THE FILTER

Tampa Bay Aquarium Society

25 Years

St. Pete/Tampa Florida

TBAS . . . Since 1992

Hasemania nana
Albino Silvertip Tetra

August 2017
Volume 27 Issue 1

Photo Mike Jacobs . . . 2017

August Meeting Speaker:
Lou Foxwell
Venice, Florida

August Bowl Show
1) Mollies
2) Rainbows

TAMPA BAY AQUARIUM SOCIETY

"THE FILTER"

Tampa/St. Pete, Florida

TBAS

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TBAS

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As I sit down to compose this message I have several thoughts. First is where did this month go … we are about to move into the month of August. I will keep this short as the editor is awaiting my words so he can put this issue of "The Filter" to bed.

The August meeting is an important meeting and we encourage significant attendance. First order of business will be our election of directors for the coming year. This year we need to fill 4 director position (2 year term) and 1 position for a single year term. Nominations have closed and ballots will be distributed as you enter the meeting. Remember to vote your membership dues must be up to date. The BOD is diligently working on a speakers list for the fall and spring meetings. There are still many openings so if you have a recommendation please pass on the suggestion to Joe Gargas on one of the other board members to investigate. So, some of you no doubt traveled to one of the national conventions over the couple of months. Perhaps you heard a great presentation and think the TBAS membership might appreciate hearing the presentation. Please let us know your suggestions.

The speaker at the August meeting will be Lou Foxwell, the proprietor of a great little pet shop in Venice, and is better known as Father Fish. We look forward to an interesting presentation.

That's it for this month … looking forward to seeing you at the meeting. Until then, Happy Fish Keeping!

Bill

Bill Little, VP TBAS

Boulengerella lateristriga
South American Gar

Have you ever tried to do something, failed repeatedly, and thought: "this shouldn't be this hard!" I have bred many, many different species of fish, but one basic fish that has remained elusive is the common Betta. I have bred other Anabantids and even other wild-type Betta, but not the Betta splendens. Please understand that this is not for lack of trying. I have read books, watched videos, surfed Betta-oriented websites, and talked to Betta experts, but as a good friend has often reminded me – fish don't read! And in this case, I was not able to convince them that they were supposed to breed. Well, that is not entirely true – I have had a number of batches of fry that didn't make it or in a few cases only two to five made it to the sixty-day mark. I mention this because to quality for a successful breeding in the Breeder's Award Program (BAP) it is a requirement to have six fry that are at least sixty-days old. In fact, the male in this story below was a third-generation fish from a series of some of those "almost" batches that never qualified for BAP credit. This isn't meant to be the ultimate "how-to" on breeding Bettas, rather it represents some of the things that I have learned from a long, long string of failures as well as what worked on a recent successful attempt.

Like many of my earlier attempts I started with a 10-gallon tank and a 1-gallon glass "pickle jar" for each female. The pickle jars were filled with water and placed into the 10 gallon tank –

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yes it is a lot easier to fill the jars first and make sure that is left in the tank for the added displacement from the jars (ask me how I know!). I mention "each female" because I added two pickle jars, each with a female, and one male that was in the main part of the 10 gallon tank. In the past I had tried the recommended vintage-style kerosene lamp globe that has a hole in the top and bottom, which allows the globe to be removed easily and not disturb the male's bubble nest. The gallon jars are bigger and don't require water changes as frequently which is helpful if the male and female take a while to come into breeding condition. Speaking of breeding condition of the fish, what I looked for was a bubble nest that was two to three bubbles high – a single layer wasn't usually acceptable to the interested female. Additionally, I looked for the female to have a fully belly with a white spot underneath.

Bettas Spawning
Photographer unknown

Another key change was the media used for the male to build the bubble nest near or around. For a long time I used several variations of a Styrofoam cup including just the bottom of the cup or half of the cup split from top to bottom. I had also tried other options including large bubble wrap. Taking a tip from a YouTube video, I tried a four-inch piece of small bubble wrap that I pushed my thumb into the middle to stretch a section in the center of the side without bubbles. By placing the bubble-side of the packaging material up when laying the bubble wrap on the surface of the water air is trapped and a pre-formed bubble already exists as a beginning to the nest. On a side note, I have used this same approach with the small bubble wrap for other bubble nest builder species for successful spawns.

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A significant concern when breeding Bettas is how long to leave the male and female together so the female (or females) doesn't receive too much physical damage. Yes, I did have an aggressive female in the past that did far more damage to the male than was done to her. In an effort to counteract the damage, I added floating plants and other aquascaping such as driftwood and rocks to the 10-gallon spawning tank. With plenty of hiding spaces and two females in the tank, this seemed to provide the necessary hiding places and distribute the aggression. Additionally the floating, live plants also work as a source of first food for the fry.

After the eggs were in the nest I followed the standard process of moving the females to another tank and then at the first sight of free-swimming fry then also moving the male to another tank. In addition to the live plants, I also used green-water, finely powdered dry food, and baby brine shrimp (BBS). Speaking of food, I found that, like many species of fish, feeding black worms helped to condition the adult fish and get them quickly into breeding condition.

Bettas Spawning
Photo by Missina Burcaw

This approached resulted in nearly twenty healthy and growing fry! But this success isn't the end of the story. Simultaneously while the story above was unfolding, I decided that this spring I would set up a large resin planter pot (20" wide x 16" high) filled with tank water and floating plants that holds about 14 gallons of water. The planter has no external aeration and is placed in the shade. I covered the container with ¼ inch screen mesh for protection against birds and other predators and then I added four females and a single male. I will empty the container in October to see how many fish are there, but I

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can report that I have seen several small fry at the surface and at least a few that have made it to the juvenile stage. What started out as seemingly impossible, has happened with minimal input from me – once again I am reminded that, in spite of me, fish want to breed!

. . . Another Messina Burcaw photo of Bettas spawning!

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WHEN: Saturday, November 4, 2017

WHERE: Crowne Plaza, Tampa, Florida

TIME: Doors Open - 8:00am

TIME: Setup & Registration - 8:00am - 10:00am

AUCTION TIME: 10:00am - 5:00pm

INFORMATION: www.tbasauction.com

TBAS WEBSITE: www.tbas1.com

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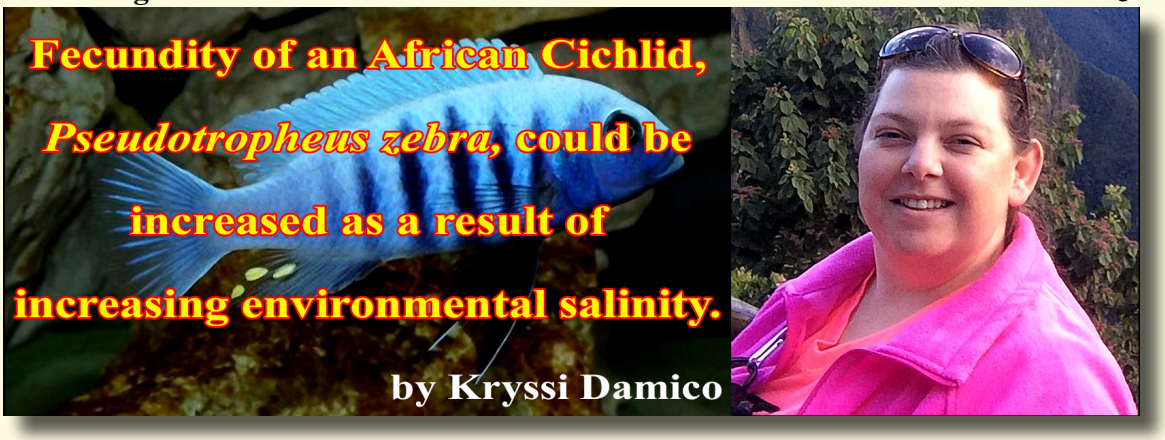

We all know that Florida has a huge agriculture market, and aquaculture is a big part of this market. The ornamental fish industry makes up a large part of Florida's agriculture, with freshwater ornamental fish production comprising about half of Florida's 68 million dollar aquaculture industry.

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

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production declined in the last several weeks.

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.

Thanks to Brian Skidmore (TBAS) for the edit . . . I am an OLD math teacher . . . ☺☺!!

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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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MONTHLY BOWL SHOW

January
1)
2) None - Plant Auction

February
1) Male Betta Splenden
(single fish)
2) Open

March
1) Tetras, Barbs, Rasbora
2) Cichlids

April
1) Platies
2) Guppies

May
No Bowl Show
Swap Meet

June
1) Corydoras
2) Anabantoids no Bettas

July
1) Arts & Crafts (hand made)
2) Fish "T" Shirt (must be worn)
3) Aquatic Photos
(personally taken)

August
1) Mollies
2) Rainbows

September
1) Swordtails
2) Pleco/Sucker type fish

October
1) Dwarf Cichilds
2) Angelfish

November
1) Goldfish & Koi
2) Invertebrates (Fresh or Salt)

December
No Bowl Show . . . Christmas Party and the 2016 Results of the Bowl Show!!!

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Bowl Show Results 2017

by AL

NAME	JAN-JUNE	JULY	TOTAL
Kent Sheets	56	20	76
Ethan Skidmore	54	8	62
Joshua McWilliams	19	2	21
Missina Rurcaw	5	11	16
Elaine Thyner	6	0	6
Danielle Lee	4	0	4
Grant Eder	1	0	1

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***Hypostomus soniae* . . . Blue Eyed Red Fin Pleco L-137**

photo: Mike Jacobs 2017

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Supporters of TBAS

Tampa Bay Wholesalers: Tropical Fish

alphabetical order

1) 5D Tropical Fish
2) Segrest Farms

Tampa Bay Tropical Fish Farmers:

alphabetical order

1) Amazon Exotics
2) BioAquatix
3) Carter's Fish Hatchery
4) FishEye Aquatics
5) Golden Pond
6) Imperial Tropicals
7) Lile's Tropical Fish
8) V-W Tropicals

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TAMPA BAY AQUARIUM SOCIETY OFFICERS

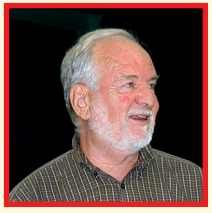
PRESIDENT
Dharmesh Patel

V. PRESIDENT
Bill Little

SECRETARY
Kryssi Damico

TREASURER
Patty Moncrief

BOARD OF DIRECTORS

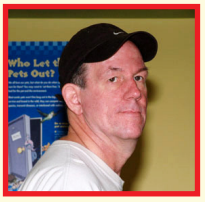


Hank Darin

Joe Gargas

Mike Jacobs

Bill Shields



Al Starkey

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TBAS

Tampa Bay Aquarium Society
St. Pete/Tampa, Florida

Website: www.tbas1.com

FORUM: www.tbas1.com/forum

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