The Greater Akron Aquarium Society

Tank Topics

January/February 2020

A gold weather loach hanging out in a tank with a green water bloom. Check out Steve Brunn's article in this issue explaining what goes on during one of these blooms, how to control it, and even some cases when you might want to culture it on purpose.

Inside this issue:

Important Dates for 2020

March 1
Spring auction

June 13 & 14
Ultra Aqua 2020

November 1
Fall auction

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Check out our website: 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.

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

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

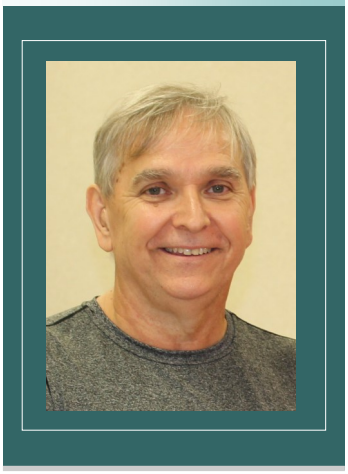
☐ Electronic ☐ Mail

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



Hello folks and belated Happy Holidays!

The Christmas party was a success, lots of people, lots of new people at the party, lots of good food, what more could you want? Other than to be there if you missed it, lets hope you can make it next time.

We have a couple of changes on our board this year, Phil Hypes who was our raffle chairman for several years, got a new job in Texas and had to leave us. But the good news is we have to new members, Justin and Kristen volunteered to fill that position, welcome aboard both of you, hope your stay is long and enjoyable, even if you do have to put up with me.

We also have Ken McGill coming back as our bowl show chairman, welcome back Ken.

Here's Hoping you had good Holidays, see you at the meeting, Bud.

Editor's Message

Dave Williamson

For starters, here's hoping that everyone had a great holiday season. We're beginning a new year and as usual there will be some changes as we move forward. One change is saying goodbye to some longtime members Phil & Tiffany as they move on to the next adventure. Good luck in Texas. . . I've heard that there are aquarium clubs out there. Just sayin'.

As far as my position as editor, there are going to be a few changes in the near future. I've been wanting to overhaul the look of Tank Topics for some time now, but with all the overtime at work I haven't made much headway there so it looks like it will happen in stages instead of a whole new product all at once. One of the things I'd like to see happen is less repeated information and more new content. For that to happen we will need one big thing, more input from the members. You knew somehow I'd get around to asking for articles. . .

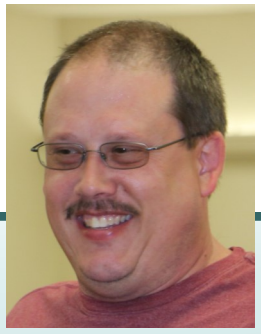
One other thing that we've decided to change will be our non-publication month meeting notices. They will no longer be in pdf format, just plain emails. Along with that due to the constant increases in postage costs the meeting notices will no longer be mailed. All the information is in the Tank topics for the two months. There will be no change in the mailing of Tank Topics, although changing some things around may allow us to use envelopes.

Last thing to mention this time is our Spring Auction coming up on March first. Since this date is before the meeting, I figured we should advertise it now. Oh, and one other little wrinkle, we can't get into the hall the night before like usual so we'll have to do all the set up work that morning. So please consider coming a little early to help get all that done.

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

Membership Report

Mike Swanson



Hello Everyone,

I hope everyone had fun at the Christmas party and got some good stuff. I had fun and saw some familiar faces and chatted with old friends. I hope everyone had a great holiday season and look forward to seeing you all in the new year.

This is a list of memberships expiring soon:

Cody Alloway Hudson Alloway Steve Maupin James Lehberger

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

BAP/HAP Report

Wayne Toven

Well here we are almost the end of the year, its winter and as I look out my window, it's snowing. We had our December meeting / Christmas party on Friday the 13th, we had lots of members show up with lots of good food, then we gave away lots of fish, live plants, driftwood, fish food, and some filters. A big thank you to everyone who brought something to donate.

We awarded plaques for our Breeders of the Year to Mike & Elsie Swanson, and the Horticulturist of the Year to Wayne Toven. Congratulations!! But now the slate was wiped clean and we start all over for the BAP/HAP year 2020, which runs from December 2019 through November 2020, so we can give the awards to the next Breeder of the Year and Horticulturist of the Year. So get those fish spawning and plants growing, let's see if our members can beat this years totals of 48 spawns and 38 plant propagations and flowerings in 2020. By the way we beat 2018 totals which were: 44 spawns and 23 plant propagations, in both awards programs. Let's see if we can keep this trend going! We had a total of 17 members participating in 2019 that is also up from 14 members in 2018. Remember spawns and plant propagations can be turned in at monthly meetings or at any of our three auctions throughout the year.

Copies of the rules and forms can be obtained from me the BAP/HAP chairman at a monthly meeting or downloaded from the club's web site - akronfishclub.com.

November 2019

BAP

Species	Common name	Class	Points
David Girard			
Julidochromis regani		Cichlid - substrate	15

December BAP

Wayne Toven

Aulonocara ethylwinnae		Cichlid - mouthbrooder	15
Metriaclima zebroides		Cichlid – mouthbrooder	15
Cynotilapia sp. elongatus	Avanti	Cichlid – mouthbrooder	10
Pethia phutunio	Pluto barb	B,M,&R	10
Poecilia wingei	Shocking pink Endlers	Livebearer	5

2019 Totals BAP Points HAP Points

Mike & Elsie Swanson	10	95	-	-
Dave Williamson	7	55	1	15
Ken McGill	6	55	-	-
Brandon & Samantha Snopek	5	55	-	-
David Girard	4	55	-	-
Rob Williams	4	20	-	-
Ty Hunsicker	3	15	4	25
Karthick Muthuveeran	2	20	4	25
Rich Serva	2	20	1	10
Stan Jachna	1	5	-	-
Daniel Jebaraj	1	10	-	-
Dan McMonigle	1	10	-	-
Wayne Toven	1	10	16	175
Bud White	1	5	-	-
Cody Alloway	-	-	2	25
Amy Mullens	-	-	1	5
Jeffrey Swanson	-	-	9	120

2020 Totals BAP Points HAP Points

Wayne Toven	5	55	-	-

Bowl Show Report

Ken McGill

The 2020 schedule is to the right. . .

Exchange Report

Wayne Toven

Brooklyn Aquarium Society, Aquatica: Nov/Dec 2019
Red Tail Catfish, by Al DisPigna
Delicious Earthworm Snacks, by John Todaro

Breeding the Red Hump Geophagus – *Geophagus steindachneri*, by Anthony P Kroeger

Dwarf Shrimp Compatibility Chart, by Ryan Curtis

Corydoras Look – A – Likes, by Ian Fuller

Greater Pittsburgh Aquarium Society Inc. Finformation: Oct 2019
Hitting the Target With *Paracheirodon innesi*, AKA Neon Tetra, by Robin Shemela

*Melanotaenia ericrobert*si – Eric Roberts Rainbowfish, by Rich Terrel

Melanotaenia rubrivittata, by Jim Felix

Southwestern Michigan Aquarium Society, SWAM: Nov/Dec 2019
Hornwort, by Chase Klinesteker

Celebes Halfbeak, *Nomorhamphus liemi*, by Chase Klinesteker

Hamilton & District Aquarium Society: Oct 2019
Hemichromis guttatus 'Kpoglu', by Jessica Bullock

Kitchener – Waterloo Aquarium Society, Fins & Tales: Nov 2019
How to Use Riccia & Subwassertang, by Karen Murray
An Experiment with Microworms, by Karen Murray

Youngstown Area Tropical Fish Enthusiasts, the Youngstown Aquarist: Nov 2019

Rineloricaria "sp," Red Lizard L010A, Red Lizard Whiptail, by Karen Guman

Brachygobius xanthozona Bumblebee Goby, by Brian LaNeve

Tropical Fish Club of Erie County, Some Things Fishy: Nov/Dec 2019
Apistogramma My Way, by Don 'Z-man' Zilliox

Missouri Aquarium Society Inc.
The Darter: Nov/Dec 2019
A "Hobbyist's" Guide to Selling Fish, by Kevin Plazak

Neocaridina Shrimp Keeping Basics or Keeping Shrimp Simple, by Holly Paoni

Sunken Gardens – A Book Review, by Mike Hellweg

Making Super Dechlor or Good Things in Even Smaller Packages, by Gary Lange

The Least Killifsih *Heterandria Formosa*, by Mike Hellweg

Kitchener – Waterloo Aquarium Society, Fins & Tales: Dec 2019
No Mistakes, Just Happy Accidents: Fish Breeding Bob Ross Style, by Pamela Andrews

2020 Bowl Show Schedule

January:
Male Guppies
Goldfish
Minnows, Danios & Rasboras

February:
Suckermouth Catfish
Swordtails
Characins

March:
Barbs
Mollies
Corydoras, Brochis & Aspidoras

April:
Female Guppies
Platies
Aquatic Invertebrates

May:
Goodeids
Rift Lake Cichlids
Male Bettas

June: No Bowl Show
Ultra-Aqua Show set-up

July
Synodontis Catfish
Angelfish & Discus
Killifish

August:
Native Fish
Amphibians
Aquatic and Bog Plants

September:
Photography
Gouramis & other Anabantoids
Sharks & Loaches

October:
Rainbowfish
All Other New World Cichlids
All Other Old World Cichlids

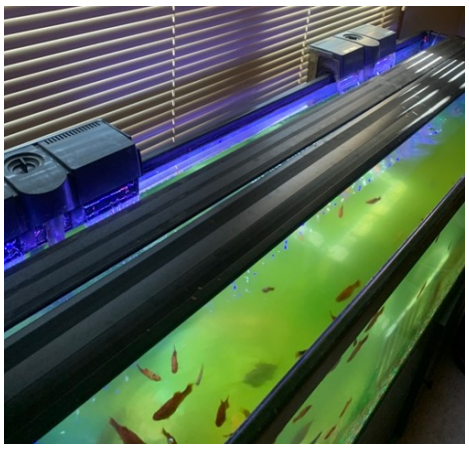
November:
All Other Livebearers
All Other Egglayers
All Other Catfish

December: No *Bowl Show*
Christmas Party

Approaches to Fighting and Fostering Green Water

by Steve Brunn

Photos by Steve Brunn unless otherwise noted.



Keeping freshwater fish alive and healthy in the freshwater aquarium is a challenge, even when water chemistry is in balance. When water parameters get out of balance (for example when nitrogen and phosphorous build up [1]), then drastic measures are in order to bring the aquarium back into equilibrium. Green water, which is a bloom of microscopic algae, is not desired in the aquarium because it severely limits the hobbyist's overall enjoyment, especially limiting the hobbyist's visibility of the animals and plants within the aquarium. Most hobbyists wish to avoid green water; however, there are hobbyists who want to culture green water for food for very small fry or for Daphnia culture. This article presents the causes of green water, the principles to prevent and eradicate unwanted green water, and a simple idea to promote the growth or culture of green water.

Understanding Green Water

In nature, freshwater is rarely crystal clear. Water, as it courses through a landscape or circulates in a lake, will pick up color from dissolved and suspended minerals that can produce blue, white, and brown coloring. Tannins from decaying plants add their dark tints to water, making some water a dark tea color. The clarity of water tells us that the water is pure or has "impurities" in it, and the color can tell us something about the concentration of nutrients in the water. Scientists (limnologists) who study lakes and their plant community succession describe a series of stages that lakes can go through that are directly related to the nutrient status or trophic (ie, "fed" or "nourished") state. These stages of succession are judged by their phytoplankton communities and other parameters and are listed here in order of the least to highest nutrient concentration: oligotrophic (meaning low in nutrients, literally "scant" nourishment; like a clear mountain lake or stream with limited plant communities), mesotrophic (meaning intermediate nutrient concentration; like reservoir or lake that would be inviting to swim or boat in), eutrophic (meaning high in nutrients, literally "well-nourished," like a murky or green farm pond that has livestock using it), and hypertrophic (meaning very high in nutrients, like a lake with a noxious algal and bacterial bloom). Outside of these successive stages, the term "dystrophic" describes a body of water that is often found in bogs systems were peat moss stains the water brown, produces a low pH, and reduces the availability of nutrients to organisms [2-4].

In the aquarium, the water is usually crystal clear at the startup, but over time the water has a natural tendency to go through the oligotrophic, mesotrophic, and eutrophic stages. Nutrients from animal waste, uneaten food, decaying plant tissue, and algal growth push the aquarium water chemistry to a state of "well-fed" eutrophication. Even with continuous filtration and frequent water changes, an aquarium can reach a state where the water turns green from flagellated algae suspended in the water column. Interestingly, green water in the home aquarium will not have an odor, and although some fish may appear to be listless due to low pH and low oxygen levels, many hardy species of tropical fish will tolerate green water for the short term if oxygen levels are kept high enough to support them.

Adding to the concept of water nourishment, it is important to understand the "green" in green water. The single-celled alga genus that is the common culprit of green water is Euglena. (Some scientists now classify Euglena as a photosynthetic protist, but I still refer to it as an alga.) The genus Euglena (meaning "good eyeball," because all members of Euglena have a distinct red "eyespot") and has over 150 taxa described [5]. Euglena belongs to the alga division Euglenophyta, which differs from the green algae (division Chlorophyta) in cellular organization and biochemistry. Euglena is very common in fresh water and can be found on mud [5]; therefore, it can be carried into your aquarium accidentally on mud, on plants, or by water, such as water from an outside tub. Euglena is unique in the plant world because it produces its energy by way of photosynthesis but it also requires vitamins from the environment. Hence, the eutrophic aquarium will cause Euglena to very quickly multiply and bloom into vibrant green water. Euglena has one large and one small flagella and other physical characteristics to keep it swimming and oriented in the water column, but it occasionally sinks to the bottom [6]. Euglena is attracted to low light levels and it avoids bright light and darkness. Therefore, once in bloom in the water column, Euglena attempts to stay in the middle of the water column. Euglena can encyst and go dormant [5], thereby making permanent eradication from the aquarium a challenge.

Unlike most plants that have an indigestible cell wall made of cellulose, the Euglena cell is naked with strips made of protein to form the shape of the cell [5]. Together with the contin-

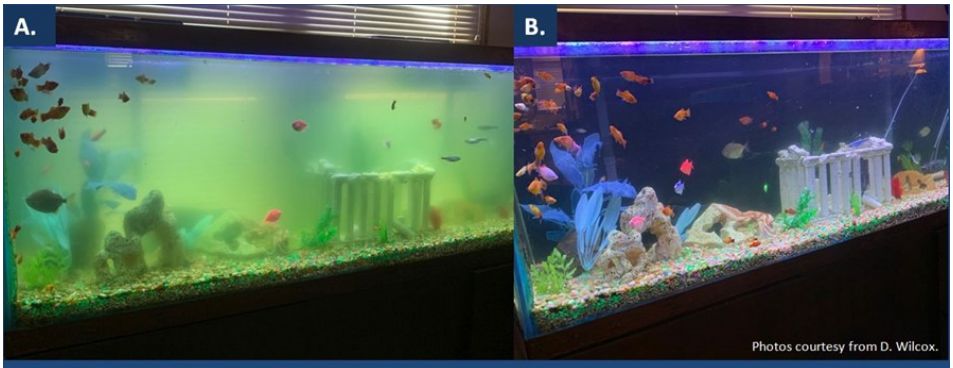
uous motion and its protein covering, Euglena is an attractive food source for fry of certain killifish, like Pseudepiplatys annulatus, Nothobranchius rachovii, or Simpsonichthys magnificus [6]. Some hobbyists culture Euglena to then feed to Daphnia and brine shrimp, but keep in mind that Daphnia need more than Euglena to thrive [7]. Interestingly, Euglena is now being used as food for humans because of the high protein content [8,9].

Prevention of Green Water

Armed with this background about Euglena, the basic "formula" or recipe that promotes the green water (algal bloom) is: eutrophic water + Euglena + long photo period + oxygen. Therefore, to prevent green water, the first three elements of this formula must be kept in check. First, preventing the overfeeding and doing regular water changes and cleaning of the gravel that holds the nutrients will go a long way to starve any Euglena that may be in your tank. Second, prevention of Euglena entering your tank from outside sources is a sure activity to stop green water from starting. Third, reduce the duration of light on the tank to 5 to 8 hours. Reducing the intensity of the light will also retard a Euglena bloom. Keep in mind that natural light from a window alone will induce Euglena to flourish. The last element of the formula, oxygen, is a "constant" and an essential requirement for life, and really cannot be reduced unless the fish are removed first. By cutting off the air supply in a tank that has green water established, one would expect that the Euglena bloom would soon die. With the water being still, the diffusion of atmospheric oxygen into the water is very slow and this quickly leads to deadly anoxic conditions [2].

Eradication of Green Water

Eradication of established green water is a challenge but not impossible. Physical filtration and starting over are the two basic approaches. Partial water changes alone are not enough to clear the water because there will always be Euglena in the remaining water. Ultra-violet light treatment should work to kill or bleach the Euglena, although they may live through that treatment as bleached (clear) cells [5]. Two real-life examples, one using a specialized filter and one being a complete start over, are given to provide approaches to successfully eradicate green water.



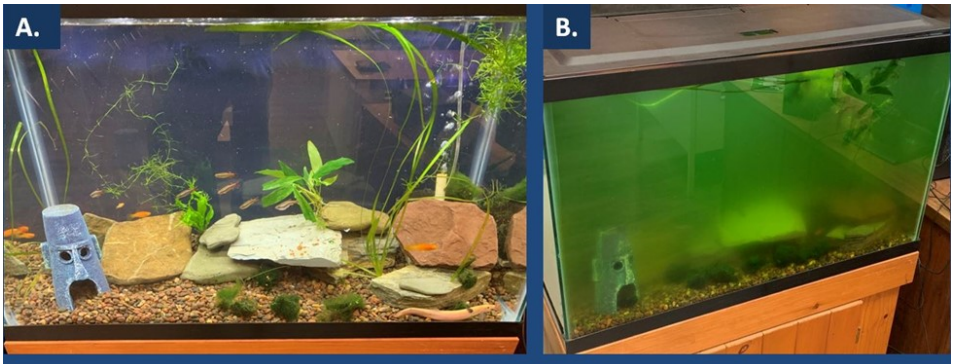
Case 1—Specialized Filter Method. The tank with eutrophic green water before (A) and after treatment with the polishing filter (B).

Case 1—Specialized Filter Method

A tank with a large bioload of fish including three large common Hypostomus plecostomus developed eutrophic green water conditions near the end of February 2019. The artificial lighting
was provided by two, full-length hoods with broad spectrum LEDs. The tank was also next to a window (with shades). Euglena may have been introduced to the tank when bait minnows were added to the tank. There were no live plants in the tank. The tank was heated.The pH was 6.2 -6.4 when the water turned green. Two Top Fin® Silenstream™ Power Filters were maintained and cleaned weekly except for 2 weeks leading up to the green water event. Large (one-third), repeated water changes did not reduce the green water. Gravel siphoning was done but not much debris came out. In early March 2019, in addition to a one-third water change, a borrowed Marineland® Magnum 350 Canister Filter with a Marineland® Micron Filter Cartridge (water polishing filter) was used for 4 days to successfully remove the green from the water. (Wilcox D, personal communication, 2019.)

Case 2—Start Over

A new 29-gallon aquarium was setup in a school classroom in mid-August 2019. A simple air-driven sponge filter provided filtration. Fish were 5 platys, 5 white clouds, a young dojo loach, and an algae eater. Plants included Vallisneria, Anubias, Najas, frog bit, marimo moss balls (Cladophora algae) and duckweed. The duckweed was added from an outside tub, which probably introduced the Euglena, but it could have been on any of the plants. Lighting was provided by a Tetra® LED hood for 10 hours per day. The tank was not heated. Weekly 10-percent water changes were done. The tank reached a eutrophic state because it



Case 2—Start Over. The original setup started out clear (A), but 12 weeks later was eutrophic (B).

was over fed with sinking shrimp pellets. On October 15, 2019, there was a power outage over a weekend and then after that it was noticed that the glass inside the tank had "dirty-spots" and water changes were increased to 20 percent each week. By November 19, 2019, the Euglena had bloomed and 20 percent water changes three times per week did not help. On November 27, the tank was emptied and scrubbed with baking soda solution. New gravel, new box filter, and artificial plants were added to replace the contaminated gravel and filter. Ornaments and rocks were rinsed with tap water before being returned to the tank. (Nadelka T, personal communication, 2019.)

Culturing Green Water

Because *Euglena* is a well-studied organism, there are many laboratory procedures for culturing *Euglena*, along with pure cultures for purchase [10,11]. Green water is occasionally an item available at aquarium club auctions, which can be a starter culture. The account by Humphry Axelbearing, from the Wisconsin Area Killifish Organization, gives the essential elements of *Euglena* culture, sheds light on how things can go wrong, and offers a simple method with a 1-liter bottle [6]. Recall that the recipe is simple: eutrophic water (food or plant fertilizer) + *Euglena* + long photo period (eg, sunlight) + oxygen. All recipes call for aeration without an airstone.

If you are wishing to successfully culture *Euglena*, my recommendation is to skip the pickle jars or pop bottles and "go big" and devote a 10-gallon tank to your endeavor. Equip the tank with a LED hood on a timer for 12 to 15 hours per day at room temperature. Use gravel on the bottom of the tank with a sponge filter, which will serve to house beneficial bacteria as for a normal tank. Add *Euglena* from an existing culture or from green water from a pond. Feed the tank generously (ie, litter the bottom) with sinking shrimp pellets once a week until the *Euglena* turns the water a vibrant green. Instead of shrimp pellets, try adding up to a teaspoon of soluble plant fertilizer once per week. Stir the bottom of the tank at least weekly. The culture should be mature for use in 15 days, but it may take longer. Use fresh water to replace the green water that you use. It is better to have a dilute culture (not super dark green) because, like most live cultures, it can crash from overpopulation [12]. If the culture turns very dark green, it is on the borderline of being hypertophic, and it is best to bail out most of the water and dilute the remaining culture with tap water that has been aged for 24 hours.

References:

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10. Finn Scientific. Culturing Euglena. https://www.flinnsci.com/culturing-euglena/dc10578/

11. Carolina Biological Supply. Euglena Culture, Living. https://m.carolina.com/protozoa/euglena-culture-living/151351.pr

12. Sutcliffe GC. Green Water. https://www.w9xt.com/page_live_foods_green_water.html

It's not too early to start planning for Ultra-Aqua 2020. . .

June 13 & 14

Classes need sponsored, awards need made, etc, etc, etc. If you're interested in helping, just ask and we'll find something for you to do!

Please consider supporting some of the businesses that help support us. . .

GAAS Spring Auction March 1, 2020

Tallmadge Community Center
80 Community Rd.
Tallmadge, Ohio 44278

Registration 10 am - 12 pm
Auction begins at 11 am

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

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.***akron***fishclub.com* or

*https://***www.facebook.com/Greater-Akron-Aquarium-Society**

The Greater Akron Aquarium Society

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

«firstname» «lastname»

«address»

«city», «state» «zip»

Meeting Notice - Do Not Delay

Meeting Notice

Friday, January 10

Program: Brian Zimmerman will present an original program on "Ohio's Natural Lake and Wetland Fishes, Their Conservation, and Their Habitats." Brian will go over what species these are, why they are in trouble, and the ongoing efforts to preserve/reintroduce them. Additionally, Brian will provide notes on the native plants that these endangered fishes rely on, which also are suitable as good pond or aquarium plants.

Bowl show: Male Guppies, Goldfish, Minnows, Danios & Rasboras

Friday, February 14

Program: TBD

Bowl show: Suckermouth Catfish Swordtails, Characins

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

Coming Events

Feb. 15th 2020 Saturday - starts at 11 am
Ohio Cichlid Association - **OCA winter auction**
www.ohiocichlid.com

Saturday February 22nd - starts at noon - till 3 pm
Columbus Area Fish Enthusiasts - swap meet
Sawmill Lanes
4825 Sawmill Rd. Columbus, Oh 43235
www.columbusfishclub.org/cafe-swap-meet/

Feb. 23rd 2020 Sunday - starts 11 am
Stark County Aqua Life Enthusiast Society spring auction
Perry Grange 6300 Richville Dr. SW Canton, Oh

Mar. 1st – 2020 Sunday – starts at 11am
Greater Akron Aquarium Society – GAAS Spring Auction
Tallmadge Community Center – 80 Community Dr. Tallmadge, Oh
www.AkronFishClub.com