



# Tank Topics

September/October 2019



*A Labeotropheus sp.* Female mouthbrooding eggs. Learn about this and many other methods that fish use to bring about the next generation in Rich Serva's article in this issue.

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### Important Dates for 2019

March 3  
Spring auction

June 8 & 9  
Ultra Aqua 2019

November 3  
Fall auction

Check out our website: [www.akronfishclub.com](http://www.akronfishclub.com)

## THE GREATER AKRON AQUARIUM SOCIETY

**WHO ARE WE?** We are a local group of aquatic enthusiasts. Formed in 1952, the Greater Akron Aquarium Society is a non-profit, non-commercial organization. Our membership ranges from the beginning hobbyist to the advanced aquarist with many years of experience. The goals of our club are to promote the care, study, breeding and exhibition of aquarium related aquatic life and to promote interest in the aquarium hobby.

**MEETINGS:** Our meetings are held on the second Friday of each month at 8:00 p.m. at the Ritchie Memorial Shelter House, 109 West Avenue, Tallmadge, OH 44278. It is located West of Tallmadge Circle with access from Sperry Ave., behind Vet Clinic and across from the Chevrolet dealer. Visitors are always welcome, it costs absolutely nothing to attend a meeting and look us over.

**MEMBERSHIP:** The cost is only \$10 for adults, a couple or a family (includes children under 10 years of age) and \$5.00 for a junior membership (10 to 17 years) Membership provides an opportunity to socialize with others that share your interests, a subscription to our bi-monthly magazine and more.

**AGENDA:** Our meeting agenda is simple and informal. The meeting will begin at 8:00 p.m. with a short business meeting. Immediately following is the program for the evening which usually lasts about 45 minutes. Our programs consist of a speaker, slide program, movie or perhaps a panel discussion always on a particular subject related to the hobby or various species of fish. Following the program is a short refreshment break. After which the winners of the Bowl Show are announced, the Breeder's Award Program fish are auctioned and tickets are drawn for the raffle.

**THE BOWL SHOW:** Each month members can bring in fish for specific classes to compete for first, second and third place awards. The charge for each entry is only \$.25. Members also compete for annual awards by accumulating wins throughout the year.

**BREEDER'S AWARD and HORTICULTURE AWARD PROGRAMS:** members can receive recognition for spawning species of fish or propagating aquatic plants. All that is required is to turn in a minimum of six fry from the spawn that are between 30 and 90 days old. Members earn certificates for each species and can work towards plaques in different categories.

**EQUIPMENT RAFFLE:** The raffle table has such items as tanks, fish food and aquarium accessories that are donated by national manufacturers, area dealers or purchased by the Society. Tickets may be purchased by anyone attending the meeting. Save your losing tickets for the Christmas Party raffle.

**ANNUAL SHOW:** The Ultra-Aqua show is held during the summer at the Tallmadge community Center. This has become one of the largest all-species tropical fish shows in North America. It is an international gathering of hobbyists to display their fish in class competition, talk fish and to learn about the hobby from each other.

**TANK TOPICS:** is published on a bi-monthly basis for the members of the Greater Akron Aquarium Society. Articles and comments for this publication are welcome and encouraged. Such articles are to be submitted no later than the board meeting prior to publication. All articles may be reprinted as long as the author(s) and GAAS are given proper credit. Please send any correspondence regarding this publication to:

Editor/Tank Topics, P.O. Box 494, Akron, OH 44309-0494 or email to [dwilliamson223@hotmail.com](mailto:dwilliamson223@hotmail.com)

### The Greater Akron Aquarium Society Membership Form

Name \_\_\_\_\_ Age \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ email \_\_\_\_\_

How did you find out about GAAS? \_\_\_\_\_

Memberships are due one year from the date of joining. Completed membership forms can be turned in at a meeting or mailed to the membership chairman at this address:

GAAS Membership Chairman, P.O. Box 494, Akron, OH 44309-0494

Dues are for 1 year or 2 years if  
email publications are chosen

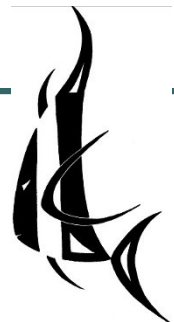
New       Renewal

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Adult (18 years and older) & Family  
(includes children under 10)      \$10.00

Junior (10-17 years)      \$5.00

Dues Collected \_\_\_\_\_ Date Received \_\_\_\_\_



# President's Message

## Bud White

Well I would have to say that our August picnic\meeting went very well. We had lots of good food, lots of fish and plants to give away and a lot of laughter and talk, it just doesn't get any better than that! We had several new members come that night also. I talked to each one and asked if they were having a good time and got an over the top yes from all of them, even if I was there (Grin).

Our next big adventure will our November 3 fall auction, it will be here sooner than you think. But in the meantime come to the meeting and check out the great speakers Steve has lined up for us and socialize with some great people in the club. The club is only as good as the effort you put into it.

See you at the meeting,

Bud



# Editor's Message

## Dave Williamson

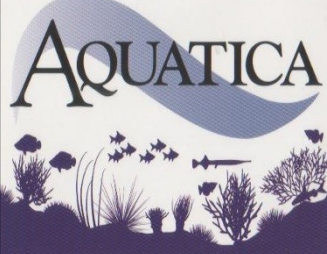
As I type this on Labor Day morning it doesn't seem possible that Summer is just about over already! It just seems like the other day that we were wanting the warm weather to finally get here and stop raining so much. Maybe it seems like it's gone too fast because I didn't get to enjoy much of it due to not feeling that good the last two months combined with a whole bunch of overtime at work. At least we have a couple of months worth of decent weather ahead of us so maybe I'll get in some sort of vacation this year. Working on the health issues but just have to deal with the other 4 letter word (WORK) for at least the next five and a half years or so. . . This too shall pass!

Another thing coming up pretty soon will be our own Fall Auction on November 3rd at the Tallmadge Community Center. You'll find more information on that elsewhere in this issue. Now is the time to start planning what you want to get rid of that you've got extra of or you don't need anymore as well as making room for some new interesting projects. Always having something new to work with helps keep up the interest in the hobby. That along with all the other clubs having an event in the Fall give you plenty of opportunities to get out there and enjoy the social part of our hobby.

Another thing that usually gets brought up at this time of the year is the perennial need for locally produced articles. You might notice the lack of the exchange column in this issue. That's because Wayne couldn't find hardly any articles to review in all the club publications we exchange with. I for one am very proud of the fact that we as a group still produce nearly all of our content ourselves. But that takes you to become involved and write it! We're not scraping, but we could use some to build up the selection.

I'll see you at the meeting and the Fall Auction!

Speaking of summertime entertainment, there were a couple of other fish shows schedule for this summer. One in Western New York and one in Eastern Pennsylvania. Due to the above mentioned situations I won't be able to do either of them, but hopefully some of you out there were able to become involved. I will be able to attend the OCA Extravaganza this year since it doesn't fall on the same weekend as something else I always need to go to. It's those small victories that make us happy!



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# BAP/HAP Report

**Wayne Toven**

Here we are with the summer winding down, school will be starting soon, and before I know it I will have to start bringing the fish back indoors from the outdoor tubs. I didn't get fish put out into all of my tubs this year, fighting with a nerve issue. I did have a couple of spawns though, Pluto barbs and *Chapalichthys encaustus*, haven't seen any fry yet from the other 8 species, can only hope.

Seems that a lot of our member's fish went on vacation for the summer, or was it just too warm for them to spawn? Hopefully things will pick back up for the last few months of the BAP / HAP year. So far we have 13 members participating in the Breeder Award Program, and 8 members participating in the Horticultural Award Program, I must say that's pretty good. We are about to eclipse last years BAP total, and have already passed last years HAP total, so far so good.

There was one plaque presented at the July meeting a Centurion Award for the Horticultural Award Program. Wayne Toven received the plaque for 300 submissions with the combination of vegetative propagations, flowerings, and sexual propagations. This will probably be the last one to me as it will take a long time if ever to get another 100.

Thank you!

## July 2019 BAP

Species	Common name	Class	Points
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### Mike & Elsie Swanson

<i>Aphyosemion punctatum</i>	"Bolo Bai"	Killifish	10
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### Daniel Jebaraj

<i>Enterochromis paropus</i>		Cichlid mb	10
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## HAP

### Wayne Toven

<i>Bucephalandra</i> sp.	Copperleaf	E-flowering	15
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<i>Ranunculus lingua</i>	Greater spearwort	E-flowering	10
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### Dave Williamson

<i>Cryptocoryne nurii</i>	Pahang mutated	E-flowering	15
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## August 2019

## BAP

### Mike & Elsie Swanson

<i>Steatocranus cassuarius</i>	Buffalo head	Cichlid s.s.	15
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2019 Totals	BAP	Points	HAP	Points
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Mike & Elsie Swanson	10	95	0	0
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Dave Williamson	6	50	1	15
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Brandon & Smantha Snopek	5	50	0	0
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Rob Williams	4	20	0	0
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Ty Hunsicker	3	15	4	25
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Ken McGill	3	25	0	0
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Karthick Muthuveeran	2	20	4	45
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Rich Serva	2	20	1	10
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David Girard	1	10	0	0
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Daniel Jebaraj	1	10	0	0
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Stan Jachna	1	5	0	0
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Wayne Toven	1	10	16	175
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Bud White	1	5	0	0
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Cody Alloway	0	0	2	25
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Amy Mullens	0	0	1	5
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Jeffrey Swanson	0	0	9	120
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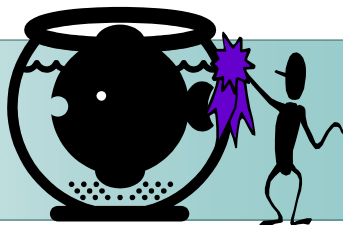
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# Bowl Show Report

Bowl Show Bob Williams



Hey Everyone! I've got lots of bowl show news for everyone!

Lets get this started with the results of some past bowl shows.

## July

### Mollies

1. Dave Williamson

### Loaches

1. Travis M.
2. Dave Williamson
3. Dave Williamson

### Sharks

No entries

## August

### Tetras

1. Dave Williamson
2. Dave Williamson
3. Jeff P.

### Killifish

1. Dave Williamson

### Rainbowfish

1. Dave Williamson

## Congratulations to our winners!

Looking ahead we have a great bowl show lined up for September. Dave Girard will be hosting that bowl show while Im out for football.... I mean, marching band season.

September bowl show is as follows.

- Danios/Minnows
- Raspboras
- Swordtails

Looking ahead to October...

- All other egglayers
- All other livebearers
- Aquascape challenge

The Aquascape Challenge is a decorated, themed, or aquascaped bowl, or tank no larger than 5 gallons. I'm really excited about that category as I'm trying something new.

Don't forget, Im working on the bowl show for 2020, so if you have anything you'd like to see added to our bowl show, let me know. Ill see everyone in November, and remember. Bring your best, be your best!

Rob

## 2019 Bowl Show Schedule

### January:

- Guppies/Endler's
- Goldfish
- Arts & Crafts

### February:

- Amphibians
- Invertebrates
- Favorite Breeding Pair (sexable)

### March:

- Fish Family
- Homemade Aquarium Decoration
- Fish Photography (individual fish)

### April:

- Bettas
- Gouramis
- Non-Suckermouth Catfish

### May:

- Suckermouth Catfish
- African Cichlids
- Platies/Variatus

### June:

- Native Fish
- Homemade Aquarium Equipment
- South American Cichlids

### July

- Loaches
- Sharks
- Mollies

### August:

- Rainbowfish
- Tetras/Characins
- Killifish

### September:

- Danios/Minnows
- Rasboras
- Swordtails

### October:

- Aquascape Challenge
- All Other Livebearers
- All Other Egglayers

### November:

- Any Live Plant
- Aquarium Photography (show us your whole tank)
- Schooling fish group of 6

**December:** no bowl show



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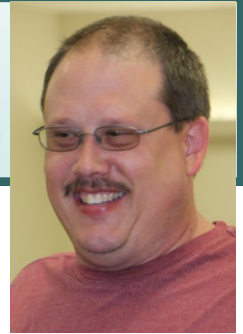
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# Membership Report

**Mike Swanson**



Hello Everyone,

I hope everyone is having a great summer, and the fish they put outside are thriving. The weekend before the end of August we had a few storms blow through and we lost power for several hours, we only lost one fish a male Apisto :( . But this makes me think I am not prepared for this type of mishaps, we run all the tanks on one air pump and we have an old blower as a spare & we have a portable generator but I am not sure these things would be enough to keep all the fish alive for very long. So lets hope we don't have to deal with these things too often.

I hope to see everyone at the next meeting in September and some of the other events in the fall.

I would like to welcome our new members:

Nancy Secrist

Kristen Kodish

This is a list of memberships expiring soon:

Bill Bilski

John Walczyk

Emilie Myatt

Remember you can renew online or at any function, Mike Swanson

# GAAS Fall Auction November 3, 2019

**Tallmadge Community Center  
80 Community Rd.  
Tallmadge, Ohio 44278**

Registration 10 am - 12 pm  
Auction begins at 11 am

## For more information:

Bud White (330) 848-3856 (president@akronfishclub.com)

Wayne Toven (330) 256-7836 (baphap@akronfishclub.com)

Rich Serva (330) 650-4613 (treasurer@akronfishclub.com)

[www.akronfishclub.com](http://www.akronfishclub.com) or

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**Be here or  
you'll  
never know  
what you  
missed!**



## *Aquatic Birds and the Bees* *The Back Story in Fish Reproduction*

Rich Serva

It seems like any time that I start re-searching for a hobby article, I become fascinated with the back story. According to my son, I am a bonafide "Science Nerd" and that is OK by me. This is the age of the Nerd. As I was saying, I wanted to write about what it takes to be a livebearing fish and that called for researching the differences between the egg-laying and livebearing bony fish. So it turns out that I was not done researching since I needed to know what are the differences between bony fish and cartilaginous fish since there are livebearing sharks and rays.

This story actually unfolds around 480 million years ago when fish evolved. Those first fish were found in fresh water and they were a very primitive bony fish. The story leading up to the split seems quite vague. (1) Class Agnatha are the most "primitive" of the fishes; they lack a jaw and a bony skeleton. The hagfish and the lamprey are the only living representatives of this once large class. I know of none of those species as livebearing so thus ended my research on them. (2) Class Chondrichthyes which includes sharks, rays and chimeras (fish with skeletons made of cartilage) moved to the seas early on in their evolution. (3) Class Osteichthyes, which includes the modern day bony fish (teleost) and their primitive relatives such as the sturgeon began spreading to the seas at a much later time. Class Placodermi (armoured fish) and Class Acanthodii (spiny sharks) are two of the extinct branches of the fish tree.

Teleosts are some of the most abundant vertebrates on the planet with nearly 25,000 living species. The chondrichthians represent only about 1,100 species; however, the fossil records contain many extinct cartilaginous fish.

Although everyone seems to know that, teleost fish have a calcified bone skeleton whereas the skeleton of sharks and rays is made of cartilage, there are many other differences between the groups of fish.

### **Cartilage vs Bone**

Their skeletons are also different in that the upper jaw of a shark is not attached to the skull as it is in bony fish and can move independently. Some bony fish also have a secondary set of jaws, pharyngeal jaws, which are used to further breakdown food, an element absent from sharks. Like mammal's, the bony fish have ribs whereas sharks do not. In addition sharks have 10 cartilaginous plates that cover the skull where bony have around 63 bones making up the skull. The gill slits of a shark are exposed and visible; however, bony fish have a protective bony plate covering their delicate gills.

Unlike bony fish, sharks have eyelids. Because bony fish have bone marrow, they produce much of their red bloods within the bone marrow. Sharks have no bones so their red blood cells are made exclusively in other internal organs. Although all fish have 4 chamber hearts there are differences in muscle structure.

Shark skin is covered by dermal denticles, toothlike placoid scales which are very successful in minimizing drag and maximizing swimming efficiency. Bony fish are covered in flat scales that grow as the fish grows. Shark fins are stiff and lack the fine bony spines and muscle control found in teleost. As a result bony fish can swim forwards and backwards but sharks only go forward.

Bony fish have a swim bladder that helps them stay at one level in the water column. Sharks lack this structure but rely on a lighter skeleton, hydrodynamic planing, the low density oils in their relatively large livers, and even some gulp air from the surface to keep neutral buoyancy.

Shark kidneys and genitals empty into only one opening called the cloaca. Bony fish have separate openings, a rectum, an anus and a genital pore. The digestive process takes much longer in sharks. The water in the marine environment is saltier than the water inside a fish, both bony and cartilaginous and each group has developed a distinct process to cope with this.

The two groups are very different from a life history point of view. Most bony fish grow up quickly and grow old quickly. Most sharks and rays are very slow growing and live a long life.

Around 97% of the bony fish externally fertilize their eggs whereas almost 100% of the cartilaginous fish internally fertilize theirs. Also most of the male sharks and rays have the ability to clasp the female during breeding using modified fin structures whereas only a handful of bony fish have that ability. Both bony fish and sharks deposit eggs through oviparity or give birth to live young through viviparity but only 1% of bony fish have developed that reproductive mode whereas around 60%

of the sharks and rays are livebearing.

Although the Chondrichthyes fish may not be as modern as the Osteichthyes, they have evolved to be efficient predators with an evolved mode of reproduction, livebearing. From an efficient reproductive point of view, livebearing is considered a more evolved situation.

As you might expect this is not just a simple split and the developmental path from egg laying (oviparity) to livebearing (viviparity) will keep researchers busy for years to come. All livebearing fishes fertilize their eggs internally but not all egg-laying fishes externally fertilize their eggs; some egg-layers perform internal fertilization. Livebearing is considered just one reproductive tactic that may be practiced by fish.

### **Reproductive Tactics**

One of the reproductive types is the broadcast spawners or pelagic egg scatterers. The eggs may be swept along by the current or eventually slip to the river or stream beds. The egg, developing embryo and hatched fry are left to their own with no parental protection or care. Usually this type of fish lays the most numerous and smallest eggs. The ocean sunfish can produce over 300 million eggs which will become part of the ocean plankton swept along with the current.

The next reproductive type is the benthic (on the bottom) egg scatterers. The eggs are heavier than water.

There are the egg scatterers which breed and let the eggs fall. The eggs could be adhesive or non adhesive. Normally this type exhibits no parental care.

There are egg depositors which seek out a surface to deposit the eggs and they may or may not exhibit parental care

There is also the type that lays its eggs in a cavity or cave and the parents may exhibit parental care.

There are the reproductive types that show parental care whether it is maternal, paternal or biparental. These can be further broken down into the mode of care:

**Body Slime Feeding.** The parent produces a specialized mucus on its body surface which is used as food by the young fry.

**Brood Pouch egg carrying.** Seahorse and pipefish males have a sac/pouch where the female places the egg until it hatches.

**Cleaning spawning site.** Taking eggs into the cheek area, cleaning the site then returning eggs to the site from which they were taken.

**Coiling.** The parent coils its body around the egg mass while guarding them. This guarding posture reduces the eggs' exposure to air at low tide, when the oviposition site is intertidal.

**Egg burying.** Depositing eggs beneath the substrate surface or covering eggs with substrate material. Peat spawning killifish would be an example of this type of spawning.

**External egg carrying.** Eggs attached to the parent externally during some or all of the embryos development.

Oryzias (Ricefish) carry their eggs.

**Guarding.** Displaying toward and/or actively chasing away threat to the eggs or fry, or the site where they are located.

**Livebearing.** Eggs are retained internally until hatching and mothers may or may not provide additional nourishment (beyond the yolk sac) to the developing embryo.

**Moving.** Taking eggs or fry by mouth from one location to another, often from one nest to another.

**Nest building and maintenance.** Building or using structures to hold eggs and/or fry.

Digging a depression in the substrate, a burrow, or making an elevated mound with substrate materials.

Assembling a cup or tube structure with pieces of vegetation.

Blowing mucus-covered bubbles that form a floating mass.

**Oral brooding.** Holding eggs and fry in the mouth or gill cavities during their development, typically ending with the release of well developed fry.

**Removal.** Dead or diseased eggs removed by mouth from the egg mass.

**Retrieval.** Taking eggs or fry that fall or stray from the nest or school into the mouth, and returning them to the nest or



school.

**Splashing.** Splashing water on eggs deposited out of water or eggs exposed at times of low tide.

**Substrate cleaning via mouth.** The removal of debris, algae, and animals from the site where eggs are to be deposited.

**Fanning.** Moving the pectoral, pelvic, anal, or caudal fins over the egg mass or fry, thereby aerating them and removing sediment. Aeration and removal of sediment

may also be accomplished by forcing water over the eggs or fry through the mouth or gill cavities.

Of course there are modes of reproduction that do not neatly fall into these categories. The swordtail characin internally fertilizes eggs prior to laying them. Males of two species of *Cynolebias* possess modified anal fins that are believed to be for internal fertilization so the ability to internally fertilize eggs is too simple of a criterion to separate egglayers and livebearers.

**References:**

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ing parental care. *Zoological journal of the Linnean Society* (1982), 76: 122

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**Summer Picnic 2019**  
**The 4 “F’s”**  
**Food**  
**Fish**  
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**Fun**

## The Greater Akron Aquarium Society

P.O. Box 494  
Akron, OH 44309-0494

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Meeting Notice - Do Not Delay

# Meeting Notice

## Friday, September 13

**Program:** Adam Leff, DVM, MS, is Associate Professor of Biological Sciences at Kent State University and is expert in microbiology and infectious disease of aquatic animals. Dr. Leff will present his research on crayfish and shell disease of crayfish.

**Bowl Show:** Danios/Minnows, Rasboras, Swordtails

## Friday, October 11

**Program:** GAAS member Jeffery Swanson will present "Observational Aspects of Psychology Observed in the Aquarium," which promises to be an interesting correlation of social psychology observed in the aquarium (with cichlids being the primary focus). Jeffery will present his research that was completed while he was a student at Lake Erie College, along with other observations and anecdotes.

**Bowl Show:** Aquascape Challenge (Decorate, theme, or aquascape a bowl or tank, no larger than 5 gallons), All other Egglayers, All other Livebearers

**General meetings begin at 8:00 p.m. at the Ritchie Memorial Shelter House**

## Coming Events

Sept. 8th 2019 Sunday - starts at 11 am  
Greater Pittsburgh Aquarium Society Inc. – GPASI  
Fall Auction  
Garden City Hall – 600  
Garden City Dr. Monroeville, Pa. 15146  
[www.gpasi.org](http://www.gpasi.org)

Sept. 13th - 15th 2019  
Cataclysm - Catfish Convention - Crowne Plaza - Madison  
4402 E. Washington Ave.  
Madison, Wi. 53704



Sept. 15th 2019 Sunday - starts at 11 am  
Northeast Ohio Fish Club – NEOfish Fall Auction  
Pipefitters Union Hall Local 120 – 6305 Halle Dr.  
Valley View, Oh 44125  
[www.neo-fish.org](http://www.neo-fish.org)

Sept. 22nd 2019 Sunday - starts at 11 am  
Columbus Area Fish Enthusiasts - CAFE Fall auction  
Courtyard Columbus West – 2350 Westbelt Dr.  
Columbus, Oh 43228  
[www.columbusfishclub.org](http://www.columbusfishclub.org)