an aquarium may also become unfit for fish due to drops in pH, build-up of organics and other issues—think about how long you could swim around in your own waste products!

For these and other reasons a variety of water conditioners have been developed to make the water suitable for your fish and to revive old aquarium water. For the majority of tanks, water quality can be improved by the proper use of water conditioners. But, as is so often the case with chemicals and biological products, misuse and overdosing of water conditioners can cause a lot more problems than they solve.

The purpose of this article is to introduce some basic water conditioners and provide some “do’s” and “don’ts” for these products. As one who has been a life-long hobbyist and also a developer of water conditioners, I have experienced a wide variety of situations, from my own use and from calls from hobbyists who have run into various problem situations when using water conditioners.

What does need to be stated at the outset is that water conditioners don’t replace water changes and don’t fix poor maintenance habits—they are a tool, not a crutch.

Dechlorinators & Ammonia-removers

For most people the first water conditioner they find they need is one to remove the toxic chemicals in their tap water. The most common chemicals in tap water are chlorine and/or chloramines. These are in the water to kill microorganisms, making the water safe for humans to drink. Unfortunately, what is good for us can be toxic to our fish and other aquarium inhabitants.

This first group of water conditioners can be divided into two general groups. The first group is products that just neutralize chlorine and chloramines (sometimes simply called dechlorinators). The second group is comprised of products that take care of

chlorine, chloramines, and also get rid of ammonia. Either group of products will work to remove chlorine and chloramines quickly, but you should not overdose them, as that can cause the oxygen concentration in the tank water to drop. For the ammonia removing products one again needs to be careful not to overdose, as this can cause a drop in the pH and harm the nitrifying bacteria.

The most common time when ammonia-removing products are misused is during the establishment of the nitrification cycle. The biggest mistake during this phase of your aquarium is to use the ammonia-removing products several times a day to try and control the ammonia. In this situation the overuse of the product to try and control ammonia sets back the development of the nitrifying bacteria, which then makes it necessary to continue the overuse of the product and extends the time needed to establish nitrification. It’s a circle you do not want to want to get on.

Don’t try to control ammonia on a daily basis with ammonia-removing chemicals. Instead, do a water change using a simple dechlorinator and/or add a good mixture of nitrifying bacteria (see next section).

Nitrifying Bacteria to Jump-Start Cycling

After getting rid of the toxic chemicals in the tap water the next water conditioner many people will consider is a nitrifying bacteria product to quickly establish the nitrification cycle. For years these products had basically no positive effect on shortening the time to establish nitrification in newly set-up aquaria. Many theories were advanced for the reason(s) why this was so, such as the need for a special storage solution or that the bacteria physiologically could not withstand being in a bottle.

My own Ph.D. research showed that the real problem was that the mixtures contained the wrong species of nitrifying bacteria. Once the right bacteria were identified, grown and bottled, it was demonstrated by years of hobbyists use that nitrifying bacteria could indeed be delivered through the normal

Reprinted from Bunborsche Bulletin #300 - June 2019.

* The author is the Founder of a company that makes and markets a variety of water conditioning products for the aquarium market.

distribution channels and still work. Yes, nitrifying bacteria are more sensitive than other types of bacteria (see the sludge-busters later in this article), cannot survive being frozen and have a limited shelf-life (1-1.5 years at best), but they can work to shorten the time needed to get your cycle established. Bottled nitrifying bacteria can work, you just need to make sure the bottle contains the right bacteria. When using a reputable mix of nitrifiers make sure to have some substrate in the tank. Bare-bottomed tanks do not offer the bacteria many places to stick and grow, and always take longer to cycle. If your filtration system uses a filter sock remove it for the first 48-72 hours after adding the bacteria so it doesn't trap all the nitrifiers. Also remember to turn off any UV-unit, ozonator, or protein skimmer. These all work to remove or kill bacteria, so having them on defeats the goal of adding the nitrifying bacteria.

If you want to keep soft water cichlids, know that nitrifying bacteria work much slower in soft water, so cycling will take longer. One way to get around this is to cycle with harder water and then change over to soft water over a few days.

Lastly, as previously stated, go easy with the ammonia-removing products, as these inhibit the nitrifying bacteria.

Fish Stress-Relievers

The next general group of water conditioners is the fish stress-relief agents. These products generally do a wide variety of things besides having some, usually proprietary, stress-relief agent (maybe vitamins or an immunostimulant). For instance they may also get rid of chlorine/chloramines (but not ammonia), maybe add some sort of slime coat replacement agent, buffer the water, and chelate heavy metals (making them non-toxic). These products can be used when medicating a fish, adding new fish to your tank, and even adding a little to the bag or bucket when acclimating new fish.

A common question is: should one use an ammonia-removing dechlorinating product or a fish stress-relief agent when doing partial water changes? My advice is to go with a fish stress-relief agent but make sure it is one that gets rid of chlorine and chloramines. Reputable products provide real benefits to your fish and can help your fish adjust to its new environment more quickly.

Another word of advice—don't add these products to your tank on the same day you add sludge-busting bacteria (see next topic) as these will 'feed' the bacteria and can cause a bacterial bloom resulting in very cloudy water and a lack of oxygen in the aquarium water.

Sludge-busting Bacteria

No one likes algae or sludge building up in their aquarium, but not many people look forward to doing water changes and siphoning dirt from their aquarium. One way to fight algae and sludge build-

up and do less work is by using specialized bacteria that consume sludge and out-compete algae for the nutrients produced by the sludge. Another benefit of reducing the sludge in your system is that it seems to help reduce the number of parasites and harmful bacteria that are in your aquarium and reside in the sludge.

However, you have to be careful when using a sludge-busting bacterial product. These products contain living bacteria that can, in the best conditions, divide every 20 to 30 minutes. When they are growing fast like this they can consume a significant amount of oxygen from the water, resulting in your fish dying from suffocation. Furthermore, as they grow, consume oxygen, and break down the sludge they can produce a fair amount of ammonia.

If you have used one of these products and the tank water turned a cloudy, milky white, then you have seen what these products can do. You need to start slowly with these products. Add only a quarter to a half of the recommended dose and watch your tank for signs of a bacteria bloom. If the water turns hazy add an airstone to the tank and do not add any more sludge-busting product until the water clears. Even consider a water change. If after say 48 hours things look good, add another dose, but don't increase the amount. Continue watching the aquarium, and slowly increase the dosage over a week or so until you can add the full dosage amount.

It can take a few weeks, but you should see a noticeable improvement in the tank. The water should be brighter and the substrate cleaner, and even your filter pad not clogging as fast. Now the use of these products does not mean you never have to do water changes, so don't get lazy, but they are an important tool to maintain good water quality. Also, don't add these products at night before you go to bed for two reasons: 1) you can't watch your tank if you're asleep and 2) if your tank has live plants, those plants consume oxygen at night when the lights are off, so now you have the plants *and* the bacteria consuming oxygen, which can lead to problems and fish kills. This happens more than you think!

Water Clarifying Agents

The last group of products I am going to discuss is water clarifiers, or flocculants. Sometimes the aquarium water gets cloudy with fine particles that are not a bacterial bloom. These particles can be from clay, or gravel that was not properly washed before being added to the aquarium. Whatever the reason, the water is cloudy and it won't clear. There are two ways to fix this problem.

First, wipe the inside of the aquarium walls. A lot of times a fine silt will stick to the inside walls of the tank, making it seem as if the water is cloudy, but it just a case of looking through a dirty window! That done, if the cloudiness still present, adding a water clarifier can help. These products all do the same thing

more or less: make the little particles in the water stick together to form bigger particles that your mechanical filter can now trap and you can remove, or, in some cases, form a dense blob that you can see settle on the bottom of the tank that you can remove by siphoning.

This is called flocculation. There are three types of products (two chemical and one biological) that promote flocculation in water. Alum and polyacrylamide are the chemicals, and special bacteria are the biological. Alum and polyacrylamide work fast, but can be toxic when overdosed. The bacteria-based products work a little slower, but generally are safer for the inhabitants of the aquarium.

No matter the choice of product you will have better success if you first turn off the filters and other devices that are moving the water. CAUTION—don't plan on leaving the tank alone for a long period of time! Add the product across the entire surface of the aquarium. Gradually you will start to see the cloudy white material start to settle towards the bottom of the tank. Have a siphon hose and bucket ready. Once a

lot of the material has settled towards the bottom of the tank, use the hose to siphon the denser material out of the tank into the bucket. After a time re-start your aquarium for the benefit of the tank inhabitants. It is better to repeat this process a few times rather than trying to get everything done at once and overdosing the flocculating agents.

Final Words

The proper use of water conditioners can help you maintain a nice aquarium with a minimum amount of effort, and they also provide real benefits to your fish. But do not overdose these products, and don't rely on them so much that they become a crutch, allowing you to be lazy and not do your water changes and filter maintenance. Finally, as stated several times throughout this article—don't overdose these products! Good fish-keeping!



Fish Named After Former GCAS Member

Introduced into the aquarium hobby in the early 2000s, a beautiful Haitian livebearer, *Limia* sp. “tiger”, was initially misnamed as *L. garneiri* and even *L. nigrofasciata*. Nearing two decades later, the tiger limia has been formally described in the **Journal of Fish Biology** by Rodet Rodriguez-Silva and Pablo F. Weaver as *Limia islai*.

Limia islai is one of seven endemic *Limia* found in Lake Miragoane, Haiti, a 9.7 square-mile (25 km²) lake located 0.6 miles (1 km) southeast of the city of Miragoâne. The tiger *limia* is described as having a slender body with a light olive-green background that turns yellow in the snout, dorsal region, and base of the caudal and dorsal fins. Both males and females exhibit 4-12 conspicuous black bars on the sides of the body. Small, blurred black spots are also present on the edge of the dorsal fin, especially in male specimens. The holotype and paratypes ranged from 22-35 mm SL.

The black vertical barring is a distinguishing characteristic that separates *L. islai* from all other *Limia* except *L. nigrofasciata* (blackbarred or humpback limia). These bars are typically wider and darker in *L. islai* than *L. nigrofasciata*. Additionally, the dorsal fin origin of female *L. islai* is slightly posterior to the anal fin origin and *L. islai* do not develop the dorsal hump often seen in *L. nigrofasciata*.



Female *Limia islai* collected from Lake Miragoane, Haiti. Image from Rodriguez-Silva and Weaver 2020.

Etymology

The specific epithet is in honor of the late Dominic Isla, one of the first collectors of the novel species and the person credited with introducing the tiger *limia* to the aquarium hobby.



From Reef to Rainforest Media

<https://www.reef2rainforest.com/2020/04/15/tiger-limia-of-lake-miragoane-formally-described/>

Editors note: Dominic Isla was a very active member of Greater City AS, and was our Breeder of the Year for the 1991-1992 season. He was also featured in an article by Joseph Ferdenzi in our October, 2012 issue, “The Legacy of Dominic Isla: Endler’s Livebearer”

Fishy Friends' Photos

by Greater City Aquarium Society Fishy Friends

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



Astatotilapia latifasciata

“Zebra Obliquidens”

by Joseph Graffagnino



At a Greater City Aquarium Society event, I was perusing the bags of fish and plants at the auction table and came across a bag of African cichlids. The bag was labeled *Astatotilapia latifasciata*, with the common name of zebra obliquidens. I knew this species to be a Lake Victoria cichlid, and it was also on the list of endangered species in the C.A.R.E.S. (Conservation, Awareness, Recognition and Responsibility, Encouragement and Education and Support and Sharing) Preservation Program. I always want to do my part to save and share tropical fish, but endangered fish nearing extinction are *especially* important. There are tropical fish today that are extinct in the wild, but which exist and flourish in hobbyists aquariums. Sharing fry will keep these species alive throughout the world, and it is our hobbyist obligation to do this.

I won the bag at auction and brought it home. I placed them in a 20-gallon long that was ready for Africans, with African cichlid sand, coral pieces, and plenty of caves and rocks to keep them happy. The water temperature was 80 degrees Fahrenheit with a pH of 7.5, thus the water parameters were warm, hard and alkaline.

The bag contained five fish—four males and one female, a possible problem because of this species' aggressive attitude. Not only did I want to keep the lone female alive, but I wanted her to breed. I waited a few days until the males' hierarchy was settled amongst them. When the dominant male was identified

I moved the two lesser males into another tank. With no females to fight over they should be somewhat civil to each other. As to the three remaining fish, I thought the two males would keep each other occupied and not harass the female, and that the dominant male would be able to breed with her but not beat her to death.

Everything went according to plan, because 17 days later I was rewarded to see that the female was holding eggs in her buccal cavity (the area in her mouth between her bottom lip and her throat). Like many African cichlids, the females are “mouthbrooders,” that is, after the eggs are laid—usually on a flat rock and fertilized by the male, the female picks them up and holds them in her mouth until they hatch. Even after they hatch, if there is danger in the area the babies swarm back into the safety of mom's mouth.

I knew that if I left her in the tank with both males she would not be able to hold the fry for the 28 days necessary for the fry to be large enough to be able to fend for themselves, so that evening, with the lights off in the fishroom, I quietly entered. I deliberately left the glass cover off the tank and placed a medium-sized fish net in the tank. I had a 5-gallon tank with a small cave in it, so that when I moved the mother fish into it she would feel comfortable with a cave to hide in and not be harassed by other fish. I placed a red towel over the end of the flashlight so the red light would not spook the sleeping fish. If I tried to catch her with the lights on she would run and hide and possibly swallow the eggs or spit them out, and

the males would eat them. If she was in the net and she spit the eggs they would stay in the net and I could artificially hatch them.

I slowly took the fish net and guided it to the sleeping mother (I wonder if fish snore?). When the net was less than an inch from her I saw her tweak a pectoral fin. She was ready to make a dash to escape. I quickly swung the net and caught her before she could run. I lifted her from the tank and released her into the waiting 5-gallon tank, placing the net so that it locked her into it, and ran to turn on the lights. She had released several fry into the net. They were small and still on their yolk sack, but at least they had hatched. When I released her from the net those few fry had dropped into the gravel and mom had rushed into the safety of the cave. I closed the cover and waited while she settled in and calmed down. I wanted to know if she would come out for those eggs and take them back into her mouth. I stepped back about 10 feet, sat on a chair and didn't move, waiting to see if she was a good mother. Would her instinct to protect her babies overrule the instinct to run, hide and abandon them to their fate?

Almost an hour later she emerged from her new home, cautiously looked around, and warily moved to where the fry remained on the gravel. She hovered over them, while constantly watching the area around her, and then she sucked up the fry and dashed back into her cave. After eleven days I dropped a few pellets into her tank and waited. I knew she was hungry, but the fry were larger now and the yolk sack should be absorbed. She released the fry in the cave and came out to take the pellets. She returned and picked up her waiting fry. I saw enough to satisfy my curiosity. It was time now to separate mom from her babies.

Using a larger net, I scooped up mom and the cave together, holding the cave slightly above the waterline so that mom would fall into the net. I placed the cave back into the tank, and gently but firmly held mom in my left hand while I took a plastic toy screwdriver to pry her mouth open with her head in the water, and she released the fry into the net. I placed mom back into her tank, where she will reside for 10 days to rest and recuperate.

I placed the fry into a breeder box hanging onto the 5-gallon tank, with the water constantly being changed from mom's tank via an airline straight tube. It's important not to feed the fry until the yolk sac is completely absorbed, because the babies can't eat/digest food until the nutritional yolk sac is absorbed into the baby's body, and with it comes a spurt of growth.

The yolk sac acts as an umbilical cord that nurses the babies until they are formed enough to be able to eat on their own. When do we know when this happens? When the fry start to swim on their own; not the wriggler or the hopping stage, but swimming. At this point I fed the fry frozen rotifers and crushed flakes. The 20-25 fry grew quickly, and after several weeks I moved them into a 10-gallon tank to grow faster.

The zebra obliquidens are very attractive, with bright blue in the dorsal and anal fins, a bright yellow egg spot on its anal fin, and a red blotch on and behind its gill cover. It also has four wide vertical black bars on its body, a black diagonal line over its eyes and a horizontal black line between its eyes. This is a very intelligent, beautiful and fun fish to keep. Also, you will help to save it from extinction. Enjoy this lovely African cichlid from Lake Victoria while you can!

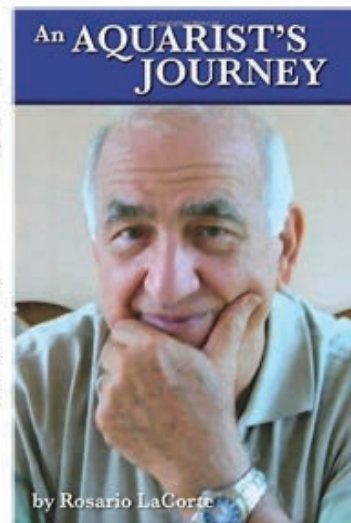


An Aquarist's Journey

Rosario La Corte is one of the world's leading authorities on breeding fish and he has written numerous articles and books, contributing greatly to our understanding of fish and their habits.

Now, for the first time, here is a compilation of his travels, adventures, successes (and, very occasional failures) all relating to collecting, keeping, and breeding fish, and in his own words (and edited by *Modern Aquarium's* Editor, Dan Radebaugh).

Available in softcover at [Amazon.com](https://www.amazon.com)



What I Learned From The Aquarium Hobby

PAT PICCIONE

We may each have different reasons for going into the aquarium hobby. For some of us, it afforded the opportunity to have a little bit of nature in our living room. For others, watching pretty, tropical fish do what fish do is soothing after a long day. For me it was a chance to have pets that escaped the "no pets" edict in my lease. As long as they didn't make noise, shed or attract fleas or cockroaches it was OK with my landlord. (I never did mention to him the time I kept a box of live crickets for my archer fish or cultured worms for fish fry.) After spending some time in the hobby, however, I realize I've gotten much more than living room decor. I actually *learned* some things I thought I'd never care about. To wit:

- **Chemistry**--I'm not sure at what age I began seriously demonstrating to my parents and teachers that I would never become a rocket scientist. Possibly it was that day I almost burned a hole in the kitchen table with my junior chemistry set which Mom quickly made short work of ("...but Mom, maybe I'm creating *life* !" "But, Patricia you're definitely creating *agita* !"). So this was a subject I never pursued with any vigor. Until, while trying to create an optimum environment for Lake Tanganyikan cichlids, I had to pay more attention to things like pH. Oh, sure, I dealt with pH and aquaria before. But with fish that were not so exotic as these, all I needed to do was to make sure that the test kit indicator was the right shade of bluish green. Now I needed to be more careful with changing it and maintaining it. Of course other aspects of water chemistry in regards to aquarium fish are important too--salinity, temperature, indicators of pollution such as ammonia, nitrites and nitrates. Yeah, there is all that testing. But the rewards of maintaining a healthy aquarium are worth fumbling around with all the indicators and colorful reagent chemicals while satisfying the mad scientist in all of us. At least in me anyway.

- **Biology**--My first foray into biology was about as auspicious as that into chemistry. When I was 11 years old my father gave me a microscope for Christmas. I showed my appreciation by deliberately startling him as he shaved, thereby securing my first living sample of blood. (Dad took it well--he gave me my sample and switched to an electric razor.) Today my tropical fish hobby gives me lots of opportunity to dabble in this science--from observing mating behavior and raising fry to discovering and curing illness.

- **Romance**--*With the blurrp of a box filter murmuring in the distance, the Betta splendens first cast his eyes upon his beloved. She was so plain--in stark contrast to his iridescent blue magnificence--but well rounded. He liked that in a woman, he thought to himself as he began to touch his lips to the surface and gently blow the first of many bubbles that he confidently assessed would serve as their love nest. She demurred (whatever that means to a fish) and slowly floated toward him, careful to maintain that air of aloofness which, she was sure would maintain his attention. Suddenly, with gills flaring and fins erect he advanced upon her but, alas she withdrew, making his longing more acute. The hours passed. His hopes rose and fell.*

How could he convince her that in his eyes she was the only one in the world? (Except for that stupid corydoras down there poking his nose in the gravel). He made one last attempt to win her. This time, he wrapped his body around her, (close your eyes, kids, you're too young for this), squeezing her with all the virility nature had endowed upon him. Her breasts heaved (OK, OK fish don't have breasts, but I have it on good authority that there is not a romance novel in America which lacks a scene in which the woman's breasts heave.) Having lost all control her body shuddered, surrendering the treasure which lay for so long within her as he exuded his masculinity about her. As he gathered up the eggs to blow into the nest he unfurled his long, elegant fins with a self-satisfied manner which announced to the world "my first conquest as a man!"

- **Discipline**--Being the product of a Catholic education I still kind of flinch when I encounter the "D" word. It conjures up my frequent experience of being on the

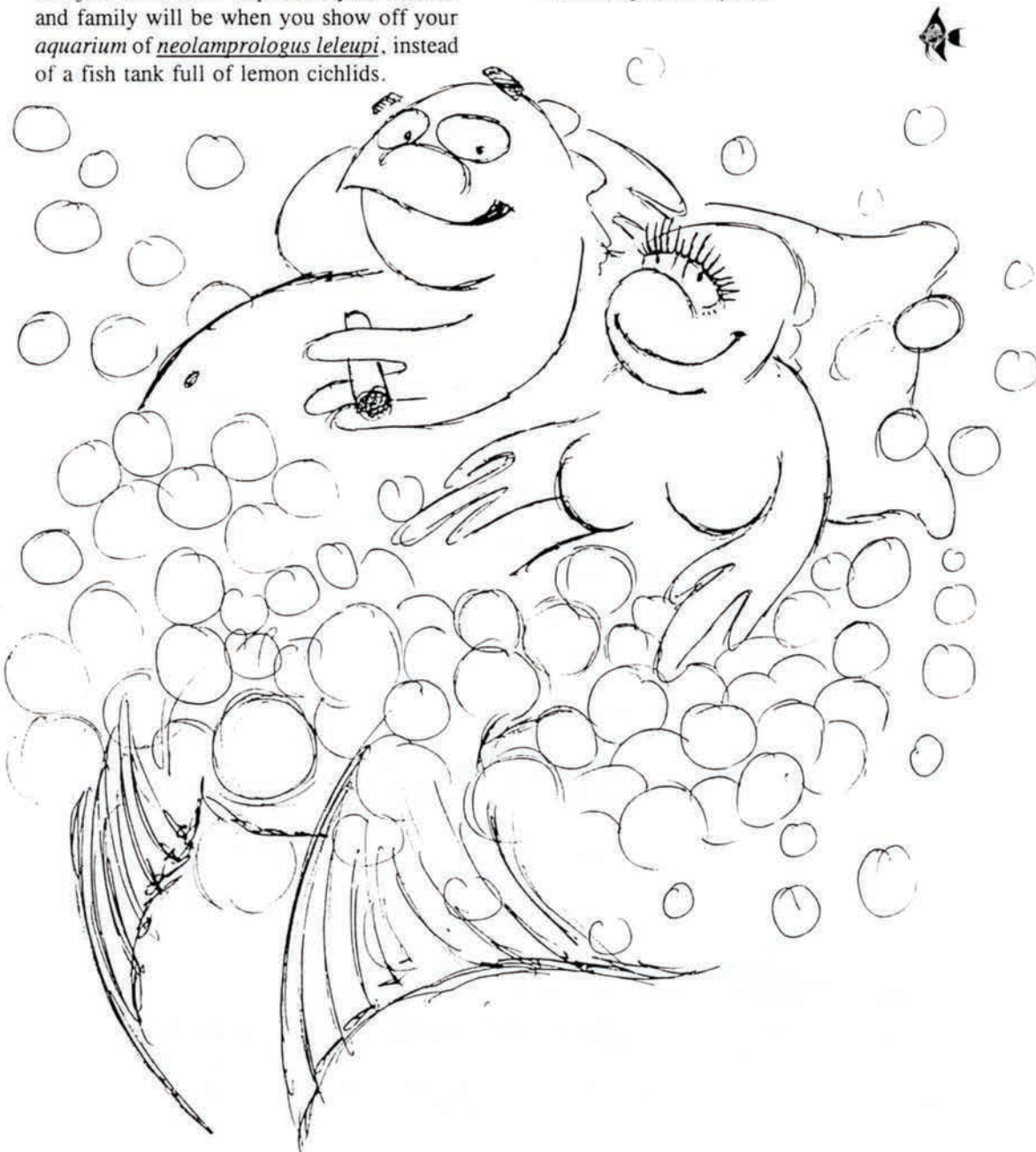
Reprinted from *Modern Aquarium* - March 1995 - volume II number 3.

receiving end of the good sisters' 18-inch rulers. But anything worth having and worth working for, whether it's good grades in math or a clean healthy aquarium requires a certain amount of discipline. For one simple arithmetic equation always applies . . . 0 regular water changes + 0 regular testing of water conditions = 0 fish.

- Foreign languages--Latin, to be precise. By reading up on your favorite species of fish you pick up quite a bit: *multifaciat* means many lines; *caudopunctatus* means spots on the tail fin; *axelrodi* means named after old'-what's-his-name, and so on. So you won't learn enough Latin to say High Mass in St. Peter's Basilica on Easter Sunday. But just think how impressed your friends and family will be when you show off your *aquarium* of *neolamprologus leleupi*, instead of a fish tank full of lemon cichlids.

- Society--i.e., aquarium societies, such as Greater City. Not only does an aquarium society provide a place where your hobby can grow, but it can also be a great source of education on matters such as pollution's effects on aquatic biotopes or how to make decent coffee in an old 40-cup urn.

Where all this knowledge gets you is entirely up to you. For me it has enhanced my involvement in what many people regard as nature's ultimate hobby as well as my view of the natural world. Besides, I've become an expert in the "Science and Nature" category of "Trivial Pursuit". For these and many other reasons yet for me to discover, I'll always be grateful to the aquarium hobby for the things it has taught me...in spite of myself.



Bahamas Cruising

Story and Photos by Stephen Sica



Just after Donna's birthday and the Thanksgiving holiday in 2018 we reluctantly left our Cordelia at home to fly to Florida for a very brief three night cruise to the Bahamas. We flew into Orlando and traveled about fifty miles east to Port Canaveral. There are enterprising van and bus services where you can make an advance online reservation, be picked up at the airport, and be driven directly to your cruise ship. If I remember correctly, we paid eighty dollars for the roundtrip for both of us.

Once on board the Royal Caribbean ship *Empress of the Seas*, we met up with Donna's sister and her husband. The ship sailed Friday afternoon, and late the next morning we were sailing into Nassau, on New Providence Island in the Bahamas. We were booked to dive with Stuart Cove's Dive Bahamas, a long-standing dive and snorkel operation that has been in business for many years. We have dived with them on numerous occasions. They have many large comfortable boats, and try to limit divers to twelve per boat. Their bus was waiting just outside the cruise ship terminal. After a half-hour ride we arrived at the boat, signed in, and were assigned a specific vessel.

Most state of the art dive boats are constructed by Newton Boats, Inc. of Slidell, Louisiana. They manufacture boats from 26 to 71 feet, as well as custom designs in these same lengths. Their most popular dive boats are 36, 42 and 46 foot "dive specials." Stuart Cove's owns about a dozen boats, most of which are 46 foot dive boats. The 46 footer is roomy, and the class of the dive industry in my opinion. The boat appears to be made from heavy-duty aluminum, and it has twin engines. Sandals and many other popular resorts use versions of this boat customized to their specifications.

We brought our own equipment, so we boarded our assigned boat and set up our gear before we left for the first dive site. Most dive days are two-dive site trips. Occasionally you may dive the same site twice, depending on the weather and water conditions, or whether it is a specialty dive, such as sharks, manta rays, or other unique sea life. An interesting shipwreck might require two dives. If the seas are rough, it's much easier to prep at the dock. Divers tend to get in one another's way on a rocking boat. Once underway we motored to the first dive site, which was a shallow reef. We spent almost an hour below, and then dove another shallow reef along the shoreline. These were fairly easy dives, but the skies were partly cloudy, hindering visibility underwater. I took an armful of photos. I have noticed during the last two years or so that the weather has been less than ideal when we dove. Probably just coincidence, since we dive infrequently, but I always consider climate change and global warming. Who knows? Consider our warm winter this year with many days in January and February with temperatures in the fifties. It's late February as I write this, and it hasn't snowed, not even a flurry, for about five weeks. That's over one-third of the winter.

The weather in Nassau was warm, and we had a good day diving. When we returned to the dock we rinsed off our gear in fresh water. The bus was loaded up with tourists and dive gear, and it made several stops, letting off divers and snorkelers at various hotels and our cruise ship. We hung out our gear to dry on our room's balcony. We always get a room with a balcony for this reason, and to have more room to relax. Donna likes sitting on the balcony to read, and I like the breezes if the weather is hot. At night

we track the stars and planets. A few years ago cruise lines made balconies non-smoking, although once our next door neighbor was smoking weed. I spoke up and they stopped.

During the night our ship slowly cruised through the Bahamas and anchored offshore at CoCo Cay in a small grouping of islands known as the Berry Islands. I had never heard of this group, which is part of the extended Bahamas, south of the main ones. Early Sunday morning we took an empty tender from the ship to the island. There was significant construction going on around the island's small harbor. We were told that Royal Caribbean was constructing a water park. Ironically, about a year later I began to see television advertising touting CoCo Cay's water park. They built it quickly. The island already had beaches for lounging and watersports and dining places, as well as souvenir shops.

We walked with our gear up to the dive shack. Each of us was given a bottle of water and instructed to hydrate by drinking all of it. By the time everyone had arrived there were six cruise ship divers and our divemaster, a petite young Japanese woman. She had a heavy accent, so even when I asked her name twice I had no idea what she had said. I let it go. Donna had no clue either. The manager of the dive operation was American and spoke perfect English. We received a dive briefing and put on all of our gear. Some divers used rented or loaned equipment. It may have been included in the price of the tour, but I don't remember. When we were ready, we walked about a hundred feet down to the beach and put on our swim fins. We were on the leeward side of the island, so there were no waves or current. Men on jet skis began shuttling us, one at a time, from waist-deep water to the inshore reef about one hundred yards offshore, where we floated on



While most squirrelfish species are reddish, this specimen has repressed its pigmentation to blend in with its surroundings and hide from the camera. This fish is the common species, *Holocentrus ascensionis*, identifiable by the golden orange dorsal fin. This fish can grow to fifteen inches.



A sleeping green turtle, *Chelonia mydas*, offers a unique perspective of the oddities of an animal. Its head and shoulders snuggle under a rock and coral crevice while most of its body is exposed to a potential predator. This photo was taken at CoCo Cay in the Berry Islands.



A group of juvenile blue-head wrasses, *Thalassoma bifasciatum*, in their yellow pattern with a mid-body black stripe swim around a vase sponge and soft corals. These fish are abundant around reefs and usually stay in small schools. They tend to keep their distance when you try to approach to photograph them.



A yellow stingray, *Urolophus jamaicensis*, rests on the bottom. It has a distinctive mottled body and is no wider than fifteen inches. It has a spine at the base of its tail that can inflict a painful injury.



Often difficult to differentiate from its relative the rock hind, *Epinephelus adscensionis*, this adult coney, *Epinephelus fulvus*, offers wide-ranging color variations. It is often all red or red and white. This specimen is brown and white with small bluish or pale spots. A member of the grouper family, they grow to one foot.

a buoyed line until all seven of us were together. This was to save us from tiring ourselves out by swimming on the surface in full gear.

The shuttle procedure was unique. I didn't think to take a photo, but each jet ski towed a U-shaped sled behind it attached by ropes. We had a handle in front to hold onto. We laid our bodies on the curved sled and the driver took us one by one slowly to the reef. We rode too slowly for the sled to plane along the surface, so I got a face-full of ocean. We were saved by our masks and by breathing through our regulators. There were two or three jet skis, and each ride was about a minute. This seemed fairly arduous to me, perhaps because I was securely holding my camera in one hand and the sled handle in the other.

As we bobbed on the floating rope above the reef, our divemaster wanted each of us to demonstrate that we were neutrally buoyant. This is to protect the reef from divers who cannot control their body and might crash to the bottom or the reef. Ironically, the reefs aren't what they used to be, so there is little chance to damage coral!

We descended to the bottom and swam around, led by our divemaster. When an inexperienced (and probably new) diver ran low on air, she escorted him to the floating line on the surface, where a waiting jet ski took him back to shore. It seems that inexperienced divers are more in awe of the underwater, and breathe up their gas supply quickly. Physically large persons also tend to breathe their air faster. That makes sense to me.

The depth of the reef was only twenty to thirty feet, so our divemaster soon returned and continued our underwater tour. After an hour we all surfaced at the line and were singly towed back to the beach. I cradled my camera and swim fins in my arms while waiting for Donna, so I did not remove my facemask. I seemed to cause a ruckus because a strange woman in a bathing suit began shouting at me. Back at the dive shack I mentioned this woman and her odd behavior to Donna; a fellow diver with a beard began laughing. The vocal woman was his wife, who thought that I was him!



A small Spanish hogfish, *Bodianus rufus*, in search of a meal. While they can grow to two feet, juveniles are parasite cleaners for other fish.



A small school of brown chromis, *Chromis multilineatus*, presents itself before a purple or common sea fan, *Gorgonia ventalina*. These fish are not as common, or colorful, as the blue chromis, *Chromis cyaneus*. They often school together. The darkly lined tail highlights a fish that can grow to six inches.



This adult spotfin butterflyfish, *Chaetodon ocellatus*, swam away from its partner and toward me, so I showed a little courtesy by taking its photograph. My photos of the pair showed two tiny fish, hence I took one closeup of one fish! They can grow to eight inches but usually reach about four inches.



A small school of what I think are juvenile striped parrotfish, *Scarus iserti*, nibbles on algae on reef rocks. These areas offer protection from predators, as well as an endless food supply. A yellow smudge on the nose and fins are indicative of this parrotfish.



After our morning dive on CoCo Cay's near shore reef, Donna relaxes on a deserted tender as we ride back out to our offshore anchored cruise ship. It seems unlikely that I'll be photographing her in a similar pose for awhile.

On that note, Donna and I packed up our gear and took the next tender back to our ship. We had the ride to ourselves because everyone else was still leaving the ship for the island. We were looking forward to a quick shower and a nice long lunch!




100% Premium Ingredients In Every Pellet

- **Filler Free**
- **By-Product Free**
- **Artificial Pigment Free**



MADE IN CANADA

Growth Study Focused on *Lepomis cyanellus*

By Dalton Stoner, 16, North Carroll High School

The Stoner and Stiles study of Spring 2014 was a growth study focused on *Lepomis cyanellus*. The goal of the study was to test the effect of different types of lights on the growth of *L. cyanellus*.

Two tanks were set up. They were each 10 gallon tanks. Initially 3 fish were put in each of the tanks. A lamp was placed over each tank, one with a black light or ultraviolet bulb, the other with a normal incandescent light bulb. During the study one of the fish in the incandescent light tank jumped out of the tank and died. Because of this, screens were placed over the tops of each of the tanks. To avoid any other light affecting the ultraviolet light tank's results, mirrors were placed all around the tank to block as much of the daylight that it would have been exposed to.

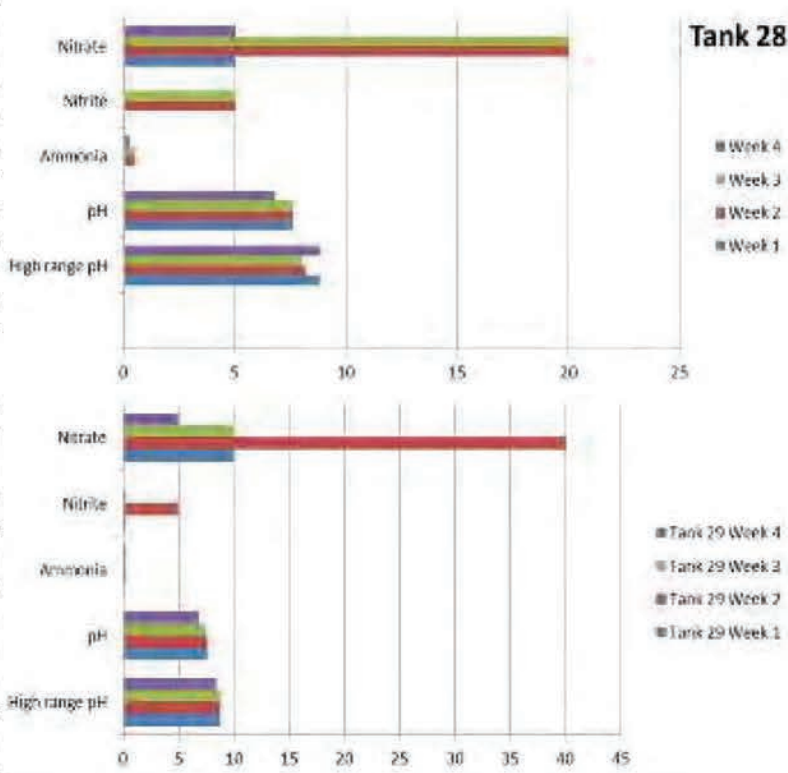
The fish were anesthetized and measured for weight and length each week. They were also monitored for anything unusual on their bodies. Water quality data was taken once each week and recorded. The water in the tanks was changed once a week and also once each week the tanks were topped off with water because of evaporation. During the study the water quality started to deteriorate, creating excess nitrates which is harmful to the fish. Therefore plants were added into the filters of each tank by planting them in gutter mesh and putting them in the filters. The purpose of this was to reduce the amount of nitrates because plants consume nitrates and thrive in higher nitrate levels. The hope was to reduce the amount of nitrates to safe levels for the fish to thrive and survive. After these plants were added to the filters the amount of nitrates dropped significantly.

After two weeks of the study the lights on the tanks were switched to see if the ultraviolet light affected the growth of biofilms. The mirrors were also switched to the other tank to attempt to prevent other types of light entering the tank. The study showed that the biofilms that had previously grown in the incandescent light tank, when switched with ultraviolet light soon disappeared. In the ultraviolet light tank no biofilms had grown but when the lights were switched biofilms



began to grow. This led to the conclusion that ultraviolet light can lead to the death of biofilms.

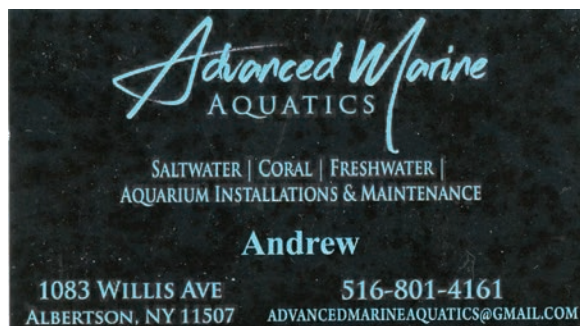
The study also concluded that there was no change in the growth of *L. cyanellus* due to the different types of lights that they were exposed to. The growths of the fish in each tank were very similar and showed no significant difference. Notably however, there seemed to be strange growths near the gills of the fish that were exposed to ultraviolet light. This growth could not be proven to be caused by the exposure to ultraviolet light. The fish in this tank were also paler in color than the fish in the incandescent light tank. The growths seemed to disappear and the color returned to the fish after the lights were switched between the tanks.



Reprinted from *Tank Tales* – May 2016 - Aquarium Club of Lancaster County - This article won 2nd Place in the NEC's Junior Category in 2016



GCAS Member Discounts at Local Fish Shops



10% Discount on everything.



20% Discount on fish. 15% on all else.



10% Discount on everything.



10% Discount on everything.



10% Discount on everything.



10% Discount on fish.



10% Discount on everything.



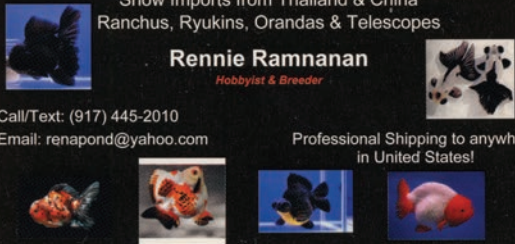
10% Discount on everything except 'on sale' items.

High Quality Exotic Goldfish
 Show Imports from Thailand & China
 Ranchus, Ryukins, Orandas & Telescopes

Rennie Ramnanan
Hobbyist & Breeder

Call/Text: (917) 445-2010
 Email: renapond@yahoo.com

Professional Shipping to anywhere
 in United States!



10% Discount on everything.

FISHWORLD
 USA
QUALITY AND SERVICE

152-69 10TH AVENUE
 WHITESTONE, NY 11357
 TEL: 718 902-6117
 WWW.FISHWORLD1.COM

STORE HOURS
 MON - FRI 11AM - 8PM
 SATURDAY 10AM - 7PM
 SUNDAY 10AM - 6PM



10% Discount on everything.

JUNGLE BOB ENTERPRISES, INC.

4130 Sunrise Hwy
 Oakdale, NY 11769
 ph: 631-319-6592
 www.JungleBobAquatics.com

Manufacturer of Quality Reptile & Aquarium Supplies

15% Discount on everything in store, or online at:
<http://www.junglebobaquatics.com> Use coupon code gcas15.

AL'S AQUATIC SERVICES
ALSAQUATICSERVICES@OUTLOOK.COM

AL TURRISI
 516.633.8806

- SPECIALIZING IN
- POND DESIGN & INSTALLATION
- PONDLESS WATERFALLS
- TURTLE PONDS
- SALT & FRESH WATER AQUARIUM SET UPS
- REEF TANK SET UPS

Services Include

- Scheduled Maintenance
- Repairs & Emergency Service
- Pond sitting while you travel
- Professional Aquatic Services
- Specializing in Aquatic Animals

AlsAquaticServices@outlook.com



10% Discount on everything.

NATURE'S REEF & REPTILE PET SUPPLY CO.



☎ 917-300-2293

📍 124-11 Jamaica Ave
 Richmond Hill, NY 11418

🌐 naturesreefandreptile.com

🕒 Mon-Sun
 10 am - 8 pm

📷 [natureefandreprs](#)

📷 [nature_reef_reptile](#)



GCAS Classifieds

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



GCAS Happenings

May

April's Bowl Show Winners:

No meeting or bowl show in April

OFFICIAL 2020 BOWL SHOW TOTALS:

HARRY FAUSTMANN 5 WILLIAM AMELY 1 JOHN BUZZETTI 3

Meeting times and locations of many of the aquarium societies in the Metropolitan New York City area (COVID-19 could cause cancellations! Check before you go!)



GREATER CITY AQUARIUM SOCIETY

Next Meeting: Wednesday, June 3, 2020

Speaker: Mike Tuccinardi

Topic: TBA

Meets: The first Wednesday of each month

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

Queens Botanical Garden

43-50 Main Street - Flushing, NY

Contact: Horst Gerber (718) 885-3071

Email: pilotcove43@gmail.com

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

BIG APPLE GUPPY CLUB

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

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

Contact: Donald Curtin (718) 631-0538



BROOKLYN AQUARIUM SOCIETY

Next Meeting: May 8, 2020

Event: GIANT SPRING AUCTION

Topic: N/A

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

NY Aquarium - Education Hall, Brooklyn, NY

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

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



LONG ISLAND AQUARIUM SOCIETY

Next Meeting: May 15, 2020

Speaker: TBA

Topic: TBA

Meets: 3rd Friday of each month (except July and August) at 8:00 PM.

LIAS Meetings are held at SUNY Stony Brook's Maritime Science area. Room 120 in

Endeavor Hall on the State University at Stony Brook Campus, Stony Brook, NY 11790

Email: president@liasonline.org

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



EAST COAST GUPPY ASSOCIATION

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

Environmental Ctr.: 228-06 Northern Blvd.

Contact: Gene Baudier (631) 345-6399



NASSAU COUNTY AQUARIUM SOCIETY

Next Meeting: May 12, 2020

Event: TBA

Topic: TBA

Meets: 2nd Tuesday of the month (except July and August) at 7:30 PM. Molloy College, at 1000 Hempstead Avenue, Rockville Centre, NY, in the Hagan Center for Nursing building, in the lower level, classroom #H006. See website for directions.

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

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



NORTH JERSEY AQUARIUM SOCIETY

Next Meeting: May 16, 2020

Speaker: Chuck Davis

Topic: Collecting Fish in Florida

Meets: 12:30 PM - 3rd Saturday of the month,

Clark Public Library in Union County, just off the Parkway at exit 135

Contact: NJAS Hotline at (732) 332-1392

Email: tcoletti@obius.jnj.com

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



NORWALK AQUARIUM SOCIETY

Next Meeting: May 21, 2019

Speaker: TBA

Topic: TBA

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

Contact: Sal Silvestri

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

Email: salsilv44@yahoo.com

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

Incest is Best

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

A series by "The Undergravel Reporter"

The website <https://phys.org/> has reported¹ on a study published in the Royal Society's Journal of Biology Letters² that puts guppy inbreeding in a new light.

sibling or unrelated females to determine whether their courtship and ejaculate expenditure differed.

The authors found that male guppies direct less courtship towards their sisters. However, they also found that males produce ejaculates with faster swimming sperm when paired with sisters.

Professor Evans said. "By producing more competitive sperm when mating with siblings, male guppies may potentially circumvent the females' natural preference to avoid inbreeding."

The researchers suggest the findings may reflect sex-specific responses to inbreeding, whereby males tolerate higher levels of inbreeding than females.



Photo from wikimedia.org

Professor Jon Evans, Dr. Clelia Gasparini and Honors student Luisa Fitzpatrick from the Centre for Evolutionary Biology, within the School of Animal Biology at The University of Western Australia, exposed male guppies (*Poecilia reticulata*) to either full

More interesting is the study showed that male guppies can recognize siblings, and adjust both their courtship behavior and sperm activity accordingly.



References:

1 <https://phys.org/news/2014-05-males-faster-sperm-sisters.html>

2 <https://royalsocietypublishing.org/doi/10.1098/rsbl.2014.0166>

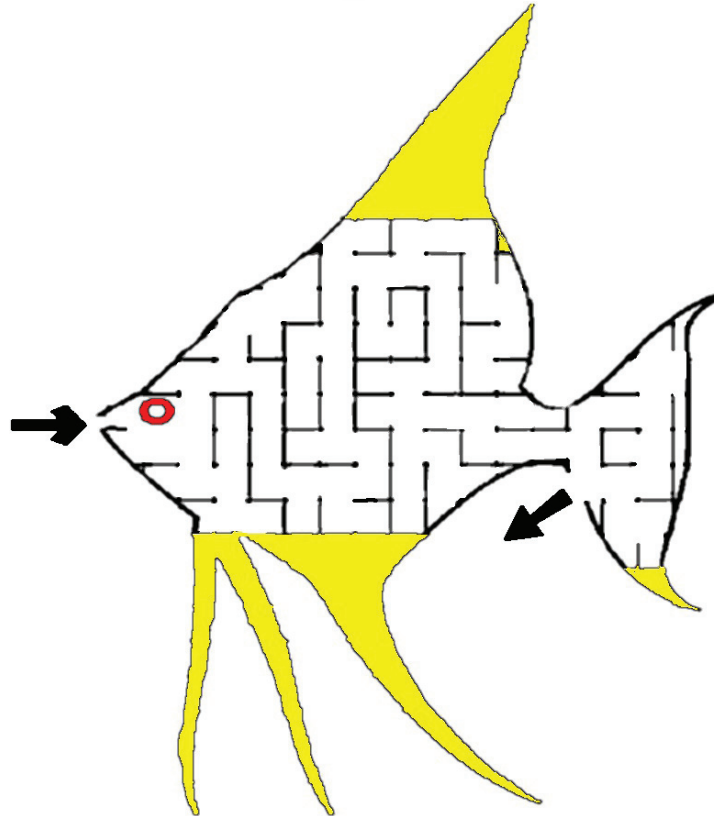


Fin Fun



Angelic Maze

The Greater City Aquarium Society has had several variations of a freshwater angelfish in its official logo, but never as a maze. Can you navigate the angelfish maze below?



Solution to our last puzzle:



*Collecting
We Will Go*

			S	T	O	O	B			
			P			U		C		
	S	E	V	O	L	G	M	B		G
	A									
	G	T	E	N	O	T	I	U	Q	S
B	A	C	K	P	A	C	K	C	P	P
	B						K	R		R
	C		G	O	G	G	L	E	S	A
	I						S	T		Y
	T	I	K	D	I	A	T	S	R	I
	S	U	N	S	C	R	E	E	N	I
W	A	D	E	R	S					N
F	L	A	S	H	L	I	G	H	T	
	P					L	E	K	R	O
										S



Can You Be a Better Koi Keeper, and Do It At Your Leisure?

Q: What if there was a source right in your home, available 24/7/365, that could provide the information you want and need about Koi keeping? Wouldn't that be nice, not to mention convenient?

A: Good News! There is just such a source and it's only a click away on your own computer. Water Quality course suitable for ALL fish keepers! Learn something new today!

Current. Accurate. Useful.
www.KoiOrganisationInternational.org



