DELTA TALE

July 1988
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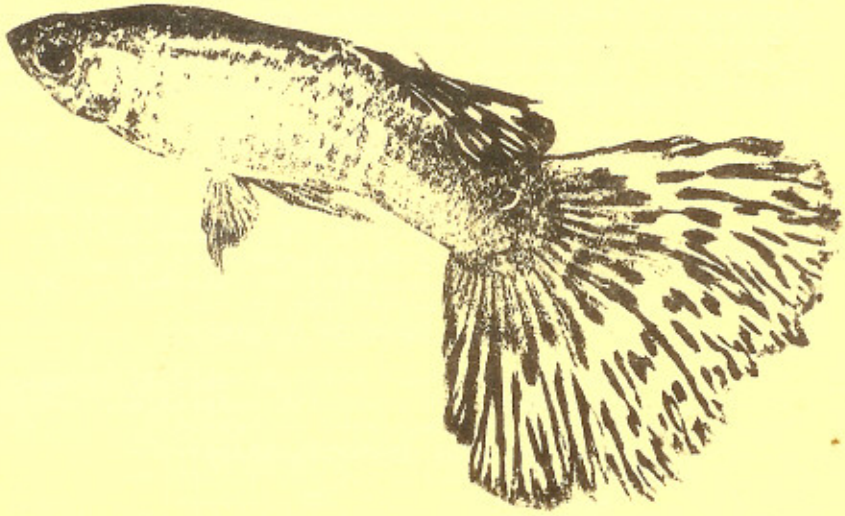

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The following list was downloaded from Fishnet - the Aquarium and Tropical Fish Forum on CompuServe Information Service. I'm leaving the header in so you can see how messages are stored and on the system. I've deleted those entries that have already passed. [Editor]

#: 28885 S8/News/Shows/Meetings
30-Mar-88 22:47:38
Sb: Meetings (Apr-May)
Fm: Sally Van Camp (FAAS) 73167,2625
To: All

This listing compliments of the Federation of American Aquarium Societies.

Jul 1-3	Stark Cichlid Study Group Hall of Fame Championship - Canton, OH; info: 216/497-4055
Jul 21-24	Am. Cichlid Assn. Annual Convention Holiday Inn-Westport, St. Louis, MO; info:314/343-4253
Aug 20-21	Southwest Michigan A.S. Age of Aquarium '88 Southland Mall, MI; info: 616/385-4972
Aug 26-28	Am. Livebearer/FOTAS Annual Conventions (tentative) Hilton Hotel, Bryan, Texas
Sept 3-5	Calgary A.S. Annual Show info: 803 Allandale Rd. SE, Calgary, ALB T2H 1W7
Sept 23-25	FAAS Convention Regency Best Western, Blasdell, NY; info: 716/941-3701
Oct 1	Michigan Cichlid Assn. Fall Auction
Oct 7-10	Saskatoon Bi-Annual Public Show Saskatoon Forestry Farm Auditorium
Oct 16	Greater Detroit A.S. Fall Auction
Oct 17	Bettas of the North East Certified Show Grenich, CN
Nov 5	Motor City A.S. Fall Auction

MY FIRST MARINE AQUARIUM

by Eli Sentman
Delaware Country Aquarium Society

Ever since I started keeping fish, I've always worked toward starting a marine aquarium. I, like many people, couldn't pass by a tank of these coral reef beauties without oooing and ahhing a little. But that's as far as most people go when it comes to marine fish. I for one was always put off by stories of how difficult it is to keep a marine tank. Besides that, I could buy fifty or a hundred Neon Tetras for the price of one medium priced marine fish. Finally I made the decision, I was going for it. I figured the worst that could happened was that if I was unsuccessful with salt, I could change my Caribbean Coral Reef into Lake Tanganyika with a quick water change.

The first step for me was finding out everything I could on setting up a marine tank. Some people are reluctant to spend money on books or magazines but I found it to be money will spent. The problem is finding books of recent publication. since the technology of our hobby has been changing so quickly, I found most books out of date, especially concerning equipment. I also must have talked to every pet shop owner in the tri state area. This is where the reading came in handy I was surprised at the amount of old or incomplete information I received. Most shop owners knew the basics but few were up to date. After picking everyones brains (including some club members) and after the fine talk at May's meeting by Art of Art's Animals I decided to go to him for my setup. After all, if he could take his time to talk to us I felt I should patronize him. With a little horse trading we made the order. After measuring the tank, I built a cabinet stand of 2X4s and pine planking as a finish. Since the tank was going to be the show piece of my family room, I wanted it to look nice.

Almost as hard as picking equipment was decorating the tank. I scoured around for coral at all the pet shops but found the best selection and prices at Pier One Imports in Springfield. After spending almost $250.00 on coral, barnacles and shells I was almost ready. First I took all the coral and set it up as I wanted it in the dry tank. I then video taped the tank to remember jut how I had placed it. Then I returned the pieces I did not need to the store. Just to be sure it was clean I removed the coral from the dry tank and bleached it. It was now time to install the equipment, coral gravel, dolomite, salt mix and water, and run the filters and heater. Once the water was clear I got out my video tape of how I placed the coral and returned it to the tank. Thank goodness I made the tape or I would never of figured it out. I then seeded the tank with Startex, which contains a colony of nitrifying bacteria and ammonium chloride. I would recommend this product highly, it took my tank only three weeks to cycle. Two days later adding the Startex I Added six Black Mollies and some algae from an

established tank. During this time the lights were left on 24 hours a day. By the fourth week I had a healthy growth of algae and my Mollies had lived through the ammonia and nitrite blooms.

Finally the day came when I could add those fish that I had been drooling over for years. I removed four of the Mollies and added two Mandarins, feeding them frozen brine shrimp and calling everyone to come see them. My family and friends have had to endure coming over and seeing the tank at each stage of the way. Finally I caught the last two Mollies and added a Hippo Tang. A little bashful at first this fish soon ate like a pig. He gladly chomped on leaves of romaine lettuce, brine shrimp, flake food (although this took a little time), and some of the better frozen mixtures (Freeding Frenzy and Formula One). This is a beautiful fish with a lot of personality including wedging himself into any crevice in the tank when frightened or sleeping. Two weeks later I added a Coral Beauty Angel and an Auriga Butterfly and two weeks after that two Blue Damsels.

Everything was going great, my fish were eating and happy. Then it happened, first the Tang started scratching on the coral then the Butterfly was scratching and breathing a little heavy. I looked up the symptoms, oh no parasites! That night visions of thirty dollar fish being flushed made for unpleasant dreams. The next day I bought some copper formalin and followed the salesmans directions. What he didn't tell me was that it would decimate my algae. I cured the parasites but was left with tons of dead algae. Without going through the whole ugly story, I ended up sucking my prize Mandarin into my diatom filter by accident, my first big (and stupid) mistake.

Since then the tank has gotten back to normal with no more casualties. All in all I found salt to be no more difficult than fresh. I am now getting ready to start a mini reef using a home made wet and dry filter system, hopefully this will be just as successful.

If anyone is thinking about setting up a salt tank please feel free to ask me any questions. I'm not an expert but maybe I can help you through the learning process a little faster.

I recommend the following publications:

1. The Marine Aquarium Handbook (Beginner to Breeder)
   Martin A. Moe Jr. Greenturtle Publications
2. A Complete Introduction to Marine Aquariums
   Dr. Warren Burgess T.F.H. Publications
3. Exotic Marine Fishes
   Axelrod and Burgess T.F.H. Publications

My fish list:

1. Hippo Tang (Paracanthurus hepatus)
2. Threadfin Butterfly (Chaetodon auriga)
3. Coral Beauty Angel (Centropyge bispinosus)
4. Mandarinfish (Synchiropus splendidus)
5. Blue Devils (Pomacentrus coelestis)

SUCCESSFUL DISCUS CROSS

by Bill Bradshaw
reprinted from The Wet Thumb - Jan 88

If you have read past and current information on discus, you may remember the claims that cross breeding of the Heckel discus to any other strain produces infertile eggs.

No true!....if it was, then I can assure you that it is no longer true.

In April of 1985, a fellow hobbyist called me with the news that a blue Heckel male he purchased from Kathy & I [sic] had spawned with one of his Royal Blue females. To assure that the eggs would be allowed to hatch (this occurred in a community show tank) we decided to remove the eggs, transport them to our basement for artificial rearing.

Six spawns later, the owner of the pair and I divided 160 healthy young first generation hybrid discus.

We have subsequently raised over forty of these hybrids to maturity, and although color development is relatively slow, these hybrids are a beautiful combination of the two strains, a slightly predominant center bar, and blue striations across three-quarters of the body. Typical of most tropical fish hybrids, they are fast growing, voracious eaters.

In the fall of 1986, the "pairing off" process began in the three large wooden tanks that they were raised in. We are now beginning to enjoy the fruits of our labors. using 29 gallon aquariums, we have begun setting up the tanks as these brothers and sisters pair off. This second generation holds promise of being a beautiful, yet unnamed discus strain.

As of this writing, the first 50 babies of this second generation are doing quite well on a diet of flake food and beef heart blend, and we anxiously await the development of their original and unique color patterns..... We'll keep you posted.

HOW TO WRITE AN ARTICLE

by Pat and Orville Jewell

reprinted from Brichardi Bulletin - Feb 88

The ability to write clearly is crucial to success, but writing does not come easy to everyone. A blank sheet of paper can be the writers worst enemy. But with a little preparation, the blank page syndrome can be conquered. Begin by setting aside the myth that the way to write is to sit for hours on end, staring at a blank piece of paper or computer screen and waiting patiently, sometimes desperately, for inspiration to strike. In real life most writers find that after picking the subject, things fall into place much easier. For instance, for this club, deciding on a particular fish that you feel comfortable about would probably be the best place to start, or one that you have a

lot of interest in trying to work with.

Writing an article is less of an art form than of a process of development and procedure. The writing process can be split up several different ways. In this case let us try to simplest form, which divides the process up into three major areas: collecting information, organizing the job (draft), and polishing (final Product).

Collecting information can be as simple as keeping a note book on your methods and procedures. Record such things as preparations for spawning, special feedings, water conditions, and what you may have found important in the care of the species. If you are going to write on some type of fish that you would like to try and raise, collecting information can be much more involved (back to school with the old books and research). In your article you should give credit to any sources you use.

Organizing your article is very important. You can deal with organizing your article in several ways. A couple of suggestions, first, write chronologically, from eggs to fry, fry to juvenile, from juvenile to adult, and from adult to spawning. Another suggestion, if you want, is to work with a specific period of the lifespan, such as spawning or care from egg to fry. Determine what areas should be covered, such as feeding, water conditions, bare tank versus decorated tank, live plants, etc. At this point determine an order, perhaps least important to most important for achieving success. A simple outline can be most helpful and it is much easier to rearrange short statements than complete paragraphs. The outline should include all broad areas and then break them down into areas of concern that you want to cover. Don't be afraid to experiment with the article in its outline form. Once satisfied with the outline, then work up the first draft.

Now you are on your way to the finished product that you have spent your time and effort to produce. Now read it! Does it make sense? Is it clear and to the point? Does it cover all the areas of concern that you want to cover? Smooth off and rough edges and now it's time for the final draft. Again read your work and finally submit it so others can learn and enjoy from you work.

MICROWORMS: AN IDEAL FRY FOOD

by Jerry Cook
reprinted from Brichardi Bulletin - Feb 88

For those of you who use brine shrimp as a first food for many of your Cichlid fry let me suggest an alternative, microworms. The worms are highly nutritious and easily kept in a culture, without constantly adding more eggs, as is the case with brine shrimp.

Microworms are the common name given to any of several nematode worms. Most probably, though the culture that is

purchased as a starter will be mostly the species Panagrellus silusiae.

Nematodes in general are very small (usually less than a sixteenth of an inch in length). They are colorless unsegmented, cylindric worms. The tail end is more pointed than that of the head end and females are usually larger than males. Growing worms will usually shed their skin several times before becoming sexually mature. These worms give birth to live young.

There are both aquatic and terrestrial species of nematodes, but the terrestrial seem to work better in mass culturing for use as a food. As for these land dwelling microworms, it has been calculated that the top six inches of an acre of soil contains billions of these worms.

To collect microworms from the soil all that is needed is a raw potato, which will collect enough worms to start a culture. If this isn't appealing to you or it is the wrong time of the year (and the ground is frozen), cultures can be obtained from other hobbyists or from one of many firms that sell starter cultures.

Microworms can be cultured in almost any shallow, flat, watertight container. The temperature needed for culturing microworms is between 85o and 68oF. The container containing the culture should be kept in fairly dark, but not completely dark quarters. However, these worms are very tolerant of conditions and a new culture can be started from an old culture that has been frozen or even dried. The container need only be shallow because the worms reproduce at the surface of the medium, so a depth of 1/4 to 1/2 inch is all that is needed. At the same time for a culture to be active and productive it needs to be kept moist so the container should probably be covered to keep it from drying out.

For culturing mediums several substances may be used. Cornmeal, oatmeal, semolina, pablum, and soya flour all work very well. A small amount of yeast should also be added if large quantities of worms are desired.

When starting cultures the medium should be mixed with the yeast and enough warm water should be added until puddles remain over part, but not all, of the surface of the mixture. It has been suggested that adding milk in place of the water improves the culture but more than anything else it is probably only an added expense.

Cultures will remain sweet for two or three weeks. After this they get an unpleasant odor from the fermentation caused by the yeast. When the unpleasant odor starts to appear, it is time to start a new culture. to start a new culture at this stage, take enough worms from your existing culture and begin the same way as before. Another way of renewing your culture is to simply replace about half of your medium every two to three weeks. This second method gives you a continuous supply of worms without waiting for anew culture to begin producing. However, most aquarists keep more than one culture going at all times making starting new cultures little problem or hardship to your fry.

To remove the worms from your culture for feeding you can simple scrape them off the edges of the container. They are often found in mass on the walls of your container dish near the edge of your culture medium. If this does not net you enough worms try laying small pieces of wood, like tongue depressors, criss crossed on the medium. If the worms seem to be covered with a milky-like substance, simply rinse them into a fine cloth or brine shrimp net.

The best method for feeding microworms is to make a floating feeding ring with a hanging net of coarse cotton cloth. The worms slowly drop out of the cloth to the waiting fish. Once in the water the worms will live for about six to eight hours if they are not eaten.

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

CONTROLLING GREEN WATER -- SUSPENDED ALGAE -- IN ORNAMENTAL PONDS

Stephen M. Meyer [73117,3720]
February 20, 1987

If there is any single problem shared by ornamental pond owners around the country it is green water: the UNCONTROLLED growth of suspended algae. I emphasize adjective "uncontrolled" because some level of suspended algae is desirable. Pond water should always have a slight greenish tinge, but seeing should be unimpaired to 2 feet below the surface. While "pea-soup" thick green water may be attractive and desireable in ponds and pools dedicated to flora (it masks all the planting pots and gives an natural appearance), it is frustrating for koi and goldfish aficionados because it hides the fish.

Aesthetic issues aside, green water is also a serious impediment to maintaining good health conditions for ornamental fish. First, the greatly diminished visibility below the water surface makes early detection of disease and parasites impossible. In a pond this spells disaster; for reasons of both purse and effectiveness it is clearly preferable to treat a single fish outside the pond rather than to medicate an entire collection in the pond.

Second, and equally serious, algae consume a substantial amount of oxygen at night. Measurements confirm that during hot summer nights the oxygen consumption of suspended algae is sufficient to drop pond dissolved oxygen levels below the minimum necessary to sustain goldfish and koi. Thus, many a pond owner has woken up the morning only to find many of his/her prize fish dead in the water -- even though aerators and filters were working!. The largest -- and therefore more valuable fish -- always are the first to die. Some assume that vandals dropped

poison in the pond -- or that a mysterious disease was introduced. In fact the culprit is oxygen depletion; the larger fish suffer proportionately more.

Third, uncontrolled algae in the pond can lead to wide fluctuations in water pH, with a general trend towards increased pH (greater alkalinity) over time. This is not conducive to good fish health. Obviously, the elimination of excess suspended algae is an vital part of the pond culture of ornamental fish.

Green Algae

Our prime interest is in green algae (Chlorophyceae) -- a freshwater plant with over 5000 species. Algal spores are present in all water, waiting for the right conditions to bloom. Green algae lives in the pond in free-floating form (hence the name: green water) and as mats or strings attached to surface areas. The latter form is desirable (within reasonable limits) because it is a valuable source of food for pond fish and it does aid in water filtration. [Ponds with very strong sun exposure also develop carpets of blue-green algae (Cyanophyceae) on stones, plants, and pond walls. This is also a good source of fish food. Since algae is a plant, there are three basic requirements necessary for its growth: sunlight, nutrients, and carbon dioxide. Correspondingly, there are a number of variables in pond maintenance directly related to these requirements and, hence, that are relevant to the control of algae:

(1) sun exposure
(2) pond design
(3) fish population
(4) fish feeding
(5) soils in and around the pond
(6) water inflow and outflow.
(7) plants in the pond
(8) filtration system

Sun Exposure

As noted algae is a plant. Consequently, the more sun the pond receives, the greater the rate of algal growth. Ponds that are perpetually in the shade have easily managed algae problems. Ponds that receive many hours of sun each day become pea-soup green and require significant efforts to keep clear; but it is not impossible. Early morning and late evening sunlight pose little problem, since light intensity is crucial to photosynthesis. It is the intense sun from about 10am to 4 pm that contributes to excess algae growth.

Awnings -- either natural (trees) or man-made -- that block out direct sunlight can make a significant difference in algae growth. Yes, the pond will still turn lime green initially each

spring, but it can be cleared rapidly and maintained that way with almost no effort.

Water lilies that cover at least 60% to 75% of the pond surface will also act to cut sunlight reaching the algae. Unfortunately, goldfish and koi like to hide underneath lily pads and so the fish will often be obscured. Nevertheless, this is still preferable to having your pond look like a sunken pool table.

Pond Design

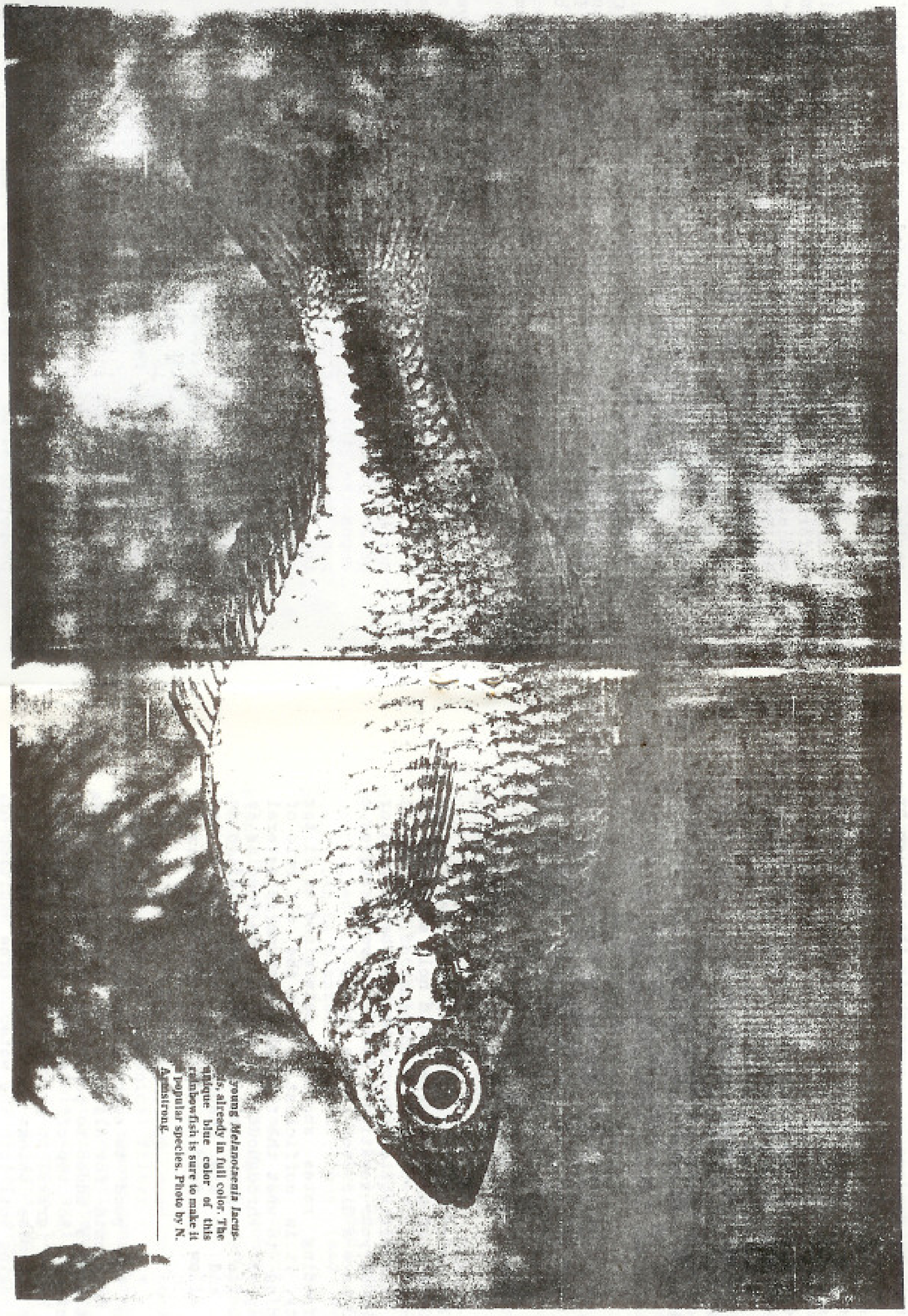
At any given latitude and time of the year, the amount of solar radiation available for use by algae for photosynthesis depends on the surface area of the pond. The larger the pond's surface area, the more sunlight it collects. Consequently, a wide but shallow pond will soak up far more heat and light than a smaller but deeper pond of the same gallonage. In other words: The critical variable is the quantity of gallons below each unit surface area of the pond. The larger the ratio of gallons per square foot of surface area, the smaller the amount of solar radiation per gallon.

The design of the pond can, therefore, have a substantial impact on algae growth. A good rule of thumb is to aim for a pond with a volume (cubic feet) at least twice the surface area. This corresponds to 15 gallons per square foot (gal/ft2) of pond surface. The most effective implementation of this rule is to ensure that the pond's minimum depth is at least two feet. I emphasize this latter point because extensive "shallows" in a pond design will greatly exacerbate the algae problem -- even if the volume to area ratio is two to one. This is because circulating water will continuously move through the shallow area thereby sustaining higher levels of algal growth throughout the pond. [A small shallow area, not more than 10% of the pond area is acceptable.]

Given this rule a 1500 gallon pond should be no larger than 100 square feet with a minimum 2 foot depth. The marginal benefits beyond 15 gal/ft2 are insignificant. A ratio below 10 gal/ft2 is asking for trouble.

Fish Population and Fish Feeding

Algae also require nutrients, and here the waste of pond fish is made to order. It is rich in nitrogen -- the perfect plant food. Obviously the quantity of waste produced is proportional to the number of fish, the size of fish, and the feeding rate. [Regardless of whether the fish eat the food or not, it still will break down into nitrogen.]



<u>DELTA TALE</u> PET OF THE MONTH CENTERFOLD SPECIAL

Koi -- being bottom feeders -- exacerbate the problem by constantly stirring up the bottom. The resulting turbulence recirculates deposited organic materials to the surface waters. Thus, nutrients that were originally "out of reach" of the algae growing nearer the surface eventually become available.

A big pond with few fish that are fed sparingly will not support as much algae as the same pond that is heavily stocked with well fed (or, overfed) fish. I can offer a rule of thumb here, though it is linked to pond oxygen capacity and only indirectly to waste production. There is good evidence that the following applies to ponds that are not artificially aerated (i.e., all gas exchange occurs by pond surface contact with the air):

Fish Size (inches)	Minimum Pond Surface Area per fish (square feet)
3	1.5
6	4.8
12	16.3
18	33.0
24	54.6

Given the design rules noted earlier, this means that a 1500 gallon pond with 100 ft2 of surface area could hold about six 12 inch koi. [It is true that with the addition of substantial artificial aeration and filtration this number can be doubled or tripled. However, should your aeration/filtration system suffer a break down you could have a disaster in the making.]

Theoreticlly feeding rates should be determined by filter capacity. In reality, it is sufficient to use the old rule of thumb: Feed according to what the fish will consume in several five minute meals spread throughout the day. Stop feeding as soon as the fish begin to ignore the food. [Koi and goldfish do not have stomachs and so are unable to store foods for digestion.] Do not allow any food to accumulate in the pond.

Soils and Water

Soils used in the pond to support plants, such as water lilies, also supply nutrients for algae. [Of course, the same holds true for fertilizers added to pond plant containers.] It is desireable, therefore, to top-off in-pond plant containers with an inch of heavy gravel to prevent large-scale nutrient leakage. Here again koi make things worse by rooting in the plant pots and dislodging soil into the water. [The addition of large flat stones to the top of the pebble course will prevent this obnoxious behavior.]

Fresh water added to the pond also contains nutrients. That is why

IT IS A MISTAKE TO CHANGE THE POND WATER IN THE HOPE OF CLEARING THE ALGAE.

It is only a temporary fix that will ultimately boomerang and make things worse. As is described below, the whole idea behind algae control is to remove nutrients. New water adds nutrients. [This does not apply to those situations where water turnover is continuous, that is, where water is continuously flowing in and out of the pond. This is typically at a rate of a gallon per minute or more. Such ponds will always stay clear. Few of us, however, can afford this luxury.] If proper controls are maintained, regular water changes of 15 per month -- necessary for good fish health -- can be carried out without problems.

It is equally important to make sure that no ground surface run-off -- due to rains or lawn watering -- flows into the pond. Not only will this bring new water to the pond, but nutrient-rich soil will be deposited in the pond as well.

The droppings of water fowl will produce similar results. Let your ducks swim somewhere else!

Plants in the Pond

Plants in the pond, such as waterlilies, water hyacinth, and elodea, compete directly with the algae for nutrients. Water hyacinth are particularly good in this regard because they are not planted (hence no soil in the pond). Iris and other water plants can be planted in gravel beds (and even in the filter bed).

[In this regard be careful not to put too many oxygenating plants in the pond. At night they convert to respiration and consume pond oxygen. Most pond plants are not oxygenators.]

Filtration System

Last, but not least, we need to consider the filtration system. A seasoned mechanical filter -- i.e., one that has been running for a month -- will remove considerable amounts of dead algae and other large organic materials from the water. Since algae depend on suspended organic materials and minerals, a good mechanical filter will limit the available nutrients for new algae growth. Efficient flow rates through mechanical filters are fairly high: 10 to 50 gallons per square foot of filter surface per minute. This is largely because mechanical filtration, unlike biological filtration, is a function of filter volume not surface area. The probability of particle capture depends on the number of potential surface collisions with the

filter medium. Thus, a high flow rate increases the frequency with which a given particle will pass through the filter, and hence increases the probability of capture. Typical pond water turn over rates may be one to four complete passes per hour.

Even better results can be obtained if a sump or settling basin can be incorporated into the pond design directly before the filter. This sump/basin will collect heavy wastes and dead algae that can then be drained off regularly. Again, this reduces the suspended nutrient content of the water. Field tests have shown that the simple addition of a pre-filter settling basin can cut algal growth by 75 or more.

Biological filtration -- the conversion of ammonia to nitrites, and nitrites to nitrates -- combined with strong artificial aeration also cuts algae growth significantly. Algal photosynthesis requires carbon dioxide, but nitrifying bacteria also use carbon dioxide for cell construction. A healthy biological filter is in constant dynamic equilibrium as old bacteria die and new bacteria form. Thus, nitrifying bacteria compete with algae for dissolved carbon dioxide.

There are many ways to design a biological filter for the pond. A generic design is a gravel filter through which pond water is fed. The essential biological activity takes place in the first 8 to 10 inches of filter surface area (at the top in a down-flow design; at the bottom for an up-flow design). Thus, for biological filtration the gravel bed need be no deeper than one foot. [A deeper bed may be desireable for mechanical filtration]. Experimental evidence suggest that biological activity seems to peak with flow rates of about 1 gallon per square foot of filter surface per minute. For reasonable biological filtering, a turnover of pond water should occur about once every one to two hours. Therefore, our 1500 gallon pond might require a biological filter between 12 and 25 square feet in surface area and 12 inches deep.

One can sub-optimize by combining mechanical and biological filters into a single system. This might be a filter with a flow rate of 2 gallons per square foot of filter surface per minute with a depth of 12 to 18 inches. Pond water turnover might be one complete volume pass per hour.

The growth rate of nitrifying bacteria in the filter is affected by water oxygen content: the more oxygen available, the larger the colony. Hence, strong aeration can make a given bacteria colony more "competitive". Aeration can be provided by waterfalls, artificial streams, mechanical jet aerators, fountain sprays, and turbulence towers.

Summing Up

Algal bloom will occur once or twice every year regardless of efforts to prevent it. However, after a few weeks in a properly managed pond the algae population will literally collapse over-night. The next morning the pond will be perfectly clear. When this occurs, it is advisable to vacuum/filter out as much of the dead algae lying on the pond bottom as possible, for large deposits of dead algae will depress oxygen levels in the pond.

Algal population collapse can be artificially induced with commercial algicides. These are temporary fixes at best, and dangerous at worst. If the pond conditions are not properly controlled, the algae will bloom again within a week. More importantly, most algicides are toxic to koi and/or pond plants. Even if the first dose has no noticeable effect on the fish, repeat doses will kill them.

One product, ACUREL-E (R), is not a true algicide, but a chemical that "captures" suspended organic and inorganic particulates and deposits them on the pond bottom. It literally starves the algae and a population collapse occurs within 24 hours. [As noted in the case of a natural algae population collapse, it is important to vacuum/filter out the heavy particulates and dead algae in order to prevent oxygen depletion.] The chemical itself does not harm fish or plants. This too, however, is but a temporary fix. Unless nutrient levels in the pond are controlled algae will bloom within a week. Of course one can apply ACUREL-E each week, but the chemical is quite expensive.

By far the most efficient and effective approach to controlling green water is via the manipulation of the elements discussed above. These rules of thumb, of course, are not etched in concrete. There are many relevant tradeoffs. For example, a pond that is always well shaded will not require as much filtration/aeration as one exposed to sun for 10 hours a day. An overstocked pond in partial sunlight may have more severe algae problems than one that is under-stocked in full sunlight. The point is that you can manipulate these elements for controlling algae as it suits your situation.

PVAS BOARD MEETING - 6/6/88

Vice President Pete Thrift convened the meeting at 8:00pm at Gerry Hoffman's home; also present were Ray Hughes, John Mangan, Bob Pallansch, John Stieringer, and Kenny Warren.

Report on the Spring Show:

Treasurer Gerry Hoffman--

Expenses - Interim Report, Slightly Rounded Off		
2/3 Auction Income	$2,352	
Motel Room Rent	732	
Trophies and Sodas	435	
Printing, Ads, & Postage	188	
Raffle Items	225	
Total Expenses		$3,932
Income		
Auction Gross	$3,528	
T-Shirts, Cokes,		
Concession Fees, Airline/stones	660	
Show Registration	383	
Raffles	608	
Memberships	148	
Total Income		$5,227
Net Income		$1,295

Show Chairman Pete Thrift

PVAS Member participation was much better than last year. Local Judges worked out well & saved money. Pete suggested we open the judging to the public at 3:00pm to lessen confusion.

The Board agreed to add 100 more valves to the air-supply pipe, to ease entry location; discussed adding catfish categories, enabling judges to omit a trophy where there are fewer than three entries, & allowing black backgrounds on entries in tanks; and reiterated that fishes may be entered in multiple categories if otherwise qualified in each.

Ray Hughes reported on the facilities of the Potomac Sheraton (Gaithersburg) for the Oct. 8/9 Workshop; these were deemed suitable at $560 and he was asked to reserve the site with a #250 deposit -- our Fall Workshop will be in Maryland! Banquet prices are in the $20/25 range, and some members doubted we can provide 50 guests at the level; other options discussed included reserving a room in a pizza parlor. The matter was tabled for airing at the membership meeting.

Gerry Hoffman advised using more local speakers and having fewer but longer workshop segments, to allow more discussion time. Topics suggested included brackish aquaria, terraria, marine aquaria, breeding discus, large-aquarium management and ponds.

The meeting adjourned at 10:00pm.

Respectfully submitted,

Robert J. Pallansch

. . . . . .

TRADING POST

For Sale: 3 Large (4" - 5") Tri-Color (Bala) Sharks - Make us an offer!

Also 5 (or is it 6?) 3" Black Sided Tetras
Lea Spickler 691-0419

For Sale: Various aquaria and Set-ups.
100 gal. complete set-up - $250
135 gal. complete set-up - $350
29 gal. complete set-up - $70
20 Long Tank - $15
10 gal. tank - $5
5 gal. tank - $5
miscellaneous equipment - various prices
George White 524-3785

BOWL SHOW REPORT FOR

JUNE

CICHLIDS

New World Large
1st Barrie & Raymond Farmer - C. severum

Rift Lake (no Pseudo)
No Entries

Open
No Entries

EGGLAYERS/LIVEBEARERS

Anabantoids
1st Tom Hetzel - C fasciolatum
2nd John Stierenger - Honey Dwarf Gourami
3rd Jason Hoffman - Dwarf Gourami

Catfish/Corydoras
1st Barrie & Raymond Farmer- C. davidsandsi
2nd Barrie & Raymond Farmer- C. bicolor
3rd Barrie & Raymond Farmer- C. nattereri

Open
1st Tony Fitz - A. schwoiseri*
2nd Tony Fitz - A. sjoestedti (red dwarf)
3rd Tony Fitz - A

* Judge's Choice

Totals through June 1988

	Month	Quarter	Annual
K. Muller	-	-	1
R&B Farmer	6	12	13
G. White	-	10	33
R. Hammond		6	6

	Month	Quarter	Annual
T. Fitz	12	43	79
R. Hughes	-	-	9
K. Muller	-	-	5
R&B Farmer	13	19	31
T. Williams	-	-	1
J. Stieringer	6	6	17
T. Hetzel	6	6	11
J. Mangan	-	3	16
R. Hammond	-	2	2
L. Spickler	-	4	4
B. Pallansch	1	1	1
J. Hoffman	3	3	3

July Classes: Egg/Live: Guppies, Barbs, Open
Cichlids: New World Medium, Haplochromis, Open

August Classes: Egg/Live: Killifish, Catfish, non-Corys, Open
Cichlids: New World Dwarf, Rift Lake, non-mbuna (except Haplochromis)

VIRGINIA

PETS-N-THINGS
Pan Am Center
3081 Nutley
Fairfax, VA 22031
(703) 573-4400

TYAU TROPI-CARE
6905 Duke Drive
Alexandria, VA 22307
765-6713

ANNANDALE PET SHOP
Markham East Center
4231-F Markham
Annandale, VA 22003

AQUARIA INTERNATIONAL
1180 Pendleton Street
Alexandria, VA 22314
683-4811

BAILEYS PET CENTER
Leesburg Pike Plaza
3527 S. Jefferson Street
Baileys Crossroads
Falls Church, VA 22041
931-1400

BEACON MALL PET CENTER
Beacon Mall Center
6776 Richmond Highway
Alexandria, VA 22306
660-6100

DISCOUNT PET CENTER
Manassas Shopping Center
9028 Mathis Avenue
Manassas, VA 22110
361-7769

NATIONAL PET & AQUARIUM
Willston Shopping Center
6168 Arlington Blvd.
Falls Church, VA 22046
533-7828

OAKTON PET SHOP
Oakton Center
Rt. 123 & Hunter Mill Rd.
Oakton, VA 22124
281-9622

PET MART TYSONS
8417 Old Courthouse Road
Vienna, VA 22180
893-8181

WILSON'S PARROTS & MARINE LIFE
Shirley Edsall Ins Park
Build America 5
5605-G Gen Washington Drive
Alexandria, VA 22312
922-7358

SUNSHINE PETS
7395H Lee Highway
Falls Church, VA 22042
573-6946

PETS, ETC.

Herndon
Stuart Centre
462 Eiden St.
Herndon
VA 22171
437-0381

Sterling
Hechinger Jamesway Plaza
243C Harry F Byrd Hwy
Sterling
VA 22170
430-9667

Alexandria
Mt. Vernon Plaza
7688B Richmond Hwy
Alexandria
VA 22306
768-2200

MARYLAND

Animal Exchange
765-A Rockville Pike
Rockville, MD 20852
424-PETS

Aquarium Center
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
762-3505

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

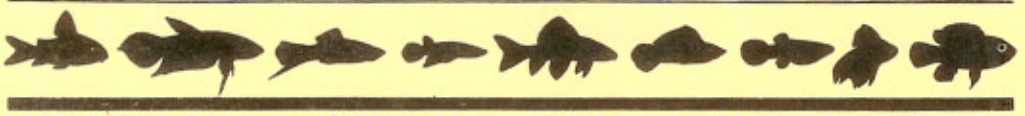
Tropical Lagoon
9439 Georgia Ave.
Silver Spring, MD
585-6562

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

Montgomery Tropicals
7845-G Airpark Rd.
Gaithersburg, MD 20879
(301) 670-0886

SUPPORT YOUR LOCAL PET SHOP
THEY HELP SUPPORT US

POTOMAC VALLEY AQUARIUM SOCIETY



POST OFFICE BOX 6219 SHIRLINGTON STATION ARLINGTON, VIRGINIA 22206

APPLICATION FOR MEMBERSHIP

Date:_____19_____

Name:_____

Street:_____Apartment:_____

City:_____ State:_____ ZIP:_____

Telephone H:_____W:_____

Occupation:_____

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

_____

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
P.O. BOX 6219
SHIRLINGTON STATION
ARLINGTON, VA 22206

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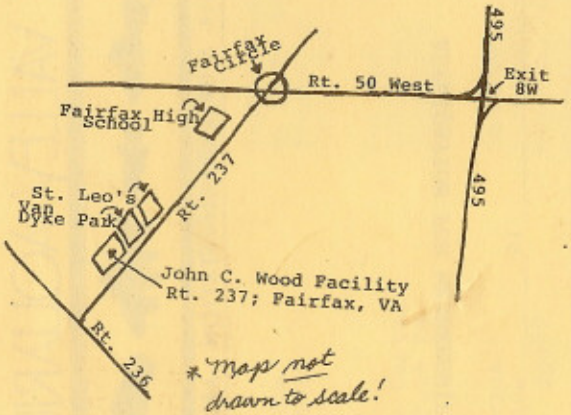

The Potomac Valley Aquarium Society will meet on the following dates in 1988:

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!!!**