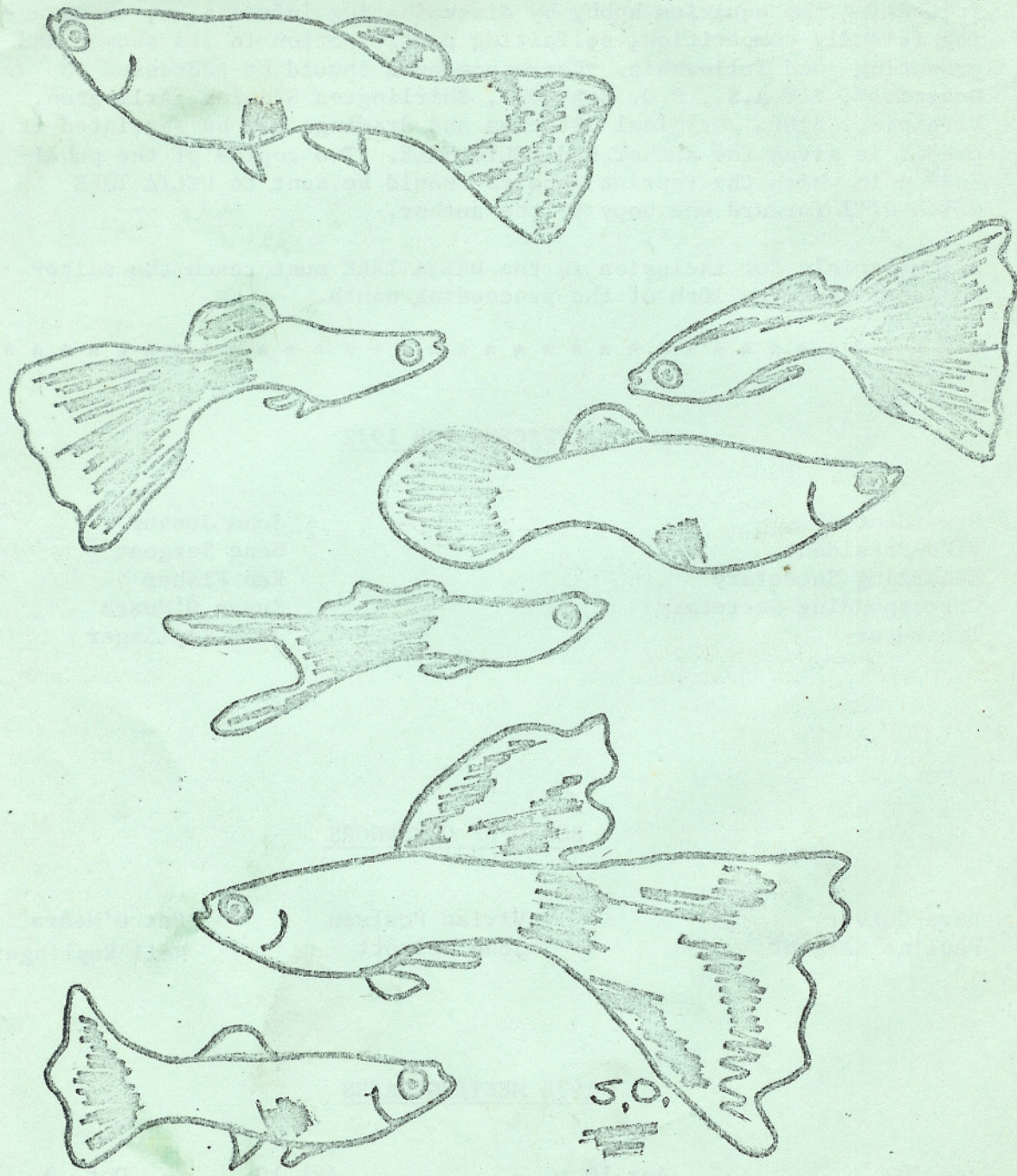


# DELTA TALK

OFFICIAL PUBLICATION OF P.V.A.S.

AUG 1972

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VOLUME 3  
ISSUE 8



DELTA TALE is published for the benefit of the Potomac Valley Aquarium Society (formerly the Potomac Valley Guppy Club), a non-profit organization, established in 1960 for the purpose of furthering the aquarium hobby by disseminating information, encouraging friendly competition, soliciting participation in its shows, and promoting good fellowship. Correspondence should be addressed to Secretary, P.V.A.S., P.O. Box 6067, Shirlington Station, Arlington, Virginia, 22206. Original articles and drawings may be reprinted if credit is given the author and DELTA TALE. Two copies of the publication in which the reprint appears should be sent to DELTA TALE which will forward one copy to the author.

All materials for inclusion in the DELTA TALE must reach the editor no later than the 10th of the preceeding month.

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Jan 10  
Feb 14  
Mar 13

Apr 10  
May 8  
Jun 12

Jul 10  
Aug 14  
Sep 11

Oct 9  
Nov 6  
Dec 11



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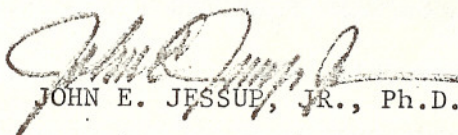
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FROM THE PRESIDENT

I was gratified to hear that all went well at the last general meeting, especially insofar as the voting on the name-change went. At our August meeting we will lay out the plans for the several clubs' operations. Also, at the August meeting we will devote the program to a question and answer session, so bring your particular problems along and we will try and discuss them.

My lecture at West Point was successful as was my short leave at Falmouth on Cape Cod. I was fortunate in finding, on my return that my fish, very well cared for by John Pipkin, had presented me with a number of broods including *Haplochromis burtoni*, *H. desfontainesi*, *H. polli*, *Cichlasoma trimaculatum* and two spawns of Ports (same parents) in a 20 gallon tank. Oh, that they were tax deductible as dependents!

  
JOHN E. JESSUP, JR., Ph.D.



SECRETARY'S LETTER

Hope all of you and your fish have survived this recent hot spell. I never realized how hot a fish room could be, especially when you have to work in it and the outdoor temperature is 90° plus.

This past Wednesday evening many of your fellow club members were treated to a behind-the-scenes tour of the National Aquarium. The tour was a sheer delight, and I'm sure I speak for all of us who took the tour. We all say, "many thanks" to Alan Levitt who arranged it and was our guide and host.

We saw many prime examples of fish from all over the world. This included both fresh and salt water specimens. I can not begin to describe them all, but my favorite was the Russian Belugo Sturgeon (*Huso Huso*), native to the waters of the U.S.S.R. It can reach a size of 36 feet in length and over 3,000 pounds at maturity. Well known for the delicacy of its caviar, it is not uncommon for a female sturgeon to deposit five million eggs at a single spawning. Can you imagine trying to raise that many fry?

Three other fish were perhaps the most spectacular because of their color. They are salt water fish and must be viewed as words can not describe their beauty. All three of them were the largest I have ever seen, and I'm sure none of our local pet stores could ever match them for size. These fish were the Queen Triggerfish (*Balistis Vetula*), Lionfish (*Peterois* sp.) and the Clown Triggerfish (*Balistoedis Niger*). Another salt tank provided us with a very special treat. The Tomato Clowns had spawned, and their eggs were deposited on some coral in full view. I asked Alan about the hatching, and he informed us that they have not been able to raise the fry as yet.

I'm sure that many of you who could not attend have many questions, so hopefully the article that appears later in this issue will give you some of the answers, but should it not I suggest a personal tour of the National Aquarium. I think you will find it well worth the time.

In case you were unable to attend last month's meeting the proposed name-change of our club was adopted. Our new name is "The Potomac Valley Aquarium Society."

I was unable to attend the International Betta Show in Pittsburgh due to the flooding that followed tropical storm Agnes. Oh, well, maybe next year. Hope to see you all at our monthly meeting on the 14th of August.

KEN FISHER



EDITOR'S NOTE

By unanimous consent of the Board of Governors, the name DELTA TALE will survive our organization's recent elevation to society status. Several governors made the point that our ancient and honored name is quite suitable since delta tails, never an exclusive characteristic of the guppy, has been associated with all sorts of fish. Besides, everybody seems content with our name. Incidentally, the magazine staff is looking forward to the interesting articles that are to be submitted by the Society's new clubs.

To assuage the grief of the many society members who missed Alan Levitt's guided tour of the National Aquarium, we are running a lengthy essay by Alan (in addition to his usual monthly newsletter) on the operation of this favorite national attraction. For those uninitiated, the National Aquarium is located on the lower level of the Department of Commerce building on 14th Street, N.W., between Constitution Avenue and E Street. It is open and free to the public from 9 to 5 o'clock daily.

This month's original article was contributed by a group of Ginny Montgomery's young students. Convinced that a tropical fish collection would make an effective teaching tool for her exceptional charges, Ginny placed a set-up in her school, one quickly enlarged through donations of several of our club members. This article is the first effort at recording the students' scientific observations. Who knows? Perhaps among them might come tomorrow's Innes and Sterbar.

Let's keep that flood of original articles pouring in.

M. MacGregor

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Mark your calendar Today! Fall Fish Show - 14 October 1972



## TUBIFEX WORMS

By Tom Kelly

The hobbyist of today is very fortunate with all the live foods available to feed their fish. There are adult brine shrimp, tubifex worms, daphnia and blood worms available live or frozen. White worms, dwarf white worms, microworms, wingless fruit flies, and newly hatched brine shrimp, but this is quite an array compared to when I started the hobby.

None of these foods in my opinion, if fed alone, can fully satisfy the needs of a growing fish. A combination of these, with a good dry food and good paste is ideal.

One of these live foods always has been a controversial one. Whenever live foods are discussed, the tubifex worm is either condoned or condemned. It is true that the collection places are not very fitting to say the least. However, when you purchase your worms from your dealer, they have been cleaned several times, and are ready to feed your fish.

The error made by many people is to completely cover the worms with water. The correct way to store worms is in a shallow container, with just a little water. NEVER COVER WORMS WITH WATER. The worms also should be kept cool, preferably in a refrigerator or a place that is cooler than 50° fahrenheit. The worms should be rinsed at least daily, and the water in the container changed.

If you purchase a quantity of Tubifex to last you more than a few days, a very good thing to do is to give them a milk purge. The procedure for this is as follows: When you bring a portion of worms home, pour off whatever water is in the container. Put the worms in a storage container, and add a few drops of fresh milk. In about eight hours, pour out this milk and add a little water plus a few drops of milk. After another eight hours, or so, pour this mixture off and add a little fresh water. You will note, now the worms are very red. From this point on, follow with daily rinses as well as, water changes.

Another common error made by the hobbyist in feeding worms, is to feed too many at once, or just drop a clump into the aquarium. Both of these errors will lead to worms burrowing into the gravel. This is only natural. The way to prevent this is to only feed what the fish will consume, and when feeding scatter the worms about so that they are not lumped together. Better yet, use an inexpensive worm feeding ring.



There is no doubt in my mind that, Tubifex worms are a very good food and beneficial in raising good fish. Some time ago, in one of the magazines, there was an article describing some experiments conducted in Germany with the feeding of Tubifex worms to guppies. The conclusion was that the female fish gave birth to more young per batch, and that the young were healthier. I have read articles in different publications about hobbyists in Germany, Japan, Pakistan, India, China, and England, all of whom feed their fish Tubifex with no reported ill effects.

I have visited the homes and business places of some of the leading hobbyists in the East and they all feed Tubifex to their fish. Henry Kauffman, one of the country's leading guppy hobbyist, has said: "the difference between a guppy and a show fish is the feeding of Tubifex."

I have been feeding worms to my fish for over nine years, with no ill effects. It is a truth that I have had sickness and foulness in my aquariums, but never could I lay the blame on feeding Tubifex.

I could always trace the trouble to some stupid thing I had done or had been negligent about. Try the feeding of Tublifex worms with the described safeguard, and see if you can not enjoy the benefits that can result.

Reprinted From: \_\_\_\_\_

THE GUPPY POND, San Diego Guppy Association, Apr-May 1972

\* \* \* \* \*

Members Attention: P.V.A.S. members get a 20 percent discount on the purchase of all equipment and supplies at PJ's Tropical Fish and Pet Center, 2915-B, Arlington Drive, Alexandria, courtesy of Paul Cornelison.

Members also get a 20 percent discount on everything but sale items at Alexandria Tropical Fish, 7950 Fort Hunt Road, Alexandria, Virginia 22308



## WHY IS THE PH LEVEL IMPORTANT TO OUR FISH?

By Michael Acquaviva - Philip  
Bruce Early - Carl Everley  
David Phillips - Robert Redfern  
Robert Tievsky

People who keep fish know that too much acid or alkalinity will kill fish. Hobbyists have also learned that the chemical conditions of the water must be balanced (according to the needs of the fish they keep) for the healthiest happiest fish possible.

The pH level is a reading of the amount of acid and alkaline in the water. What we don't know is why improper pH levels will kill our fish. We have asked many questions and read many books to try to find the answers, but we have decided that no one really knows why an excess of acid or alkalinity kills fish. We did, however, discover some partial answers and theories, and these we have brought together so that we have a more complete picture which we would like to share with you.

1. Excess Acid in the Water Breaks Down or Destroys Cells. In the human body acid will cause burns. In the fish tank a normal amount of acid controls microscopic organisms. If not controlled they build up to the danger point because they deplete the oxygen supply. Acid also helps keep the fish gills free of debris. If there is too much acid the gills of the fish will be damaged. Acid helps break down waste products in the tank, although an excess of acid will also kill all of the microscopic organisms, a source of food for some fish.

2. Alkalinity Build-Up. Alkalinity is necessary in the fish tank for microscopic organisms to live and multiply. Alkalinity protects the gills and other parts of the fish from damage by acid. Too much alkalinity will clog the gills so that fish will suffocate. Too much alkalinity allows for too great a population of microscopic organisms, depleting the oxygen supply.

When we have a proper pH balance in our tanks we have healthy happy fish because a balanced pH keeps their gills clean and protected and maintains a proper balance of microscopic organisms, an important food supply.



KEEPING RECORD

By Dr. Eugene C. Larr

I have had several requests as to how you can keep record of the fish and crosses you make in the study of your guppies. It must be obvious that one can not rely on your memory. For what you might now know, might not be so clear one or two years from now. Some will say that keeping all these records is a lot of bother and besides two or three years from now you would not be interested in what you did with a strain that no longer is in your tanks. Believe me when I say that well kept records will be one of the most important parts of your guppy studies. From these records you can see not only your mistakes, but also what type of breeding gave you what you wanted.

Here is a system that I have used for many years and find it of great value, a value which increases year to year. We will make these notes on file cards and by following a few simple rules you will be able to trace back the history of any fish in your collection.

AoM-1                    obt. Jan 18/72                    D.D. Baker

photo #4

B - Silver Snake with 4 Zebrinus bands. Background blue.

C - Black with yellow spots. Caudal angle 70°.

D - Gray with white and black spots. Extends to and of peduncle.

Age at time of purchase not known.

This card is an individual fish record. My typewriter does not have the classic symbols so M will be male and F will be female. Here we see that this is our first fish (A), it is a male (M) and we call it number one (1). It was obtained on Jan 18, 1972 from D. D. Baker. I have a photo of this fish and it is number 4. Then we place a description of the fishes part. B is body. C is caudal. D is dorsal. Then a note showing that we do not know the age of this fish.

BoF-1                    obt. Jan 26/72                    J. Smith

no photo.

B - Gray

C - Clear with some small black spots. Shark.

D - Clear oval. Some small black spots.

Her brothers were Green snakes with very good markings.

Born July 9, 1972



Here is the card for our first female. The (B) showing she is our second fish and (F) showing a female. She was purchased on Jan. 25, 1972 from J. Smith. There is no photograph. She is described by (B), (C), and (D). Next we describe her brothers as this may be showing what she is carrying genetically. We know her birth date from J. Smith so it is entered.

You will note that the male fish is (A) and that the female is (B) this shows that the fish are not brother and sister and that we obtained the male fish first and the female second. Now we will make a cross with these two fish, the card will be:

AoM-1 BoF-1

Jan 28/72

Red corner

young fish ClM and ClF

1st litter Feb. 26/72 (34) 18 males  
2nd litter  
3rd litter

We mark the corner of the card with RED showing that this cross is an outcross. The fish were placed together on January 28, 1972. We have picked the next available letter of the alphabet (C) for the young fish which will be produced from this cross. The sub-number (1) showing that these fish are from the first generation of the cross AoM-1 BoF-1. Incidentally we designate sub-numbers of (o) for the parent fish because we do not know what generation they are from. On this breeding card is a record of all litters from this cross giving the dates and the numbers of young as well as sex. When the second litter comes along it is entered the same way as was litter number 1. Also note that all the young fish from this cross are Cl even though they are from different litters, they are still first generation offspring from this cross.

When the young fish from the first litter are mature we will pick the ones we want to use for breeding. A card is made out for each fish. Let us say we will pick three males and three females. Our six cards for these fish will be Cl M-1, ClM-2 and ClM-3 for the males and ClF-1, ClF-2 and ClF-3 for the females. Remember each on a different card with its data and description.

When it comes to breeding these young fish we have several ways to explore. We can make a sibling cross. We can breed a daughter back to the original father (a back cross). We can breed a son back to the original mother (a back cross).



In the sibling cross we fill out the card like this:

C1-M-1                    .   Aug 10/72                    Blue corner

                                young C2M and C2F

1st litter        Sept 27/72                    (62)    31 males  
2nd litter

The Blue corner tells us that this is a sibling cross. Here you will notice the young fish from this cross are called C2. This shows that these young fish are second generation of the C line. The C will be kept as long as the breeding is done between brother and sister fish of the C line. If a pair of these C2 fish are mated their offspring will be C3. Then if a pair of C3 are used the offspring will be C4 etc.

Now let us make a back cross to the original father (AoM-1). The card will be:

AoM-1    X   C1F-2                    Aug 10/72                    Green corner

                                young D1M and D1F

1st litter        Sept. 27/72                    (52)    20 males

The Green corner tells us that this is a back cross. Here the young fish are given the next letter (D) to show that they are not a sibling cross product. Also note that we used our second female from the C1 young (C1F-2). The date of breeding is shown as well as the date of the first litter, also the number of young and the sex.

I will not show the back cross to the original mother (BoF-1) but I am sure you can see what it would look like. The only note being that if you made the cross between mother and son, the young would be given the next letter (E). (Assuming that you did already make the cross of a daughter to the original father, the young of which are called (D).

The rules to keep in mind are:

1. Make a card for each fish you will use in breeding.
2. Make a card for each cross you make.
3. Always select the next available letter for the young fish, except when you are making a sibling cross.
4. Always select the next available letter for new fish.



5. Place on the cards any information you can think of, it will all be of great help later on in your studies.
6. Let sub-numbers show the generations of fish within the same line.
7. Do not reuse a letter. If you reach (Z), then start over using (AA), (BB), (CC), etc.

Reprinted From:

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THE GUPPY POND, Feb-Mar, 1972

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### NATIONAL AQUARIUM

By Alan Levitt

The National Fisheries Center and Aquarium houses a wide variety of both freshwater and marine animals. It is the oldest (1888) public aquarium in the country and is maintained by the U.S. Fish and Wildlife Service.

The aquarium generally has on display over 2,000 specimens (not including babies and tiny invertebrates) representing almost 300 species of aquarium animals from throughout the world. They are displayed in 67 aquariums ranging in size from 15 to 2500 gallons.

Some exhibits are designed to resemble natural environments both in appearance and water conditions; others illustrate basic biological concepts and principles. A number of rare and endangered species are also on display.

Guide service is usually not available except for special groups by prearranged appointment. The aquarium staff, however, will be happy to help you with any specific questions you may have concerning the aquarium. The office is in room B-037 adjacent to the display area.

Teachers should call the aquarium before bringing classes. Special materials are available to them.



## FEEDING

Although there is no set schedule, fish are usually fed in the morning.

Catering to fish is more difficult than catering to humans because fish will not accept as many substitutes. The octopus, for example, will often eat nothing but live crabs and goldfish. Many invertebrates thrive only if they receive daily feedings of live baby brine shrimp.

Certain fish, such as the sharks and piranha, will eat just about anything placed in their tanks. Still others require large amounts of vegetable matter in their diets.

To accommodate these tastes, the aquarium kitchen usually keeps about a dozen kinds of live food on hand along with over two dozen different kinds of frozen and dried foods. Often these foods are fortified with vitamins and minerals.

Because they are well fed, many fish that normally prey on one another in the wild can live peacefully in an aquarium. This allows the exhibit of environments and habitats with representative populations. Occasionally, however, a specimen will gulp down one of his tankmates.

## WHERE WE GET OUR FISH

Recent advances in air transportation have allowed many specimens to be obtained through trades with other aquariums around the world. Fish are easily shipped inside styrofoam boxes in plastic bags filled with water and oxygen.

Most native fish are received from federal and state fish hatcheries and research labs across the country. Fish wholesalers that supply aquarium and pet stores are a third major source of specimens.

Occasionally, the aquarium staff, with its specially equipped collecting truck, makes short trips to collect local freshwater and marine specimens. Donations represent another, although smaller, source of animals.

No special attempts are made to breed fish here, although over 100 spawnings do occur each year. However, very few display specimens are obtained in this way.



## AQUARISTS

Because successful aquariums often depend on a delicate balance in water chemistry, aquarists must constantly monitor the water quality of each tank, especially those containing salt water. Periodic checks are made for temperature, salinity, acidity, poisonous waste products (ammonia, nitrites, nitrates) and oxygen content. Maintaining the right kind of water is a major function of aquarium workers.

Feeding is another important responsibility of aquarists. Some specimens require feeding three times a day, others three times a week. Changes in feeding or other behavior may often signal a disease or water quality problem. Therefore, aquarists must be thoroughly familiar with the habits and personality of each animal.

In addition to these activities, aquarists are kept busy seven days a week transferring and introducing specimens, cleaning displays and creating new exhibits for the public.

## BEHIND THE SCENES

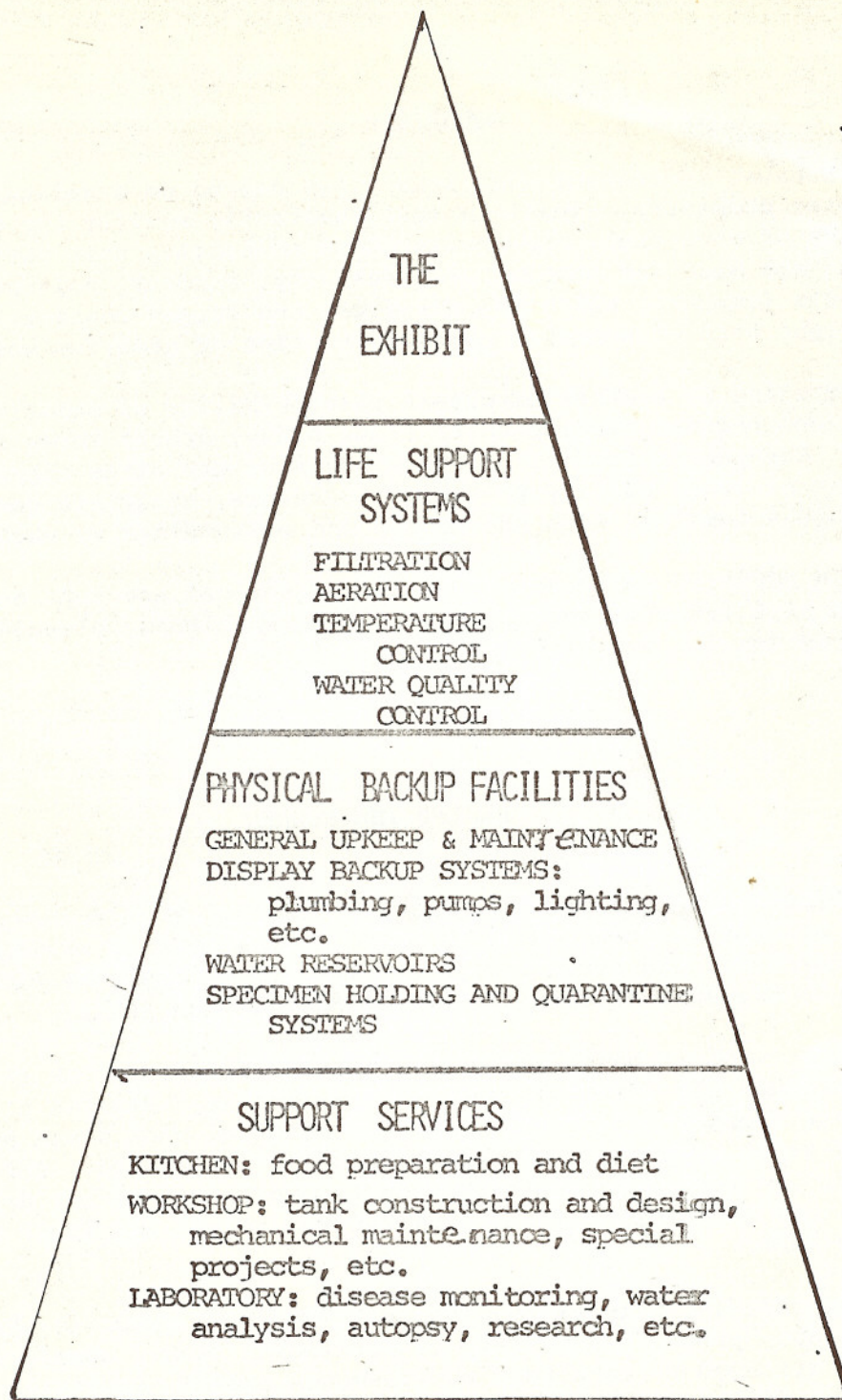
Viewing an aquarium is much like looking at an iceberg--most of it can not be seen. Keeping animals in simulated environments as diverse as cold arctic waters and hot desert pools requires a tremendous amount of work, backup facilities and skill.

A maze of pipes channels city water through systems that dechlorinate and filter it and set temperature. Plastic pipes (polyvinyl chloride) are used instead of metal ones since some metals react with seawater releasing toxic substances. Air is provided to each aquarium from a huge compressor and air dryer. Artificial seawater is mixed in large reservoirs for later use in marine tanks.

Reproducing natural environments sometimes requires the use of various "props." A variety of artificial rocks, corals and plants are used to make tank environments appear realistic. Custom-designed filtration systems and special lighting effects may also be required. To help with these problems, the aquarium has its own workshop that builds and repairs tanks and equipment used in the aquarium.

Research into the culture and disease of aquarium animals is becoming an increasingly larger part of the aquarium's work. A modern, well-equipped laboratory is available to perform tests, autopsies and do research on general aquarium problems.





When visitors view an aquarium display they are really seeing only a small part of it. Each display is actually only the end product of many systems, facilities and services working together. The above pyramid illustrates the role these play in maintaining a public aquarium.



POTOMAC VALLEY GUPPY CLUB

TABLE SHOW RESULTS & STANDINGS

JULY 1972

★ <u>GUPPY</u>	<u>1st</u>	<u>2nd</u>	<u>3rd</u>
a. Red	WOLCOTT	SERGEANT	-
b. Blue	SERGEANT	SERGEANT	SHIFLETTE, J.
c. AOC	SERGEANT	WOLCOTT	SHIFLETTE, J.
★ <u>CICHLIDS</u>			
a. So. Am. Over "5"	HIRSCHMAN, E.	HIRSCHMAN, E.	HIRSCHMAN, E.
b. African "ALL"	HIRSCHMAN, E.	-	-
c. Other	SHIFLETTE, J.	SHIFLETTE, J.	HIRSCHMAN, E.
★ <u>OTHER</u>			
a. Barbs	HIRSCHMAN, A.	HIRSCHMAN, A.	HIRSCHMAN, A.
b. Anabantids	SHIFLETTE, D.	HIRSCHMAN, A.	-
c. Other	RUSHTON	RUSHTON	HIRSCHMAN, A.

<u>GUPPY</u>	<u>JULY</u>	<u>QTR</u>	<u>POINT COUNT</u> <u>ANN'L</u>	<u>CICHLIDS</u>	<u>JULY</u>	<u>QTR</u>	<u>ANN'L</u>
Cunningham	-	-	3	Adams	-	-	3
Ganslen	-	-	3	Aldridge	-	-	15
Hirschman, E.	-	-	3	Gargani	-	-	7
Johnson, A. J.	-	-	2	Goodman	-	-	6
Johnson, M.	-	-	16	Hammond	-	-	12
Keplinger, M.	-	-	2	Hirschman, E.	15	15	18
Keplinger, N.	-	-	10	Jessup	-	-	58
Oliver	-	-	11	Lenzen	-	-	12
Poulsen	-	-	2	Oliver	-	-	9
Sergent	15	15	85	O'Meara, P.	-	-	6
Shiflette, J.	4	4	6	Shiflette, J.	7	7	9
Shiflette, N.	3	3	3				
Shiflette, K.	1	1	1	<u>OTHER</u>			
Thomas	-	-	4	Aldridge	-	-	4
Walsh	-	-	8	Fisher	-	-	28
Wolcott	10	10	53	Gargani	-	-	6
				Goodman	-	-	7
				Hirschman, A.	14	14	23
				Hirschman, E.	-	-	2
				Lenzen	-	-	6
				Oliver	-	-	9
				O'Meara, S.	-	-	6
				Rushton	7	7	20
				Shiflette, D.	4	4	4
				Walsh	-	-	11
				Whittman	1	1	7

FALL SHOW

14 OCTOBER 1972

★ AUGUST 14, 1972 SHOW SCHEDULE

GUPPY - Snakeskin, Black, AOC

CICHLIDS - So. Am "ALL", Cent Am, Other

OTHER - Tetra, Characins, Other

TOTAL ENTRIES - JUNE (32)



### INVITATIONS

As mentioned by Secretary Ken Fisher in last month's DELTA TALE, we have received invitations to join several new national fish groups. They are worth-while organizations, and we are printing below membership announcements for two of them.

To: U.S. Aquarium Societies and anyone interested in keeping, studying, and preserving North American Fish.

Because of an increasing interest in the keeping, breeding and understanding of some of the native fishes of North America, a number of aquarium hobbyists are in the process of organizing an association concerned with the subject. Not only would this give members an opportunity to exchange experiences and ideas through a club publication, there would be the opportunity to exchange local fishes with those of other areas whose fish fauna differed from one's own.

It is not inconceivable that related efforts of the association might uncover and point out ecological factors which might be important to the survival of entire species of fishes. Obviously, once extinct, a species is lost, and an interested amateur is often in a position to contribute knowledge equally as valid as that of the professional scientist.

In all the world, only North America has darters, little true perches some of which have breeding colors so spectacular that seeing them is their only description. Only North America has (except as introduced species) the sunfishes, less in number than the cichlids but equally as beautiful, as challenging and as intelligent as the cichlids. European aquarists prize them highly, although we are slower to recognize their merits because they are too near for us to see them clearly. The Pirate perch, the ictalurid catfishes and many others are our unique co-habitants, and our proposed organization will major in the exposition of their merits.

If you are interested in joining this unique organization, please forward your name and address in a letter or on a post card to:

Mr. John Bondhus  
Monticello, Minn. 55362



AMERICAN LIVEBEARER ASSOCIATION

The American Livebearer Association, now in its first year, hopes to add many new members. We have a bi-monthly publication, LIVEBEARERS, which contains news almost entirely about livebearers, with an occasional article on new techniques that are useful for those who raise livebearers as well as being useful for the general aquarist. Subjects covered in the first three issues include: lyretail platies, brood records for livebearers, questions and answers, fin types in mollies, "escaped" livebearers in Hawaii, veil inheritance in mollies, upgrading guppy shows, letters from members, shipping livebearers, a dealer's viewpoint, veiltail swordtails, and feeding livebearer fry. We plan to publish articles on all kinds of livebearers--domesticated strains and wild species. We hope to provide the best available information on new species, new strains, new books, new findings about genetics, and breeding of livebearers. Two other ways we can help the livebearer specialist are through the trading column and a file in which we keep track of who is maintaining each species or type of livebearer. Members may send for information from this file.

If we can add to our membership all of you who are especially interested in livebearers, we can do many things to help us all.

Persons joining any time in 1972 will receive all 1972 back issues of LIVEBEARERS. After 1972, these back issues probably will become unavailable. Many members of specialty clubs want complete files of the publications, which are quickly out of print. To have a complete file, join now by sending \$5.00 for 1972 dues to: Joanne Norton, 2305 Broadmoor Avenue, Ames, Iowa, 50010. Your back issues of LIVEBEARERS will be mailed promptly.

\* \* \* \* \*

New member Donald De Roze wants to buy some second-hand equipment, especially larger tanks (about 30 gallons). Anybody interested can call Don at 384-5568.



## WHAT'S HAPPENING AT THE NATIONAL AQUARIUM

By Alan Levitt

Last month was the month for spawnings here. Most of the spawnings occurred in the open system tanks (the ones in which water volume turns over twice a day). In the 2,500 gallon predator tank a *Cichlasoma trimaculatum* spawned with a Red Devil. Also in that tank a pair of Oscars spawned as did a pair of *Cichlasoma managuense*. This tank is fascinating to observe since it now has a large pair of managuense leading a school of perhaps 2,000 babies around the tank. It's interesting to watch how they cruise around 30" Arawanas and 24" Snakeheads without fear. The bottom of this tank is covered with very large pebbles, many over 2" across. Yet, there are nests dug out that are almost two feet across and a foot deep!

During two collecting trips to the Chesapeake Bay and vicinity last month we collected a number of American eels, various species of catfish, perch, hog chokers, toad fish and invertebrates. They are now on display in various tanks.

Assorted fish and invertebrates from the Florida and Pacific reefs were received to supplement existing displays. An 11" Electric Catfish was donated and placed on display in our new Rogues' Gallery by a local hobbyist.

The Rift Lake Cichlid tank was broken down and a new one was set up across the hall in a 180 gallon tank. We reduced the population by about 100 specimens which will be used for trading material. The Sea Turtles were moved to the old Rift Lake tank.

A 1,000 gallon Western States Community has recently been created in the temperate water section. The display includes Cutthroat Trout, Coho Salmon, squawfish, Dace, Suckers and Chub.

Other spawnings included the Tomato Clowns, Bluegills, Gold Angels, Blushing Angels, assorted Rift Lake cichlids, and livebearers and fish in the Parental Care exhibit.

Two new Chesapeake Bay exhibits will be set up next month along with a new Pacific Reef exhibit.





Butterfly Fish  
(*Chaetodon*)  
from Hong Kong



### DIGESTIBILITY OF PROTEINS

**Why you should know about it**—The key to determining the digestibility of a fish food is in the scientific use of enzymes to find the amount of water-soluble proteins produced. This result corresponds to the amount of amino acids received in the blood circulation of the fish, and reveals significant facts about how nutritious a fish food really is.

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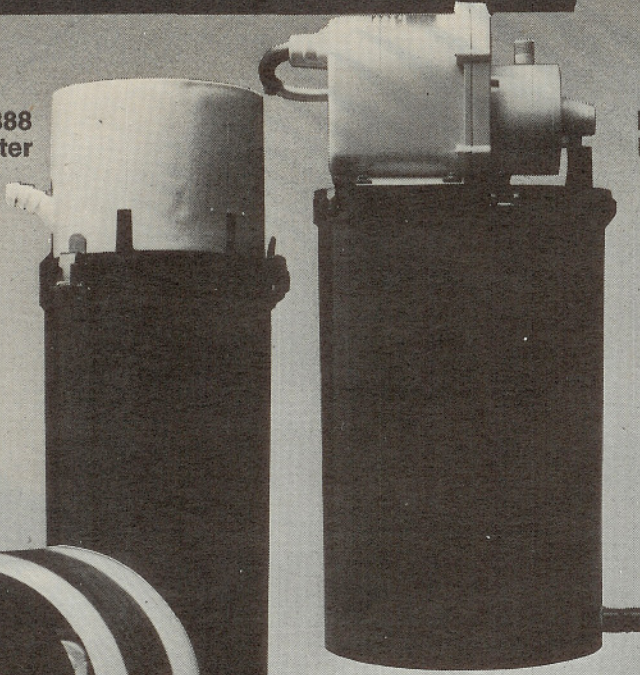




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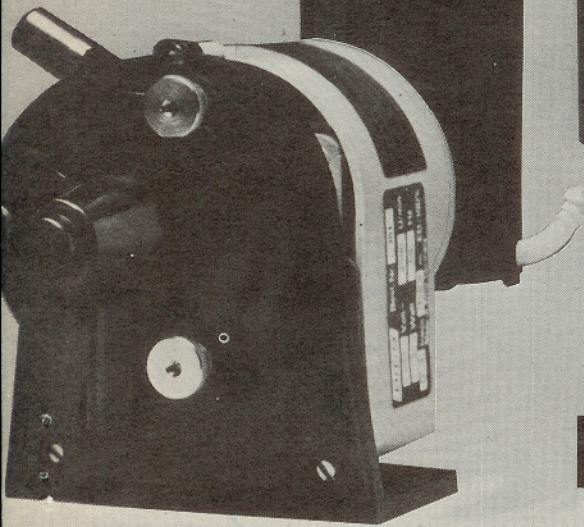
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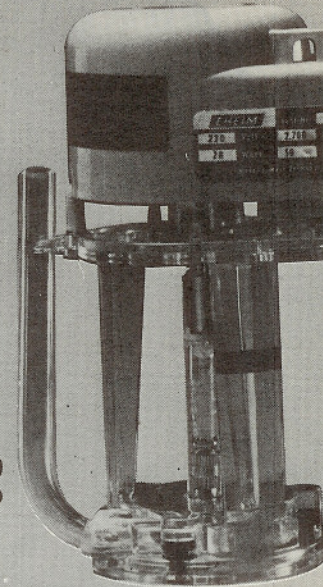
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