DELTA TALE

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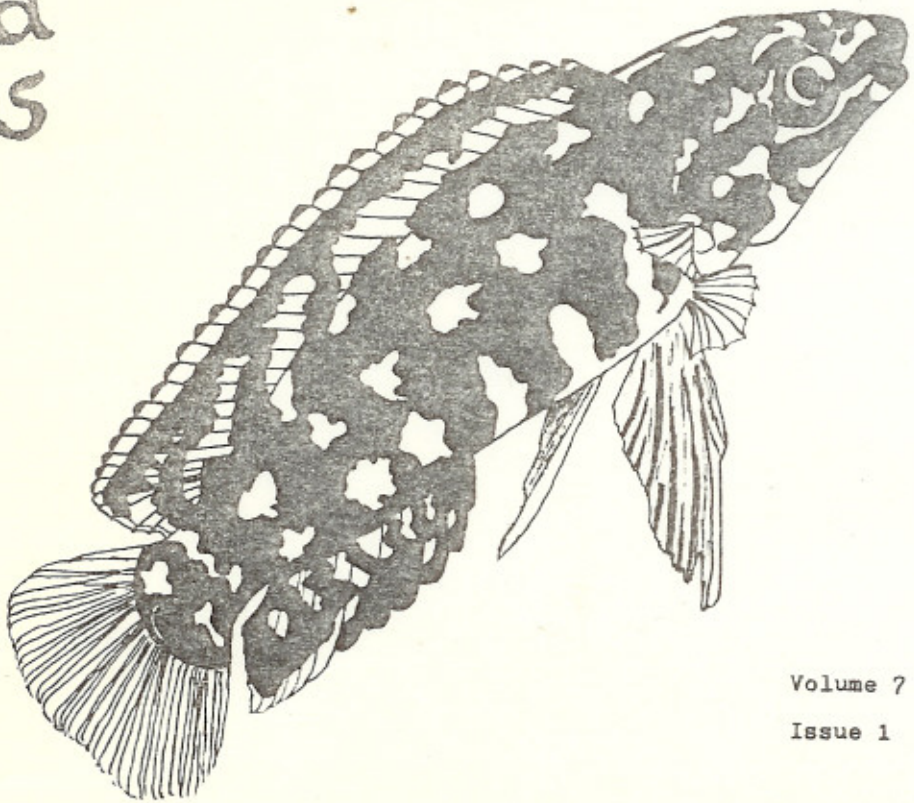

Volume 7

Issue 1

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 show, and promoting good fellowship. Correspondence should be addressed to Secretary, P.V.A.S., P. O. Box 6219, 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 Saturday after the monthly Monday meeting.

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This month's cover is of a Julidochromis marlieri. It is a tracing by Mike Sprague from a photo of Tony Rizzuto's.

MINUTES OF THE BOARD OF GOVERNORS' MEETING

The Board of Governors met December 2 at the home of Gene Aldridge with seven members and three guests present. Gene Aldridge reported a current bank balance of $668. The President appointed Pete Tietjen as Program Chairman and Dave and Jan McInturff as Ways & Means Chairmen. All three were also made ex officio members of the Board. Ted Walsh will continue as Librarian. It was agreed to sell raffle tickets at $1 each or 3 for $1 for a 100 or 125 gallon tank or cash at $1 per gallon. The prize will be awarded at the Spring Show. The Ways & Means Committee will begin working on this in January. Carl Hardy agreed to handle the monthly bowl shows in addition to the annual shows. Warren Garnar said that the Salt Water Group was not interested in a special category for the monthly bowl shows at this time. Ted Walsh agreed to draw up revised categories for guppies for the bowl shows. Further discussion of shows was postponed until the January meeting. Susan Sprague agreed to draft a letter for John Jessup's use in contacting local TV stations with regard to carrying the "Guppies to Groupers" program. Final plans were made for the Christmas party. The meeting adjourned at 10 p.m.

Respectfully submitted,

Ruth Brewer, Recording Secretary

BOWL SHOW RESULTS AND STANDINGS
November 17, 1975

	1st	2nd	3rd
GUPPY			
a. H/B red	Walsh	Walsh	---
b. Green	Walsh	---	---
c. AOC	Walsh	Walsh	---
CICHLID			
a. Angelfish	---	---	---
b. Riftlake all	Jessup	Jessup	---
c. All other african	Jessup	Jessup	Jessup
EGGLAYER/LIVEBEARER			
a. Betta	Donnelly	B.Hardy	B.Hardy
b. Corydoras cats	D.McInturff	D.McInturff	B.Hardy
c. Open	D.McInturff	D.McInturff	B.Hardy

POINT STATUS

Guppy	Nov.	Ann'l
Walsh	36	92
S.McInturff	-	4
K.Lilley	-	4
Cichlid		
Jessup	32	119
R.Gaines	-	32
D.McInturff	-	13
Aldridge	-	28

Egglayer/Livebearer	Nov.	Ann'l
B. Hardy	20	111
D. McInturff	30	54
J. Gaines	-	53
Nixon	-	13
Donnelly	8	8
S. McInturff	2	5

ANNUAL BOWL SHOW TROPHIES

Guppy	Ted Walsh
Cichlid	John Jessup
Other	Bertha Hardy
High Point	John Jessup

MEETING DATES

Board of Governors	Cichlid Group	Saltwater Group
Jan. 6 8:00pm	Jan. 21 8:00pm	Jan. 16 8:00pm
Pete Tietjen	Steve Siska	Ann & Warren Garnar
1728 S. Monroe St.	2223 Dairy Farm Rd.	3527 Leesburg Ct. #103
Arlington, Va.	Gambrills, Md.	Alexandria, Va.
920-4442	261-7923	379-1374

POTOMAC VALLEY AQUARIUM SOCIETY
MONTHLY BOWL SHOWS
RULES

The PVAS Show Committee will continue with the following rules and regulations for the monthly Bowl Show held during our regular meetings:

There will be three major classes at each monthly bowl show as follows: Fancy Guppies, Cichlids, Other (Egglayers/Livebearers).

Each of the above classes will have a sub-class or classes. Points for each major class will be accumulated toward a quarterly and annual award. Points will be assigned as follows:

1st place - 3 points
2nd place - 2 points
3rd place - 1 point
One point will also be given for each entry.

Awards: Ribbons for 1st, 2nd, and 3rd place winners in each sub-class monthly. Trophy for high point winner of each major class quarterly. Donated trophies will be given to the member with the highest total points in each major class at the Christmas meeting.

Each member is limited to five bowl entries each month.

Fish must be owned by exhibitor. This will be an honor system.

Bowl Show entries must be registered with bowl show committee member. NO ENTRIES WILL BE ACCEPTED AFTER MEETING IS CALLED TO ORDER. Entries will be registered and placed on bowl show tables. No entry is to be picked up off table except by exhibitor, show committee member or judge.

THERE MUST BE AT LEAST TWO ENTRIES IN A SUB-CLASS IN ORDER TO BE JUDGED. When there is only one entry in a sub-class, it will be placed in the open class.

DECISIONS OF THE JUDGE ARE FINAL. No person may serve as a judge in any sub-class which they have entries in.

Recommendations for any change in sub-class show schedule must be submitted t show chairman for show committee action five weeks prior to change. This is due needed time for publication of change of bowl schedule in the Delta Tale.

Rules are subject to change.

In judging guppies, the IFGA (International Fancy Guppy Association) Point Sy will be used.

The following will be used to aid in categorizing and judging cichlids:

Dwarf-ultimate size of species will not exceed 4 inches.
Medium-ultimate size of species will not exceed 7 inches, but 4 inches or larger.
Large-ultimate size of species is over 7 inches.
Angelfish-separate class, not to be shown in Central and South American classes.
Home spawned and raised-fish must have been spawned and raised by exhibitor. Honor system.
Breeding pairs-must have spawned. Honor system.

Judges will point entries in cichlid classes using forms provided at the mont shows.

POINT COUNT

Deportment	20
Size	20
Fins	25
Judge's Discretion	20
Rarity	15
Total	100

POTOMAC VALLEY AQUARIUM SOCIETY
MONTHLY BOWL SHOW SCHEDULE
1976

Date	Guppies	Cichlids	Other Egglayer/Livebea
Jan 12	Green H/B Red AOC	Cent.&S.A. large Mbuna Other	Betta Corydoras catfis Other
Feb 9	No bowl show because of the mini-auction.		
Mar 8	H/B AOC Female AOC	Cent.&S.A. medium Tanganyikan Other	Barbs Anabantoids Open
Apr 12	Red 5 match males AOC	Cent & S.A. dwarf Haplochromis Open	Livebearers-othe than guppie Killifish Open
May 10	Blue Black AOC	Angelfish/Discus Tilapia Open	Sharks & Loaches Catfish-African Open

	Guppies	Cichlids	Other Egglayer/Livebearer
Jun 14	Multi 2 match males AOC	Mouth-brood New World Other Africa/Asia Open	Tetras Characins Open
Jul 12	Green H/B Red AOC	Cent & S.A. large Mbuna Other	Betta Corydoras Catfish Other
Aug 9	H/B AOC Female AOC	Cent & S.A. medium Tanganyikan Open	Barbs Anabantoids Open
Sep 13	Red 5 match males AOC	Cent & S.A. dwarf Haplochromis Open	Livebearers-other than guppies Killifish Open
Oct 11	Blue Black AOC	Angelfish/Discus Tilapia Open	Sharks & Loaches Catfish-non-cory Open
Nov	Multi 2 match males AOC	Mouthbrood New World Other Africa/Asia Open	Tetra Characins Open

NOVEMBER IS FOR DOUBLE POINTS!

January 1976

BREEDER'S AWARD PROGRAM

The Potomac Valley Aquarium Society has established a BAP (Breeder's Award Program) to encourage members to breed fish and to share with others the knowledge they have gained. The Program is open to all members (except corresponding members) and there is no time limit on breeding a particular fish. You proceed at your own pace. Awards are given as detailed in the rules. To get started all you need is a pair of fish, something to keep them in, and a Breeder's Award Form to fill out. Read the rules that follow and you are on your way.

If you have any questions, please don't hesitate to call one of the Breeder's Award Committee members. The handy forms to record spawnings can be obtained from any Committee member at the regular meeting.

The Committee members are:

Chairman
Gene Aldridge (931-7426)

Montgomery County

Bob Smith (948-8698)
Ted Walsh (277-8249)

Bowie/Bel Air

Steve Siska (261-7923)

Fairfax County

Gene Sergent (560-8783)
Ruth Brewer (893-6307)

Alexandria/Arlington

Chuck Story (370-3593)
Simon Sprague (534-7487)

If you have a spawning which need verification, contact the Committee member nearest you. If, after a few tries, you are unable to contact the person nearest you, contact the next nearest. It is your obligation to see that you contact one of the Committee members to verify your spawning.

A copy of the spawning report is attached. This report should be as complete as possible when filing for points. It is to be filled out in duplicate. Forms may be obtained from any Breeder's Award Committee member.

POTOMAC VALLEY AQUARIUM SOCIETY
BREEDER'S AWARD PROGRAM

Purpose:

The purposes of the Breeder's Award Program are:

1. To promote the keeping and breeding of tropical fish,
2. To recognize outstanding achievement in the breeding of aquarium fishes,
3. To encourage research into the spawning of the more difficult species, and
4. To make accounts of successful spawning techniques available to club members through the Delta Tale and/or the general meetings.

Eligibility:

All members are eligible for the Breeder's Award Program except corresponding members.

The Program:

The Program is made up of five (5) levels of competency. They and their requirements are as follows:

1. BREEDER AWARD - Has attained 50 breeding points from categories 1 through 10.
2. INTERMEDIATE BREEDER - Has attained an additional 100 breeding points
3. ADVANCED BREEDER - Has attained an additional 150 breeding points.
4. MASTER BREEDER - Has attained an additional 200 breeding points, plus has spawned at least 3 species from 3 categories on the difficult species list.
5. GRAND MASTER BREEDER - Has attained Master Breeder status and has spawned at least one species from the target species list.

Acknowledgement:

Attainment of any of the five levels will be recognized in the Delta Tale and at the general meeting. Awards will be presented at the regular monthly meeting for all five levels of achievement.

Requirements:

1. Breeding points are awarded by proof of spawning of fish in of 16 different categories. Points may be gained only once from each species except in the case of guppies where each IFGA recognized category (color) may be spawned and points gained will count towards the Breeder Award.

2. Spawning is defined as raising of at least ten (10) fry to sixty (60) days of age after hatching. Mouthbrooder eggs are considered hatched seven (7) days after breeding. If sex is readily determinable, two pairs must be included in the 10 fry.

3. Breeding is defined as the physical act of mating. A mating of killifish is considered to be the total quantity of eggs deposited during a one-week period. All fry hatched from the one-week spawn are counted for the purpose of satisfying the requirements of the BAP. The final verification date would be 60 days after hatching.

4. Eggs must be spawned by the breeder's own fish, not obtained from another breeder and then hatched.

5. Any fish not included in the categories or which you feel is not adequately covered in existing categories will be assigned points by the BAP Committee upon written request. This request must be made prior to the awarding of points.

6. Following a successful spawning, it is the breeder's own responsibility to see that his points have been properly recorded.

7. The requirement for ten (10) fry can be waived by the Committee for a fish which produces spawns of less than that number.

Categories:

The 16 categories and their breeding point values are as follows:

Category 1. - 10 points - Any species of livebearing fish.

Category 2. - 10 points - Any mouthbrooding cichlid except those in Category 10.

Category 3. - 10 points - Any species of cichlids except angels discus, rift-lakes, oscars, or those known as dwarf cichlids.

Category 4. - 10 points - Any species of danio or brachydanio or any species of goldfish or koi carp.

Category 5. - 10 points - Any species of barbs.

Category 6. - 10 points - Any killifish that is not a bottom spawner.

Category 7. - 15 points - Any species of anabantoid other than Betta splendens or Chocolate gourami.

Category 8. - 15 points - Betta splendens.

Category 9. - 15 points - Any species of fish known as dwarf cichlids.

Category 10.- 15 points - Any endemic rift-lake cichlid.

Category 11.- 20 points - Any species of angel fish.

Category 12.- 20 points - Any species of catfish.

Category 13.- 25 points - Any species of bottom-spawning killifish.

Category 14.- 25 points - Any species of characins (primarily tetras).

Category 15.- 30 points - DIFFICULT SPECIES (See following page).

Category 16.- 50 points - TARGET SPECIES (See following page).

The DIFFICULT SPECIES LIST is a list of species whose spawnings have been recorded, but can still be considered rare or difficult. At the present time the categories are as follows:

1. Any species of Discus (Symphysodon).
2. Neon Tetra (Hyphessobrycon innesi) or Cardinal Tetra (Cheirdon axelrodi).
3. Any species of Hatchet fishes (Gasteropelecidae).
4. Kissing Gourami (Helostoma temmincki).
5. Any species of Silver Dollar or Piranhas (Serrasalmus, (Rooseveltiella, Pygoncentrus, Metynnis, Mylossoma or Myloplus).
6. Any species of Rasbora.
7. Any species of Puffers (Tetraondontidae).
8. Any species of Whiptail Catfish (Loricaria).
9. Butterfly fish (Pantodon buchholzi).
10. Any species of Leaf fish (Monocirrhus, Polycentropsis, or Polycentrus).
11. Any species of Glass fish (Centropomidae).
12. Any species of Half-beak (Hemiramphidae).
13. Four-eye (Anableps tetrophthalmus).
14. Any species of Sticklebacks (Gasterosteidae).
15. Spotted Headstander (Chilodus puntatus).
16. Chocolate Gourami (Sphaerichthys osphromenoides).
17. Oscars (Astronotus ocellatus).
18. Non-designated species (a difficult species of the breeder's choice may be substituted for one of the above 17 categories. In order to qualify a species for this award, the breeder must submit a written request to the Committee for approval. It must be approved no less than one month prior to the spawn. The request must include the breeder's reason for considering this species one of the more difficult to spawn).

The TARGET SPECIES LIST is a list of aquarium species whose spawnings have not been reliably reported to the home aquarist.

At the present time the list is as follows:

1. Red-tailed Shark (Labeo bicolor).
2. Any species of Plecostomus.
3. Dwarf Loach (Botia sidthmunki).
4. Glass Catfish (Kryptopterus bicirrhus).
5. Any species of Scats (Scatophagus).
6. Any species of Headstanders (Anostomidae) except Chilodus punctatus.
7. Any oviparous species of fish naturally found exclusively in salt water.

Proof of Spawning:

Proof of Spawning is defined as follows:

1. For all categories, submit breeder's award form to the BAP Committee. Any spawning claims may be investigated at any time by the Committee.
2. The first verification and inspection for all categories of breeding phase must be performed within 10 days of mating (for killifish, beginning of hatching) by a visit to your home. For 10-point fish this can be done by any club member in good standing; all other categories of fish must have this verification and inspection performed by a BAP Committee member.
3. The second verification and inspection for all categories must be done by a BAP Committee member. The fry must be 60 days old at the time of inspection. This may be accomplished by bringing 10 fry to a general meeting.
4. The entrants, for 15-point and above categories, must submit a summary of spawning procedures, either orally at a regular general meeting or written for publication in the Delta Tale. Contact the BAP Chairman.
5. The entrants, for 25-point and above categories, in addition to the above, must notify a BAP Committee member within 48 hours of breeding (or beginning of hatch for bottom-spawning killifish).

The Committee:

The Committee shall consist of at least 3 members in good standing of the Potomac Valley Aquarium Society. The Committee Chairman shall be appointed by the President of PVAS. The Chairman shall appoint the balance of the Committee. The Board of Governors must approve all appointments.

Function and Authority of Committee:

The Committee shall oversee and enforce all rules and regulations governing the Breeder's Award Program. Among these are: Verifying and awarding points to qualifying members, keeping proper records of awards, making proper awards to qualified members, reviewing the rules and regulations at least once a year for possible improvements, and reporting to the Board of Governors.

Special rulings may be requested in writing of the Committee. Appeals to these rulings may be referred to the Board of Governors and may be modified by a two-thirds majority.

Changes and Modifications of the Rules:

From time to time the Committee may feel that certain changes or modifications in the rules may be advisable. The Committee will adhere to the following procedure should it wish to make any changes or modifications. No changes or modifications will be retroactive.

1. A date for the change or modification is chosen by the Committee.

2. The proposed change with the effective date will be published in a conspicuous manner in the Delta Tale at least three months preceding the effective change.

Points or Awards Earned by Committee Members:

Any member of the Committee wishing to claim points must secure confirmation in the approved and customary manner. In addition, he must secure the confirmation of at least two members of the Breeder's Award Committee, in the case of the Difficult and Target Species.

CLARIUS CATFISH

By: Ted Walsh

If you have a big Clarius Catfish that continually climbs out of his tank, I have the solution. Mine would climb out of his tank in the middle of the night and would continually "meow" until I would get up and put him back in his tank. I think he was sleepwalking. I got tired of the nightly routine so I hung a ladder on the side of his tank. Now he climbs back up himself and I am able to get some sleep.

WAVES FROM THE CORAL REEFS

ACCLIMATING NEW FISH

By: Bob Fenner
San Diego Tropical Fish Society

Reprinted from the Progressive Journal, vol. 2, no. 4, Feb. 1975.
(Prog. Aquarists of San Diego, P.O. Box 16326, San Diego, CA 92116)

When placing fishes into a new environment, there arises the possibility of physical, chemical, biological, and social shock. This article will deal with the avoidance and reduction of these stresses.

PHYSICAL:

To many fish, even a small change in temperature over a short period of time is detrimental. Thus attempts are made to equalize the temperatures in the new and old environs.

Most often this is done by floating the plastic bags the fishes are transported in in the aquarium. This process should continue for 10-20 or more minutes, depending on the amount of water shipped, the temperature difference, etc. It's often a good idea to monitor the temperature in both environments.

Opening the floating bag usually reduces surface area and therefore gaseous exchange. Keep this in mind and maintain some surface area in the bag and/or add a mechanical aerator (like an airstone) while adjusting for temperature.

[EDITOR'S NOTE: There is recent evidence that just floating fish in sealed bags can cause suffocation of the fish in the bag. This can occur because when the bag is in the water, harmful gases produced by the fish cannot get out of the bag into the surrounding water. (When the bag is in the air, these gases can escape through the plastic--but not when the bag is in the water.) So it is a good idea to open the bag, as Bob suggests, and add an airstone while waiting for the temperature to adjust.]

It is also important that the aquarium lights be turned off during this time--especially incandescent lights. They will heat the water in the bag too much and too soon. This decreases gaseous exchange, increases metabolic rate, scares the fish, and in general cooks the fish. This is especially important for many tropical marine fishes, as they are intolerant to sudden or wide temperature variations or photo-shock. These are best transported in opaque containers, as in two bags with a piece of paper between them.

However, if the new fishes are under a lot of stress, they are often better off being released immediately. Allowing the temperature to adjust is not so important if the water they are being moved into is warmer. Shock from a sudden temperature drop causes a great deal more harm than a sudden temperature increase.

CHEMICAL:

Usually water from one source to the next is pretty different chemically. The ways and degrees it's different are sometimes important determinants in the succesful introduction of new fishes.

On arrival, after floating or using other means to adjust temperature, it's often a good idea to try to reduce some of the chemical shock by mixing water. If you can trust the water, puncture the bag and/or open it up. Let a little water in, a little out, a couple or three times every couple or three minutes before release. But, a note about putting the new water into an established system. IF IN DOUBT, COUNT IT OUT. Especially in saltwater systems, the risk of introduction of chemical pollutants or undesirable organisms is not worth it.

If you don't trust the water, after acclimating temperature-wise, add about one-fourth the amount of water already in the bag from the tank at the same rate as above and finally dip out the fish with a net and discard the mixed water.

BIOLOGICAL:

There are three major components to a fish's health. A) Its initial condition. B) The suitability of its environment. C) The virulence of infectious organisms.

A) When you acquire a fish make sure it's in good health, eating, and happy. Buy from a reputable dealer. Don't buy a skinny fish, especially one that is thin-headed. In salt water, in most cases, avoid a fish whose fins are up, or one whose fins are down for freshwater.

B) Most people's aquaria are ecological messes. Check for the requirements and compatibility of the organisms in your care. You determine their world. For example, the tap water in San Diego is very hard and alkaline, and many of the small South American characins can't stand "new" water, so wait two or three weeks to put them in.

C) For most people, it's hard to tell when they're adding an undesirable micro-organism. Keep your eye on the above factors and you shouldn't have trouble. Remember, never add to a tank in which there is already a problem.

SOCIAL:

It's often important to note the order in which the fishes are introduced, in what numbers, and their size and type.

Many cichlids, for example, are easily crowded or undercrowded but not in between. Among possibly aggressive tankmates, it's best to provide adequate hiding spaces or to separate newcomers for a while with a divider or breeding trap. Often, if you introduce a meaner fish after its fellows, it will behave less aggressively.

With many fishes, the sex ratio is important--for example, many livebearers. Small schooling fishes (many characids, rasboras, danios, barbs, etc.) should be kept in small uneven numbered schools (3, 5, 7, etc.).

Sometimes if the fishes "grow up together" they get along well, even though normally one would be food for the other.

In terms of temperament, however, always allow for some individual variation.

In closing, it should be admitted that if the fishes are in good shape and the environment not too unsuitable, you could throw them into their new homes with little ill effect; but with proper acclimatizing there is minimization of injurious factors.

SOME RESEARCH AND OBSERVATIONS ON JULIDOCHROMIS MARLIERI

By: Susan P. Sprague, PVAS

The cichlid genus Julidochromis is another one of those groups of fishes from the now famous Rift Lakes in Africa. "A rift system is characterized by intermittent uplifting and sinking which produces faulting. These huge parallel faults result in the formation of broad valleys flanked on each side by steep fault scarps. The valley is called a rift valley or graben..."[1] Lake Tanganyika is one of these rift valleys that has filled with water. This is the lake from which the Julidochromis come.

Lake Tanganyika is over 4000 feet deep and covers an area of approximately 12,700 sq. miles making it the 7th largest lake in the world. The normal surface pH is 9.0 and the temperature is normally around 27°C (81°F). This lake does not have an annual turnover. "The low temperature variation of the lakes (the African Rift Lakes) prevents the lakes from 'turning over' annually as do the American Great Lakes. Turnover would bring up nutrients from the bottom and oxygenate the depths..."[2]

Most of the genera in this lake, including Julidochromis, are endemic meaning they are found no where else in the world. Julidochromis prefer to frequent rocky areas. According to an article by Pierre Brichard in the May 1973 issue of Tropical Fish Hobbyist: "They never venture very far from their shelters over open expanses of water or sand." The Julidochromis also have a unique way of swimming. When they are near a given surface, they tend to swim parallel to that surface. It is not unusual to see them upside down under a rock or under floating plants at the water surface.

Now my personal observations of Julidochromis marlieri. I acquired six young (2-3 months old) J. marlieri from the Winter Weekend Workshop at Atlanta, Ga. in February 1974. They were approximately 1/2"-3/4" in total length (TL). The fish were housed in a 29 gallon tank with Tanganyikan salt added at 1 tsp./gal. of water. All kinds and sizes of rocks were used for their home caves. For the next year various other fish were added to or deleted from the Julidochromis tank depending on other tank space. Each time someone was added or removed, the rocks were changed around. The Tanganyikan fishes are very territorial. In order to minimize possible damage to newly introduced fish, new territories should be established so each fish has a chance to find a home. Water was changed very sporatically but never very much at one time because as Rosemary Lewis expressed it "interference with the tank set-up while changing water, etc. seems to trigger aggressive behavior..." [3]

The first spawn that I'm aware of occured around April 1975. One night a quick flash in the 29 gallon tank caught my attention. I thought I must be seeing things but upon closer examination and much patience, I was able to glimpse an approximately 1/4" J. marlieri fry sitting upside down under a piece of tuffa rock. At the

time the six J. marlieri adults, one T. bifrenatis, and one J. ornatus were residing in this tank.

Over the next week or so I thought I could count 6 fry at one time which usually means there are more hiding where you can't see them. A few weeks after this I seemed to have a population explosion. Many more fry were seen at one time but they appeared to be two distinct sizes so I guessed another spawning had taken place.

During this time I periodically put some live baby brine shrimp into the tank but without much regularity. As the fry got older, I could see them grazing on the thick algae that covered the top rocks and the back of the tank. Although feeding of special foods can be beneficial, I don't feel it is necessary if the young have some algae to feed upon. I removed the young from their parents in June and counted 55 fry approximately 1/2"-3/4" TL.

I have had two other spawnings since those in April and May, 1975. One batch of fry were found in August after I discovered one of the larger J. marlieri, a female of 3" TL, dead. I broke the tank down and moved the rest of the J. marlieri adults into a 40 gallon tank. To my surprise I unearthed 10 newly swimming fry. They were left in the 29 gallon tank by themselves.

The fourth spawning was just recently discovered in the 40 gallon tank. There are numerous rock caves in there with the 5 original J. marlieri plus 5 more born in August 1974 to another pair. There are also a 3" J. regani and a 1-3/4" J. ornatus in that tank. I noticed something strange was happening becuase about 8 fish were always hanging above the rocks unless extremely frightened. This behavior is not normal for this tank where the fish are usually swimming amongst the caves. I finally found 3 babies upon closer examination with a flashlight. The parents are keeping the others out of the way of their babies for the moment. I had noticed in the 29 gal. tank with the 1st two spawns that after the babies had grown to between 3/8"-1/2" TL that they were interspersed with all the J. marlieri in the tank with no apparent threat to their lives from anyone.

I have not kept very accurate records on the spawnings. I know that the temperature has ranged from 75^0-82^0F depending on the season of year. The pH is normally around 7.4 to 7.6 but eith little water being changed it has gotten as low as 6.8. The last time I checked hardness it was 190ppm with the local tap water being about 90ppm.

As far as a general description of the fish is concerned, J. marlieri is a torpedo-shaped cichlid with a basic body color ranging from beige to white. Over this there are 4 horizontal black stripes with 8 or 9 vertical ones crossing the horizontal stripes. The dorsal has a checked pattern with a white band and black stripe edged in blue. The pectorals are yellow. [4] Sex differentiation

is difficult with the exception that upon maturity some (maybe all) male Julidochromis marlieri "...possess an obvious genital papilla."[5] To me it looks a little like the gonopodium on the males of live-bearing species. I only see the fleshy outcropping when I have the fish out of water and upside down.

I have not actually witnessed a spawning nor have I seen the eggs though I have read that the eggs are green. I always find the fry when they are already free-swimming. According to an article by Sam DeFazio: "The female instigates the spawning, forming an exaggerated figure "S" with her fins spread in an attractive fashion and the tell-tale leading gestures of the female towards a suitable breeding site. The male will nibble rapidly at the female's genital papilla. Actual spawning takes place after this procedure is repeated dozens of times and a somewhat reluctant male responds. This appears to be standard behavior at spawning in all species of Julidochromis."[6] I have noticed that when I set up rock caves so that I can see the eggs, the fish never spawn. When I make the caves more secretive and the fish settle down after a change, I will eventually find some fry.

I can not say enough good things about Julidochromis. As Sam DeFazio so eloquently states: "Certain groups...possess those qualities which will make them enduring--namely unique pattern, bright color, manageable size, fascinating habits and incredible grace of motion--one of these groups is the genus Julidochromis."[7]

[1]Gary T. Tevendale, "The Rift System of East Africa," Buntbarsche Bulletin, p. 32, July-August 1975.
[2]Robert Goldstein, Ph.D., Cichlids, p. 85.
[3]Rosemary Lewis, "And While We're On The Subject Of Julidochromis," Buntbarsche Bulletin, p. 22, March-April 1975.
[4]Pierre Brichard, "The Julidochromis Species of Lake Tanganyka," Tropical Fish Hobbyist, p. 94, May 1973.
[5]Samuel DeFazio, "Sexing the Genus Julidochromis - by their Behavior," Buntbarsche Bulletin, p. 14, September-October 1974.
[6]Ibid., p. 15.
[7]Ibid., p. 16.

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LOCATING FISH LITERATURE SOURCES

By: John Bondhus
Reprinted from The American Currents, Jan-Feb 1975

One of the big advantages of studying our native fish is that there is a tremendous amount of literature available on almost every species but unfortunately most of our members are unaware of most sources of this literature. This article hopes to give you some suggestions on locating some of these articles.

If you can pick up the average scientific article and find 90% of the listed references in the bibliography, this article will probably not help you. If not, you probably are not even aware of the tremendous volume of literature available. Do you realize there are 5,000 or 10,000 scientific journals (journals are scientific periodical magazines) and several hundred specifically on fish and aquatic subjects. In addition, there are hundreds of local club bulletins and hundreds of magazines related to keeping fish, fishing, and conservation. In securing facts, the scientific books and journals are the most reliable and least repetitious so these should be your most often used references and the bulk of this article will deal with finding them and the thousands of scientific books and government publications on fish related subjects.

Before you can look up a reference source, you must locate good libraries to find these references. Your local city library is not a good source even if it is a large city library but in some cases some information can be found there, particularly information in popular magazines such as T.F.H., Field and Stream, Outdoor Life, Audubon, National Wildlife, etc. and some of the more common state reference books and hobbyist books.

The most valuable library source would be a large university library especially if the university offers courses in fish study. If you have several universities in your area, begin by studying a college entrance guide book to locate the best potential libraries. In these guide books (available at book stores and local libraries), you can determine the type courses offered and the approximate size of the library. Most small colleges do not offer many fish related courses so their value would be much less than a major university.

Other good library sources are State or Federal Fish and Game Dept. libraries, State and Federal Research libraries, Natural History Museum libraries, Major Aquarium libraries, and Government Hatchery libraries.

One good way to locate good libraries in your area is to refer to the American Fisheries Society membership directory. In this directory there are over 500 U.S., 90 Canadian, and 150 foreign libraries which are receiving the Transactions of the American Fisheries Society Journal. This journal and Copeia, Progressive Fish Culturist, and the Journal of the Fisheries Research Board of Canada are all very often quoted in technical articles and together probably make up 25% of the articles referred to. Thus, a

library worth its salt in fish articles should have back issues of all four of these journals especially the Transactions which is probably the best single reference on scientific articles on our North American fish.

If you can't find a copy of the A.F.S. Membership directory, you can get one by becoming a member of this society by writing to American Fisheries Society, Fourth Floor Suite, 1319-18th St., N.W., Washington, D.C. 20036 or write to me and I will get you the names of libraries in your area.

Other sources of technical literature are available by writing direct to the publisher of recently published articles or writing to a book store dealing in Natural History books. Some suggested dealers are Pierce Book Store, Winthrop, Iowa 50682 and Eric Lundburg, Augusta, West Virginia 26704. Write to them for a catalog.

In addition, back copies of Journal articles are available from Copeia by writing to the American Society of Ichthyologists and Herpetologists and some back issues of the Transactions of the American Fisheries Society can be obtained from this Society.

A possible source of Aquarium Hobby journals is available by writing to Frank Fuqua our editor who collects these journals or by contacting another collector of hobby journals. Also not to be overlooked is our own NANFA library which is attempting to collect copies of the various Fish Club Bulletins across the country, something that none of the scientific libraries are doing.

Once you have located a good library, the next step is to learn how its books and articles are filed. In a large library such as the University of Minnesota, its books are divided into several smaller libraries such as a geology library, a medical library, an entomology and wildlife library, an agricultural library, etc. with most of its fish articles and books located in the entomology and wildlife library. In a library of this size, it uses a book of journals and publications just to tell you which library to look in for a specific reference journal.

The entomology library is classified three ways. The books and miscellaneous articles are classified according to the Dewey Decimal System and referenced according to a card catalog. The journals are filed alphabetically by journal and are found by referring to a journal indes and the state and province publications are filed alphabetically by state.

Every library is different and the best way to become familiar with it is to ask the librarian for help when you have difficulty locating a source. Do not assume the reference is missing until you talk to the librarian. Even if it is missing she may be able to locate it for you through an inter-library loan if it is an important reference to you or you may be able to purchase a photocopy of it from the other library if it is very rare such as a P.H.D. Thesis where only one school may have a copy.

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At any rate, once you have located a good reference library don't be afraid to ask for help (many libraries receive their budget partly based on usage and requests for help looking up references) and don't be afraid of being unwanted at the library. If it is a government financed library, you paid as much for it as the next guy and in most cases have a right to visit it.

In some cases, you may even be allowed to check out books there. When you ask for a library card though, don't ask the person who checks out books at the counter, see the head librarian to find out if you can get a library card. Explain your difficulty at finding reference books any other way and that you are interested in doing scientific research on something and a library card is the only way you can do the research and if you present your case right you may get lucky and get a special privilege card like I did at the University of Minnesota.

After you become familiar with the library and how to find its books, you will need to become familiar with the various bibliographical references and abstract journals such as Zoological Records, Biological Abstracts, Sports Fishery Abstracts, World Fishery Abstracts, Deans Bibliography of Fishes and specialized bibliographies to the field of interest you are working on. Ask your librarian to show you these if you can't find them and by studying them for a few minutes you will quickly see their best uses.

In addition I would like to suggest you read the following references.

1. Guide to the literature of the zoological sciences. By Roger C. Smith, published by Burgess Publishing Co., 426 South Sixth St., Mpls., MN 55415.
2. Handbook of Freshwater Fishery Biology. By Kenneth Carlander, published by the Iowa University Press, Ames, Iowa.
3. Freshwater Fishery Biology. By Karl F. Lagler, publighed by Wm. C. Brown Co. Publishers, Dubuque, Iowa.
4. Fish and Fisheries Literature Resources: An Annotated Bibliography by Lora I. Kelts and Janet I. Bressler in Transactions of the American Fisheries Society, 1971, Vol. No. 2 pp. 403-422.

Kordon DIET 15 *is a scientifically formulated combination of natural food elements designed to provide the finest basic diet for all tropical aquarium fishes. Primarily a staple flake food,* DIET 15 *is a blend of diets which supply all the essentials for excellent health.*

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NOVAQUA AIDS IN THE FORMATION OF A PROTECTIVE SLIME COATING ON FISH wherever the natural coating is lost or weakened. NOVAQUA contains a binary polymeric colloid system that adheres to the fish's skin until it is displaced by the fish's natural skin-slime.

NOVAQUA ADDS ELECTROLYTES which are important for proper osmotic regulation and the prevention of osmotic shock in fish that have been placed into a new environment, or that are being stressed by shipping or handling.

NOVAQUA CONTAINS A BUFFERING SYSTEM for freshwater that helps correct conditions that are either too acid or too alkaline. While this buffering system is not permanent, it is present during the time of maximum stress and is one more factor that assists fishes during acclimation.

NOVAQUA should also be used to DECHLORINATE NEW WATER. NOVAQUA will effectively dechlorinate even the most strongly chlorinated municipal waters.

NOVAQUA also HELPS TO DETOXIFY WATER that contains heavy metals such as mercury, lead and copper.

During the netting and transportation of fishes, part of a fish's protective skin-slime is often rubbed off and further damage in the form of cuts and scratches frequently occur. Even the finest mesh net will remove a fish's skin-slime and loss of this protective coating allows invasion by disease causing organisms. NOVAQUA helps prevent infection by adhering to those places where the natural skin-slime has been removed.

NOVAQUA can be used to help prevent shock and disease due to the stress of capture, transportation, or introduction into a new environment. Stress also tends to weaken a fish's natural immunity responses, allowing pathogenic organisms to successfully invade the fish and cause disease or death. While NOVAQUA is NOT a medication, it will assist the fish in overcoming stress and its effects. NOVAQUA is nontoxic to all aquatic life.

Each ounce of NOVAQUA will properly condition sixty gallons of fresh or salt water. One gallon will condition over 7,600 gallons. Considering all of NOVAQUA's benefits, it is easy to see why NOVAQUA is the most economical and useful product available to the aquarist, fish dealer, and professional breeder.

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