August 2020
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THE FILTER

TAMPA BAY AQUARIUM SOCIETY
28 Years
ST. PETE/TAMPA FLORIDA

Variatus Neon Black Hi Fin
Xiphophonus variatus

Photo Mike Jacobs . . . 2020

TBAS . . . Since 1992

TAMPA BAY AQUARIUM SOCIETY

"THE FILTER"

Tampa/St. Pete, Florida

TBAS

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Boy, do I miss you folks . . . I'm not too sure if this COVID-19 thing is getting better or worse? There is plenty of reason to STAY AT HOME **BUT I HATE IT**!!! I miss my other aquarium clubs, Coastal Aquarium, Killifish Club (SKS1.com) . . . I miss my bridge club (cards) I miss all the people!!!

REMEMBER, however that our meeting place has been closed by the **COUNTY, NOT US,** at least until the end of July . . . so no meetings until at least August!!! But I have a sneaking feeling that there won't be an August meeting either!!!

Ok, we have some "nifty things" in this bulletin:

1) A **FISH VIRUS** article by Joe Nadolny

2) An "**oldie - GREAT**" Article by Kryssi Damico . . . I mean it's a good one!!!

Hope you enjoy this August issue . . . there is really some pretty good stuff going on in here!!!

As always . . . please take care of yourself and your family and I will see you as absolutely soon as I can!!!

Mike

Mike Jacobs, Editor TBAS Filter

Aulonocara rubescens
Ruby Red Peacock
Photo by Mike Jacobs 2001

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SO, WHAT'S A VIRUS ANYWAY?

by Joe Nadolny

Since we have all been and maybe still are in self quarantine at home, and all of our aquariums are spotless, and all of our breeders are set up, and there is not a spec of dirt in any of the filters, it may be a good time to talk about viruses.

Viruses are interesting creatures. Virus is a Latin term meaning "poison, sap of plant, slimy liquid." The earliest use in English was in 1728. Viruses have been called "organisms at the edge of life." Some say that viruses are not alive. One definition I found was, "A virus is a submicroscopic infectious agent that replicates only inside living cells of an organism such as an animal, plant, or bacteria." Inside the virus is a packet is called a viron that contains DNA or RNA enclosed in a protein coat called a capsid. The viron has no digestive system, nervous system, or nucleus as a typical animal or plant cell would have. A virus cannot reproduce on its own. This is why some say that viruses are not "alive" in the strictest sense of the word. Viruses reproduce by injecting their DNA or RNA into a host's cell and programming the cell's machinery to produce more viruses. The cell eventually explodes releasing new viruses to infect more cells.

Viruses are very, very small, about 1/100 the size of a bacteria. They have a diameter of 20-300 nanometers. A nanometer is one billionth of a meter. Escherichia coli that lives in our intestines is 1100 nanometers wide and 6000 nanometers long. You cannot see a virus with a regular light microscope; you need an electron microscope.

There are about 5,000 different viruses (so far). A virus can be very specific to the host it infects and what type of cell it infects. In humans, measles, polio, influenza, smallpox, and covid-19 are all caused by viruses. They have been found in almost every type of ecosystem. Viruses are the most abundant biological entity in the aquatic environment. There are about 10 million viruses in a teaspoon of sea water (I may never go to the beach again!). There are over 125 different viruses that affect fish.

There are many viruses that affect food fish and cold-water fish such as goldfish and koi. As fish keepers you may have seen some of these:

Spring Virena of Carp (SVC)

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Koi Herpes Virus (KHV)
Goldfish Herpes Virus (HVHN)
Carp Edema Virus Disease (CEVD)
Carp Pox

Most of the above are more of a problem in colder areas. You may never see some of these due to Florida being sub-tropical. All of these (except Carp Pox) can cause up to 100% mortality. You might have seen Carp Pox. It looks like small spots of wax on the fins. I have very carefully wiped the spots off the fin in between my fingertips to remove them. Carp Pox rarely kills the fish; it just looks bad.

As far as viruses that affect tropical fish, megalocytivirus can affect swordtails, sailfin mollies, some gouramis, and some cichlids including angelfish. This is the "angelfish virus." It can cause 100% mortality. It can occur in a temperature range of 68 to 90 F.

Lymphocystis Disease (LCDV) is a virus you may see. It looks like small, wart-like nodules on the fins. It does not cause significant mortalities. The only fish I have seen it on are Ruby and Green Scats and Glass Fish, both painted and unpainted. I could, very carefully, pull it off by pinching the fin between my fingertips and gently pulling it off. The fish do not seem to be bothered by it.

There are no treatments for viruses. Antibiotics will not work on viruses. So, what can you do? Try to keep your fish healthy and stress free by:

1) Maintain excellent water quality
2) Feed high quality food
3) Maintain clean facilities
4) Keep sick or potentially infected fish separate from all other fish

It is a particularly good idea to quarantine any new fish you get that are from an unknown or suspicious source.

Next time: **To Quarantine or Not to Quarantine, That Is the Question!!**

GARGAS ANSWERS!!!

We all have a WOUNDEFUL opportunity!!! Joe Gargas has volunteered to take and answer all of your "WATER" and "DISCUS" questions!
You folks all know my opinion of Joe's "WATER" & "DISCUS" knowledge . . . so take advantage of this oportunity and have at it!!

Here's Joe's email address:

joegar@tampabay.rr.com - Ask him anything you want and let him answer. We will then publish the questions in the monthly TBAS bulletin, "THE FILTER" . . . DON'T BE SHY!!

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MEMBERSHIP DUES!!!!

Membership Dues for TBAS are due on the anniversary of your sign-up date every year. Please make sure you check the "sign-in" list on the table at every meeting to check your "Dues-Date" . . . Thanks!!!

USE PAYPAL ON THE TBAS WEBSITE . . . TBAS1.COM . . . !!!!!

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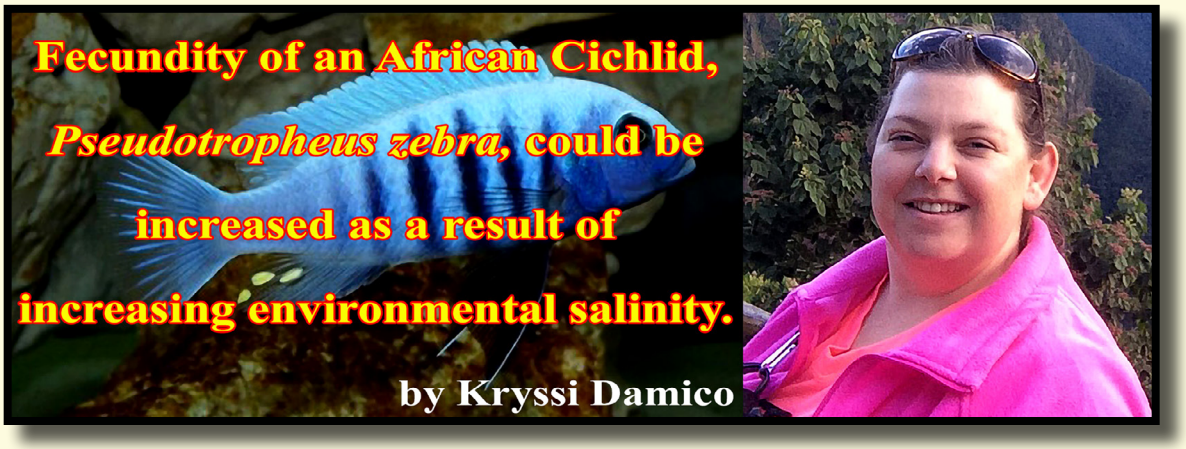
An "OLDIE" But REALLY-REALLY "GOODIE" Article



We all know that Florida has a huge agriculture market, and aquaculture is a big part of this market. The ornamental fish industry makes up a large part of Florida's agriculture, with freshwater ornamental fish production comprising about half of Florida's 68 million dollar aquaculture industry.

African cichlids are sold almost everywhere these days, and the demand is growing, with more and people getting into the hobby all the time. The United States isn't the only producer of cichlids. Many foreign countries are able to import cichlids into the U.S. for less than they can be produced and sold domestically. This creates stiff competition for Florida's fish farmers. Foreign competition is very large, so staying on top of our market is essential for Florida's fish farmers. They are always looking for more efficient and economical ways to stay ahead of the game, while still being profitable.

One way that the Florida fish farmers could remain competitive against foreign fish markets would be to develop a means of increasing the fecundity of their farm-raised cichlids. Fecundity is the reproductive potential of an organism, which is often measured as egg production and/or fertility when dealing with aquacultured organisms. In order to investigate the potential for this, we must first understand a bit about the physiological processes that are important to fish growth and reproduction.

Fish direct their dietary energy towards growth, reproduction and maintenance. Maintenance includes osmoregulation, which is the fish's ability to maintain the water and salt balance within its body. An equal balance of salinity between an organism and it's environment is called an "isosmotic" condition. There have been a number of osmoregulation studies conducted on tilapia and salmon. In one tilapia study, it was observed that salinity above 9ppt decreased fecundity of the eurohaline red tilapia. However, this study did not take into account the isosmotic conditions. In one of the published salmon studies that was reviewed, the scientist was attempting to determine if creating an isosmotic environment would increase weight gain in juvenile salmon.

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As a result of these (and other) previous studies, we know that environmental conditions can influence how dietary energy is partitioned.

The zebra cichlid (Pseudotropheus zebra) is a freshwater species native to Lake Malawi in Africa. The red zebra cichlid is one of the many color morphs of this species that is kept and bred in the aquarium trade. Like most fish, red zebras must spend some of their energy on osmoregulation.

Red Zebra Top
Pseudotropheus zebra Galilae

So, could creating an isosmotic environment help the fish to spend some of the energy that it typically uses to osmoregulate on fecundity instead?

In order to try to answer this question, I decided to conduct an experiment. I set up two (2) identical recirculating systems to house my fish in. Each system held three (3) breeding tanks. Each of the individual tanks held 10 red zebra fish. The ratio of fish was one (1) male to four (4) females. So, there were two (2) males and eight (8) females in each of the tanks.

The water quality was tested regularly with a LaMotte test kit. Water parameters were kept at standard African cichlid limits (e.g., relatively hard and alkaline).

The first system (System 1) was a standard freshwater system.

In the second system (System 2), I added 10 ppt of aquarium salt. This salinity was maintained in System 2 throughout my study.

To determine the blood salinity of the cichlids, I had to draw blood from the caudal vein of 15 fish. After taking each blood sample, I inserted the blood into ELITech 5600 VAPRO vapor pressure osmometer set at standard conditions. Based on readings from the vapor pressure osmometer, I determined that the blood salinity was 10ppt.

In order to make the test system an isosmotic environment, I made that system 10ppt (to match the blood salinity of the cichlids).

I fed the fish to apparent satiation daily with a commercial diet to provide them with maximum dietary energy to maintain physiological functions.

Every week I collected and counted fish eggs from all the female red zebras in each of the two systems.

After 12 weeks, I determined the average fecundity.

I found that the fish produced more eggs in the first several weeks but egg production declined in the last several weeks.

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However, in order to determine if the salinity of the water had a negative effect on the egg production, or if it was an issue of the environmental lighting in the room where the study was being conducted, the study would need to be continued.

Based on the results from my initial experiment, I've learned that maintaining an isosmotic environment had been beneficial to cichlid egg production in the beginning.

I would like to further this study and I definitely need to get more data on a larger scale to evaluate my results. I also believe that this type of experiment should be done on many other species so that results can be compared and better understood.

If I am able to continue with the experiment, and in the event that my study has the same result, I want to look into the reason why the increase of salinity was helpful in the beginning but hindered egg production in the end.

In the event my follow-up study shows desirable results (i.e., measured increased fecundity), the next step would be to evaluate the absolute costs of production to see if this is an affordable way to help farmers increase their production.

Below is a description of the design of my experiment.

Materials and Methods

1) Talk about how being an isosmotic environment is what I am trying to achieve, I had to learn what the fish's blood salinity was.

How did I do this?

Talk about what the Vapor Pressure Osmometer is.
Include how I took the data from the Vapor Pressure Osmometer and used an equation to find out what the blood salinity is.
Once I learned the blood salinity of the fish, I was then able to find out how much salt I needed to add to the test system.

2) Each system was treated the same way. I kept the water parameters to what is required by red zebra fish (African rift lake cichlids), with the exception of the salinity difference that I introduced in System 2.

3) The fish were all fed to satiation with a standard commercial cichlid diet.

Kryssi, this article is way above and beyond the "call of duty" . . . this is absoutly SUPER!!! I am so very proud of you!!

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Recently I had the great fortune to set up not one, but TWO wet-dry filters for a couple of members of the club (not the hang-over-the-back-power-filter-type). I have been using a wet-dry filter for the past 7 years and currently own two of them. One is up and running on my 110 gallon goldfish tank and the other is waiting for the 70 gallon tank I am setting up. I realize that this is a confusion filter system even for experienced hobbyist. Most people think of this filter as a saltwater filter only, but I find it works very well on freshwater and I highly recommend them to anyone.

Because I think I have had everything go wrong that could go wrong, I thought I would pass on my experience to help someone else.

The standard wet-dry has two main parts: the pre-filter and the wet-dry. The pre-filter is the output and the water flows over the top of the inside chamber through a pad, then through the overflow tubes to the back chamber. The pad inside chamber catches bubbles before they go into the overflow tubes. Without the pre-filter pad the bubbles

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will build up in the overflow tubes and break the siphon. The outside chamber has a reservoir built in so in cases of power outage the siphon won't be broken. Some pre-filters are drilled into the bottom of the tank usually in the corner: there is a stand pipe and sometimes a panel sealed across the corner of an overflow. But, no matter how it is built they are pre-filters.

The second part is the wet-dry filter. So why do they call it a wet-dry? The first chamber of the filter is above water making it the "dry" part. This chamber is usually filled with bio-balls or DLS material. With the water flowing over the filter medium, instead of through, there is a large surface area providing continuous oxygen for the nitrifying bacteria and no dead spaces. Under the dry chamber is the "wet" chamber usually filled with a heavier medium like lava rock or bio blocks. This area still gets oxygen because the water is sprinkled into it. Sometimes there is another chamber that is also "wet" provided for carbon, Chemipure or for a protein skimmer (another article). Then comes the reservoir - this is where water is added and the level is checked. If it is too low, then the pump will suck in air. It makes a sound that will wake me out of a dead sleep. If it is too full then it will overflow when the power is turned off. The pump can be a power head or a water pump attached to a hole in the side. Anything that will pump the water back into the tank will work. At the top the water goes in with an angled tube to allow the water to flow across the surface. This tube can be the source of a few headaches.

When my friend was building my first wet-dry he flooded his living room twice before he installed a siphon breaker. This is a little hole drilled at water level that will suck in air if the power is turned off preventing the reservoir from overflowing. His wife was very happy when I picked up the wet-dry. Another time, after the tank had been up for a couple of years the hole became blocked with algae and overflowed in my living room.

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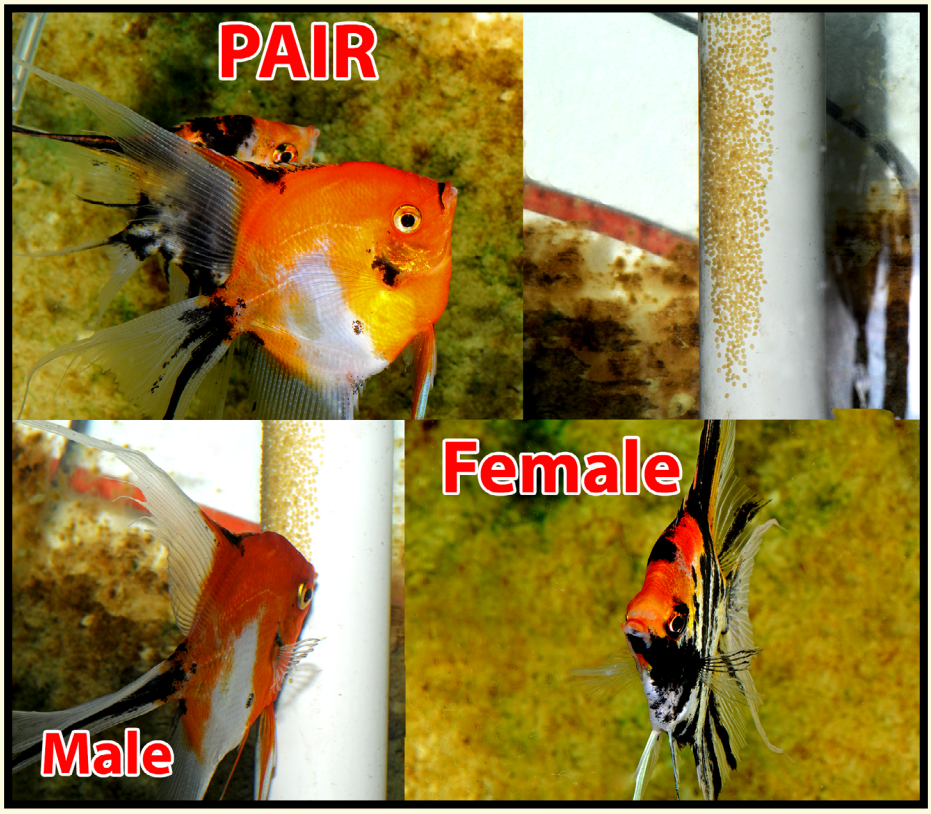

Click on the to See Video

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Mike's Moment Article from 1995

by Mike Jacobs

Here's the problem. Louie has spent the last 6 years developing a **"Purple-Longfinned Flyeater"** . . . here after known as PLF . . . and he is now ready to sell them to the public. Well, along comes Susie . . . I could make a song out of that (I'm dating myself) . . . and she buys the first bunch of PLF's that Louie has for sale and she spent $25 each for them. Now, she does all of the right things to induce the PLF's to do their rightful thing and bingo there is a batch of little PLF-lets at Susie's house.

Susie naturally doesn't want the enormous bunch of those little buggers running around the place so she goes to the local PLF selling place and offers up her good fortune to the person (see ladies . . . I could have said man!) in charge and we now have a dilemma. Does she have a right to sell the highly prized PLF's as "Louie's PLFs" . . . or are they now "Susie's New & Improved PLFs" . . . or what? Does a person have the exclusive right to a color variety of animal??? Now remember Louie spent 12 years and Susie was lucky and only spent 6-7 months. What if the fish that Louie sold to Susie were inferior products of Louie's breeding stock?

If Susie knew that, then when she goes to sell her PLF's, then she should not say that they are Louie's PLF's, since she will be selling inferior stock and damaging Louie's name and reputation.

Is that OK? Does she owe any alliance to Louie? Is she under any ethical code to maintain the strain and sell the strain as Louie would do for his?

Since Susie's PLFs are just not the same high quality that Louie had and Susie knew that when she bought the PLFs but now that she wants to make some money, her PLFs are really inferior PLFs to Louie's PLFs. Now it is clear that she really is misrepresenting "Louie's PLFs" . . . oh my! Now, what if Susie mates a real PLF with a YSF . . . that's a "Yellow Short-finned Flyeater" . . . what does she have now? I know . . . a "PYLSF", well when these are young they do show the purple that Louie's PLFs have but that eventually fades and yellow

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show up. The questions are endless . . . what is right is not clear unless we all respect each other's work. If I buy some of Louie's PLFs I can't in all good faith sell them as "Louie's PLFs" . . . I don't think I could sell them unless I can guarantee the quality and that means PLFs X PLFs gives PLFs . . . and even then I might need permission from Louie . . . otherwise they are just Flyeaters . . . ! Think about it from Louie's view . . . wow!!!

I have experienced something in Florida that I didn't experience in the "northland." Fish shops tend NOT to buy fish from the local fish hobbyist/breeders. I know that there is always the chance of some disease, but in all honesty, I have gotten quite a few more diseases from dealers than from fellow breeders (I mean no ill will here), but if you think about it, the local breeder is more likely to not have diseases in his tank. He is most likely to be the one person's whose tanks will be spotless. Think about it pet shop owners . . . encourage your customers to breed fish:

1) Breeders are more loyal to the shops they sell to.
2) Your shop might be able to get some fish cheaper than normal.
3) Your customers will look to buy your fish because they are locally grown.
4) You will probably have cleaner fish than normal.
5) You will really be encouraging the growth of the hobby.

On the other hand . . . you breeders out there. Don't expect the local shops to buy everything you have at a full wholesale price. I know . . . maybe the show paid $.50 for a fish and sold it to you for $1.50 to $2.00, but you must understand that the shop may only want a dozen or two and you have 200 to sell. Well maybe the answer is to give the show a break and sell them to the shop for $.15-$.20 each and get rid of a bunch and let the shop have a sale on the fish . . . consider what size you bought the fish at . . . most likely it was 3/4 to full grown, and most likely you have 1/4 - 1/2 size fish to sell the shop . . . you get less money here also. Along with this is the idea that the fish you sell must be of first class quality . . . no missing fins . . . no nipped fins . . . no missing gill plates . . . no stunted fish . . . nothing that you wouldn't buy yourself . . . THIS IS A MUST!!! The fish you sell MUST . . . MUST . . . MUST be in excellent health. If you ever sell a sick fish to a shop, don't ever expect to be welcome back in the shop. Lastly . . . spend money at the store, be fair with the dealers, they really are making a living with the fish they sell, you just think you are. Sometimes even be willing to take merchandise in exchange for fish . . . cooperation is the key to the ball game. Come on Fish Shop Owners . . . encourage the hobby . . . establish yourself a good and fair policy about buying fish from breeders you know . . . trust me it usually works. The local breeders can be awfully nice people and they have

some really nifty, healthy fish for you to sell if the whole thing is done right.

Boy am I smart . . . yea . . . Mikey'll eat it, give it to Mikey. Anyway . . . I've been breeding angels for about 5-6 years now. It's another story about how I got started and what I've raised, but I still piddle with them and I am always looking for a way to be more successful in the hatching and raising of these wonderful fish in a system that does not resemble a gazillion acre fish farm . . . soooooo one night I am cleaning the tanks and I think, hey, you don't have to always have PVC tubes they lay their eggs on falling down . . . why don't you "silastic" a piece of PVC to a piece of slate . . . **great idea**. So I found a piece of slate that is about 3" x 3" and perfectly flat on one side (so it won't wobble) and I cut a piece of PVC about 6-8" long . . . 45 degrees cut on one end. I positioned the PVC on the slate such that it sticks upright at a 45 degree angle and "silasticated" (is that a word? - it's a fish thing) it to slate . . . perfect, perfect, perfect. Now when the fish lay the eggs on it you can just pick it up and put it in the hatching tank and it has its own base and no problem . . . heh, heh, heh! It all went perfect. My albino angels spawned like two little . . . well, they just spawned . . . I grabbed the "spawning tree" and it's base came with it slick as slime and put it in the hatching tank and bingo . . . everything went perfect and they hatched and I was so proud I left the tube in the hatching tank too long . . . you are not going to believe what happened! Out of 300+ angels ALL but about 5 were down in the PVC tube and smothered to death . . . I'm not kidding . . . there was something to the current of the water passing over the top of the PVC tube such that all of the young as they just became free swimming they were all sucked into the top of the PVC tube and they couldn't get out and all died for lack of circulated water . . . and you think things happen to you . . . result . . . I took a hack saw and cut the PVC down vertically so that there is now a 1/2 PVC tube 6-8" long glued to the slate. . . now it works super . . . just when you thought you think you know it all you tend to be jerked right back down to the reality of earth . . . **Fins Up**!

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The Best Ideas for that

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***Hypoptopoma gulare* - Giant Otocinclus Catfish**
photo: Mike Jacobs 2017

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alphabetical order

1) 5D Tropical Fish
2) Segrest Farms

Tampa Bay Tropical Fish Farmers:

alphabetical order

1) Amazon Exotics
2) BioAquatix
3) FishEye Aquatics
4) Golden Pond
5) Imperial Tropicals
6) Lile's Tropical Fish
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