

* DELTA TALE *

May 1988
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potomac valley aquarium society



POTOMAC VALLEY AQUARIUM SOCIETY



POST OFFICE BOX 6219 SHIRLINGTON STATION ARLINGTON, VIRGINIA 22206

The Delta Tail is published for the benefit of the Potomac Valley Aquarium Society, Inc. (PVAS), a non-profit organization, established in 1960 for the purpose of furtherin the aquarium hobby by dissemination of information, encouraging friendly competition, soliciting participation in its shows, and promoting good fellowship. Correspondence should be addressed to PVAS, PO Box 6219 Shirlington Station, Arlington, VA 22206. Original articles and artwork may be reprinted by other non-profit organizations if credit is given to the author, Delta Tail and PVAS. Two copies of the publication should be sent to the Delta Tail c/o PVAS. Please place the author's name on one copy to ensure that it gets to him/her. PVAS and Delta Tail disclaim any responsibility for content or availability of advertised merchandise or services in these pages. Customer satisfaction is a matter to be worked out exclusively between the advertiser and the buyer. All material for inclusion in Delta Tail MUST reach the editor by the 18th of the month prior to publication.

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A BEGINNERS GUIDE TO SHOWING FISHES

by John Mangan, PVAS

Most experienced fish show attendees will tell beginners that to prepare properly for a fish show you must begin planning and preparing your fishes months ahead of time if you want to have the slightest chance of winning anything. This tends to intimidate most beginners and discourage them from participating in a show. It also isn't totally true, if it was, I would have never won anything. The further ahead of time you start thinking about the show the better, but if you decide at the last minute to enter you still have a chance. There have been years where I didn't decide which fish to take to the show until the morning of the show and still came home with trophies. You also don't need to be experienced to have a chance to win. In the first fish show I ever entered, which was also only the second one I had ever even seen, I came home with three trophies, including a Best in Class.

Now that I, hopefully, have your confidence up I'll give you some tips on how to prepare for a show.

The first thing to do is to get a copy of the show rules. Read these very carefully. If there is anything you don't understand or isn't totally clear, ask someone. There will usually be a name and phone number you can contact.

Next you will want to take a careful look through your tank(s) to decide which fish(es) you want to enter. The fish you pick should be close to full size (or as big as it gets in an aquarium), it should have good color, look healthy and alert, and have good fins with no tears. This is where the months of preparation theory comes in. If your fish has torn fins, is a little too small, etc. you could put it into a tank of its own and give it lots of good food and TLC.

Go back to the show rules again and make sure you know which class and/or subclass each of your fish should be entered in. Again, if your not absolutely sure ask. The people in charge of registering fishes at the show site can help you but make sure you ask them. It can sometimes get rather hectic at the registration table and your mistakes won't be noticed. A winning fish can end up being disqualified because it was entered in the wrong class.

Now that you've decided which fish you are going to show you will need to obtain the proper container to take it in. Once more refer to the show rules to find out what kind of containers are allowed, and also if you are allowed to use any gravel etc. The most commonly used container is the drum shaped goldfish bowl, or, if you have a large fish an appropriate sized aquarium. Don't try to put a fish into a bowl that is too small for it. It will probably have to be in the bowl for quite awhile and too small of a bowl will cause it to become stressed and perhaps even die. Dead (or even just stressed) fish don't win many fish shows. Unfortunately there is no rule to tell just how big of a bowl you will need, a very active fish will need a bigger one than a very sedentary fish. If you can't tell this from experience do the

next best thing and use common sense. Don't get carried away and use too big of a bowl though either. A 1" fish will get totally lost and look very small in a two gallon bowl, a one gallon size one is more appropriate. Make sure your bowl is good and clean. Your fish will look much better to the judges if it is in a clean bowl. Rinse it out real good (no soap) and dry the outside with newspaper. This may make a mess out of your hands (it washes off easy though) but it will make the bowl sparkle. At this time you should also make sure you have any other equipment you may need such as tubing, airstones, etc. Make a list of things you need, it is very easy to forget something at the last minute. You may want to get a piece of paper now and start making a list as you read the rest of this article (and the show rules, again). Go ahead, I'll wait for you. I want to take a break and get a snack anyway.

Now that your all back I'll leave the advance preparation stage and move on to stuff you'll need to do on the day of the show.

Look your fishes over very carefully again to make sure all of your show choices still look good enough to go. It's surprising how many fish develop torn fins overnight right before a show, I guess they just can't take the pressure. Make your final decision about who is going.

DO NOT feed your show fish today. If you do their wastes will foul the water in their bowl and cause a lot of stress. They won't starve to death, a healthy fish can go several days without feeding with no harm at all. Also- being a little hungry may make the fish more active and thus better looking to the judge.

Gather all of your bowls, make sure again that you have the proper size bowl for each fish, and that the bowls are clean.

Now that you have the bowls you are going to need some water. Ideally it should come from the tank the fish is in to avoid the stress of different water conditions. It should be clean, clear, and colorless. If you can't use your tank water and have to use tap water make sure it is properly dechlorinated and is at as close to the same temperature, pH, etc. as the tank water as possible. You will want enough water to fill the bowl 1/2 to 3/4 full (no more) to give the largest surface area possible.

Very carefully catch your fish and gently place it in the bowl. Be careful not to tear its fins or otherwise damage it. Don't chase it madly about the tank with the net. Be slow and calm. Sometimes using two nets, one to herd the fish into the other, helps. When catching catfish or other fish with barbed spines on their fins it is best to use a very fine mesh net so the fish's spines don't get caught in the net and torn. Make sure the net you are using is large enough for the fish you are trying to catch. Trying to catch a big fish with a little net will only result in you getting frustrated, wet, and possibly damaging your fish.

You should now cover the bowl with a piece of plastic held in place with a rubber band. The bowl should be labeled above the water line with the name of the fish. Use waterproof ink and/or cover the label with transparent tape. Check the show rules for details on this as it varies from show to show. Now place the bowl in a sturdy box to carry it in. If you are taking more than one fish put cardboard or newspaper in between the bowls in the box to prevent them from knocking together. It is very unlikely that they would break from this if you don't put something between them, but they will make an awful noise every time your car goes over the slightest bump, turns a corner, stops, starts, etc. and by the time you get to the show sight you will be a nervous wreck. Warning- you will still hear a lot of sloshing noises. You'll just have to bear this as I haven't found a way to stop it yet.

An alternative to the above method, and one you will probably have to use if you are bringing large fish and tanks, is to carry the fish in plastic bags or buckets. You can then transfer them to their bowls or tanks after you arrive at the show. If doing this make sure you bring along enough water to fill your tanks or, if your sure there will be a source of water (I hope by now you know where to look for this info. without me having to say it again) make sure you bring everything you will need to dechlorinate and adjust the pH of the water.

When you arrive at the show site go inside without your fish first, unless you only have one relatively small box to carry. This is to find out exactly where you need to register your fish. You don't want to be stumbling around with a heavy box of fishbowls.

After your fish are registered make sure you place them in the proper places on the show stands. If you put your fish in the wrong place it may get disqualified, just like registering it in the wrong class. What do you do if your not sure where your fish goes? . If you can't fill in the blanks go back to the begining of the article and start all over.

Once your fish are placed properly you want to hook them up to the shows air system. Cut a small hole in the plastic cover of your bowl. Hook up you're air tubing to the shows air system. If you're not sure how to do this find someone to help you. Feed the free end of the tubing through the hole in your plastic and adjust the air so there is a small steady stream of bubbles. Not too much, you don't want your bowl to be like a whirlpool. It may also help to wrap a plant weight around the end of the tubing to help hold it down near the bottom of the bowl.

Now all you have to do is wait for the judging to take place. Good luck, and make sure to add one final thing to your list of stuff to bring- an empty box to carry all of your trophies home in.

SHOW CHAIRMAN'S MESSAGE

We are about to go through another of our annual weekends of spring madness, also known as the Potomac Valley Aquarium Society's Twenty-Eighth Annual Spring Show and Auction. Many long and hard hours of careful planning and effort by PVAS members are being devoted to staging this event. Our spring weekends routinely draw several hundred hobbyists, both serious and casual, from up and down the Eastern seaboard. I hope everyone will find the results of our efforts interesting, informative, and entertaining.

Our big weekend is composed of two separate events. On Saturday and Sunday morning, there is an exhibition of aquatic life with hundreds of entries considered by their keepers to be the best of their types. The "best of the best" will be formally recognized by independent, authoritative judges. The spring show actually serves three functions. First, it affords hobbyists at all experience and skill levels the opportunity to display the results of their efforts in raising and breeding aquatic animals and plants. Secondly, the show demonstrates to the public the diverse interests and specialities available within the aquarium hobby. Thirdly, the show hopefully results in new members joining our society.

On Sunday afternoon (and usually going on well into Sunday evening!) is the auction. PVAS stages two auctions each year as our primary source of club operating funds. If you have never before attended an aquatic hobby auction, I think you will find ours fascinating. Hundreds of bags of fish, plants, and aquarium supplies and hardware will change hands in one afternoon. Among all those bags are many items rarely if ever found in a pet shop, and a great number of bargains as well. Throughout the auction afternoon, donations from hobby manufacturers will be raffled off, and at the close of the weekend, a complete 55 gallon set-up (tank, hood, stand, filtration system, and heater) will also be raffled off. Tickets for both raffles will be on sale at the concession table.

Last year, the PVAS participation rate in the number of entries and exhibits was, frankly, very poor. Do you have fish that you are proud of? Then share your pride and enter them! They don't have to be the absolute best of their kind, only the best you have been able to raise and keep.

Finally, the 1988 Show Committee is composed of the same old names that have been volunteering for a number of years. Now more than ever, other PVAS members should consider donating some of their time to support our club, especially some of our newest members. Even just an hour or two selling raffle tickets or helping to erect or tear down show stands will pay HUGE dividends in personal satisfaction in helping your club help you in your hobby, and will greatly increase your sense of belonging rather than just attending! You will become a more successful hobbyist for doing so. I guarantee it!!



PETE THRIFT
1988 Show Chairman

Start
Thinking
About
What
You
Will
Do
To
Make
The
PVAS
Spring
Show
And
Auction
A
Success!

Pete Thrift
1988 Show Chairman
971-0596

DOTOMAC VALLEY AQUARIUM SOCIETY



POST OFFICE BOX 6219 SHIRLINGTON STATION ARLINGTON VIRGINIA 22206

28th ANNUAL FISH SHOW AND AUCTION

MAY 20-22, 1988

SCHEDULE OF EVENTS

FRIDAY, May 20

6 PM to 9 PM - Early Registration of Show Entries

SATURDAY, May 21:

9 AM to Noon - Registration of Show Entries

1 PM to 5 PM - Judging

2 PM to 8 PM - Public Viewing of Show Entries

SUNDAY, May 22:

8:30 AM to 1 PM - Public Viewing. The public is cordially invited to attend the Awards Presentation and the Auction.

9 AM to 12:30 PM - Registration of sale items for the Auction

11 AM - Awards Presentation

11:30 AM - Auction, continuing with periodic breaks until all items are sold

THERE IS NO ADMISSION CHARGE FOR VIEWING THE SHOW OR ATTENDING THE AUCTION

RAFFLES - RAFFLES - RAFFLES

Aquarium-related prizes will be raffled off at intervals during the Auction. You must be present to win these prizes. At the close of the Auction, a 55-gallon tank set-up will be raffled off. You need not be present to win this prize.

Tickets for both raffles may be purchased at any time during the Auction at the concession stand. Soft drinks and souvenirs will also be on sale.

COMPETITION CATEGORIES

All classes (excepting VIII) are open to public competition.

- I. Livebearers
 - a. Guppies
 - b. Mollies
 - c. Swordtails & Platies
 - d. Goodeids
 - e. Other Livebearing Fish
- II. Egglayers (Non-Cichlid)
 - a. Catfish, Corydoras
 - b. Catfish, African
 - c. Catfish, All Other
 - d. Betta Splendens
 - e. All Other Bettas & Anabantoids
 - f. Sharks & Loaches
 - g. Characoids, Under 3" Mature
 - h. Characoids, Over 3" Mature
 - i. Barbs
 - j. Goldfish & Koi
 - k. Danios, Brachydanios, & Rasboras
 - l. Killifish
 - m. North American Native Fish
 - n. Other Non-Cichlid Egglayers
- III. Cichlids
 - a. New World Large (Over 7" Mature)
 - b. New World Medium (4" to 7" Mature)
 - c. New World Dwarf (Under 4" Mature)
- III. Cichlids (continued)
 - d. Angelfish
 - e. Rift Lake, Malawi
 - f. Rift Lake, All Other
 - g. Discus
 - h. Non-Rift Lake African
 - i. Cichlid Pairs
 - j. Other Cichlids
- IV. Marine
 - a. Fishes
 - b. Invertebrates
- V. Family of Fishes
- VI. Plants
- VII. Set Tanks
- VIII. Dealer Tanks
- IX. Photography
 - a. Photographic Slides
 - b. Photographic Prints
- X. Arts and Crafts

THE FOLLOWING APPLIES TO ALL ENTRIES

Once entered into the competition, no entry may be removed until after the Awards Presentation on Sunday without the consent of the Show Chairman. All entries must be removed by 6 PM, Sunday, May 22, or they will be disposed of at the discretion of the Show Chairman. All entries must be accompanied by an entry form, a copy of which is in this flyer. There will be qualified hobbyists available to assist you in classifying your entries. PVAS can assume no liability for any entry. However, at least one qualified hobbyist will be present at all times during the show to assure the safety and well being of the fish, and to deter theft or other damage.

AWARDS

Trophies will be awarded for Best In Show (Classes I through IV), Reserve In Show (Classes I through IV), Best In Class (Classes I through IV), and for First Place in each category of each class (Classes I through IV, IX, X), and First Place in classes V through VII. Ribbons will be awarded for Second and Third Place in each category of each class. A Dealer's Rotating Trophy will be awarded for Class VIII.

INFORMATION

For additional information, please contact Mr. Peter Thrift, Show Chairman, at (703) 971-0594 weekdays between 6 PM and 9 PM, and weekends between 2 PM and 4 PM.

SHOW RULES

The competition is open to anyone.

FOR CLASSES I THROUGH VI:

TANKS, OTHER CONTAINERS, AND STANDS: All tanks, drum bowls, and stands must be furnished by the entrant. All containers must have at least two clear, flat sides. Tanks larger than 5 1/2 gallons must be accompanied by a stand. An air pump, filtration, light, and extension cord must be furnished by the entrant for each tank larger than 5 1/2 gallons, as they may have to be placed at some distance from the PVAS-supplied air source.

DECORATIONS AND LIGHTING: No decorations of any kind, including plants, back or side painting, or gravel, will be allowed in Classes I through V. See below for Class IV. The external bowl or tank bottom may be painted flat black. Only tanks on stands may have entrant-provided lighting.

AIR, HEATERS, AND FILTRATION: PVAS will furnish a constant air supply for all bowls and small tanks. Entrants must furnish their own airline and airstones. A supply of each will be available for purchase from PVAS. Box and sponge filters or outside filters will be allowed at the entrant's discretion. In Class IV, undergravel filtration may be used, but the tank must otherwise be bare. Heaters are allowed in all classes.

FOR CLASS V (FAMILY OF FISHES):

An acceptable entry consists of a breeding pair of adult fish and their fry. The fish may be displayed in a single container, a divided container, or separate containers.

FOR CLASS VI (PLANTS):

An acceptable entry consists of a single species of any recognized aquatic plant displayed in a single container. Several individual species may be displayed as separate entries in a compartmented container. A rooted plant may be displayed in a pot or floating. No gravel or planting medium is allowed on the bottom of the container. No fish or other fauna may be present in the container.

FOR CLASSES VII & VIII (SET TANKS):

Entries may represent either freshwater or marine environments, and may be stocked and decorated as desired. These tanks will be judged on the overall appearance of the tank and its contents. The appearance of the tank stand will not be judged. All equipment must be supplied by the entrant. All entries must be ready for judging by noon on Saturday.

FOR CLASSES IX & X (PHOTOGRAPHY, ARTS & CRAFTS):

Judging of photography will be based primarily on composition and technique. Art and Craft entries must consist of a non-photographic representation of freshwater or marine fishes or their associated environment, and are judged on originality, design, and overall artistic merit. All entries are expected to be the work of the entrant. If desired, entries may be titled but must not display the name of the entrant. Entries will be accepted by mail provided they reach PVAS before Friday, May 15. Use the PVAS address on the cover of this flyer, and enclose applicable entry fees. Entries will be returned only if a stamped, self-addressed mailer is enclosed.

JUDGING

All entries will be judged equally by established PVAS standards. If an unbreakable tie occurs, duplicate awards will be made. In all cases, the decision of the judges is final. Judging sheets will be available for entrant review after the judging process is completed. A list of show judges may be found elsewhere in this flyer.

POTOMAC VALLEY AQUARIUM SOCIETY
 Show Entry Registration Form

Name: _____ Address: _____

Telephone: (___) _____

Club: _____

Entry Class	Bowl Number	Entry Fee	Auction?
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			

Entry Fees: Single Fish - \$2.00 Dealer Tanks - no charge
 Pairs and Families - \$2.00 Slides and Prints - \$1.00
 Plants - \$1.50 Craft and Artwork - \$1.00
 Set Tanks (non-dealer) - \$2.00

PVAS MEMBERS NOTE: No more than \$20 in entry fees will be charged to club members entering five or more sub-classes, regardless of the number of total entries.

INSTRUCTIONS FOR FILLING OUT THE SHOW ENTRY FORM

Please use this form to enter the show competition. Fill in the requested data at the top of the form. This will facilitate entry registration, insure the safeguarding and return of your entries, and allow PVAS to notify you of future events.

In the CLASS column, list the competition category for each individual entry. A swordtail, for instance, would be placed in category "Ic". Do not write in the BOWL NUMBER column, as this is for use by the registrar in assigning a specific number to your entry. You may tally your total entry costs by entering the correct fee for each entry, or the registrar will do this for you. If you wish to have the entry placed in the auction and sold after the completion of the show competition, write "Yes" in the AUCTION column. If you have any questions, the registrar will be happy to assist you.

LIST OF SHOW JUDGES

The following individuals have tentatively accepted invitations to judge this competition:

Bob Goldstein, Raleigh Aquarium Society
Dave Herlong, Raleigh Aquarium Society
Gerry Pottern, Raleigh Aquarium Society
Ed Taylor, 5-D Tropical Fish Farm
Dave Shaw, Aquaria International

PVAS AUCTION - SUNDAY, 22 MAY

RULES FOR THE SELLER:

1. You do not have to be a PVAS member to buy or sell hobby-related items, including fish, plants, equipment, etc. in the auction.
2. Registration of items for sale will begin at 9 AM and will end promptly at 12:30 PM on Sunday, 22 May.
3. The auction will begin immediately after the awards ceremony and will continue, with periodic breaks, until all items are sold.
4. All items must be labeled with the identity of their contents, to include number, sex (if possible), and other pertinent data. Use a permanent marking pen and adhesive label. Labeling equipment will be available at the auction, but labeling must be accomplished before the items will be registered.
 - a. Fish: 'Pair' means one of each sex. 'Mated Pair' means a pair that have spawned WITH EACH OTHER. 'Trio' means one male and two females. 'Reverse Trio' means two males and one female. 'Mixed Sexes' means at least one specimen of each sex. If you are uncertain, label the bag 'Unsexed'.
 - b. Supplies: All aquarium equipment MUST be labeled as to working condition or missing parts. PVAS reserves the right to reject any equipment judged to be unsuitable for auction.

5. Proper fish bags must be used. Live items must be bagged with ample air and water. Fish packed in "baggies" or similar bags will not be registered. If a fish is registered in a bucket, tank, or bowl, the container will be considered part of the item and will be auctioned as a unit. There will be a supply of fish bags for sale at the registration desk. After registration, the Auction Committee reserves the right to re-bag any item as is necessary.
6. Registration is limited to fifteen (15) items per person.
7. A limit of five (5) bags per species or color form/variety is allowed, unless prior approval is obtained from the Auction Chairman.
8. For every five (5) items registered in the auction, one (1) colored sticker will be given to the seller to attach to the item of his choice. These items will be auctioned first.
9. Bags will be offered 'as is' and will be sold as one item. Once registered, the contents of a bag may not be split.
10. Each item carries a \$1.00 minimum, unless the seller assigns a higher minimum. The seller may lower the minimum on an item that does not sell during the auction.
11. No payment will be made to the seller on the day of the auction. Payment will be forwarded by mail within ten days after the auction date. It is the seller's responsibility to give PVAS a proper name and address to receive payment. Envelopes for this purpose will be filled out during registration.
12. The seller receives two-thirds of the selling price. PVAS retains one-third.
13. All items not sold must be claimed at the close of the auction, or they will be disposed of at the discretion of the Auction Chairman.
14. The auctioneer retains the right to set aside any improperly bagged or marked item, or any sick or otherwise unsaleable item.
15. Fish species that are restricted by either federal or state statues will not be accepted. These include, but are not limited to: Piranhas, Texas Cichlids, and Walking Catfish.

RULES FOR THE BIDDER

1. All persons wishing to participate in bidding are required to register with their full name and address. Bidding numbers will be assigned to all buyers.
2. Items may be inspected only before the auction and during the intermissions.
3. All bidding raises will be in one dollar (\$1.00) increments. The auctioneer has the right to alter this procedure at his discretion.
4. Successful bidders will have their items brought to them, at which time payment is expected. An authorized bidder may run a tab, or pay by check. Please see the Treasurer before the auction. Proper identification will be required in these instances.
5. In all cases, the decision of the auctioneer is final.

INDUSTRY SUPPORTERS OF PVAS

The following companies generously made product donations to PVAS to use as prizes either at our monthly meetings or as raffle prizes at our spring and fall auctions:

Aquarium Pharmaceuticals, Inc.

Eugene G. Danner Manufacturing, Inc. (Supreme)

Finny Products Company

Freshwater and Marine Aquarium Magazine

Ginger Products Company

Rolf C. Hagen (USA) Corp.

Hawaiian Marine Imports, Inc.

Lustar Products

Mardel Laboratories

Marineland Aquarium Products

Perfecto Manufacturing Company

Tetra USA

TFH Publications, Inc.

Many of these firms have been supporting our society for many years. They all deserve our support in return.

PVAS JUDGING STANDARDS

For each show class, at least two qualified judges are assigned. A judge may decline to judge a category in which he or she is not qualified, and will not be assigned a category that he or she is personally entering. Each entry is evaluated in the following five areas: SIZE, BODY SHAPE, FINNAGE, CONDITION AND DEPORTMENT, and COLOR. In each area, each entry is given up to 20 points. A perfect entry would receive the maximum 20 points in each area, or 100 total points. The overall points assigned by each judge for an entry are then averaged, and this average becomes the entry's overall score. The three entries with the highest averaged points are the winners for that class.

The 1988 PVAS Show has been sanctioned by the American Cichlid Association and the Federation of American Aquarium Societies.

PVAS BOARD MEETING - APRIL 4, 1988

The meeting was convened by President Gene Aldridge at 7:30 p.m. Also present were Kenny Warreo, Pete Thrift, John Stieringer, John Mangan, Bob Pallansch, Ray Hughes, and Gerry Hoffman.

Show Chairman Thrift announced that thank-you letters for manufacturers' donations have all gone out; a good supply of prizes from in the ten-to-thirty dollar range has been received for our 3/\$1.00 raffle. He reported trouble contacting some of our potential judges for the May 21 show; alternate names were suggested.

The Board decided to sell cokes at the auction.

From Gene Aldridge:

The bulk permit has been acquired and The Delta Tale will now be mailed for 16.7¢ each; the deadline for copy is now the general meeting each month. He has run off a years' supply of mailing labels at no cost to PVAS.

Also, we have a new editor for The Delta Tale! Tom Hetzel has accepted the post, and we are looking forward to its evolution under his leadership.

From Gerry Hoffman:

Our treasury is getting low (circa \$400.00) but most of the advance costs of the Spring Show have been met.

The \$25.00 Va. incorporation fee has been paid for 1988.

From Ray Hughes:

The Ramada Inn at Rt. 28 in Rockville is available for the Oct. workshop; the cost is reasonable but the room is small. He agreed to keep looking and to investigate Md. store sponsorship.

The meeting adjourned at 9:15 p.m.

Respectfully submitted: Robert Pallansch, Recording Secretary

FISHNET
ICHTHYOLOGY 102
Water Chemistry
Lecture 1

This course is designed to give you, the students, a better appreciation of the aquatic environment, primarily as found in aquariums, and to learn, as Spotte stated it, how the water affects the animals and how the animals effect the water.

This first discussion will be an exposition of some of the basic concepts to be used throughout the remainder of the course. The International System of Units (SI) will be used for most of the discussions, and the following are some of the abbreviations for some of the most used units:

liter = L (uppercase)
milliliter = mL
gram = g
milligram = mg
kilogram = kg
microgram = ug (the lower-case U approximates the Greek mu)
Centigrade or Celsius degrees = °C

When necessary, English units will be abbreviated as follows:

U.S. gallon = gal
fluid ounce = fl oz
Avoirdupois ounce = oz
pound = lb
Fahrenheit degrees = °F

In addition, the following conversion units will be in effect:

1 gal = 3.785 L
1 lb = .4535924 kg

Chemical shorthand will be used throughout these discussion[s]. The first time an element or chemical compound is mentioned, its chemical formula will be shown. From that point on, if convenient, the chemical formula will be used to the exclusion of the name. The following is a list of some of the more commonly used formulas and elemental symbols:

hydrogen = H
oxygen = O
sodium = Na
sodium hydroxide = NaOH
calcium = Ca
magnesium = Mg
copper = Cu
potassium = K
water = H₂O
chlorine = Cl
hydrochloric acid = HCl

sulfur = S
 sulfuric acid = H₂SO₄
 nitrogen = N
 ammonia = NH₃
 nitric acid = HNO₃
 carbon = C
 carbon dioxide = CO₂

For our discussions, I have assumed that everyone knows the definitions of "ATOM" and "ELEMENT". If these two terms are unfamiliar, they can be looked up in a suitable reference/ Except for hydrogen, all atoms have electrons, protons and neutrons.

WATER, in the strictest sense, is an odorless, colorless, and tasteless liquid. Its chemical formula is commonly stated as H₂O, but can be properly written as HOH. It can be called "hydrogen monoxide" or "dihydrogen oxide" or "dihydrogen monoxide"; these names correspond to the first formula. "Hydrogen hydroxide" corresponds to the latter formula. Unless specified by appropriate adjectives (i.e. "salt", "hard", and "soft"), "water" refers to the pure form as typified by distilled or deionized forms of the substance.

In a physiological sense, water is classified as a nutrient, and all life requires it for proper intra- and extra-cellular activities. If there ever was a universal solvent, water fills the bill. Its high solvency is primarily due to its polar nature; this is because the angle between the two hydrogen atoms is 105-degrees:



rather than 180-degrees as might be expected by the formula, HOH:



In the above figures the "/", "\", and "-" represent chemical bonds between the atoms of oxygen, O, and hydrogen, H. The O is a highly electronegative atom and tends to withdraw electrons from its neighboring H atoms, and the H atoms tend to give up their electrons (they only have one each) exposing the electrically positive protons. This results in a molecule which exhibits differently charged ends, or poles:



Water, therefore, is a polar substance; the electronegative end, or pole, tends to attract (or be attracted to) positively charged particles. This aspect of water not only makes it a powerful solvent, but probably accounts for the way all life has evolved on this planet. If water was a neutral molecule than the life

processes, as we know them, would be radically different.

The water with which most of us have an intimate relationship, is nowhere near being pure. It contains varying amounts of dissolved substances. A SOLUTION is a uniform mixture of one or more substances (the SOLUTE) in one or more other substances (the SOLVENT). In common experience, a solution is a liquid, however, in the strictest sense, the air we breathe is a solution of gases (O₂, argon (Ar), CO₂ and others) in N₂. The substance in the greatest volume and/or weight is thought of as the solvent; in air N₂ is the solvent. Metal alloys, in some cases, can be thought of as solid solutions; sterling silver being a solution of Cu in silver (Ag).

Water-based solutions may contain two basic types of solutes. One type is molecular, and the other type is ionic. A MOLECULE is a chemical entity composed of one or more atoms. The helium, He, molecule is a single atom; the oxygen molecule is composed of two atoms, O₂. The water molecule, of course, is composed of two different atoms. When a molecule is composed of two or more atoms the attractive force between the atoms is known as a CHEMICAL BOND. These forces occur because of the electrostatic charges on the electrons and protons found in each atom. The ELECTRONS are fundamental, negatively charged particles which are arranged in shells around the nuclei of atoms. The number of electrons in each atom are exactly equal to the number of protons in the nucleus; the number of electrons in a given atom is equal to the ATOMIC NUMBER. Physically, an electron is a very small particle being 1/1837th the mass of the proton or $9.1 \times 10E-28$ g (where $10E-28$ means "10 to the 28th power").

There are four basic types of chemical bonds: ionic, covalent, bridging and metallic. We will most often encounter the first three types in water chemistry. An IONIC BOND occurs when the bonding electrons of one atom are completely transferred to another. An example of an ionic bond is the bond which exists between sodium and chlorine in sodium chloride, NaCl. The result of an ionic bond is the formation of charged particles held together by their mutual electrostatic attractions. A crystal of salt, for instance, consists of positively charged sodium ions, Na⁺, and negatively charged chloride ions, Cl⁻; Na⁺Cl⁻. An ION, then, is a particle which has gained or lost one or more electrons thus acquiring an electrical charge. A positively charged ion is called a CATION and a negative ion is an ANION. In NaCl the Na⁺ is the cation, and the Cl⁻ is the anion. Other cations include the potassium ion, K⁺ (which has lost one electron), the calcium ion, Ca⁺⁺ (which has lost two electrons), and the ammonium ion, NH₄⁺. Common anions include the hydroxide ion, OH⁻ (which has gained one electron), the sulfate ion, SO₄⁻⁻⁻ (which has gained two electrons), and nitrate ions, NO₃⁻. The "+" and "-", above, represent positive and negative charges; the sulfate ion can also be written as, "SO₄-2". In print these charges (i.e., "-", "+", and "-2") are shown as superscripts; the numbers designating the number of atoms in ions and compounds (i.e., the "4" in "SO₄---" and the "2" in "H₂O") are shown as subscripts.

A COVALENT BOND is one in which the electrons involved in the bond are shared one or less equally shared. The extent of the actual sharing is dependent upon the differences in electron withdrawing power of the individual atoms in the compound. The bond between the oxygen atoms in O₂ is completely covalent (nonpolar); the electrons are equally shared. In CO₂ the electrons spend more time in the vicinity of the oxygen atoms than with the carbon atom (polar).

Ionic bonds tend to occur between metals and non-metallic elements. Covalent bonds are more likely to occur between non-metals. A METAL is any element whose compounds form cations when in solution. Metal oxides form hydroxides when dissolved in water; oxides of non-metals form acids. About three-quarters of all the elements are metals. Metals are strong electrical conductors; non-metals are poor conductors.

A BRIDGE BOND is also known as HYDROGEN BONDS and occur where polar, covalently bonded hydrogen bears either a positive or negative charge which attracts another molecule of opposite charge. The two molecules then are said to be bridged or hydrogen bonded. Hydrogen bonds are very weak, being no more than one-tenth the strength of covalent bonds, and are easily broken. Hydrogen bonds are very important in living cells helping to give DNA its typical spiral shape.

Water is weakly ionized in its pure state, but the slight conductivity it exhibits is due to the following ionization reaction:



In reality, the hydrogen ion, H⁺, quickly associates with a second water molecule to form the so-called hydronium ion, H₃O⁺:



A hydrogen ion can be properly known as a PROTON (the heavy particle with a positive charge found in the nucleus), because in the hydrogen atom there is only one electron, and unlike all other elements there is no neutron (the heavy particle with no net charge) in the nucleus.

As ionic substances, like NaCl, are dissolved in water, the electrical conductivity of the water is increased. Substances which increase the conductivity of water are called ELECTROLYTES. Most covalently bonded molecules, like common sucrose, C₁₂H₂₂O₁₁, are not electrolytes and do not form ions in solution. A weak solution of NaCl will conduct an electrical current many times more efficiently than a very strong solution of sugar. As the concentration of an electrolyte in solution is increased, the electrical conductivity increases likewise.

Water can act as both an acid and as a base. In the purest sense an ACID is any substance that donates a proton. A BASE is any substance which accepts a proton. When a hydrogen acid like HNO₃ is dissolved in water, the water acts like a base and accepts a proton:



The use of the notation, " \rightleftharpoons ", signifies that the reaction shown is in EQUILIBRIUM; that is the formation of the substances on each side of the equation occur at the same rate. Equilibria are effected by many factors, including temperature and atmospheric pressure.

Water exhibits these additional physical characteristics:

1 L = 1 kg (at 4°C and standard atmospheric pressure, 1 atm)
specific gravity (sp gr) = 1.00 (at 4°C and 1 atm)
freezing point = 0°C (at 1 atm)
boiling point = 100°C (at 1 atm)
Water expands about 10% upon freezing
sp gr of ice = 0.91 (at 1 atm)

SPECIFIC GRAVITY is the weight of a given volume of any liquid or solid compared with the weight of an equal volume of water. For gases the reference substance is air. For exact measurements the temperature of both substance must be specified; for ethyl alcohol, C_2H_5OH , for instance the sp gr can be given as 0.7893 at 20/40°C. The "20" refers to the temperature of the alcohol, or 20°C, and the "40°C" refers to the temperature of the reference water. For most substances the sp gr increases as its temperature decreases, and decreases as the temperature increases. Specific gravity is also known as DENSITY. Sodium chloride has a sp gr of 2.165 which means that one liter of sodium chloride has 2.165 times the weight of 1 liter of water.

Editor's Note: The above article is a portion of a series of lectures prepared for delivery on the Aquaria/Fish Forum (FISHNET) on CompuServe Information Service (CIS). It was prepared by John Farrell Kuhns for a water chemistry class. Permission for reprinting was given by the author, and further reprinting is not permitted without written permission from the author or FISHNET.

LAUREL & HARDY BAG A CATFISH:
A TRUE ACCOUNT!

by Wayne S. Leibel

Try as I might, I just couldn't convince my dear, long-suffering friend Ginny Eckstein to keep my newest impulsive acquisition: a lyretailed shovelnose goldfish-gulper (Sorubimichthys planiceps), on extended loan. Lord knows, I'd sneaked countless other 'desirable' fish: innumerable Port Cichlids, flashy Basketmouths, etc., into her tanks before and she graciously looked the other way. But a 20 inch planiceps was, apparently, another story. The why and how I had arranged for the acquisition of this behemoth is another tale indeed. Suffice it to say that two months and several hundred goldfish later, I was 'persuaded' to drive to Long Island to remove the offending Silurian.

Ginny refused to let me capture and box the beast having prior experience with my impeccable capture technique. Moreover, I was a cichlid person, she was a catfish person - and the fish would sense the difference immediately. We proceeded I watching from a distance - by the time honored 'chase it into the bag' technique favored by successful show people. Close, but no cigar - and no bagged planiceps. Next, a towel was introduced to gently coax the beast into the bag, and guard against potential hand and/or fish injury. Despite Ginny's best efforts, the catfish eluded the bag, swimming lazy circles around the tank. Ginny excused herself to get a net and warned me not to stir the fish up ("Don't spook him!"). Well, he looked friendly enough, what with that huge gaping, toothy smile, and I figured, "What the hell, I'll be the hero!" Well folks, my track record with planiceps is not marked by particular success. My first, Mephistopheles, jumped from a covered tank (plus heavy rock weight) the day after acquiring him - something about me, perhaps my beard, innately riles them up. Anyway, my hand went in and the fish went nuts: the slow lazy circles turned into quick, frantic ones -- the fish skittering on the surface and nearly flew out of the tank! So much for not spooking him. I stepped away and feigned innocence.

Ginny returned, noticed the cloudy water (she's a quick sketch) and said accusingly: "What did you do to him?" I replied: "I think I'd go easy with that net." Well, in the net went, in went the fish and, in pinning the thrashing creature to the glass, Ginny gasped and blurted: "I've been spined!" With blood dripping (Victim's note: Profusely!) from her punctured finger, our undaunted heroine nonetheless wrestled the beast into the waiting styro before registering the intense pain she was experiencing (I've been spined by a 4" Pimelodid and boy, did that sting!). Of course the phone rang just that instant--a customer calling for a catalog. What timing. I grabbed the phone, hyperventilating empathically, while Ginny, pressing her wound to make it bleed freely and clear any unknown toxins, was in obvious pain. Business concluded, we sat down to watch if her hand swelled up and if she went into anaphylactic shock. I took

a tranquilizer and she seemed to be much better for it. (See Leibel; hypochondriac in Padovani, 1987 Dec. Amazon Diary,-- Thanks, Gian). But the pain! Excruciating, stabbing pain! I offered to stomp on her foot to divert her attention, but she declined.

Now, we both knew that if an allergic reaction were to occur, it would most likely happen in the first 15-20 minutes post-spining, which it did not, luckily. To put her at ease, I regaled her with a story of the time I had been spined by the dead, frozen stingray that had attacked me when I went to retrieve something else from my freezer: my hand and arm had blown up like a balloon, and I did want to kill myself for the intense pain, but I survived the attack only later to be relating this cheerful tale. This seemed not to comfort her. She was experiencing some localized numbness, a wee bit of swelling--but the pain! Excruciating. Convinced by the clock that she was going to live, I laid a reassuring hand on hers and said smoothly: "I'm not worried,...but then, it's not my hand." This strangely failed to comfort her either. My expertise in these matters now suspect, we called Carl Ferraris, catfish specialist, at the American Museum of Natural History. Of course he was a lunch, and our dear mutual friend Ginny was dying. He did call back ASAP with the concurrence that "the worst was now over". Of course, it wasn't his hand either. He next inquired about the planiceps' condition, which Ginny, strangely enough, found mildly offensive. I, frankly, couldn't understand her lack of sensitivity. Catfish, too, have immune systems and the possibility did exist that the fish might be done in by exposure to Ginny's foreign tissues.

Anyway, Carl suggested that a tetanus shot and antibiotics were in order. Tetanus is lockjaw. Your jaws do lock and talking is impossible. Ginny not talk? Certainly we'd get that tetanus shot. Suddenly, Ginny seemed much worse. She hates shots. Well, I was now late for my trip back to Pennsylvania, but I thought it a bit much to expect Ginny to drive herself to the emergency room, so, what the hell--I'm a good friend--I stayed. (Remember, I already had the planiceps boxed and could have left anytime). Well, the receptionist looked puzzled by our tentative diagnosis--spined by a large South American catfish. Hmm. She quickly jotted down "fish bite" and directed us to the plush upholstery of the waiting room. If the spining itself and the anticipation of that large needle weren't enough, the clientele were! In the corner, a young obese girl with aging crone mother (bearded), deranged younger sister, and meandering toddler, was camped on the floor putting on make-up. Tammy Faye would have been proud! Purple lipstick, eyeliner, etc., pulled from the biggest bag of cosmetics I'd ever seen. They even tried to make-up the baby but she, apparently the most stable of the quartet, kept running away from them (who could blame her). Ginny thought she was hallucinating from the catfish toxin, and I was simply a victim of companion-induced hysteria. They finally called Ginny in.

Securely inside the examination room, the doctor asked sheepishly, "And just how did you get bitten by that fish?"

Ginny explained the difference between spining and biting, suggested that a tetanus shot was best for what ailed her, and awaited the doctor's verdict and her inevitable run in with the dreaded needle. How he inquired, was the fish? (Everyone, it seemed, was concerned with the fish). The doctor's eyes, after a long day of SOS (same old-) i.e., colds, flu, post-holiday indigestion, lit up! He had once treated a sea urchin spining and had heard tales of an admission for a Lionfish stinging at the local hospital and now, he too, could join the ranks of the elite with his own account of the "crazy lady who got bitten by a fish." While expressing remorse about the 445 he would be charging for this opportunity to join the ranks of the Ripleys-Believe-It-Or-Not medical set, he nonetheless handed Ginny the bill.

Sixty-five dollars for the doctor and tetanus shot, \$17.00 for the antibiotics and codeine, \$52 for the beloved planiceps, hundreds of feeder goldfish those past two months, gas and toll money back and forth from Pennsylvania to collect this fish--it would have been cheaper to buy it retail in Pa. Not to mention the split dorsal fin my prize had sustained! Anyway, it was too late by now (ca. 3:30 P.M., 3 hours post-spining) to attempt the bridge traffic back to Pa.: we called Charlie, Ginny's husband, to confirm my suspicions. (Incidentally, after briefly establishing that Ginny was O.K., he too, asked about the fish). I would have to spend the night.

What to do with the now-boxed planiceps? I can assure you we did not de-box him. Rather water and aeration were added along with a weighted egg-crat top to keep the behemoth confined and alive until the next morning. Suffice it to say that he was eventually tanked in a huge aquarium in which he could prosper and grow and from which, he would never need to be moved again.

Reprinted from the Paradise Press, Jan. 1988, the monthly publication of the Long Island Aquarium Society. ✓

BOWL SHOW REPORT FOR

MARCH

Livebearers

1st Tony Fitz - Brick Red Wag Sword
 2nd Tony Fitz - Brick Red Sword
 3rd John Mangan - Characodon audax

Open (Non-Cichlid)

* 1st Tony Fitz - Epiplatys dageti
 (monroviae, elephant waterhole #9)
 2nd Lea Spickler - Apl. panchax
 3rd Tony Fitz - E. annulatus

Sharks & Loaches

No Entries

* Judge's Choice

Non-Rift Lake Cichlids

No Entries

Angelfish & Discus

1st Barrie & Raymond Farmer -
 Silver Angel
 2nd Russell Hammond - Marble Angel
 3rd Russell Hammond -
 Marble Veil Angel

Open (Cichlid)

1st George White - L. kirnaithai
 2nd George White - L. leleupi

Totals through April 1988

	<u>Month</u>	<u>Quarter</u>	<u>Annual</u>		<u>Month</u>	<u>Quarter</u>	<u>Annual</u>
T. Fitz	19	19	55	K. Muller	-	-	1
R. Hughes	-	-	9	R&B Farmer	6	6	7
K. Muller	-	-	5	G. White	10	10	33
R&B Farmer	-	-	12	R. Hammond	6	6	6
T. Williams	-	-	1				
J. Stieringer	-	-	11				
T. Hetzel	-	-	5				
J. Mangan	3	3	16				
R. Hammond	2	2	2				
L. Spickler	4	4	4				

May Classes: Cichlids: New World Mouthbrooders, Pseudo., Open
 Egg/Live: Goldfish & Koi, Characins, Open

June Classes: Cichlids: New World Large, Riftlake (No Pseudo), Open
 Egg/Live: Anabantoids, Corydoras Catfish, Open

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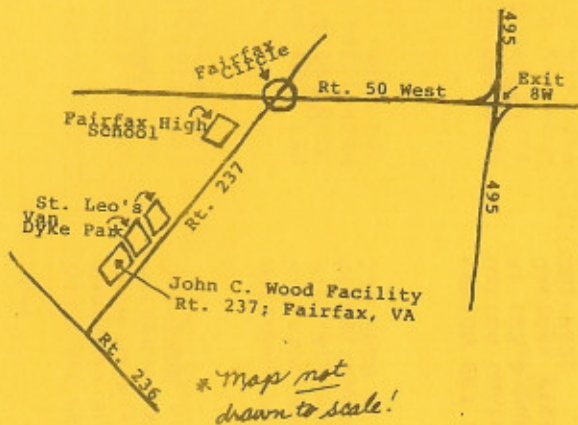
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11 Jan	9 May	12 Sep
8 Feb	13 Jun	17 Oct
14 Mar	11 Jul	14 Nov
11 Apr	8 Aug	12 Dec

Meetings are held at the John C. Wood Facility, Rt. 237 (Old Lee Highway), Fairfax City, VA. Doors open at 7:30, meetings start at 8:00. **EVERYONE IS WELCOME!!!**