

* DELTA TALE *

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The Delta Tale is published for the benefit of the Potomac Valley Aquarium Society, Inc. (PVAS), a non-profit organization, was established in 1960 for the purpose of furthering 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 Tale and PVAS. Two copies of the publication should be sent to the Delta Tale c/o PVAS. Please place the author's name on one copy to ensure that it gets to him/her. PVAS and Delta Tale 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 Tale MUST reach the editor by the 18th of the month prior to publication.

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POTOMAC VALLEY
ACQUARIUM SOCIETY

MEETING NOTICE!!

Announces that the October
meeting will be held on the
THIRD MONDAY IN OCTOBER
(October 17, 1988)

Chuck Davis
of the North Jersey Aquarium
Society will be speaking on
CATFISH!!



Hope to see you there!!



National Aquarium Society

FOR IMMEDIATE RELEASE

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VOLUNTEER TOUR GUIDES NEEDED AT THE NATIONAL AQUARIUM!

THE NATIONAL AQUARIUM, LOCATED IN THE COMMERCE DEPARTMENT BUILDING AT 14TH & CONSTITUTION AVENUE, NW, IS LOOKING FOR VOLUNTEER TOUR GUIDES TO JOIN OUR EDUCATION TEAM. GUIDES CONDUCT TOURS ON WEEKDAY MORNINGS IN AN EFFORT TO BETTER EDUCATE STUDENTS ON AQUATIC LIFE AND CONSERVATION.

REQUIREMENTS INCLUDE AN INTEREST IN LEARNING, A SMILE, AND THE DESIRE TO EDUCATE OTHERS. A COMMITMENT OF ONE WEEKDAY MORNING A WEEK IS REQUESTED. FOR INFORMATION ON TRAINING, PLEASE CALL JULIE ONIE AT 377-2826 BETWEEN 9 AND 1.

#

PVAS BOARD MEETING - September 8, 1988

President Gene Aldridge convened the meeting 7:45 pm at the home of Ray Hughes; Gerry Hoffman, John Mangan, Bob Pallansch, John Stieringer, and Pete Thrift also attended.

Announcements:

- Gene Aldridge - Lea Spickler's nominating committee will consist of Tony Fitz, Pat Gore, Tom Hetzel and Larry Wilke.
- Pete Thrift - The Falls Church Inn will not be available the third weekend of May, 1989; alternate sites and dates were discussed.
- Ray Hughes - Our Fall banquet will be October 8, 1988 at the Potomac Sheraton, our workshop site, for \$15.00/ea. total.
- Gerry Hoffman - The Workshop will feature:
Morning: Jon Burleson, marine displays
Mike Trzonowsky, plants
Afternoon: Jack Wattley, discuss
Paul Loiselle, Amazon collecting
Evening: Cash bar and dinner

Speaker transportation, schedules and reservations, displays and concessions were discussed. Gerry Hoffman and John Mangan will set up a PVAS display of live foods, etc.; possibly including a TV monitor to play Tetra tapes.

The brochure will be Xeroxed by PVAS members, saving nearly \$300.00.

Pete Thrift was authorized to spend \$200.00 on raffle prizes.

The meeting adjourned at 9:15 pm.

submitted,

Respectfully

Robert J. Pallansch
Recording Secretary

A NEW HOBBYIST'S EXPERIENCE WITH FISHKEEPING
by Peter Crawford

My wife bought me a 30 gallon aquarium for my birthday in October of 1987. This is one gift that has proven to be very enjoyable. She bought it as a freshwater setup. Little did she know she had created a monster. I've always been interested in ocean life, so we went back to the store where she purchased it and exchanged it to a saltwater setup. The owner of the store tired to discourage me from purchasing a salt setup because he felt I should learn how to maintain a freshwater setup until I became more familiar with keeping an aquarium. I still was determined to do a salt water setup. The owner also advised me to read as much as I could on the subject.

I found that a friend had kept salt water fish and currently was setting up a mini-ref system. He lent me his back issues of aquarium magazines. I read these from front to back and read every ad in the magazines. There was a filtering system out called a wet/dry system that sounded like the type of filter I wanted to use.

Shortly after this and before I every put any water in my thirty gallon tank, I met a guy who needed someone to take caare of his one hundred thirty-five gallon salt water tank for a year. We felt this to be mutually beneficial (I would learn how to keep salt water fish with an established tank aand he could have his fish tanken care of).

His setup was an undergravel filter with three uplift tubes, three two hundred gallon per hour powerheads and four three foot lights. He had a large Blue Angel, an Emporata Angel, a Harlequin Tusk, a Sailfin Tang, and a Moray Eel (the smallest fish was about five inches long). I let him ste the tank up in my house since he was the one with the years of experience. He did several things that I disagreed with (from what I had read up to this time), but he was the expert. I wanted to get the muck out from under the undergravel filter - he said this was the "good stuff". He bleached all the coral at his house when we tore down the tank to move it and wanted me to put htis back in the tank after I had rinsed it in my tub for only a few minutes. Seventy percent of the water to fill up the tank was directly from my tap (city water). I didn't know any better to plan ahead. Well, to my surprise, everything lived and looked great (everything I read led me to think otherwise).

After about six weeks I felt it was safe for me to add my own fish. I had to find a fish store with larger fish and a good selection. I was told that small fish would not survive with larger fish. Things were going well for a while and I only added one to two fish a month till I had eight fish total and the one eel.

Suddenly some fish were dying off and my fish were breathing heavily. I felt I was not overfeeding but I was not sure. In playing detective I looked under the undergravel plates and saw a lot of muck clogging the water flow. I pulled up one side,

gravel and all, and this got rid of most of the muck. I added a box filter on the back and did a major water change, only this time I let the water set for a couple days to let the chlorine evaporate. After allowing two weeks for the bacteria to build up, I did the same thing to the other side. Before I got my water quality back on track, I had gone through several hundred dollars worth of fish. That was four months ago and now my water quality is great. I still feed about the same as I always have and I added a protein skimmer two months ago. I feel it was the muck that was the problem. The filter was only working around the uplift tubes which only made the filter about 10% efficient. This apparently would work fine for four fish and one eel but not for eight fish and an eel.

Another problem I had while my tank was foul was an outbreak of red algae, largely due to the foul water. Since I cleaned up my filter and added some better lights, I've had minimal red algae and green algae is growing for the first time.

It took me a lot of trial and error to get things right, but once I did it's been a breeze to maintain. I change five gallons of water weekly and clean my pumps and box filter once a month. Total time involved to maintain this is about two to three hours a month.

Even though we may know people in the hobby or have aquarium stores to assist us or do a lot of reading on the subject, it still takes a lot of trial and error, and persistence to get things right. I live in an area with a lot of aquarium stores (three within ten minutes of my house) and it's still very difficult to ask the right question or to get the right answer. My advice to anyone starting in the hobby is to hang in there, it's worth the effort.

The following article was downloaded from CompuServe's Tropical Fish Forum.

1985 FAAS PUBLICATION AWARD WINNER
CATEGORY J - BEST MARINE ARTICLE:

Basic Pointers on Marine Aquarium Water
by Don S. Johnson
Norwalk Aquarium Society of Fairfield County
WET PET GAZETTE

Keep in mind that your tank is not a "miniature ocean," but rather a delicately balanced artificial environment, tailored to meet the needs of your captive animals. Never forget this! Their lives are dependent upon your attention to detail.

One of the most important factors in successfully keeping saltwater tropicals is the water they will live in. Seawater may be collected or it may be made from readily available synthetic mixes.

If you decide to collect your own seawater it should be taken from at least two miles off shore and at least 48 hours after a rainfall. This minimizes problems of pollution and dilution by freshwater run-off. If you collect seawater be sure to take more than you need (for water changes) and be sure to collect it in non metallic containers to avoid metal poisoning of your animals.

When you get the seawater home place the container in the dark for two weeks or put in a covered opaque container. At the end of two weeks, siphon off the dead organic residue from the bottom of the tank. The organisms will have died from being deprived of light and food. Instead of siphoning, the water may be run through a diatomaceous earth filter. The seawater is now ready to be aerated for several hours with an air pump and air stone and then added to the tank.

Because of the difficulty in obtaining unpolluted seawater in many parts of the world (or any kind of seawater if you live inland), I prefer one of the many synthetic substitutes. I've had animals live and reproduce in them for many years. Just follow the manufacturer's directions.

Despite claims to the contrary, no synthetic seawater mix contains all of the elements found in natural seawater. The major components of natural seawater are negative ions of chlorine, bromine, sulfur (as sulfate) and bicarbonate; and positive ions of magnesium, calcium potassium and sodium plus boric acid. These make up 99.95% of the total dissolved salts in seawater. (An ion is an electrified particle present in any substance whose water solution conducts electricity). the minor components of seawater are all the other naturally occurring elements plus various organic compounds.

Since I'm not teaching a course in organic chemistry here, I won't go deeper into these other components other than to point out that their number and minute quantity make accurate duplication impossible. This does not mean that your salt water tropicals will not thrive and reproduce in a synthetic environment.

Whether you use natural or synthetic seawater, there are two factors you must concern yourself with; pH and salinity.

The term "pH" is scientific shorthand for expressing the concentration of hydrogen ions in a given solution. This is expressed by the number values assigned. For example, pH 6 means that the solution contains one part by weight of hydrogen ions in 1,000,000 parts of the solution. The number value is the same as the number of zeroes, i.e., pH 7 is one part per 10,000,000. A pH of 7 is considered "neutral". Anything below 7 is considered "acid"; anything above is "alkaline".

The pH of salt water, though it varies in nature from 7.6 to 9.0 should be maintained in the aquarium at 8.1 to 8.3. This is the range found in the areas most of our saltwater tropicals come from.

Proper pH is important to our animals' well being for several reasons. For one, the pH differences between internal body fluids and seawater is thought to be a major factor in the rate of ammonia elimination. Nitrogen is excreted by fish through the gills in the form of ammonia. Too high pH would retard the elimination of this toxic waste product. Too low a pH would accelerate the process. Apparently marine fish produce urine most efficiently at a pH of 8.1-8.3.

As you read through the various books for the marine hobbyist, you'll find frequently confusing references to salinity, density and specific gravity. To avoid confusion, remember that salinity is a measure of dissolved salts expressed in parts per thousand (0/00 parts per thousand); density is equal to specific gravity, and density or specific gravity is merely a measure of the salinity at a given temperature. As water is warmed, its density lowers due to expansion. Conversely, as water cools, its density rises due to contraction.

This direct relationship between salinity and density allows you to make dissolved salt measurements with a simple instrument called a "hydrometer". This inexpensive instrument is frequently combined with a thermometer. Most hydrometers sold for aquarium use are standardized at 22.2 degrees C (72 degrees F) so you may read the density directly without need for correction. Specific gravity should be 1.023 at that temperature though a range of 1.021 to 1.025 is permissible.

If you maintain your tanks at the proper temperature of 22.2 degrees C and always make your specific gravity readings at the same tank temperature, you'll always get a true reading. To test a hydrometer, place it in a glass or other container deeper than the hydrometer and filled with distilled water at 22.2 degrees C. For all intents, tap water will provide

an accurate enough reading. Plain water at this temperature should produce a reading of 1.000 on the hydrometer. You may have to test several this way before finding one that reads accurately. Be sure the thermometer you are testing the water temperature with is accurate too.

If the reading in your tank is below 1.021 more salt should be added until the correct reading is obtained. Give the salt time to dissolve before rechecking. If above 1.025 remove some of the saltwater (save it for your weekly water change) and add freshwater to achieve the desired reading. When mixing up a salt solution to fill your tank it's a good idea to use a plastic garbage can so you'll have a place to store the excess. Remember your tank won't hold its rated capacity in water since the filter, substrate, coral, etc will all displace a certain amount of water. Premixing the solution in a plastic container eliminates trial and error measuring of salt to obtain the proper concentration in the tank. This is a good place to remind you that between water changes the only water you should normally need to add to your tank is fresh water to make up for moisture lost through evaporation. Remember that salt does not evaporate.

Salinity does not vary much in your animal's native waters. For instance, the Atlantic Ocean has a maximum salinity in parts per thousand of 35.31 (latitude 0, 70 N) and a minimum of 34.45 (0 - 80 S). For the same latitude the figures for the Indian Ocean are 35.38 and 34.84; and for the Pacific Ocean 35.03 and 34.17.

Salinity is important to most marine animals and particularly fish because if too low dissolved salts in body fluids will leave the fish by a process called osmosis. Similarly, too high a salinity will prevent a fish from eliminating excess internal salts. Marine fish drink seawater constantly to replace lost fluids. The residual salts must be eliminated. This cannot be done if salinity is too high. Consequently, a weekly check with the hydrometer is in order.

KILLIFISH LECTURE

[This is a transcript with a following question and answer session that was held in CompuServe's Tropical Fish Forum. The lecture was saved in the Forum's libraries which is where I found it. I did not attend the lecture myself. The strange margins are the result of editing out the Speaker's ID. During the actual lecture each line printed is preceded with the speaker's "Handle". Whoever captured this lecture edited it to make it more readable, Thank you-Editor]

(Moderator) Let's get started. Tonight's Guest Speaker is...
Bill Kenney. While I don't know Bill personally I've...
heard lots of good things about him from Steve Szabo. Bill...
will be sharing some comments with us tonight about breeding..
killies in a permanent set-up. Since this is a "formal"
lecture..
I'd like to ask everyone to hold your questions and comments..
till after Bill's preliminary matter has been sent. At that..
point I'll take questions. I'll say a little more about..
the questioning part before we get to the Q & A. Right now..
let me let Steve introduce Bill. (Turning microphone over to...
Steve). JB

(Steve Szabo) Our guest lecturer for tonight is Bill Kenney, an aquarist from the greater Springfield, MA, area. Bill has been interested in fish since the age of five, and majored in Fisheries Biology in college. He spent 5 years as aquarium manager of the Springfield Science Museum. He now works in the insurance industry as a Systems Analyst. He maintains 27 tanks of mostly killies, natives, and marines. Bill has written a number of articles for aquarium publications such as Freshwater and Marine Aquarium Magazine. He's been a member of the American Killifish Association since 1980.

(Bill Kenney)

BREEDING KILLIES IN A PERMANENT SETUP by William R. Kenney Agawam, MA

In this conference I'll discuss my methods of breeding killifish. There's nothing special or secret about my methods; in fact largely my breeding methods are just an extension of normal good aquarium maintenance practices. These methods won't work with every killie species.

However, I'm prepared to accept that fact in exchange for the ease with which I can produce the killies fry for which they do work.

My fishroom is my living room. I live in a three room apartment and I have no other place to put the tanks. When I was living at my mother's house, I used a corner of the basement as a fishroom. Tanks proliferated, and I had rows of drum bowls as breeding setups and stacks of shoeboxes of fry. I had brine shrimp hatching out every day. I admit that with a setup like that I was producing more killies at that time than I am now. But not by much. At this time, I do not hatch out brine shrimp at all, and do not set my breeders up in separate containers. Everything is done in the tanks with established filters. And it's done with much less work.

A lot of folks attach a great deal of importance to certain easily-measured water chemistry characteristics. While I'm not prepared to accept the cogency of their arguments, I might become convinced that my success is due at least in part to the good water quality in my locality. Water quality, I contend, is largely attributable to those water chemistry parameters not easily measured: O₂, CO₂, and NH₃. But for those who insist on knowing my pH, DH, etc., these are: pH, 6.8 out of the tap; hardness, 20-30 ppm.; free chlorine, 0.0 ppm.; bound chlorine, app. 1.0 ppm.

These are the values out of the tap, but as you may have inferred from the low hardness, the water has very little buffering capacity and the pH drops sharply once it has been exposed to the nitrogen cycle.

My preferred tank size for breeding killies is 5-1/2 gallons, and I'll use 10's when the 5-1/2's are all full. I have twelve of the former and nine of the latter. (Six larger tanks are not used for breeding killies.) I used to use 2-1/2's but don't in my current arrangement. All tanks are equipped with undergravel filters. This is the only filtration I need in a killie breeding tank. The brand of filter isn't important. I set them up using a method I read about in FAMA not too long ago, using polyester fiber pads under a thin layer of gravel, over the filter plate. Such pads are manufactured by Ginger products, or you can use ordinary filter floss unrolled. The last

isn't quite as neat looking. Killies don't like lots of water movement, so I don't emphasize lots of water circulation. The narrow uplift tubes are usually adequate on the 5-1/2's, but I sometimes jury-rig conversions to wide lift tubes. I insist on keeping the undergravel clean and open to circulation. More on that later.

Many aquarists, particularly the traditionalists, object to undergravel filters on the grounds that they can't grow plants using them. This isn't so. Like your choice of killies, your choice of plants has to be governed by your methods, and I've been successful with over a dozen kinds. In fact, sometimes the sale of plants at the aquarium club auctions I attend brings in more income than the sale of killies.

If it seems I'm getting off the track here to talk about plants, this isn't so, because the crux of my killie breeding method is to use a LIBERAL coating of water sprite on all tanks. Water sprite does some very nice things for you. For one thing, it acts as a nutrient sink to consume nutrients before algae can use them to grow. Secondly, it acts as an indicator to tell you when your water has become too acid for the killies to want to breed. When water sprite starts to turn brown, you are headed for trouble. When it dies, you are in big trouble. Thirdly, it provides plenty of cover for the young killies. Finally, I infer from observed results (but have not confirmed by microscope) that water sprite forms an ideal substrate for growth of rotifers and other food organisms that fry love during the stage when they are just out of the egg.

There may be other effects which I have not inferred which are helping out as well, but the cumulative result of a thick layer of water sprite is like magic. It doesn't seem to matter much whether I use the regular water sprite or the fine-leaved variety. Both seem to work, but at this time I'm using mostly the fine-leaved form because I think it looks better as a photo background, and because it seems to be more likely to remain rooted when I plant it.

I don't let the liberal coating of plants lull me into thinking the fish can't jump out. I consider a tightly-fitting cover a non-negotiable requirement of killie keeping. Even the smallest

hole must be covered. Killies can and do aim for openings in the tank lid when they jump.

For this reason I consider heaters counterproductive: heaters are supposed to keep your fish alive but if they result in a hole you can't securely seal, then they're going to fail in their task - the killies will find their way out the hole. Heater contacts also have a tendency to weld together, cooking your fish. Killies don't usually require heat anyway. For some whole groups of rainforest species, the biggest stumbling block to breeding is the necessity of keeping the water cool. These last, however, are outside the scope of this discussion. For most of the fish we're talking about here, a temperature of 20-22 degrees C (68-72 degrees F) is a desirable breeding temperature.

A lot has been written regarding the necessity of feeding killies live foods. This is a requirement which varies from species to species. Most can be maintained on flake food. Of this group, most will require live foods to be propagated in quantity. During the spring and fall I collect lots of daphnia, which are not necessarily the best food for my killies but are available cheap and in quantity. I have enough tanks that it makes it worth my while to go out and collect a bucket or two of daphnia every second or third day. Thus there are live daphnia swimming about all the time in my tanks. I supplement this with Aquarian brand flake food, which seems to be palatable to a wider variety of killies than any other brand I know of. Sometimes I throw in a little frozen brine shrimp or frozen bloodworms. In the winter I substitute live tubifex for the daphnia. I always wash the tubifex thoroughly before I use them. These I feed twice a week using the plastic tubifex feeders. This means the fish are fed ad libitum with tubifex most of the time, and once again Aquarian flake food is supplied when the tubifex feeders are empty. I never feed freeze-dried tubifex. This is like feeding your fish a freeze-dried pathogen culture, and the few times I tried them I killed fish. In the summer I used to feed mosquito larvae but where I'm living now I can't put out containers of stagnant water, so I settle for tubifex when I can get them, but mostly during the summer I gear down my fishroom and spend my time in the field, and just feed my fish their

maintenance diet of Aquarian flake food. A few fish, such as gardneri, continue to breed.

I change lots of water. The water quality in my area is very good, and I never have any problems making a large water change. As stated earlier, the incoming water has little buffering capacity, so it does not suddenly alter the pH of the tank to tip the ammonium-ammonia equilibrium in favor of the toxic ammonia. So I often do water changes of 50, 60 or even 90%. (I used to do a lot of 100% water changed when I kept breeders in bare bowls.) Such changes never bother the fish, but the lack of water changes will. I may change water as often as once a week, or as seldom as once a month, but shoot for something in between. Because my fishroom is my living room, I don't like to carry buckets of water across the carpet, so I use a Python water changer. The most important part of the Python is the gravel cleaning attachment on the business end. I always use this device to remove as much detritus from the gravel bed as time will allow during the draw-down procedure. If this detritus is allowed to accumulate in your gravel bed, the tank will become prone to becoming very acid, water flow will become impeded, and a surface mat, which the German aquarists refer to as schutzmadecke, will form. Should this happen, the only cure is buffering with baking soda, followed by a massive water change, and repeat this cycle until the surface mat has disappeared.

If you've been wading through all this stuff about basic water management, which perhaps you already knew and perhaps you were already practicing, waiting for me to get to the good stuff about my "secrets" for breeding killies, you've already read them! For top spawning killies, the above comprises my entire method. I just set up and manage a tank as above described, introduce a pair of killies, and let nature take its course from there. Some killies will not work this way, and I find out which by trial and error. The ones which do work well make up for the ones which don't. For certain killies, the diminutive species such as annulatus and the Diapteron complex, this is actually the most productive method. The killies which are amenable to breeding by these methods don't require daily picking of mops, special food for the young, or separate containers for the eggs, young or fry. I

just put in the breeders, put in food, change water, and take out young pairs of fish as I have need of them. It's that easy. If the tank becomes so full of young that I believe it is becoming overcrowded, I take out the parents and set them up in a new breeding tank. In rare instances I'll take out as many fry as I can catch and transfer them to a waiting ten gallon tank. I cull carefully if I begin to notice deformities creeping in, but this is rarely necessary using this method since it is conducive to the survival of the fittest.

With but a little elaboration, this method can be extended to annuals. Once a week, I put a kettle of water on to boil and unwrap a jiffy (peat) pellet and put it in a container such as a pyrex cereal bowl and pour boiling water over it. Then I use the remainder of the boiling water to make up a cup of coffee, and by the time I've finished the coffee, the peat is wetted out. I dump it through a fine-meshed aquarium dipnet, run it under cold water, return it to the glass bowl, and carefully settle the bowl into the bottom of the tank. The fish will find it and spawn in it. a week later I pull it, again pour it through the fine-meshed net, and wring the net as forcefully as I can in my hands. The resulting peat is about the right wetness. I dump it into a plastic bag, seal the bag, label it as to species and date, and stick it away for three months or so. While this can't truly be considered a permanent method in the same sense as that of the plant spawners, it is in the sense that the parents are never removed from their permanent maintenance tank. When it comes time to hatch out the young, I do use a shoe box for a brief while, but as soon as possible I transfer the young fish to a waiting, established tank. During the time the young are in a shoebox, they get microworms. This is my one concession to specialized fry food. Once fry, of either annual or non-annual species, are in an established tank, they get exactly what everybody else gets, or they forage for what they can find.

Some of the species of non-annual killies which will work well using this established-tank method are: _gardneri_, _striatum_, _amieti_, _ahli_, _scheeli_, _celiae_, _oeseri_, _bivittatum_, _christyi_, _mirabile_, most small _Rolloffias_, most _Epiplatys_, and some of the low-altitude _Rivulus_. I guarantee there are

enough nice fish in this list to keep even a fairly large fishroom full.

If you are into annuals, you can try _guentheri_, _palmqvisti_, _korthausae_, _CynolCynolebias whitei_, or _Cyn. constanciae_. I haven't done too much work with annuals so you can think of yourself as breaking new ground if you try this method on some of the others.

I've also just completed an article for FAMA which illustrates some of these fish (something I can't do during this conference), so if you're the kind of person who has to know what it is you're getting before you order it (Not me! I buy fish to find out what they look like, not because I already know what they look like!), keep an eye out for FAMA and look for the photos of killies in it.

Many folks complain that they can never find any killies. They're just looking in the wrong places. Killies are not the kind of fish handled by your typical pet store because most retailers are in the habit of buying from wholesalers, and most wholesalers don't want to deal with them because they aren't usually collected in quantity. Killifish fanciers have come to depend on one another for their fish, so if you want the largest selection, go to the largest organization of killie keepers: the American Killifish Association. Members of the AKA receive a monthly listing of dozens of different kinds, often including those listed here. Killies ship well, so don't be reluctant to order them through the mail. You may also find that there's a local killie club near you, or that a general aquarium society near you has members who are active killie keepers. Through such channels you can obtain killies locally.

Finally, a word about nomenclature. The names I've used throughout are the ones used conversationally; they aren't the fish's full names, and in some cases aren't even the "correct" ones, but you can find out the exact name and correct spelling of every known killie species in the Killifish Master Index by Dr. Ken Lazara, a publication of the AKA. Every serious killiekeeper ought to own a copy.

And no, I don't have any killies to spare .

right now - the local market consumes just about all I can produce in my limited number of tanks. Almost all my output goes to auctions of aquarium clubs which are members of the Northeast Council of Aquarium Societies.

- (Steve Szabo) Ready for questions. scs
(Moderator) Okay....Anyone have a question? JB
(Ken B. (AKA)) ?
(Bill Rogers (ACA)) ?
(Martin O'Connell (I)) ?
(Moderator) Bill...I believe I've got you on my... list from earlier. Go ahead. JB
(Bill Rogers (ACA)) OK...
Rogers (ACA)) My local water is 7.5 600ppm. Is there hope? BR

(Bill Kenney) OK...
There are a number of killies which should do fine... in your water, particularly pupfishes... something I wish I could keep... but if you really want to keep some of the prettier ... African species mentioned in the article, try... reconstructing your water using reverse osmosis n ... water purifiers. These are probably s less expensive ... than you may suspect. wrk

(Bill Rogers (ACA)) !
(Moderator) Bill your follow up. JB
(Bill Rogers (ACA)) What about deionized water? BR
(Bill Kenney) OK...
Yeah, deionizers work ok but are probably more ... expensive per gallon produces than RO. Remember... that RO units s run continuously and a very small ... unit will keep your reservoir full. wrk

(Moderator) Ken...your question. JB
(Ken B. (AKA)) ok...
Have you ever tried Aplocheilus linneatus with the system you described? kb

(Bill Kenney) Yes,...
But I lost them for reasons due to inexperience... I suspect the at even if I tried them now... that they wouldn't be too suitable because they're... so predatory. wrk

(Moderator) Martin, you are up! JB
(Martin O'Connell (I)) Ok...
Using APH, AHLI as an example, how much space would you provide....
to say grow out 40 of them and what would you say would be appropriate....

growth in size at 1,2,3, and 4 months? MO

(Bill Kenney) A 5 1/2 gallon tank for the breeders...

If you get as many as 40 fry at a time you may want to transfer them...

to a 10 to grow out...

At a month they should be about 1/2 inch, at two about 3/4...

at 3 they should be an inch, and at four they will begin to sex out. wrk

(Moderator) More questions anyone? JB

(Andy Nikolajski/ACA) ?

(Moderator) Andy...go ahead. JB

(Andy Nikolajski/ACA) OK...

I have had luck with Aquarian flakes...

It seems to be the only flake my A.Biv's...

won't spit out...

is that how you chose this food. AN

(Bill Kenney) Yes...

The prime criterion for selecting any food has to be palatability...

No matter how nutritious a food is it does your fish no...

good if they won't eat it...

I even get darters to eat Aquarian food but never any other brand... wrk

(Andy Nikolajski/ACA) !

(Moderator) Andy...your follow up. JB

(Andy Nikolajski/ACA) The Aquarian line seems nutritious...

if the label can be believed...

I wonder if anyone has any knowledge...

in this regard? AN

(Moderator) Comments/responses anyone? JB

(Bill Kenney) !

(Moderator) Bill...go ahead. JB

(Bill Rogers) !

(Bill Kenney) Somebody should do some comparison studies on fish foods using fecundity as a criterion...

Are you listening out there, manufacturers? wrk

(Terri Clayton (AKA)) ?

(Moderator) Bill Rogers, a comment from a retailer please. JB

(Bill Rogers) I find AQUARIAN to be a fine food....

most likely equal to TETRA....

in all regards except sales...

with TETRA outselling it 10/1. BR

(Moderator) Terri...your question please. JB

(Terri Clayton (AKA)) ok=

I'd like to know if anybody has seen the New species

Trigonectes strigabundus..

and if so please describe them for me . tc

(Bill Kenney) Haven't seen it but it's been around long enough so there may be some.. photos published... Steve has gone to check his library... Axelrod's Atlas has a photo purported to be this fish on page 273... but it looks more like a Rivulus to me. I've found enough errors in his ... killie section to distrust it. wrk

(Moderator) Bill..a question from the front here... Steve indicated you have had some experience using.. your set up with Bettas. What if any changes do you.. use when breeding Bettas? JB

(Bill Kenney) I try to keep a LOT of water sprite, and am prepared to pull... the female if she begins to show some damage... otherwise, much the same... Anything to add, Marty? wrk

(Martin O'Connell (I) MO... No, I use the same method as you for both killies and bettas mo

(Moderator) On Terri's questions...Axelrod's Expanded edition.. shows a picture of the fish. It is known as the "Brazilian... False Panchax and found in the Rio Tocantins, Brazil... Any more questions for Bill? JB

(Martin O'Connell (I) ?
(Bill Rogers) ?

(Moderator) We've been at this for more than an hour. I'd like to formally.. close the CO (Bill might be able to stick around.. some more) after I take Martin's and Bill's questions... Martin, you were first. JB

(Martin O'Connell (I) MO... The one thing I would add is that I have been using those Rubbermaid see through... Storage containers which hold about six gallons, with more surface area , for both Bettas and Killies and find them ... excellent for the organization of space. MO

(Moderator) Bill...the final question. JB
(Bill Rogers) Is your system successful with small killies like Clowns?... what do you use as a first food ? BR

(Bill Kenney) The method described above is superb for Epiplatys annulatus because you... don't need any "first food". The rotifers and other infusoria ...

living on the water sprite will get them up to the size...
where they can take brine shrimp nauplii, microworms, or
whatever... wrk

(Steve Szabo) This is Steve here with another comment ...
My clown killies were doing good in such a set up with other ...
small fish until I added a Chaca chaca to the tank ...
with the intention of setting up another tank ...
the next day. Needless to say ...
the next day came ...
and there was no need to set up the other tank. scs

(Moderator) On behalf of the ATF FORUM Staff and everyone who attended...
Bill's lecture. I think we all will have some good food..
for thought on set up after tonight.
The floor is now open for..
anyone to chat/ask/or just mingle. JB

(Bill Rogers) Thanks Bill and Steve. Great CO. BR
(Andy Nikolajski/ACA) Thanks WRK and SCS. AN

(Steve Szabo) We are here...
for your questions and comments...
let's keep the same format until we have to go...
you know ? and !, so things don't get too confusing. scs

(Terri Clayton (AKA)) ?
(Steve Szabo) GA Terri. scs
(Terri Clayton (AKA)) How long does it usually take for annuals to
begin to hatch out?...
I just got some Cyn. Nigerpinis today that should have been
wetted sept. 1..
I wetted them about 2 hours ago and so far see nothing These are
my first annuals. tc

(Bill Kenney) Give them at least overnight...
The fact that they were marked sept 1 should not prevent...
you from having any success. wrk

(Terri Clayton (AKA)) ok thanks.. tc

(Bill Kenney) Anybody else? wrk

(Terri Clayton (AKA)) !

(Steve Szabo) GA terri. scs

(Terri Clayton (AKA)) I'd like to say if anybody has any spare killies
around I'd be happy to
take them off their hands... tc

(Steve Szabo) Ok terri....

If no one else has any more ...
questions or comments in the next, say 30 seconds, ...
Bill and I will log off. scs

(Martin O'Connell (I) Goodnight and thanx Mo

(Steve Szabo) Good night all. We enjoyed having you over. scs

The following article is reprinted from AQUA NEWS, the Minnesota Aquarium Society, Inc. newsletter.

PYGMY CHAIN SWORD
a HAP article

by Patty Marshik

I've always admired the beautiful aquariums in books. They are landscaped with decorative rock structures, driftwood and most importantly, lush displays of plants. For me, the finishing touch in these aquariums is the dense foreground planting. Even friends with healthy live plants rarely have good foreground. With the superbly landscaped pictures in The Optimum Aquarium in mind, I purchased a pot of Echinodoras tennellus, or Pygmy Chain Swords.

Pygmies propagate from runners and I wanted them to spread freely so I took the plants out of the pot. Happily, I discovered there were five plants! I didn't mind paying \$4.98 so much anymore. The roots were in excellent condition since they were protected by the pot, but in separating the plants, I did some damage. I've found with houseplants that you're best off cutting back the leaves when you damage the roots, so I did the same for my Pygmies. The nicked up leaves went into the trash. The theory is that the plant has to support the leaves for photosynthesis, but fewer roots can't provide enough nutrients for all the leaves the plant has.

I planted them carefully to avoid further root damage, but I didn't bother to spread out all the roots like it says to do in the books. I can't seem to do it with less than three hands.

As far as lighting goes, I'm cheap. I purchased a number of warm white fluorescent bulbs for 10 cents a piece and have been using that on my 10 gallon tank. Warm white doesn't make your fish look pretty but it works well for plants.

I'm not very picky about water hardness or pH, but I have found my tap water to be too hard and alkaline for most live plants. I use water softening pillows by Aquarium Pharmaceuticals and after two to three days of using those, I add pH Down, made by the same company. My pH ran about 7.5 in the tank that I had my Pygmy Chain Swords in, which seemed

to be a low enough pH for plants to thrive. I don't test for water hardness.

To keep algae down in the tank, I have several *Sturisoma robustus*, an algae eating, farlowella-looking sucker-mouth fish. With all the plants in the tank, algae has never been a big problem, but I like to be sure. They kept algae off the sword's leaves and within one month, I had baby Pygmy Chain Swords (pygmy Pygmy chain swords has a nice sound doesn't it?). From one runner, I got eight plants! I like plants that propagate in a big way! (That's because I'm cheap, as I said before, and when plants propagate I don't need to buy more of them). My tank doesn't look like a Dutch or an Optimum Aquarium. I'm too incompetent at landscaping for that. But the Pygmys add a little something to my tank that I've never had before: lush foreground.

Reference: The Optimum Aquarium by Horst & Kipper; Aquadocumenta Verlag; West Germany; 1986

TRADING POST

For Sale: *L. brichardi* - juvenile - various sizes
Aspidoras sp. - juvenile
Corydoras panda - juvenile
Cichlasoma severum (banded) - juvenile
Cichlasoma sajica - juvenile - various sizes

Other assorted catfish

Call: Barrie or Raymond Farmer - (804) 448-4079

**BOWL SHOW REPORT FOR
August**

CICHLIDS

Angelfish & Discus

No Entries

Non-Rift Lake Africans

No Entries

Open

No Entries

EGGLAYERS/LIVEBEARERS

Livebearer Non-Guppy

1st J. Mangan - Phalloceros

2nd J. Mangan - Jeweled Goodeid

3rd J. Mangan - Hi-Fin Platy

Sharks & Loaches

1st B. Pallansch - Clown Loach

Open

1st T. Fitz - F. confluentus*

2nd T. Fitz - F. notatus

3rd T. Fitz - F. zebrinsis

* Judge's Choice

Totals through August 1988

	Month	Quarter	Annual
K. Muller	-	-	1
R&B Farmer	6	24	25
G. White	-	10	33
R. Hammond		6	6
J. Hoffman	6	6	6

	Month	Quarter	Annual
T. Fitz	12	61	97
R. Hughes	-	-	9
K. Muller	-	-	5
R&B Farmer	1	33	46
T. Williams	-	-	1
J. Stieringer	13	23	34
T. Hetzel	6	6	11
J. Mangan	13	16	29
R. Hammond	-	2	2
B. Pallansch	6	23	23
J. Hoffman	10	23	23

October: Egg/Live: Goldfish & Koi, Characins, Open
Cichlid: New World Mouthbrooder, Pseudotropheus, Open

November: Egg/Live: Livebearers, Characins, Catfish, Sharks & Loaches, Anabantoids, Open
Cichlid: Angelfish & Discus, New World, all other Mbuna, Haplochromis, Riftlake (non-mouthbrooder), Open

VIRGINIA

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Pan Am Center
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Fairfax, VA 22031
(703) 573-4400

TYAU TROPI-CARE
6905 Duke Drive
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ANNANDALE PET SHOP
7406 Little River Turnpike
Annandale, VA 22003

AQUARIA INTERNATIONAL
1180 Pendleton Street
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281-9622

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Rockville, MD 20852
424-PETS

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Randallstown Plaza Center
Liberty Rd. at Offutt Rd.
(301) 521-4529

Fish Factory Aquarium
582 N. Frederick Ave.
Gaithersburg, MD 20877
(301) 977-7500

Gaithersburg Pet Center
642 Quince Orchard Rd.
Gaithersburg, MD 20878
(301) 948-1133

Glenmont Tropicals
Glenmont Shopping Center
12345 Georgia Ave.
Wheaton, MD
949-0344

Pet And
White Flint Plaza
5268 Nicholson Lane
Kensington, MD 20895
(301) 231-5216

Rick's Fish & Pet Supply
36 South Market St.
Frederick, MD
(301) 694-9664 831-6868

Pet Mart Rockville
2230 Veira Mill Rd.
Rockville, MD 20851
762-3505

Showcase Aquarium
11248 11250 Triangle Lane
Wheaton, MD 20902
942-6464

Tropical Lagoon
9439 Georgia Ave.
Silver Spring, MD 20910
585-6562

Congressional Aquarium
Congressional Plaza
152 Congressional Lane
Rockville, MD 20852
881-6182

Montgomery Tropicals
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Gaithersburg, MD 20879
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Date: _____ 19 _____

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Occupation: _____

Where did you hear about PVAS/get this application? _____

What fish do you keep/topics are you interested in?

Number of tanks: _____ Time in hobby _____

What can this club do for you? _____

What do you want to do for the club? _____

Membership dues for the Potomac Valley Aquarium Society are:

Family/Individual: \$12/yr

Corresponding: \$ 9/yr

Junior (under 18): \$ 5/yr

Please send application and check for dues to the address above.

POTOMAC VALLEY AQUARIUM SOCIETY



POST OFFICE BOX 6219 SHIRLINGTON STATION ARLINGTON, VIRGINIA 22206

The Potomac Valley Aquarium Society will meet on the following dates in 1988:

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



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