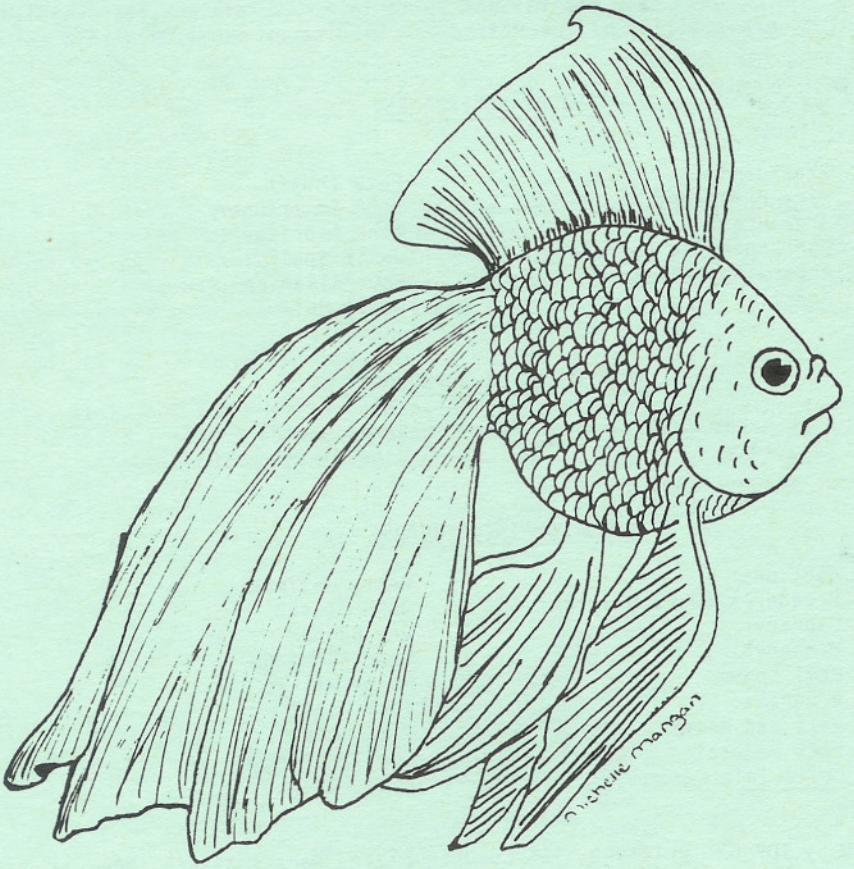
DELTA TALE

July - August 1990



Official Publication of the
Potomac Valley Aquarium Society

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El Presidente

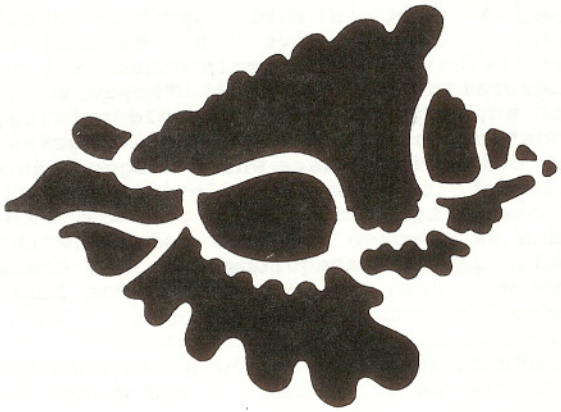
As listed in Gene's financial summary elsewhere in this issue, our spring auction was a complete success. A lot of fish (especially angels) and hardware (especially large tanks) changed hands, and the club netted over $1500 for use in future activities, especially the coming fall workshop weekend in October. PVAS owes a sincere thank-you to all who worked so hard to make the event happen. Special thanks to Gerry Hoffman, who definitely performed above the call of duty that particular weekend.

Because of numerous complaints from club members, other auction sellers, and the club auction workers, the PVAS board has voted to alter the club's auction rules to set a time when item registration will end, and to advertise and enforce it. This means that all sellers will need to register (or at least be in the line to register) their bags and hardgoods before the time specified, or they will be turned away. Plenty of advance notice will be given once this time deadline is set. Don't let yourself go to the trouble of bagging fish and plants, and cleaning and lugging tanks and hardgoods, only to arrive late and have your items refused!

Larry Wilkie made a great suggestion at the June regular meeting to expand the Delta Tale Trading Post section. In the future, any club member in good standing can advertise hobby-related items to under SELL, SWAP, and WANT categories. This way, club members can use the trading post to sell or swap surplus fish and goods, and to list items they are interested in buying or swapping. This feature is very popular in other club newsletters. Just give me a call at 971-0594 (evenings) to give me your interests.

Finally, it is not too soon to be considering running/volunteering for a club officer, board seat, or committee head. Many of these jobs will be coming vacant this November. Only a very few require any specific experience, just a desire to help our club. If you are interested in any position (or just interested), discussing it with the incumbent or with me can give you the information you may need to make a decision. Think about how you can make our club better!

Pete



Mosquito Larvae are the Greatest

Anonymous, PVAS

I may not be too bright, but I'm not totally dumb; if the information in this communication were made available to my neighbors, my name would be mud. Consequently, I choose not to attach my name to this document. However, it seems important that I share some information that may prove valuable for those people who are interested enough in the welfare of their tropical fishes to provide a live food of tremendous quality. Mosquito larvae are highly nutritious and relished by almost all fishes, with the possible exception of those huge ugly fishes that demand larger foods such as other smaller, pitiful and helpless fishes.

For several years, I have been experimenting with techniques to culture, harvest and feed mosquito larvae. I have settled on a method which works consistently for me, resulting in a steady supply of mosquito larvae from early spring to late fall. The technique is simple and effective. However, DON'T LET YOUR NEIGHBORS KNOW! They wouldn't understand, and neighbors universally tend to be a humorless lot.

My technique follows: Place a 30-50 gallon trash barrel (I maintain two barrels) in a shady place and fill it with tap water. An ideal location in our Eastern Seaboard climate seems to be under a deciduous tree, so that in early spring, before the leaves develop, the barrel will receive some warming sunshine, but throughout summer the barrel will remain shaded all day. Allow the water to age several days, then add "mosquito larvae food." Supposedly almost any organic material would suffice, but I tried a number of "foods" which proved unacceptable; grass clippings or oatmeal formed matted, slimy messes which clogged the water surface making larvae harvest impossible, while baby cereal flakes sank immediately and forever to the barrel bottom, where they decomposed poorly. I found a dead mouse one time and threw it in a barrel, where it produced a load of mosquitos that was truly astounding, but the smell became, uhm, unacceptable. The best food I have tried is powdered milk.

Powdered milk should be sprinkled on the water surface, in quantity sufficient to make the water turbid. I use about 1-2 tablespoons

in a barrel. Over the next few days, with no further input necessary, some remarkable events will transpire. First will come a bacterial bloom, when the water turns cloudy, a protein scum forms on the water surface, and an unpleasant odor will be noted. The odor is not terrible and is not necessarily a big problem, as long as the barrel is not under your bedroom window, but each person must make their own judgement about smells. I keep my cultures in an out-of-the-way place, away from family activities and, of course, away from the investigations of neighbors. I will occasionally agitate the barrel water surface to break up the surface scum, but I don't know if that is important and without any action the scum will dissipate in a few days. After several days, "things" will appear to eat the bacteria. You see, Nature is amazing in many regards, but one remarkable aspect is the food chain. Everything organic is food for something. Tiny things get eaten by little things, which in turn get consumed by bigger things, then the big things eventually get consumed by tiny things, thus continuing the cycle. With reference to mosquitos, the bacteria in the initial bloom of the mosquito larvae culture become a feast for protozoa and their ilk, which in turn will have their own bloom several days after the bacterial bloom. Of course, nearby mosquitos recognize the prospects offered by the trash barrel and will deposit their little rafts of eggs. The larvae will hatch soon thereafter, and grow quickly to "marketable" size in a few days.

To harvest mosquito larvae, I sneak up on the barrel with a large, fine-mesh net. Before the larvae have a chance to dive for cover, I swirl the net through the water, then transfer the contents to a container of clean water, for distribution to my fishes. I will return to the culture after several minutes to swirl my net again, and repeat as needed until the harvest is complete. Actually, I don't worry about getting every last larvae, figuring to leave some good breeding stock for the next harvest (do you see why this is anonymous?). Immediately after harvesting the larvae, add more powdered milk to the barrel, and the cycle will be repeated. Depending largely on temperature, each cycle ending in larvae harvest will be completed in about 6-15 days; during most of the summer, I harvest one day per week. I have used the same water repeatedly throughout the summer, with satisfactory results continuing until winter.

I have been amazed by the quantities of mosquito larvae that are obtained using this method. I estimate that I typically get about a half-cup of PACKED larvae at each harvest. This quantity is sufficient to bulge the bellies of every fish in my 120 tanks, although admittedly I keep small, pretty, peaceful fishes, to the exclusion of those huge, ugly, bloodthirsty varieties. Thus, my fishes receive a feast of this most nutritious and palatable fare once every week or so, throughout the spring, summer and fall.

Newly hatched mosquito larvae are a great fry food. Just place egg rafts in the fry tank, and the fishes will eat the larvae as they hatch. Alternatively, the larvae may be fractionated using a sieve

to a size appropriate to the consumer. However, BE CERTAIN not to overdose the fry tank with rafts or larvae, since the mosquito larvae will grow much faster than the fry. Separating 400 squirming mosquito larvae from 200 frantic fry is a good way to kill a weekend.

Cultures of mosquito larvae will improve simultaneous cultures of daphnia. Many people object to the tendency for mosquito larvae to inhabit daphnia pools. My daphnia cultures almost never contain mosquito larvae when mosquito cultures are nearby. I suppose that the mosquitos much prefer the nutrient-rich barrels to the relatively barren daphnia pools.

The potential problem of overfeeding mosquito larvae is obvious. This is a pitfall of the technique. The best remedy is, just never, ever overfeed mosquito larvae, but as we know, things happen. I have occasionally overfed mosquito larvae, and can verify that families tend to be less than sympathetic to the resulting problem. A simple solution seems obvious to me, but my wife is narrow-minded about free-cultures of spiders in the house. As an palliative measure in the event that the unthinkable happens, I found that the mosquitos tended to accumulate on the ceiling in the early morning, where they could be discreetly swatted.

Mosquito larvae are definitely not for everybody. Those of us living in apartments, or with restricted yard space, will be limited in our access to this resource. The odor involved in my culture method may be objectionable to many people. A neglected culture (resulting in the overabundance of breeding stock) may result in a civil disturbance. There is just no getting around the fact that the adult form of this great food is not a desirable guest or pet. However, I contend that MOSQUITO LARVAE ARE THE BEST AVAILABLE SINGLE FOOD FOR (SMALL) FISHES, the benefits of which far outweigh the problems. If, or when, you next find yourself providing nourishment for that hungry mosquito, just remember that you are simply another link in Nature's remarkable food chain, and if you follow my advice, you will be serving admirably to enhance the welfare of your fishes.

POTOMAC VALLEY AQUARIUM SOCIETY

AUCTION MAY 20,1990 RECAP

TOTAL NUMBER OF BAGS/ITEMS SOLD	550
TOTAL DOLLAR VALUE BAGS/ITEMS SOLD	5,557.00
AVERAGE DOLLAR VALUE PER BAG/ITEM	10.10
EXPENSES - ESTIMATED	450.00
NET CLUB SHARE MINUS ESTIMATED EXPENSES	1,670.00

INTERESTING INFORMATION

There were 91 bags of Angelfish with a total value of $787.00 or $8.60 per bag.

There were 171 items of equipment with a total value of $2,441 or $14.27 per item.

Bowl Show News

Below are the bowl show competition categories for the remainder of this year:

July - Livebearers & Open

August - Anabantoids & Open

September - Corydoras & Open

October - Killifish & Open

November - Angelfish, Cichlids & Open

The Second Showing

by Anita Brain

The second show came a little quicker than I originally expected. I thought our next show was going to be in the spring but when we found out a show could be held during any month of the year we opted for January 12-14 and a spring show. The number of fish was rather small, just 131 show fish and 30 or so auction onlys. The computer program made registration simple and within an hour all the fish were logged in.

Since the show was so close to our first show, I had to hurry and get a show site. This seeemed to be a more difficult problem than I expected but I finally found a boys and girls club. I booked the space just a week before the show and was unable to go by the site before arriving with bowls and stands. The show site was four floors up from the nearest entrance and in a gym. The gym was occupied by kids practicing gymnastics. After several hours our four members finally moved all the equipment and fish from the vehicles to the fourth floor. It was not ten minutes before one of the kids knocked over the uneven bars into the boxes of bowls. Luckily only two bowls broke and no one was hurt. While our oldest member, Jerry Hatrick, and Freddie put the stands together, our newest and most eligible member, Wilma Fits and I took a ride to the post office to check for more fish. We arrived at the post office and found one box sent from the guy on the east coast. It was sent on Monday priority mail and took five days to arrive. While we were out, I decided to buy some drinks since all of us had exerted a great amount of energy moving the equipment. Upon arriving back at the show site, I opened the box to find frozen bettas. I immediately called the entrant. After returning from my phone conversation, the members asked if I had bought any ice for the drinks. Well, I found a use for those bettas although it was not a popular decision.

The next problem to resolve was the lack of tables for the show stands. In my haste I forgot to get tables or check to see if any were available. After careful consideration, we move the two balance beams together to hold two stands. The stands were capable of holding about 150 bowls, more than enough for our small show. We set up the stands and cover them with black plastic and moved bowls on them. It was during this time we discovered no water facility on the floor. The closest sink was one floor down in a janitor's closet. We attached a hose and began filling a large trash can full of water. I added some dechlorator and a chemical specifically designed for bettas into the water. The chemical, bettamax, turned the water a shade of green. The bowls were filled, labeled and the fish place into them.

After some time for temperture adjustment I began releasing the bettas. I picked up each bag and carefully cut the top with a pair of scissors and poured the fish in the bowl. Once all the fish were released, we started to coordinate the classes. It was then we found two black males fighting in a bowl. I guess I did not see the other fish in the bowl when I release the second fish which should have been in the bowl below. Since these were the only two fish in the black class, it was decided that the survivor got first place and the loser second. It was hard to continue with our job so we watched the fins fly. After about 45 minutes, we all declared the winner and continued the job at hand.

Within minutes of our entry closing time, a IBC member walked in with several entries including "wild"types". I had never seen a wild betta and was amazed when a six inch betta was extracted from his styrofoam container. He said it was Betta pugnax and they like to jump so they must be covered at all times. I entered the fish in a matter of minutes and watched while these large bettas were released. He was very careful in unbagging these fish and placed each fish into the bowl by hand and covered it with plastic wrap. He used several rubber bands around the lip of the bowl to secure the plastic wrap. After the labels were placed on each bowl the judging began.

The judges did their job with amazing ease until they came to the yellow class. The yellow fish were now green and each judge responsible for the male and female class moved all the entries into the green class. They marveled over the fish stating they were the best color green they had ever seen. I remembered releasinf the fish and could have sworn they were yellow but as I was reminded, the judges make the final decision. With the classes completed the best of show judging began. The best of show and reserve best of show in the male catagory came from the green class. They were two of the fish moved from the yellow class. The reserve best of show female came from the same situation.

With the judging complete we wrapped up the first day of our show. Before we left I check all the fish. The "wild types" were unable to get any fresh air so I poked a hole in the plastic with my finger. The next day we arrived at the show site to find the competitor with the "wild types" waiting. He immediately check his fish and it was then I learned of my mistake as two of the "wild types" found their way out of the bowl and dried up on the floor. He wanted to know who was responsible for poking holes in the plastic wrap. I owned up to the deed and explained that I was not familiar with "wild types" and would remember for the next show. He asked when was the next show and the cost of dues. He immediately became our fifth member and volunteered as our next show chair. I thought his name humorous but somehow Coleman Sense fit the person. We now had enough members to form an IBC chapter. While we setup for the auction each member threw out names for the chapter. We finally settled on Bettas Of Greater Utah Sound.

The auction went off without a hitch as the computer made the process simple and fast. It was not until I got ready to print auction records that I found I had forgot to bring any computer paper. With over twenty people waiting to pay for the fish they had purchased Coleman quickly left the room. He returned a few minutes later with a roll of paper towels. The records were printed and the money accepted. We rebagged the fish and found that I had purchased permanent labels which would not come off the bowls. I told the other members that I would remove them at home and to just pack the bowls in the boxes.

I returned home and prepared all the boxes for shipment in the next day's mail. The next morning I went the the post office to find it closed for the holiday. I had forgotten about Martin Luther King day but returned home and decided to clean the bowls. I found hot water and soap to work best and by days end had every bowl crystal clear. Gee, this has been exhausting and I'm glad Coleman volunteered to do the next show.

Reprinted from January/February issue of Flare!, the Journal of the Interantional Betta Congress, by permission of the author.

The Third's a Charm

by Coleman Sense

Our spring show has come and gone while looking back it was not without its problems as any show host will testify. The members of BOGUS, Bettas Of Greater Utah Sound, have really come together as a very cohesive group and kept their cool even during some trying times. As usual, the majority of the fish arrived on Thursday and Friday before the Saturday show. Since I have computer at home, I entered all the fish before arriving to the show site.

I had previously visited the show site and selected the second of two rooms available. The first option was a banquet room with wooden floor and since I knew that water would eventually find its way to the floor, I opted for the second room. It was a recreation room located in the basement. The building was built into a hillside and therefore the room had a back entrance at ground level. This would allow us to drive around back with the bowls and stands and just unload, no stairs and no elevators. The room contained four pool tables of standard size. I wanted to move the tables so we could setup the stands on normal banquet tables but the management stated the pool tables were old and needed replacing. They would cover them with plastic covers and we could set the stands on them. I measured the inside dimensions carefully to insure the stands would fit inside the railing. They would fit with an inch or so to spare. There was a kitchen in the next room which had a sink for our source of water. The water came from a well located on the grounds. This eliminated the need to dechlorinate the water.

We arrived early on Saturday with bowls, stands, fish and other supporting apparatus. It took less than a half hour to unload and while Freddie and Jerry setup the stands I entered the late arrivals. I printed the class listing showing the number of entries in each class and with Wilma's and Anita's help determined the layout of the classes within each set of stands. We hung signs on the bottom rack for each class and made judging cards. This was about the time mother nature decided to unleash one of the heaviest downpours I had ever seen.

Within the next half hour, water started to enter the show room from under door. The storm drain next to the door was shooting a column of water about one foot in the air since the sewage system was unable to handle the flow of water. We immediately shutdown the computer and moved all electrical devices and boxes of bowls on top of tables. We plugged the drain with a towel and used additional towels, mops and brooms to keep the water in check until the storm stopped and the drain started function normally. With the minor crisis over, we return to the job at hand.

We started filling the trash can with water when one of us noticed the water a brown rusty color. I contacted the management and learn that the plumbers had been working on the lines and backflushed the system. The water discoloration dissipated after several minutes running the facets and the trash can was filled. We started filling the bowls when I noticed a film floating on top of the water in each bowl. The water in the trash can did not have any film nor did a glass of water I filled from the tap. It was then that Anita realized she was the culprit when she washed the bowls with soap and came forward. We formed an assembly line type of operation that started with each bowl being rinsed thoroughly in clean water, inspected, filled and set on tables. The assembly line worked extremely well and we decided that all our tasks should be accomplished in a similar manner.

With all the bowls filled, we turned our attentions towards the boxes of fish. The labels, which were the removable type and written in permanent ink, were placed on each bowl. The bowls were placed in the appropriate class, the fish released and carded. The judges came and completed their task in just two hours. We locked up the show room and took the judges to dinner where we discussed tommorrows events.

We arrived Sunday around noon to prepare for the day's auction. The auction fish were removed from the shelves, bagged, numbered with permanent marker and placed on the auction table for review. The auction participants were given a number and entered into the computer. Each number had a paper grocery bag assigned and the bag placed behind the auction tables. The auction proceeded at a leisurely pace with short breaks so the buyers could look over the fish. It was on one of these breaks that I noticed several of the buyers digging into the auction bags and asked them to discontinue this practice. As the buyers checked out during the auction, each bag was carefully checked and the bill paid. A receipt was given each buyer listing each purchase, price, seller, comments and place it took in the show, if any. One of the auction bags was short several fish which we found in another person's bag. After everyone had paid, we saw one final bag not claimed. It was the bag we found the missing fish and contained only one fish which was resold. We were glad that we decided to hold all the fish until paid at checkout instead of giving the fish to each buyer during the auction.

With the auction over, we setup an assembly line to rebag the fish for their return journey. Each entrant's fish were collected and checked against the paperwork before the first fish for that entrant was bagged. We each took a job on the line, the first person removed the labels and placed them on the bag. The second person place the fish in a cup of water, emptied the bowl and placed it into the box. The third poured the fish into the labeled bag and tied it. The fourth double bagged the fish and placed it in the entrant's box. I was the fifth person and check the box, placed all the paperwork in it and collected the next entrant's fish. With all the fish boxed and bowls stored for the next show, we broke down the stands and packed up for home. That night I quickly finished the paperwork and prepare for tommorrow's mailing. I took some time and tried to relax but thought that hosting a show is a responsibility not to be taken lightly. Each entrant depends on the host club to take care of their prized possessions and how a careless show host could destroy the IBC show circuit by spreading disease and destruction to the stock of some of the best breeders in the country. I finally settled down, pleased with how each of us had grown in a time of crisis and exhausted, I fell asleep.

Reprinted from March/April issue of Flare, the Journal of the International Betta Congress by the author's permission.

Author's Note: This is the last of a series of three articles depicting events that have actually occured during IBC sanctioned betta shows. The events may be slightly exaggerated and did not occur during one show but all are based on real situations. These situations are not covered by the show standards. The host clubs and individuals have already paid their dues and I hope by publicizing the possible problems that these events can be avoided in the future - Ken Muller

PVAS BOARD MEETING - May 14, 1990

President Thrift convened the meeting at 7:00 pm at the Wood Center. Also attending were John Stieringer, Juliet Spall, Bob Pallansch, Rick McKay, John Mangan, Ray Hughes and Gene Aldridge.

Ray announced that the Knights of Pythias Hall in Gaithersburg can host our Fall Workshop October 27/28 for $800.00. Hoping to make up some of the $650.00 in rent over the Wood Center through store premiums, concessions and raffles, and considering the need to broaden the base of PVAS in Maryland, the motion was made by Rick McKay (seconded: Bob Pallansch) to hold the workshop there; approved by the board with some dissent. Proposed speakers besides Martin Moe (already engaged) were Davis, Thode, and Padavani, among others.

The Board also:

Enquired into PVAS' tax-exempt-status application, which can proceed as soon as the records from the past three years are collated.

Decided to auction a 55 setup in May, since raffling is not allowed at the Wood Center.

Contemplated cancelling mid-summer general meetings.

President Thrift noted that manufacturers' donations are declining; He also asked that the nominating committee be appointed at the June meeting.

The meeting adjourned at 7:50 pm.

Respectfully submitted

Robert J. Pallansch
Recording Secretary

PVAS BOARD MEETING - June 7, 1990

President Pete Thrift hosted the meeting, called to order at 7:45 pm; attending were Gene Aldridge, Tony Fitz, John Mangan, Rick McKay, Robert Pallansch, John Stieringer, and Kenny Warren.

Fall Workshop/Auction: Pete asked that board members assist Ray Hughes in organizing the Workshop; to inspect the facilities in Gaithersburg before the Wood Center option is released, to decide on the flyer/brochure format (store participation, ads vs. tickets and display copy, etc.). He stressed that we should not leave all the work to Ray, and that Va. and Md. stores should be treated alike.

Other options discussed included discounts or free admission to PVAS members, banquet possibilities and auction structure:

- how to discourage junk itiem or items poorly packaged
- how to speed up bidding
- auctioning livestock and early registrations first
- The Board agreed to enforce a strict 15-item limit for sellers, and approved Tony's motion (seconded by John Stieringer) to cut off registration before starting the auction.

Gene Aldridge reported the statistics from the May Auction; PVAS should wind up with about $3,000.00 in the bank.

Other items:

The President's and Treasurer's offices will be vacated next year; others should so state to the nominating committee.

'91 Show; feasibility of setting up in the classrooms at Wood Center will be checked.

The meeting adjourned at 9:45 pm.

Respectfully Submitted,

Robert J. Pallansch

Recording Secretary

*** REPRINT ***

Editor's Note: the following article is more than a bit technical, but it is the first explanation I've ever read on why ammonia is so much less of a problem in water with low pH values. It is well worth reading.

WATER QUALITY CONSIDERATIONS FOR THE HOBBYIST

David M. Stephon, ACLC

When I became interested in this hobby some 15 years ago, it was always a curious fact to me that freshwater aquarium systems never seemed to suffer from those terrible ammonia-related fish kills that marine systems experienced (at least initially when conditioning your tank). As is well known, ammonia can exist in aqueous solution in two distinct forms, ammonia (NH_3) and ammonium (NH_4^+). It is the former of these that is so destructive to fish. The reason for this is another basic chemical property: non-ionized (e.g. NH_3) molecules can easily pass through biomembrane barriers. Fish possess these membranes in a very susceptible part of their anatomy - the gills. Ammonia can also easily permeate the skin and eyes. The gill of course allows respiration via exchange of gases through a network of blood microcapillaries. Ammonia can easily permeate these vulnerable areas of the fish gill and disrupt this exchange of ggases across the gill membrane.

The equilibrium between ammonia and ammonium ion is controlled by pH. For example, the pH of marine aquaria are best maintained around 8.0 - 8.5 for reasons related to the ecological system that marine organisms have evolved from (the salts composing saltwater have an effective pH around 8.0 when at a concentration of the recommended salinity levels for marine aquaria). Hence, one adds dolomite and coral as a substrate to "buffer" (i.e. maintain) the pH in this range. However, as a consequence of a pH near the "dissociation constant" of ammonia, a substantial amount of the ammonia remains in a toxic non-iodized (membrane penetrating) state. The degree of ionization varies with pH as a mathematical (logarithmic) expression. Alternatively, the previous statements can be better understood by considering chemical acid/base relationships. By definition, ammonia is a base and therefore in an alkaline (i.e. basic) medium it will exist in its non-iodized form because there are no charged hydrogen atoms around (a sign of acidity) to react with it and form a charged ionized species (in this case, ammonium ion). As the pH is gradually lowered from 8.0 to below 7.0, hydrogen ions become present and react with the free ammonia to form ammonium ion. From the above argument, it is important to realize that not only pH but the dissociation constant (each base or acid has a unique dissociation value experimentally determined) for this ammonia/ammonium ion equilibrium determines the degree of ammonia and ammonium ion formed.

In freshwater aquarium systems, pH values are usually around neutral depending on the source of your tap water. Thus, more of the ionized ammonium ion (NH_4^+) is formed via the pH dependent ionization equilibrium. Thus little destructive action is caused by ammonia in freshwater aquaria as long as the pH is within neutral or acidic values. However, in setting up new aquaria, the new water used may be on the alkaline side and therefore whe urea/uric acid is produced via fish excretion, ammonia levels will rise rapidly. This will occur until nitrifying bacteria colonies become established and convert the ammonia into

less toxic compounds (oxidation to nitrite and then nitrate). However, not all freshwater domains are immune to the presence of excessive ammounts of free ammonia. Most (but not all) African cichlids require hard water associated with an alkaline pH (via the direct addition of essential salts and a dolomite substrate) due to their rift lake evolutionary development (lots of dissolved salts in these waters due to past volcanic activity in this region). Thus, gradual introduction of new specimens is recommended for these special cichlids until a biological filter is developed on the filtering substrate to alleviate above average ammonia levels. Yet, this is the exception to the rule, as most freshwater systems will possess ammonium ion and minimal ammonia at any given time once the biological filter has become established. Ammonium ion of course is less toxic to fish since it cannot as readily penetrate biomembranes. Again, ammonia toxicity in aquariums is minimized by the presence of nitrifying bacteria which oxidize (add oxygen or remove electrons) ammonia to form first nitrite, and then nitrate. Nitrate can be removed by frequent partial water changes and can also be further catalyzed (reduced) on the filter substrate to atmospheric nitrogen and liberated via aeration.

Finally, with regard to water changes, a lot of concern seems to center around chlorine and chloramines (at least as far as aquarium pharaceutical companies are concerned - I personally never worry about it). Fortunately, the solubility of diatomic chlorine (Cl_2 gas) in water is relatively low, and simply pouring tap water into an aquarium removes it sufficiently. Also, by adding lukewarm tap water (which you should do anyway to avoid temperature shock) during routine water changes, more chlorine will be driven off since the solubility of a gas in liquid decreases with an increase in temperature. However, in setting up a new aquarium chlorine is best removed by a reducing agent (a chemical which, in this case, adds electrons to another chemical species). Most manufacturers employ an aqueous solution of sodium thiosulfate (e.g. Tetra, Aquarium Pharaceuticals, Jungle, etc.). Sodium thiosulfate reduces (adds electrons to) diatomic chlorine (the form chlorine exists in our tap water) to chloride ion (Cl^-). Again, non-iodized chlorine molecules (like non-iodized ammonia) can penetrate vital sections of the fish: gills, skin, eyes, etc. The iodized chloride ion (like ammonium ion) cannot do this! Sodium thiosulfate in this process itself becomes oxidized (loss of electrons) to a harmless form and is removed by partial water changes.

Of course, now that I said all that, I can honestly tell you that being a successful aquarist and enjoying the hobby to the fullest has nothing to do with a textbook knowledge of these chemical principles. If your water comes from a reliable source and routine partial water changes are performed, little problems should occur. I find no warrant when I sometimes read that some tetras will only reproduce in soft, acidic water, or that angelfish will not thrive in hard, alkaline water, when I have personally maintained that particular fish in water to the contrary. Yes, it is important to provide at least minimal water conditions (acceptable pH, low ammonia levels), but a lot of times just good ol' tap water and a sponge filter works for me. Yet, when I can't get a fish to breed or a fish mysteriously dies, reasoning inevitably turns to water quality.

(Reprinted from Tank Tales, The Aquarium Club of Lancaster County)

Editor's Note: From the above article, we should also be careful when making water changes to adjust the pH of the new water to equal the tank's value. Otherwise, if the water change raises the tank's pH, more free ammonia may be released than the change removed!

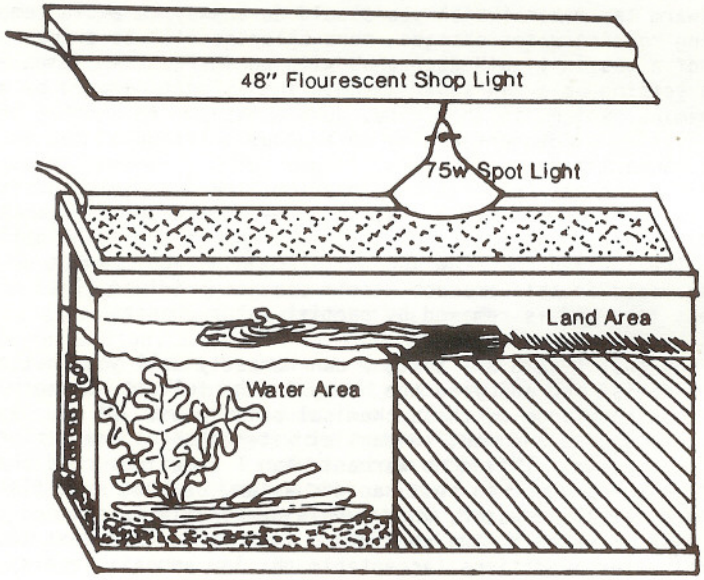
*** REPRINT ***

THE HABITAT TANK

Chuck Davis, NJAS

I have always wanted to set up a good size 'habitat' tank, that was half water and half land, mixing both creatures of terra firma and my aquatic friends. Well, I finally got around to doing it.

After being forced to rearrange the fish room by my plumbing contractor, I found the perfect spot for my special aquarium - a ledge just 12 inches wide on the east wall. I also had the perfect tank just sitting idle in the yard, a 55 gallon leaker. I took a piece of glass and divided the tank on a slight angle with the divider being about 7 inches from the top of the tank. After sealing the divider with silicone to make it water tight, I also sealed the left chamber of the tank completely to insure against leakage.



The Habitat Tank

The right side of the tank was the land portion, so to avoid putting so much dirt in that section, I cut four pieces of 6" PVC about 20" long and sealed the ends with duct tape. I put the PVC lengths into the right side of the tank, then filled the remaining space with dirt up to about two inches from the top of the divider. I then covered the dirt with about 1 1/2" of coarse gravel. Then I laid a long, slender piece of driftwood jutting out from the land area and overhanging the water area. On the water side, I placed half of a 36" undergravel filter plate and covered it with 25 pounds of river gravel, also adding a small piece of sinking driftwood, and a very large watersprite plant.

For a cover I used a standard screen cover for a 55 gallon that is usually used for small animals and reptiles. The lighting was provided by a 48", two-bulb fluorescent shop light, that was hung from the ceiling about 12 inches above the tank. I used two "Vita-Light" broad spectrum, twist shape fluorescent tubes. I also rested a 75 watt spotlight on the screen cover, to provide the inhabitants with a space for radiant heat absorbtion.

The inhabitants of this enclosure are: a small male green iguana, four platies, four phantom tetras, and a pair of chocolate gouramis. Subsequently, I lost the four phantom tetras; entered and auctioned the pair of chocolate gouramis in a show; and never replaced either because the platies have blessed the habitat with about 35 young which I am raising there for breeders award points.

An interesting note on the iguana: when he feels threatened in any way, he immediately dives into the water, holds his breath for quite some time and remains submerged. He never bothers the fish, but he does periodically take large watersprite leaves for a snack.

I am really enjoying this tank.

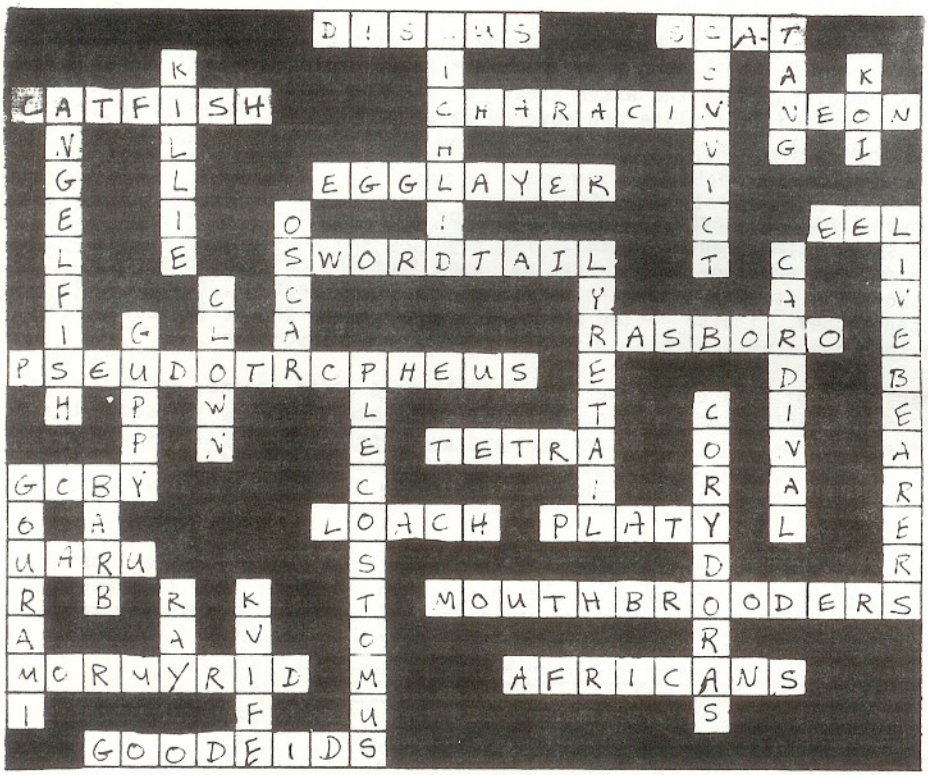
Reprinted from The Reporter, North Jersey Aquarium Society

SOLUTION TO PUZZLE IN MAY ISSUE OF DELTA TALE

FILL-IN PUZZLE

by Diane Spencer

Fill in the puzzle with the words given below.



3 letters	5 letters	7 letters	8 letters
EEL	CLOWN	CATFISH	AFRICANS
KOI	GUPPY	CICHLID	CARDINAL
RAY	KNIFE	CONVICT	CHARACIN
	LOACH	GOURAMI	EGGLAYER
4 letters	OSCAR	RASBORO	GOODEIDS
BARB	PLATY		LYRETAIL
GOBY	TETRA		MORMYRID
NEON			
SCAT	6 letters		
TANG	DISCUS		
UARU	KILLIE		

9 letters	11 letters	13 letters	14 letters
ANGELFISH	PLECOSTOMUS	MOUTHBROODERS	PSEUDOTROPHEUS
CORYDORAS	LIVEBEARERS		
SWORDTAIL			

**** REPRINT ***

A VIEW BY UNRUH
Dave Unruh, KWAS

PRODUCT: fluorescent reflector
PRODUCT NAME: Nautilus Fluorescent Reflector
MANUFACTURER: Nautilus Aquatics, Ontario, Canada
SIZE TESTED: double 48" (for two 48" bulbs)
TEST PERIOD: 4 months
COST: $45 - $50

This product is used on fluorescent bulbs that have no reflectors, or can be used to replace a poor reflector such as those found in plastic canopies (if there is sufficient room).

The reflector is made of .012" thick, 99.85% super-high purity aluminum that has been electrochemically brightened. It measures 44.5" long by 3.5" wide by 1.5" high and attaches to the bulb with aluminum clips that keep the reflector at the optimum distance for maximum light reflection. There are also a couple of holes along the centre of the reflector which could be used to fasten the reflector to a canopy.

When using this reflector, Nautilus claims that it will almost double the amount of light reflected into an aquarium (87%) compared with no reflector. I used a photographic light meter to measure the light falling into my aquarium and I found that Nautilus's claim was true! There was 88% more light in the aquarium with the reflector.

This means that one needs less bulbs, ballasts, fixtures, etc. to obtain a desired amount of light - particularily important in marine invertebrate and plant tanks. Less electricity would be needed - another benefit.

Nautilus reflectors are available in 2, 3, 4, and 6 foot sizes and come with a protective polyethelene peel-off film. Prices for single 48" reflector are between $25 - $30.

This product gets my whole-hearted approval (for what it's worth), since it performs as the manufacturer states, fits well, and in the long run will help the aquarist save some money.

Reprinted from Fish 'N Tales, the bulletin of
The Kitchener - Waterloo Aquarium Society

**** REPRINT ****

WHAT TO DO ABOUT THOSE TIMID FISH

Steve Ribicki, ARVAS

Are your fish afraid of their own shadow? Is it a struggle just to get a glimpse of certain fish in your tanks? If you're like me, you've run across more than a few of those "recluse" fish while engaged in this hobby. Can anything be done to alleviate this struggle? Or must you continue to net these fish every time you want to see them?

Many times a seldom-seen fish does not agree with its surroundings or tank conditions. The way to bet these fish into the open is to provide a comfortable environment that will encourage them to act natural. Of course, some fish are nocturnal, which means "natural" is hiding during the day and roaming the tank at night. To see these will take special efforts. One thing I have noticed many hobbyists do to observe their aquatic animals is to put then into a bare or almost bare tank to keep them from hiding. For some species this will be adequate, only lacking in aesthetics. Others will find this a shock and will never do the things we want them to do, like breed or show their most vivid coloration. Deportment (the way it behaves naturally) will not be good, and the fish may not feed properly, thus never reaching its full potential in size and vigor. Your fish will neither act or look good as they could if they are not happy.

If the hiding fish you want to see is uncomfortable, there are some environmental conditions you may have to adjust in order to make it act naturally. I have listed some of these below:

Vegetation and Ground Cover - Many fish will feel secure only when the aquascaping in their tank is just right. Some will need certain plants in specific quantitites so they have the opportunity to hide if the need arises. The fact that they are able to hide in a "natural" place actually keeps them from hiding most of the time. Others will need caves or rock structures. Still others will need a lot of open water (usually prey species which form schools) to have a good view of their surroundings. Pay particular attention to this area of tank set-up. It will have a greater effect on a larger number of species than any other condition you control.

Temperature. Although most of us will keep our tropicals in a range that is adequate to sustain life, experimentation in this area can prove beneficial. As a rule, an increase in temperature (not beyond the species maximum tolerance) will result in an increase in activity. For example, a discus will live at 78 degrees F., but may hide often and move very little. An increase to 84-86 degrees F. generally gets them out and about looking for food and competing with other tankmates for territory, mates, etc.

Dither Fish. I'm not completely sure why some fish require other fish to make them feel secure, but adding them to a single species tank can have an amazing effect on them. Good dither fish are usually small fast species that are naturally bold. They seem to let the shy or frightened fish know that everything is OK, or maybe it's the competition for food or territory that brings out the best in other fish. For whatever the reason, in many cases it works.

Color of Substrate. Very simply, some species require a dark substrate like that which is found in nature. This will also tend to increase their coloration as

well. The background and sides of the tank can come into play also. In many cases, you can buy a dark background, or paint the outside of the back and/or sides black. Dark paper also works well.

Intensity of Light. This goes hand-in-hand with the previous factor. You may have to change the intensity of the light, either by reducing the wattage, moving it further away, or changing the color of the bulb. Realize that this many affect the plant growth in your tank.

Compatibility. You will have to consider both interspecific (between species) and intraspecific (within a species) compatibilities. There are many cases of fish being dominated by others of the same species as well as different species. Look for signs of aggression. If you find it, the solution is not always to remove fish. In many instances, adding the proper ratio of males or females will do the trick.

Water Conditions. If a fish is physically stressed due to improper pH, water hardness, or high ammonia levels, you can expect it to be lethargic with a tendency towards hiding. Therefore make sure all species in a given tank prefer the conditions of that tank.

Height of Tank. If you have a situation where the top of the tank is less than three feet off the ground, the fish will be far more easily startled. The speed of your feet and legs moving past a tank is much greater than the motion of your head passing by. I have had many fish act more bold when moved from a low tank to one in the top row.

Hunger. This alone have been known to tame a nation of people. It also works wonders on shy fish. Most adult fish can go four to five days without food. This tactic has coaxed many a fish into the open. It can even turn some into pests at feeding time. By the way, this can also make a finicky eater consume the most unpalatable of foods you may wish it to have.

Noctural Species. As stated earlier, many species are active only at night. If you so desire, you can even supply this condition during your waking hours. Simply darken the tank (room) and supply an infra-red light for you to see by. Then at night turn on a regular light to simulate daylight. This procedure is commonplace in zoos where nocturnal animals are displayed to the public during the daylight hours.

After trying all of the above, you may still have a difficult time seeing some species. After all, certain ones are just plain shy. You show your face and they disappear. With these it may be necessary to observe them from a distance, or to cover all the sides of the tank and to watch them through a hole in the material used to conceal them. (I'm not sure a bag over your head will work on not, though I have heard of it being used in other "ugly" situations).

Read as much as you can about the species that you desire to keep. Then try to duplicate conditions that you believe will make them comfortable. If this fails, then you might want to try the things mentioned above. This trial and error method can seem to be more trouble than a shy fish is worth, but there may be other advantages. Experimentation with their environment should eventually produce visible fish. These same changes, often times, are the same ones that promote breeding activity. This may help you with those "hard to do" species.

(Reprinted from The Aquatic Digest, Allegheny River Valley Aquarium Society)

How to be a Good Convention Attendee

by Ken Muller

There have been many articles written about hosting or attending a large convention and the fun "we" had during said convention but few, if any, deals with the events that evolved in order for everyone to enjoy themselves. To start, I will stated that one individual can ruin the enjoyment of several individuals without even knowing they have done the deed. The members of the host club want to enjoy the convention as much as the rest of the attendees and with all the work to be performed by usually a small group of people, the pleasure of convention can quickly disappear.

I will start with the show entrant. Some of the members who cannot attend, send their fish via the usual methods and for these people I have no suggestions other than fill out your entry form completely, enclose the necessary money and mark your fish clearly. The show chair will be dealing with about 1000 entries that must be ready for show in a short period of time. The attending entrants are the individuals that can break a show chair's back. These individuals can do a lot to help the host club. First, if when you arrive and the show chair is not ready to accept your entries, wait and be patient or help setup the show room. The help you give is always appreciated. Once the show chair started registering the fish, let the person do their job and again be patient. Once your fish have now been entered, instead of having the host club bowl and label your fish, do it yourself. This allows them to work on the mail-ins and other necessities involved in hosting a successful show. Unbag your fish and place them in the appropriate classes if they have been established on the stands. When you decide to rebag your fish after the show, gather them together and have the show chair check them before bagging. If when you have finished with your entries and wish to help the host club just say "what can I do to help". I'm sure you will get an answer whether it be dumping water or tying knots there is always something that needs to be completed before the after convention relaxation can commence.

The next large event at a convention is the auction. The preparation of this event usually takes about one to two hours before it can begin. If you wish to help the host club with the auction then step forward and offer your services. They need people to help gather the fish for auction. Bag them once they are sold or act as runners between the auctioneer and the baggers. You may want to help record the results or just keep the drinks for those long winded auctioneers full. Whatever you decide goes a long way towards the enjoyment of all. As buyers in the auction, I suggest you get your auction number early so there is not a mad rush just before the beginning of the auction. Speak up when bidding and don't wait until you hear "going twice" because if the auctioneer does not see you, then the fish is gone. Finally, keep track of your purchases so you are not embarrassed at check out or you don't have to ask someone to check on the amount you've already spent/bid.

The banquet and hospitality room are events where little help is needed other than setting up the trophies from the show and food but still needs some discussion. The banquet is the highlight of convention for many of the attendees and therefore courtesy should be given to all speakers and award receiptants. The hospitality room is the gathering place for informal discussions and general relaxation. Although a question or two by an individual is always welcome, a battery of them will soon alienated you from the group. Help wrap and unwrap the food for the hospitality room and remember to throw away your trash. Finally, never complain about the size, food or beverages in the hospitality room. It may be your fault because you did not pay for a full package or in advance. The host club needs the finances to pull all the necessary pieces together and without advance reservations they have to cut corners somewhere. The convention packages are designed with a built in sum for the extras we have all come to enjoy and by just buying banquet dinner your are doing a disservice to yourself and your friends.

Reprinted from March/April issue of Flare!, the Journal of the International Betta Congress

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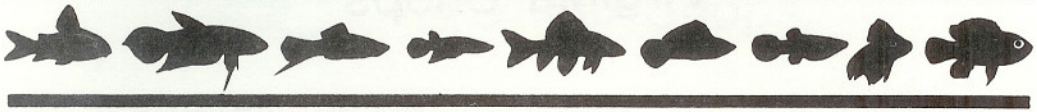
POTOMAC VALLEY AQUARIUM SOCIETY



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How long have you been in the hobby? _____

What parts of the hobby interest you? _____

_____

What can PVAS do for you? _____

Have you ever belonged to another aquarium society? _____

If yes, which one(s)? _____

Individual annual dues for membership in the Potomac Valley Aquarium Society are $12.00 per year, renewable each June.

Please hand this application to any PVAS member, or mail it to the address above. You will be contacted.

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12 FEB	14 MAY	13 AUG	12 NOV
12 MAR	11 JUN	10 SEP	10 DEC

Meetings are held at the John J. Wood Facility, 3730 Old Lee Highway (Rt 237), Fairfax City, Virginia. Doors open at 7:30, and the meeting starts at 8PM.

ALL ARE WELCOME!