

Finformation

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December 2002



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Next Meeting – January 31

A surprise guest and
elections!

**CONTACT THE
NEWSLETTER**

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Back issues of Finformation are available online at
<http://shene.killi.net/gpasi/Finformation.html>

NEWSLETTER ART

Clown Loach cover art, Christmas tree, and show flyer by Kathy Bintrim. Original cover drawing will be auctioned at the next general meeting.

MEMBERSHIP

DUES are \$20 a year per family or street address.
If you want to become a member, write to us or see Steve Gibbs at the next meeting.
Visit GPASI2002.TRIPOD.COM

Unless otherwise specified below, **General Meetings** are held at the **Pittsburgh Civic Garden Center** in Mellon Park at the Corner of **5th and Shady** Avenues.
DOORS OPEN AT 7 PM

2003 General Meeting Dates

Jan 31 • Feb 28 • Mar 21
Apr 25 at the Palace Inn
May 30 • June 27
July 25 • Aug 22 • Sept 26
Oct 31 • Nov 21

The Board of Directors meets at 7pm at Elmer's Aquarium in Monroeville on the following dates:

Jan 13 • Feb 10 • Mar 3
Apr 7 • May 5 • June 9
July 7 • Aug 4 • Sept 8
Oct 6 • Nov 3

All members and suggestions for discussion are welcome. Contact a board member for meeting confirmation.

Upcoming GPASI Events



GPASI Holiday Party, January 12

Food, fun, and fish will be found at the annual GPASI Holiday party at the Hampton Fire Hall on January 12. The doors will open at 1 and the party will start at 2. The club will provide turkey, ham, and soft drinks. The price of admission for you: bring a covered dish to share. Please contact Jim Davidson at 412 781-3938 or Jim308@bellatlantic.net and tell him what you plan to bring or ask for ideas if you need them. We plan to have a Chinese auction of unusual fish and other surprises.

If you can donate a bag of fish to the raffle, you will make room in your tanks for the fish you'll buy at the GPASI auction in February, and you'll be helping us pay expenses for the party. If you would like to donate some fish, please let Mike Solito know (412 571-2418 or wheels115@attbi.com).

Here's how to get there: PA Turnpike Exit 4, Route 8 North, left at first light onto West Hardies Road, left onto North Pioneer; you'll see the Hampton VFD Hall on the right. We look forward to seeing you there.

Message from GPASI President Mike Solito

First, I would like to wish everyone a belated good Thanksgiving. If you didn't receive a newsletter last month, then you were in the clear majority. I want to personally apologize for not putting out a newsletter in November. As you can see, we have a new newsletter editor: Jean Grace. It is obvious to me that Jean will make a great contribution to our newsletter and follow in the footsteps of our last great editors, Terrence Trasatti, Laura Cronkhite, and Ray Yutzy. The newsletter is an important part of the club because it is our main tool to communicate with you, the members.

I want to invite all of you to our 2003 Christmas party on Sunday, January 12 at the North Hampton VFD Hall. Please bring a covered dish. The club will supply turkey, ham, and soft drinks. We are planning a Chinese raffle with rare and unusual fish donated by club members.

I also want to invite you to the winter auction on February 2 at the same fire hall. The auction will be successful because of our new auction coordinator, Ted Neill. He will coordinate all our auctions and we appreciate his efforts. If you would like to help in this or future auctions, please contact Ted.

Last, but not least, this is the end of my term as president of the club. I hope that in the future all of you will volunteer on its committees and on the board of directors. We have a great club, and hopefully we can build it to be even greater. Happy holidays to you all and have a great and prosperous New Year.

Club News

Next General Meeting

The next general meeting will be on Friday, January 31 at the Civic Garden Center in Mellon Park. The doors open at 7 p.m. We will hear from a surprise guest speaker and hold elections for officers and board members.

GPASI Auction Alert: February 2, 2003

at the Hampton Volunteer Fire Department Hall

Mark the date on your calendar now and look for details and rules in the next issue of Finformation. This auction will be a great opportunity to sell or buy fish and plants.

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~ **THERE CAN BE NO CLUB WITHOUT ITS MEMBERS. IF THERE IS ANYTHING THAT YOU WOULD LIKE TO DO FOR GPASI, JUST LET ONE OF US KNOW, WE'D BE HAPPY TO HAVE YOU AS PART OF THE TEAM.** ~

Club News**New Auction Coordinator**

Ted Neill has taken the new position of auction coordinator in order to facilitate the complicated work that goes into setting up a successful auction. Up until now, our auctions have been run by a committee. A coordinator will be able to organize and implement the auctions more effectively. Ted joined the club about two and a half years ago, when he was happy to find a group of people with similar interests. Ted and his wife, Linda, raise angel fish for their business, Linda's Lovely Angels, which is also a sponsor of the club. Ted is looking forward to working on the auctions and hopes that many of you will be willing to pitch in and make the auctions a success. If you'd like to help with the auction coming up in February, you can contact him at the number listed in the sidebar to the left.

Changes at *Finformation*

At the last meeting, Jean Grace volunteered to be the editor for the GPASI newsletter. This is her first issue of *Finformation*. Jean joined the club in the spring of this year and has enjoyed meeting the members and learning more about the hobby at the monthly meetings. She has taught composition at Pitt for the past 14 years and also writes for nonprofits that are focused on improving public policy. If you have ideas for what you'd like to see in upcoming issues or if you'd like to contribute to the newsletter, please let Jean know (her contact information is at the top of page 2).

By now, you have already noticed a big change in *Finformation's* cover. Kathy Bintrim, who has contributed art to other issues of the publication, has agreed to create original drawings of fish for the cover for the next year. Kathy's original cover drawings will be available at the general meeting auction that follows their publication. We love the clown loach drawing on this month's issue, and we are looking forward to seeing future drawings of some of our favorite fish.

Sponsor a Class for the April Show

You can be an important part of the upcoming GPASI show and auction (April 25-27 at the Palace Inn, Monroeville). The prizes in each class are open to sponsorship by anyone who wishes to promote the hobby and support the work of the club. Sponsoring a class only costs \$25, which allows us to award first, second, and third prizes for the best fish in that class. If you act quickly, you may be able to sponsor one of your favorite fish. Sponsors' names are published for each class of fish in the show.

Here's how you do it: at all of the GPASI events leading up to the April show (including the holiday party January 12, the auction February 2, and all regular meetings), you'll see a posterboard listing the classes for the show. Sign your name next to a class that hasn't been sponsored yet and give your \$25 to Jim Davidson, GPASI treasurer.

Updating the GPASI Marketplace

The GPASI Marketplace, where we list items that members would like to buy or sell, needs updating. If you would like to be listed, please get your contact information and the specific items you want to buy, sell, or trade to Jean Grace at (412) 441-1106 or jgrace@pitt.edu.

Puffer Fish Are Special Sallie Boggs, PhD

The previous three articles in this series were about zebrafish as a model for studying the function of genes. This article is about how puffer fish provide a model for studying and comparing genomes from different organisms.

Japanese people love puffer fish because their flesh is delicious. They eat the Tiger puffer fish (*Takifugu rubripes*). The Japanese name for puffer fish is “Fugu.” Eating Fugu meat can be risky: if the poisonous ovaries are not carefully removed, a Fugu meal could be a last meal. Sushi chefs who wish to prepare fugu must be licensed by the Japanese government. According to Dr. Jim Johnson, alum of Florida State University (www.chm.bris.ac.uk/motm/ttx/ttx.htm), the toxin in puffer fish is called tetrodotoxin or TTX :

“TTX is a potent marine neurotoxin, named after the order of fish from which it is most commonly associated, the Tetraodontiformes (*tetras*-four and *odontos*-tooth), or the tetraodon pufferfish. The tetraodon puffers are equipped with four large teeth which are nearly fused, forming a beak-like structure used for cracking mollusks and other invertebrates, as well as for scraping corals and general reef grazing. The members of this order include the fahaka puffer (*Tetraodon fahaka*), the Congo puffer (*Tetraodon miurus*), and the giant mbu puffer (*Tetraodon mbu*). Pufferfish from the genus *Fugu* (*F. flavidus*, *F. poecilonotus*, and *F. niphobles*), *Arothron* (*A. nigropunctatus*), *Chelonodon* (*Chelonodon spp.*), and *Takifugu* (*Takifugu rubripes*) also store TTX and related analogs in their tissues.

“Other marine organisms have been found to store TTX, including the Australian blue-ringed octopus (*Hapaloclaena maculosa* uses TTX as a toxin for capturing prey), parrotfish, triggerfish, goby, angelfish, cod, boxfish (*Ostracion spp.*), tobies, porcupine fish, molas or ocean sunfish, globefish, seastars, starfish (*Astropecten scoparius*), xanthid crabs (*Eriphia spp.*), a horseshoe crab (*Carcinoscorpius rotundicauda*), two Philippine crabs (*Zosimus aeneus* and *Atergatis floridus*), a number of marine snails, flatworms, sea squirts, ribbonworms and arrowworms (which both use TTX as a venom for prey), molluscs (*Nassarius spp.* and the Japanese trumpet shell “*Boshubora*”), and marine algae (*Jania spp.*). Terrestrial organisms include the Harlequin frogs (*Atelopus spp.*), Costa Rican frog (*Atelopus chiriquiensis*), three species of California newt *Taricha spp.*, and members of the Salamandridae (Salamanders). The number of species continues to grow.



Puffers and Australian blue-ringed octopus, along with other marine and some terrestrial organisms, contain tetrodotoxin.

“A single milligram or less of TTX—an amount that can be placed on the head of a pin—is enough to kill an adult. The first symptom of intoxication is a slight numbness of the lips and tongue, appearing between 20 minutes to three hours after eating poisonous pufferfish. The next symptom is increasing paraesthesia in the face and extremities, which may be followed by sensations of lightness or floating. Headache, epigastric pain, nausea, diarrhea, and/or vomiting may occur. Occasionally, some reeling or difficulty in walking may occur. The second stage of the intoxication is increasing paralysis. Many victims are unable to move; even sitting may be difficult. There is increasing respiratory distress. Speech

is affected, and the victim usually exhibits dyspnea, cyanosis, and hypotension. Paralysis increases and convulsions, mental impairment, and cardiac arrhythmia may occur. The victim, although completely paralyzed, may be conscious and in some cases completely lucid until shortly before death. Death usually occurs within 4 to 6 hours, with a known range of about 20 minutes to 8 hours.”

For years TTX has been used in research to block sodium channels to study nerve function. More recently, scientists love Fugu for a different reason. They are excited about the fact that Fugu have very economical DNA. Most organisms, including humans, have a lot of junk DNA sequences between the functional sequences (genes) that code for proteins.

The Fugu genome is only 1/10th the size of the human genome, yet it contains approximately the same number of genes. That means the Fugu genome can be sequenced in 1/10th the time for 1/10th the cost (about 12 million dollars). You may ask, why do we need to sequence so many genomes? So that we can better identify and characterize human genes. In fact, researchers have discovered nearly 1000 human genes by comparing Fugu and human genomes. It is also interesting to see how genes have changed during evolution.

The Fugu is a good example of the reason scientists want to study “model” organisms. By studying Fugu we can learn something about humans. For example, there are certain DNA sequences that are present in both the fish and human genomes (conserved sites). Over time, all DNA mutates, yet these sequences have been conserved over eons of time. This suggests that these sequences and the genes that contain them are so important to life that any individual that had a mutation in one of these sites dies. Scientists also find that mutations on these sites are often involved in disease. Thus, comparing non-mammalian and mammalian genomes could advance understanding the genetic basis of many human diseases.

The study and comparisons of different genomes is helping resolve the tree of life. If yeasts, viruses, bacteria and other prokaryotes are included, more than 80 genomes have been sequenced so far. Genes turn out to serve as “molecular clocks” that tell time by acquiring changes over evolutionary time. Since mutations occur at a fairly uniform rate, the more mutations (sequence changes) that are seen in non-conserved DNA, the older those genes are. For example, if a sequence in zebrafish that is also found in Fugu is different at one site, they split from a common parent more recently than say a mouse that might have 6 sites different. Thus, two fields of research—biomedicine and evolutionary biology—have a common interest in Fugu.

The puffer the scientists have been studying grows up to 70 cm in length and is a marine fish. It was chosen for study because of its compact genome, but it can’t be used for mutation studies or developmental studies because they are not bred in captivity and because of their size and lifestyle they are not likely to be bred.

This is where the aquarium hobbyist may come in. Fugu has several relatives that may be breedable in the laboratory if the technique were worked out. One is the spotted green pufferfish (*Tetradon nigroviridis*) that only grows to about 17 cm and lives in freshwater. Scientists have found that their genome is also a compact one. Other candidates can be found in a recent issue of *Aquarium Fish Magazine*. The smallest, at 2.5 inches, is the figure 8 puffer (*T. biocellatus*), but they are so aggressive, even against their own species, that they must be kept alone. A better bet may be *T. schoutedeni*; at 5 inches, it is a little more tolerant. If you want to try a marine puffer, the dwarf (green) puffer (*Carinotetraodon travancoricus*) only grows to 1 inch. This fish has reportedly been bred in captivity, but there is no description of the breeding. If you want to try breeding pufferfish, and you succeed, you may do something for science. ■

References

Vertebrate Genomes Compared, SB Hedges and S Kumar, *Science* Vol. 297 #5585, 1283-1285

Freshwater Puffers, PA Purser, *Aquarium Fish Magazine*, Dec. 2002, 18

Photos courtesy Jim Johnson

Breeders Award Program

The Breeders Award Program (BAP) promotes the keeping and breeding of tropical fish, recognizes and motivates achievement in the hobby, encourages research into the spawning of more difficult species, shares knowledge about breeding techniques, and publishes accounts of spawning techniques. For a description of the classes, awards, and point system, visit the BAP page at gpasi2002.tripod.com.

Contact BAP Chair Chuck Bialon with questions: bialon@ppg.com.

BAP Standings (as of 11/22/02)

MEMBER/STATUS	POINTS	CLASSES COMPLETED																
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Target	20 pt
GRAND MASTER BREEDERS		>500 points, all classes completed, 5 targets, 9 twenty- point fish																
Sallie Boggs	2950	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	25	50
Ed Redgate	1150	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	6	14
MASTER BREEDERS		>500 points, 10 completed classes, 2 targets, 9 twenty-point fish																
Eric Bodrock	2615	1			4		6	7	8	9	10	11		13	14	15	4	43
Hank Marzina	1000	1	2	3	4			7	8	9	10	11			14	15	5	13
FOUR STAR BREEDERS		400 points, 7 completed classes, 1 target																
Charles Bialon	2305	1	2	3	4			7	8	9	10	11			14	15	3	5
Robert Fullmer	590	1	2	3				7	8			11			14		2	3
THREE STAR BREEDERS		300 points + 3 completed classes																
Scott Graner	520	1					6			9	10						4	5
Richard Wiley	475	1		3	4			7				11			14			3
Pete Scaletto	420	1		3			6					11					1	1
Brian Carson	360		2						8	9							1	1
TWO STAR BREEDERS		200 points + 2 completed classes																
Gary Balbo	270	1										11					1	5
Wallace Cox	245	1							8									
Robert Timmins	245	1								9								2
ONE STAR BREEDERS		100 points + 1 completed class																
Jason Clester	280											11					2	3
Mike Solito	235							7										1
William Montgomery	190	1														15		
Steven Graner	170										10						1	2
Donald T. Plazek	170	1										11						1
Don Mikulan	165											11						1
J. Todd Glotfelty	160	1										11						
Marlene Scholze	140	1																

Recent BAP Submissions

Member Name	Month	Genus	Species	Class	Points	Further Information	
Gary Balbo	9/02	<i>Poecilia</i>	<i>maylandi</i>	1	5		
		<i>Poecilia</i>	<i>vittata</i>	1	5		
		<i>Apistogramma</i>	<i>borellii</i>	8	10		
		<i>Herichthys</i>	<i>nigrofasciatus</i>	8	5	Convicts	
		<i>Microgeophagus</i>	<i>ramirezi</i>	8	10		
		<i>Corydoras</i>	<i>paleatus</i>	11	15		
		<i>Corydoras</i>	<i>sterbai</i>	11	20		
	10/02	<i>Apistogramma</i>	<i>caucatuoides</i>	8	10		
		<i>Corydoras</i>	<i>metae</i>	11	20		
	11/02	<i>Belonesox</i>	<i>belizanus</i>	1	10		
	<i>Capoeta</i>	<i>semifasciolatus</i>	3	10			
Charles Bialon	9/02	<i>Allotoca</i>	<i>dugesii</i>	1	10	* Rancho Molino	
Kathy Bintrim	9/02	<i>Xiphophorus</i>	<i>maculatus</i>	1	5	platys	
Eric Bodrock	9/02	<i>Ilyodon</i>	<i>xantusi</i>	1	10		
		<i>Chlamydogobius</i>	<i>eremius</i>	14	15	desert goby	
		<i>Melanoides</i>	<i>tuberculata</i>	14	5	Maylasan trumpet snails	
	10/02	<i>Cynotilapia</i>	<i>afra</i>	7	10	white top blue	
		<i>Labeotropheus</i>	<i>trewavasae</i>	7	10	Mpanga Red	
	11/02	<i>Haplochromis</i>	sp (flameback)	7	10		
		<i>Pseudocrenilabrus</i>	<i>nicholsi</i>	7	10	*	
		<i>Apistogramma</i>	<i>vlejita</i>	8	10		
		<i>Nannacara</i>	<i>anomala</i>	8	10		
		<i>Aplocheilichthys</i>	<i>pumilus</i>	9	5	*	
	<i>Procatopus</i>	<i>nototaenia</i>	9	15	* Yabassi		
	<i>Rivulus</i>	<i>cylindraceus</i>	9	10	Isle of Pines		
Wallace Cox	9/02	<i>Poecilia</i>	<i>sphenops</i>	1	5	mollies	
		<i>Protomelas</i>	<i>fenestratus</i>	7	10	* Tarway Reef	
		<i>Pseudotropheus</i>	<i>greshakei</i>	7	10		
		<i>Apistogramma</i>	<i>caucatuoides</i>	8	10		
	11/02	<i>Labidochromis</i>	<i>caeruleus</i>	7	10		
Marshall Davis	11/02	<i>Microgeophagus</i>	<i>ramirezi</i>	8	10		
Nick T. Kahraman	9/02	<i>Pterophyllum</i>	<i>scalare</i>	8	10	Angelfish	
John Lewis	10/02	<i>Xiphophorus</i>	<i>maculatus</i>	1	5	platys	
	11/02	<i>Apitasia</i>	<i>pallida</i>	13	5	* anemone	
Hank Marzina	9/02	<i>Betta</i>	<i>smaragdina</i>	2	15		
		<i>Capoeta</i>	<i>tetrazona</i>	3	10	albino	
		<i>Capoeta</i>	<i>semifasciolatus</i>	3	10		
		<i>Puntius</i>	<i>nigrofasciatus</i>	3	10	black ruby barb	
		<i>Puntius</i>	<i>conchonius</i>	3	10		
	10/02	<i>Nannostomus</i>	<i>beckfordi</i>	6	15	golden pencilfish	
		<i>Rivulus</i>	<i>agilae</i>	9	10	Mont de Maheury	
	11/02	<i>Iriatherina</i>	<i>weneri</i>	4	40		
	Linda and Ted Neill	10/02	<i>Haplochromis</i>	sp (ruby-green)	7	10	*
		11/02	<i>Puntius</i>	<i>titteya</i>	3	10	cherry barbs
		<i>Pelvicachromis</i>	<i>pulcher</i>	7	10	kribensis	
Michael Ott	11/02	<i>Xiphophorus</i>	<i>maculatus</i>	1	5	platys	
Michael J. Parahus	10/02	<i>Aphyosemion</i>	<i>mirabilis</i>	9	10		
Walter Roth	10/02	<i>Haplochromis</i>	<i>bloyeti</i>	7	10		
Pete Scaletto	9/02	<i>Xenotoca</i>	<i>eiseni</i>	1	10		
		<i>Hemigrammus</i>	<i>rodwayi</i>	6	15	*	
		<i>Pterophyllum</i>	<i>scalare</i>	8	10	Angelfish	
	10/02	<i>Melanoides</i>	<i>tuberculata</i>	14	5	Maylasan livebearing snails	
		<i>Planorbarius</i>	<i>corneus</i>	14	5	ramshorn snail	
	11/02	<i>Poecilia</i>	<i>reticulata</i>	1	5	half-black guppies	
	<i>Gymnocorymbus</i>	<i>ternetzi</i>	6	15			

* First time spawn by any current BAP participant

Continued on page 9

Recent BAP Submissions (continued)

Member Name	Month	Genus	Species	Class	Points	Further Information
Marlene Scholze	9/02	<i>Brachyrhaphis</i>	<i>holdridgei</i>	1	5	
		<i>Gambusia</i>	<i>rhizophorae</i>	1	5	(Fla Bay, Fla - Card Sound)
		<i>Poecilia</i>	<i>latipinna</i>	1	5	Gold dust mollie
		<i>Xiphophorus</i>	<i>maculatus</i>	1	5	sunset platy
		<i>Aphyosemion</i>	<i>australe</i>	9	10	Chocolate
Mark Short	10/02	<i>Poecilia</i>	<i>reticulata</i>	1	5	guppys
Mike Solito	9/02	<i>Betta</i>	<i>splendens</i>	2	10	siamese fighting fish
Robert T. Timmins	10/02	<i>Xiphophorus</i>	<i>variatus</i>	1	5	platy
		<i>Scriptaphyosemion</i>	<i>cauveti</i>	9	10	
		<i>Gambusia</i>	<i>affinis</i>	15	5	holbrookii
Terrence Trasatti	9/02	<i>Xiphophorus</i>	<i>helleri</i>	1	5	swordtails

* **First time spawn by any current BAP participant!**

Getting Started with Planted Aquariums

Part One: Lighting Cavan Allen

This is the first of a series articles on maintaining planted aquariums. Lighting is essentially the "engine" of the tank, so we'll start there.

There are several lighting options available to someone wishing to grow plants, and I've had experience with most of them. For growing plants, bulbs in the 5,000 (sunlight) to 6,700 kelvin range are best in terms of their appropriateness for growing plants. Kelvin refers to the color temperature of the bulb, which is the balance of the various wavelengths of light coming from the source. Higher color temperatures are shifted more toward blue and lower ones more toward red, with both colors being of prime importance to plants. A good bulb will have the proper amounts of both. Color temperatures a little higher than 5000k are fine and give a bit bluer and "crisper" appearing light. I think they also help many of the feathery stem plants like *Myriophyllum* and *Cabomba* grow more compactly.

10,000k and actinic bulbs are less suitable for aquarium plants because they lack enough red and other colors, and so should be avoided. These bulbs are designed for marine applications that contain algae and invertebrates that need extra blue.

"Cool" and "warm" whites will grow plants but are far from ideal. In older aquarium literature, you may read about mixing the two types together to get a proper spectrum, but that is no longer necessary since more balanced bulbs are now so widely available.

Normal output fluorescent lighting is what most people start out with and for many applications is adequate. A general rule of thumb is 2-3 watts per gallon for this type of lighting if the goal is to grow plants beyond the very easy Java moss, Java fern, and Anubias. A good, inexpensive bulb is the GE Chroma 50, which is labeled in stores as "Sunshine" and comes in an orange sleeve (but still says Chroma 50 on the bulb itself). It can be difficult to find these in the 36" length, but 24" and 48" inch bulbs can be easily found for around \$10 or less. This bulb has an appropriate color spectrum similar to sunlight and is just as good as much more expensive hobby-oriented bulbs. The Coralife Nutrigrow is another good one (and curiously the exact same thing as the more expensive Trichromatic), as is the Triton, although I think the latter puts out a rather odd pinkish glow (but looks fine when supplemented with Sunshine bulbs). Most normal output fluorescent bulbs decay faster than the types to be described below and are good for about 6 months of use, with the Triton lasting about a year. For those of us wishing not to use carbon dioxide (co2) supplementation, this type of lighting is the best choice.

Energy efficient T8 bulbs are a step up from normal fluorescent and an excellent choice for planted aquarium that will satisfy all but the most light-hungry plants. (T8 refers to the diameter of the bulbs, which in this case are 1 inch—normal fluorescent bulbs are T12s). You can get away with somewhat fewer watts per gallon of T8 light than normal fluorescents.

Energy efficient T8s give out more light than T12s of equivalent length and last more than a year. Zoomed makes excellent T8 bulbs designed for growing plants (as does Phillips). I talked to the manufacturer a while back, and they said that these bulbs are designed to be run on electronic ballasts, which is what the ones I have are hooked up to. All fluorescent tubes flicker imperceptibly, but with electronic ballasts, the flickering is much more rapid and more light is emitted. Using these ballasts with T8s will make them last longer, burn brighter, and run cooler. They can be had at electronic supply stores for around \$20 and easily installed.

Power compact fluorescent bulbs are brighter still. They are significantly brighter than the other fluorescent options and are used for very light-hungry plants (like *Glossostigma* and some *Myriophyllum* species), deeper tanks, and where there is not room to get enough light from larger numbers of weaker bulbs. These bulbs are always run on electronic ballasts. They are very thin fluorescent bulbs bent into a U shape that plug in on one end only. Unless they are using very little of it, people using this type of light should be aware that while PCFs can help create spectacular growth, more attention needs to be paid to tanks lit by them. PCF tanks will need more nutrients and CO₂. Not using CO₂ supplementation (and I will go as far as to say a good pressurized system) is asking for trouble. Yeast CO₂ doesn't cut it in this case. Things go out of balance much more quickly with light that bright. I am NOT saying that power compact lighting isn't worth it. It most certainly is. But not for everyone or every tank.

2 watts per gallon of power compact fluorescent lighting is adequate. Aquarium Hobbyist Supply sells retrofit kits online that fit into regular old strip light shells. They come with good electronic ballasts and a nifty polished aluminum reflector that intensifies the light quite a bit. A 36", 96 watt PCF bulb (as opposed to a 30 watt normal output T12 or 25 watt T8 of the same length) kit ran me about \$100. That might sound like a lot, but it's not, especially considering that the bulbs are good for two years or more. I am quite satisfied with the kit and the results it provides. Others have had good results with All Glass units.

Metal halide lighting is roughly on par with power compact in terms of brightness. A 175 watt pendant will be good for about 2 feet of tank length. They are quite strong and good for deep tanks (24" or so). Metal halide is also very expensive, with systems running several hundred dollars or more. I think that, in most cases, T8s or PCFs are a better choice.

Incandescent lighting may have been used for plants in the dark ages of the aquarium hobby, but there are MUCH better options available now. It takes much more wattage from incandescent light to equal the light from a fluorescent or halide. The color temperature is too low (about 3,000) and a lot of energy is wasted as unwanted heat. Look elsewhere for lighting.

Aquarium lights should be on for about 12 hours per day. Since plants can't make use of more than that, algae is favored if they are left on for a longer period. Greater duration does NOT make up for insufficient intensity. If you don't already have timers for your lights, get some. It will make your life a lot easier and ensure your plants get the proper photoperiod every day.

And there you have it. I will of course be willing to answer any questions if anyone has them. ■

Message from Raffle Chairs John Lewis and Stacy Gatto

Now that our newsletter is up and running again, we can get back to normal. It's been a while, so please bear with us. We would like to thank a few people for donations and others for their help. First of all, thanks to our President for putting up with a lot from John. Second, a thank you for Mark Short, who goes back a long way with John. Mark hooked us up with Chili's of Monroeville. Thanks go to others, too: Cavan arranged some free passes to the zoo; Ross connected us with Krispy Kreme; and Mike, our President, made a donation that everyone will see in the future.

We would like to thank the members who donate and who remind stores that we need their help. People who know us donate just to help, even though they aren't members. Our thanks go to pet stores such as West Hills Pet Center in Moon and Pet Boutique in Charleroi. The donations help keep the club alive. Gary, Karen, and Barb of Elmer's, thank you for putting up with John's pestering to get donations—you always come through. Thanks to Ed and Linda plus the rest of the staff at Petland of Monroeville for coming through in the same way. Both stores make very generous donations monthly. Well, have to go, in the middle of water changes.

Aquatic Horticulture Award Program

The Aquatic Horticultural Award Program (AHAP) is designed to promote the propagation and enjoyment of aquarium and pond plants by recognizing achievement in aquatic horticulture. It also aims to encourage a beneficial exchange of information and plant material among aquatic gardeners. To be considered active, a member must have submitted a plant since January 2001 or notified me that they intend to resume submissions. The member's file will then be updated. There are far too many long departed club members and apparently invalid submissions to keep track of. Basically, the AHAP program has been started over almost from scratch. Tom Connors and I have revised the AHAP handbook, and the final version (with no major changes) should be available in January. Please contact AHAP Chair Cavan Allen with any questions regarding AHAP: Millsman7@yahoo.com.

2002 AHAP Submissions—Congratulations to all the propagators.

Member Name	Month Awarded	Species	Class	Points	Totals
Cavan Allen	2/02	<i>Shinnersia rivularis</i>	G	10	
		<i>Echinodorus tenellus "micro"</i>	E	15	
		<i>Rotala macrandra</i>	G	40	
		<i>Eichhornia diversifolia</i>	G	20	
		<i>Ludwigia arcuata x repens</i>	G	15	
	3/02	<i>Glossostigma elatinoides</i>	J	15	
	4/02	<i>Blyxa aubertii C-20</i>	C	20	
		<i>Hydrotriche hottoniaeflora</i>	G	20	
		<i>Ceratophyllum demersum</i>	B	5	
	5/02	<i>Lagarosiphon madagascariensis</i>	G	10	
		<i>Limnophila indica</i>	G	15	
		<i>Riccia fluitans "Singapore"</i>	A	10	
		<i>Hydrocotyle leucocephala</i>	J	10	
	6/02	<i>Eichhornia crassipes</i>	B	15	
		<i>Nymphoides peltata</i>	F	15	
		<i>Eichhornia crassipes</i>	Flower	15	
	7/02	<i>Nymphoides peltata</i>	Flower	15	
		<i>Pistia stratiotes</i>	B	15	
		<i>Hydrocotyle sibthorpiodes</i>	J	20	
		<i>Caulerpa racemosa</i>	I	5	
<i>Potamogeton gayii</i>		G	10		
<i>Sagittaria sagittifolius</i>		H	10		
<i>Nymphoides sp. "Taiwan"</i>		F	15		
<i>Sagittaria sagittifolius</i>		Flower	10		
8/02	<i>Lythrum salicaria</i>	Flower	10		
	<i>Hottonia palustris</i>	G	20		
	<i>Caulerpa racemosa</i>	I	5		
	<i>Najas guadalupensis</i>	G	10		
	<i>Elocharis vivipara</i>	C	10		
	<i>Elocharis geniculata</i>	H	10		
	<i>Iris versicolor</i>	H	10		
	<i>Phalaris arundinacea</i>	H	10		
	<i>Lythrum salicaria</i>	H	10		
	<i>Polygonum amphibium</i>	H	10		
9/02	<i>Aponogeton madagascariensis</i>	Flower	40		
	<i>Nymphaea stellata</i>	F	15		
	<i>Sparganium sp.</i>	H	5		
	10/02	<i>Caulerpa mexicana</i>	I	5	
	11/02	<i>Anubias barteri "coffeefolia"</i>	D	15	
<i>Anubias barteri "nana"</i>		D	15		
					2002: 550 points grand total: 955 points

Sallie Boggs	5/02	<i>Iris pseudacoris</i>	H	10	2002: 10 points grand total: 460 points
Tom Connors	1/02	<i>Crinum calamistratum</i>	E	15	
	3/02	<i>Cryptocoryne usteriana</i>	D	15	
	7/02	<i>Anubias barteri "coffeefolia"</i>	D	15	
		<i>Anubias barteri "nana"</i>	Flower	15	
		<i>Anubias barteri "barteri"</i>	Flower	15	2002: 90 points grand total: 300 points
	8/02	<i>Cryptocoryne wendtii</i>	D	15	
Wally Cox	1/02	<i>Ceratophyllum demersum</i>	B	5	
		<i>Microsorium pteropus</i>	K	10	
		<i>Najas guadalupensis</i>	G	10	
		<i>Riccia fluitans</i>	A	10	
		<i>Vesicularia dubyana</i>	K	5	
	2/02	<i>Lemna minor</i>	A	5	2002: 45 points grand total: 45 points
Jason Clester					grand total: 150 points
Bill Montgomery					grand total: 25 points
Ted Neill	3/02	<i>Vesicularia dubyana</i>	K	5	
		<i>Anubias barteri nana</i>	D	15	
		<i>Alternanthera reineckii</i>	G	15	
		<i>Echinodorus "Ozelot"</i>	E	15	
		<i>Salvinia rotundifolia</i>	A	5	
	6/02	<i>Glossostigma elatinoides</i>	J	15	
		<i>Limnophila indica</i>	G	15	
		<i>Sagittaria americana</i>	C	10	
	8/02	<i>Eichhornia crassipes</i>	Flower	15	
		"hardy lily" white	Flower	15	
		"hardy lily" pink	Flower	15	
		<i>Alisma plantago-aquatica</i>	Flower	10	
	9/02	<i>Bacopa monnieri</i>	Flower	10	
		<i>Limnobium laevigatum</i>	Flower	10	
	10/02	<i>Salvinia cucullata</i>	A	20	
	11/02	<i>Eichhornia diversifolia</i>	G	20	2002: 200 points grand total: 400 points grand total 185 points
Mike Recklitis					
Walter Roth	5/02	<i>Liriope muscari</i>	H	10	
		<i>Glyceria maxima</i>	H	10	
	6/02	<i>Lythrum salicaria</i>	H	10	2002: 30 points grand total: 225 points
Mark Seidel	1/02	<i>Salvinia rotundifolia</i>	A	5	
		<i>Lemna minor</i>	A	5	2002: 10 points grand total: 10 points grand total: 10 points
Bill Sensor					
Marlene Sholze	6/02	<i>Nymphoides aquatica</i>	F	15	
		<i>Nymphaea lotus</i>	F	15	
	9/02	<i>Salvinia molesta</i>	A	5	2002: 35 points grand total: 155 points
Mark Short	10/02	<i>Caulerpa prolifera</i>	I	5	
		<i>Caulerpa racemosa</i>	I	5	
		<i>Vesicularia dubyana</i>	K	5	2002: 15 points grand total: 15 points
Terrence Trasatti	1/02	<i>Vesicularia dubyana</i>	K	5	
	5/02	<i>Ceratophyllum demersum</i>	B	5	
	6/02	<i>Sagittaria latifolia</i>	H	10	
		<i>Sagittaria subulata</i>	C	10	
		<i>Najas guadalupensis</i>	G	10	
	9/02	<i>Eichhornia crassipes</i>	B	15	2002: 55 points grand total: 100 points
William J. Wells	4/02	<i>Utricularia gibba</i>	B	20	2002: 20 points grand total: 75 points
Atsuko Zigler	10/02	<i>Cryptocoryne wendtii</i>	D	15	2002: 15 points grand total: 125 points
Cliff Zigler	3/02	<i>Cryptocoryne wendtii</i>	D	15	2002: 15 points grand total: 100 points

BAP Article

Procatopus nototaenia

“Yabassi”

Eric Bodrock

www.alloddballaquatics.com

Photo Gary Bartell (used by permission)



Procatopus nototaenia, a type of fish commonly referred to as a “lampeye,” are killifish that are found in Africa. “Yabassi” refers to the location of my strain. At the breeding size of two inches, the males are brightly colored with a pearly blue, aqua shimmer that covers their bodies. Orange trim shines bright over the top of the body and highlights their fins. Their anal fin has faint horizontal markings. The females, at an inch and a half, are plainer, with a more silver body. In both sexes, their eyes seem to glow as if they have a light in them. When you see them in the sunlight, their beauty is breathtaking!

I had two pair set up for breeding in a twenty-gallon high aquarium with a single sponge filter. The tank was on the bottom shelf of a tank rack and was covered tightly with a glass lid. (Anyone who has had any type of killies knows that they are excellent jumpers, and these are no exception.) The tank had no gravel, but I added a few smooth seashells to act as a slight buffer. The temperature was about 76F and the pH ranged 7.2-7.6 between water changes, which were done at a rate of twenty percent every ten days. I used a mix of about sixty percent R/O water, twenty percent aged tank water with a lower pH, and twenty percent aged tank water with a higher pH; a TDS reading of 76 was measured. The light level was low with a little natural sunlight hitting their tank during the day and some light from overhead fluorescent fixtures. I offered the fish live black worms, live baby brine shrimp, and frozen bloodworms a couple of times a day.

These killies are sometimes called “crevice spawners.” They deposit their eggs daily into small cracks in wood, rocks, or plants in order to protect the eggs from being eaten by predators. I used a regular killifish mop made of acrylic yarn, but wrapped rubber bands tightly about every two inches along the length of the mop. This gave the fish the tight crevices that they needed to deposit their eggs. Every couple of days I pulled the mop from the tank, gave a slight squeeze to remove some water, and gently pulled the yarn apart to remove the eggs. I placed the eggs in a separate container where they hatched in about ten to twelve days, depending on the temperature.

When I saw fry swimming in the hatch tank, I added a small clump of Java moss and a little Euglena to provide some tiny organisms as starter food. After a few days, I added live baby brine shrimp and microworms to their diet.

When they are swimming, all the fry appear as if they have trouble maintaining their balance; they actively swim near the surface but with their heads high and their tails low. It looks like they have a swim bladder problem, but at eight weeks of age all the fry now look as if they are out growing this appearance. They grow slowly: at eight weeks of age, the fry range from a quarter of an inch to a half-inch.

These fish aren't commonly seen in the hobby. If you get a chance to get hold of some, do it! They are beautiful, active, and peaceful fish with an interesting spawning ritual. You won't be disappointed in them. ■

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Opportunity for Members: Fish Room Tours

Would you like to show off your fish room or visit those of other GPASI members? We can do multi-member single day tours or split everything up over the coming year. Videotaping fish rooms for one of the monthly presentations is also a definite possibility. This has the potential to be a lot of fun for the club but will only work if everybody steps up to make it happen. Please contact Cavan Allen if you would like to participate as either a host or visitor: (412) 221-9499 or Millsman7@yahoo.com.

Upcoming Events of Interest

- January 12** GPASI Holiday party, Hampton VFD Hall. The doors will open at 1:00 and the party will start at 2:00.
- February 2** GPASI Auction, Pittsburgh, Pa
Contact Walter Roth (724) 449-9651
- February 23** Scales Auction
Contact John Baad (330) 452-9027
- March 2** Akron Auction, Tallmadge, Ohio
Contact Bud White (330) 848-3856
- March 16** Youngstown Area Tropical Fish Society (YATFS) Auction
Contact Curt Smith (330) 824-2653
- March 28-30** Northeast Council of Aquarium Societies (NEC) Convention in Farmington, CT
- April 13** Medina Auction, Wadsworth, Ohio
Contact Earl Steffensen 330-896-3314
- April 26-27** GPASI Show and Auction, Pittsburgh, PA
Contact Mike Solito (412) 571-2418
- July 13-14** Medina Show, Wadsworth, Ohio
Contact Earl Steffensen 330-896-3314
- August 16-17** YATFS Show and Auction
Contact Curt Smith (330) 824-2653
- October 5** Medina Auction, Wadsworth, Ohio
Contact Earl Steffensen 330-896-3314
- October 19** YATFS Auction
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- Ongoing** Reptile Swaps at Palace Inn in Monroeville, PA
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