

* DELTA TALE *

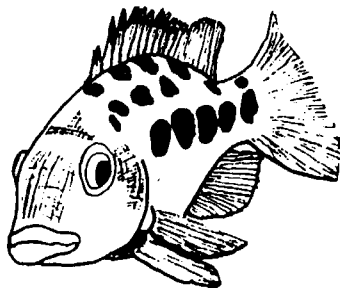
AUGUST 1983
VOL XIV No. 7
Fifty Cents

OFFICIAL PUBLICATION OF

potomac valley aquarium society

KREBENSIS BEHAVIOR

REPRINT OF AWARD WINNER



SUPPORT BAP

BOWL SHOWS

POTOMAC VALLEY AQUARIUM SOCIETY



POST OFFICE BOX 6219 SHIRLINGTON STATION ARLINGTON, VIRGINIA 22206

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PVAS BOWL SHOW STANDINGS

	Month	Cichlids Quarter	Year
Ray & Lisa Krause	6	6	35
Amy Stirman	0	0	27
Frank Angilletta	0	0	17
Don & Debbie Plonkey	0	0	10
John Mangan	0	0	10
Mark Steele	0	0	6
Pat Mahoney	0	0	5

Egglayers/Livebearers

John Mangan	27	27	78
Frank Angilletta	0	0	51
Garland Neese	0	0	14
Jack Coffman	0	0	9
Judy Williams	0	0	6
Jim Long	0	0	5
Amy Stirman	0	0	4
Michelle Mangan	0	0	4
Don Plonkey	0	0	3
Ray and Lisa Krause	0	0	1

Thanks to John for judging. Congratulations to Ray and Lisa for winning the quarterly Cichlid Trophy. We've just started a new quarter so the next two trophies are up for grabs. Anyone has a chance to win. All you have to do is BRING FISH. The categories were listed in last months Delta Tale so you don't have the excuse of not knowing what to bring.

John Mangan
Bowl Shows



MONTHLY BOWL SHOW AWARDS

JULY 1983 BOWL SHOW RESULTS

JUDGE-- John Jessup

CICHLIDS

NEW WORLD MEDIUM

1st. Ray and Lisa Krause, Firemouth

HAPLOCHROMIS

No entries

OPEN

EGGLAYERS/LIVEBEARERS

GUPPIES

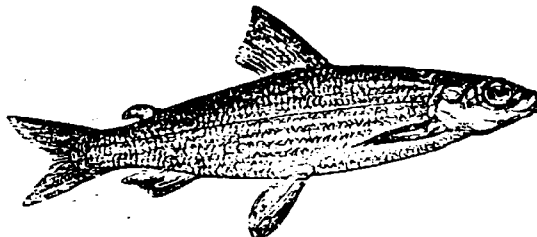
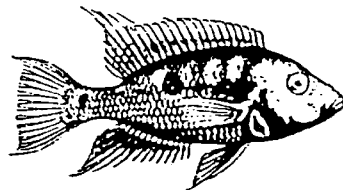
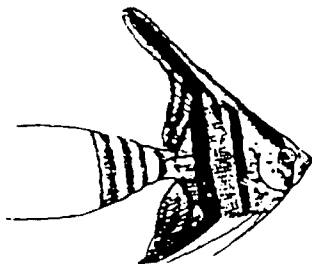
1st. John Mangan, Gold Guppy
2nd. John Mangan, Gold Guppy

BARBS

1st. John Mangan, Filamentosa Barb

OPEN

1st. John Mangan, Unidentified Loach
2nd. John Mangan, Characodon Lateralis
3rd. John Mangan, Skiffia Francesae



KRIBENSIS BEHAVIOR

(Editor's Note: PVAS Member Mark Steele prepared the following paper as part of a class project. It won him a trophy as first place in the PVAS Spring Show and we're betting his grade on the project was acceptable-- A+++ as we see it).

Cichlids are frequently the subjects of behavioral studies of fishes. This is largely due to their extremely interesting and unique behavior. The care that many cichlids exhibit towards their offspring is unique in the world of fishes, and is exceptional when compared to nearly all other organisms. In fact, humans should be envious of the care parent cichlids bestow upon their young. Along with wonderfully interesting behavior, cichlids are easily maintained and most species can withstand a comparatively wide range of water conditions. Also most cichlids will breed readily in captivity if reasonable conditions prevail. Most species of cichlids are beautifully marked and many are fairly easily obtainable. All of these factors combined make a very desirable family of fishes, lending themselves to experimentation.

All of my behavioral observations are on the kribensis, *Pelvicachromis pulcher* (formerly *Pelmatochromis kribensis*), unless stated otherwise. The kribensis originates from the lower range of the Niger and Kribi Rivers, in Africa.¹ The kribensis is a hardy fish which attains a size of about 10 cm for males and about 7 cm for females. They are very beautiful fish, especially when they are courting. The kribensis was originally imported into the U.S. in 1952 and nearly all of them available today are descendants of this original stock.² Recently an albino variation was made commercially available. I will be discussing my experiences with it too.

The kribensis is quite intelligent for a fish. It is quite deliberate in its movements and always seems to have a purpose for its movements. It usually moves fairly slowly except when frightened. In this case the adult kribensis will head for cover as rapidly as possible. This is done very quickly for an aquarium fish. This cover could be such things as stones, wood, a broken flower pot or plants. The kribensis is easily frightened and any quick movements around the tank may scare it.

The kribensis can be a real glutton at certain times, but at other times it can be extremely finicky. Kribensis appear to enjoy live foods the most, items such as live brine shrimp and live black worms, but they will usually accept other types of food, like frozen bloodworms, freeze-dried brine shrimp and flake foods. When conditions are good they will accept a wide variety of foods eagerly, and will usually come to the feeding station and may even be taught to take food right from their owners fingers. If conditions aren't satisfactory, usually they will not venture far from cover in search of food and they will probably be much more picky, accepting only live foods and occasionally frozen foods. When courting, the kribensis appetite is especially large. When caring for eggs and fry, the adults are more finicky about their food, and their appetites are greatly subdued. When actively feeding, the dominant male will try to keep subordinate males from eating. This is also true of females, with the dominant female attempting to keep all other females from eating. During feeding, this aggressive behavior is only rarely directed towards the opposite sex, and this seems only to happen when the fishes are very hungry.

Kribensis are very territorial and extremely aggressive towards their own species. Adults are especially aggressive towards conspecifics of their

own sex. When members of their own sex are present, nearly all aggression is directed at these individuals. This is mainly due to competition for mates and breeding sites. Much of the aggression that occurs is preluded by displays. These include the displaying of intensified colors (especially red), holding fins erect, strong jerks and the tail stroke (also known as tail-beating). This may be followed by extreme aggression, and if the tank is too small, it might even lead to death, although I have never observed that to occur in my tanks. Once the kribensis becomes sexually mature, it will stake out a territory. Protection of this territory becomes the fish's primary interest. This is only true of the male however. A female will attempt to be accepted into a male's territory, or if there is enough space and she is not in breeding condition, she may procure a territory of her own, but it will not be guarded nearly as fiercely as that of a male. A male kribensis will do everything he can in order to keep another male out of his territory. This will at first consist of threatening gestures, such as rushing at the intruder but stopping short. If this tactic fails, the intruder may be nipped at, the flank is usually the first target, but if the intruder is still not frightened off, the fins and eyes may be attacked. This can cause a great deal of harm possibly even death. If the two fish are nearly the same size, it is quite likely that he will show aggressive and damaging behavior towards the "owner" of the territory in question. If the challenger decides that he is inferior, he will appease the other male by fading his colors, folding his fins, trying to appear as small as possible and by moving slowly and stealthily. If a female has set up a territory, which is usually comparatively small, and another female enters, it will be driven out, but not nearly as aggressively as is the case with males. If a female who is not ready to

spawn enters a male's territory, she will usually be driven out but without much aggression. If a male enters a female's territory, he will usually be accepted, but he may end up driving the female out. This behavior applies to all mature non-breeding *kribensis* that I have had experience with.

I define courting as seeking the acceptance of the opposite sex. This is mainly carried out by the female. It is mostly done by the use of displays and relatively little aggression. One advantage to forming a pair is the ability to protect more territory. The male which has already staked out his territory is able to increase the size of his territory by sharing it with a female and letting her protect it, and while doing this he can also spawn with her, thus accomplishing two things of major importance. The male is actually not very selective when it comes to choosing a mate. As long as the two fish are at the same points in their reproductive cycles they will almost always be compatible. Being in reproductive synchrony is of great importance, for if two cichlids of the same species and opposite sexes are placed in a small confined aquarium and their reproductive cycles are not in synchrony, the female will almost always end up battered or even dead.³ This is because most female cichlids are smaller than males of the same age. This applies to *kribensis*, too, but I have never had a male kill a female. It is also important that the female doesn't feel stronger than the male, or the male doesn't feel weaker than the female. If this condition exists they will not spawn.⁴ This is rare though, because at maturity the female *kribensis* is much smaller than the male.

Pairing is usually initiated by the female, with her entering the male's territory, which usually includes a suitable spawning site. This occurs when the female is ripe with eggs and feels the urge to rid herself of them. At this time her belly is bright red. She approaches the male and bends her

body into a U-shape and exposes her bright red, convex flank to the male. The female may then swim a semi-circle, in this position, in front of the male's face. This is usually accompanied by short strong jerky motions on the female's part. The male may make similar motions and he may nip at her a bit. The female may flee and then return and go through the same ritual many times, but she will eventually, in most cases, be accepted by the male. The bending of the body and the short strong jerks are said to be a refinement of the tail-beating behavior exhibited, between opposite sexes, in other species of cichlids.⁵ The bright red coloration of the female is supposed to have a bite-inhibiting effect.⁶ The whole ritual is said to have the effect of appeasing the male, who is generally fairly aggressive.⁷ During much of the ritual the female's fins are fully erect, making her quite magnificent.

If courtship is successful, and a pair is formed, they will go to the spawning site the male has already chosen, and they will begin to excavate gravel. It often seems as if this has no purpose since caves to spawn in are already provided, but in nature the *kribensis* makes spawning caves by hollowing out a spot to spawn under a rock or log.⁸ Most of the digging is done by the male, but the female participates too. The excavation is accomplished by carrying mouthfuls of gravel away from the site and dumping them. This often creates large piles and causes rocks to cave in. The choosing of a spawning site prior to pairing is not unique in cichlids, but there are many species of cichlids, such as angelfish, which first form a pair and then choose a spawning site. At this point the pair may decide to increase the size of its territory. All female *kribensis* which cross the new territorial boundaries will be attacked or in some manner repelled. Likewise, all males which violate

the new boundaries will be repelled by the male. If two pairs are present, both trying to expand their territorial claims in a limited area, a sort of give and take situation will exist in which neither pair ever permanently gains any territory, as long as each male is nearly equal in strength and the same applies to females. Having conspecifics of the same sex present provides the exact target fish for each member of the pair to take its aggression out on. Thus the aggression of the pair is directed outwards instead of inwards at each other. Aggression is re-directed and an optimum situation exists. When this aggression is taken out, it is usually preceded by displays. Displays of colors greatly intensified, fins spread as wide open as possible and big strong jerks. These jerks are known as tail strokes. This is when water is pushed up against the lateral line of the fish (a very sensitive area) by a stroke of another fish's tail. This appears to provoke a great deal of aggression between members of the same sex. In some other cichlids, the female does this to the male to appease him.⁹

Once the pair decides that enough gravel has been moved, they will go about cleaning the object upon which the precious eggs are placed. The object may be a rock, a flower pot, a piece of driftwood or any other similar object. The object is cleaned of any debris, algae, or other foreign matter. The cleaning itself is accomplished by first fanning the object with the fins and thereby mouthing it and scraping off unwanted items with their teeth. When the object is satisfactorily cleaned off, spawning will commence. The female will take a few false runs over the object, rubbing her ovipositor against it, before the eggs start to emerge. Upon emergence, the eggs immediately adhere to the object. The female will lay a row of eggs and then let the male swim over them and shed his milt on them. The female will lay row after row of eggs, without ever

placing one in contact with another. This cuts down risk of loss due to parasitism.

When spawning is completed, the parents will begin to fan the eggs. This is done with the fins, producing a current of water which prevents debris from settling on the eggs and harming them. The eggs are also cleaned by mouthing them. The parents will gently nibble at them while they are still adhered without causing any damage to the developing embryos. The parents take turns carrying out these duties, giving each one a chance to rest or eat. Usually the female takes the majority of the responsibility for the eggs and may seldom eat, but this varies from pair to pair. During this time and while the pair are tending newly hatched young, they are very likely to consume the eggs or babies. I do not know the cause of this behavior, but they seem to become better parents as they become more experienced.

When the eggs hatch (after about 2 to 3 days), the young are helpless and cannot even swim for approximately 5 days. The babies are immediately placed in a pit dug in the gravel. They are transferred from place to place. This is supposedly to keep predators from knowing exactly where the babies will be. The young do not eat until they can swim; during the period in between they live off their yolk sack.

Once the fry become able to swim, life gets much more difficult for the parents. The fry, which in this case I define as young which have not reached a point of independence from their parents, need constant protection by their parents so that they will not be eaten by other fishes. This requires the parents' constant attention. The easiest way for the parents to protect their offspring is by keeping them in one manageable school. Any of the fry which stray from the group will immediately be engulfed in one of the parent's mouths

and be spit back into the school. With the school operating as one unit, the pair's extremely difficult job is made easier. If either member of the pair feels that danger is threatening their young, it will make several rapid twitches of its body and ventral and dorsal fins. At this, the fry will immediately drop to the bottom underneath the hovering parent. This is quite an impressive sight. The fry blend in with the gravel perfectly if it is of natural color. They remain on the bottom by contracting their air bladder, making them more dense than water.¹⁰ They can stay there as long as they wish. It would be difficult for a predator to spot the young when they are on the bottom. When feeding, the school of fry will spread out quite a bit more, but it is still a well-defined school and if a parent feels that a certain youngster has strayed too far, he or she will retrieve it. Whenever the parents feel that an intruder has come too close to the fry, one of the parents will attack the intruder. This intruder could even be the owner's hand. They are very devoted parents.

Juveniles, which I define as young which are independent of their parents but have not reached sexual maturity, also exhibit schooling behavior. Juveniles do not school nearly as tightly as fry but they do school. When feeding, there is very little schooling behavior at all. I have never observed any tendency towards schooling in adults. Also adults nearly always stay near the bottom, while juveniles often venture to the surface. Juveniles will learn where the food is dropped into the tank and they will congregate at the surface here when they think that they are going to be fed. Between juveniles there is little aggression, but occasionally one will take an unprovoked nip at another. This never leads to any injury of consequence. When frightened,

juveniles behave nearly exactly the same as fry, but they do not congregate under a parent; also they don't blend in with the gravel as well.

Albinism is a result of a defect in the genetic system of the biochemical pathway involved in producing melanin pigment. If just one gene responsible for one step in this biochemical synthesis of melanin fails to perform its task, the end result, production of melanin, will not occur. This can happen even though the rest of the genes involved in the pathway are normal.¹¹ This lack of melanin causes impaired vision in albinos and extreme sensitivity to light, for it is not there to protect the eyes. Due to impaired eyesight, an albino kribensis would probably not be able to survive in nature, for it would not be able to effectively compete for food. In the artificial environment produced by man, where there is an abundance of food, an albino can survive and even reproduce.

Poor vision was quite apparent in my albino specimens. I observed that out of 100 attempts to catch moving food by my albino kribensis, they were successful only 68 times. Out of 100 attempts by my normally colored fish, they were successful 94 times. Thus the normally colored fish were 26% more effective at capturing food. This could make a great difference in nature, possibly leading to their inability to survive.

I also observed that when exposed to bright light, the albinos always made a mad dash for cover while the regular colored kribensis would head for cover, but they were not nearly as frantic. It also appeared to me that the albinos were much more easily frightened than the normally colored fish. Very slight movements frightened them, while they did not seem to bother their normally colored conspecifics.

For anyone interested in studying the behavior of fishes, I would suggest studying cichlids. They are not only extremely interesting, but they are quite beautiful, too. Not only can it provide an endless source of entertainment, it can be a wonderful learning experience. The sight of a pair of cichlids leading their fry about is most satisfying.

Notes

- ¹ Jorg Vierke, Dwarf Cichlids (Neptune, N.J.: T.F.H. Publications, 1979), p. 64.
- ² Scott Bodie, Confessions of a Fish Doctor (New York: Workman, 1977), p. 187.
- ³ Dr. Paul V. Loisel, "Matchmaking for Cichlidophiles," Freshwater and Marine Aquarium, Dec. 1981, p. 31.
- ⁴ Konrad Lorenz, On Aggression (New York: Harcourt, Brace & World, 1963), p. 103.
- ⁵ Wolfgang Wickler, The Sexual Code (Garden City, New York: Doubleday, 1972), p. 200.
- ⁶ Wickler, p. 200.
- ⁷ Wickler, p. 200.
- ⁸ Vierke, p. 64.
- ⁹ Wickler, p. 199.
- ¹⁰ Konrad Lorenz, King Solomon's Ring (New York: Thomas Y. Crowell Company, 1952), p. 55.
- ¹¹ Dr. Robert J. Goldstein, "The Albino Discus," Tropical Fish Hobbyist, June, 1977, p. 101.

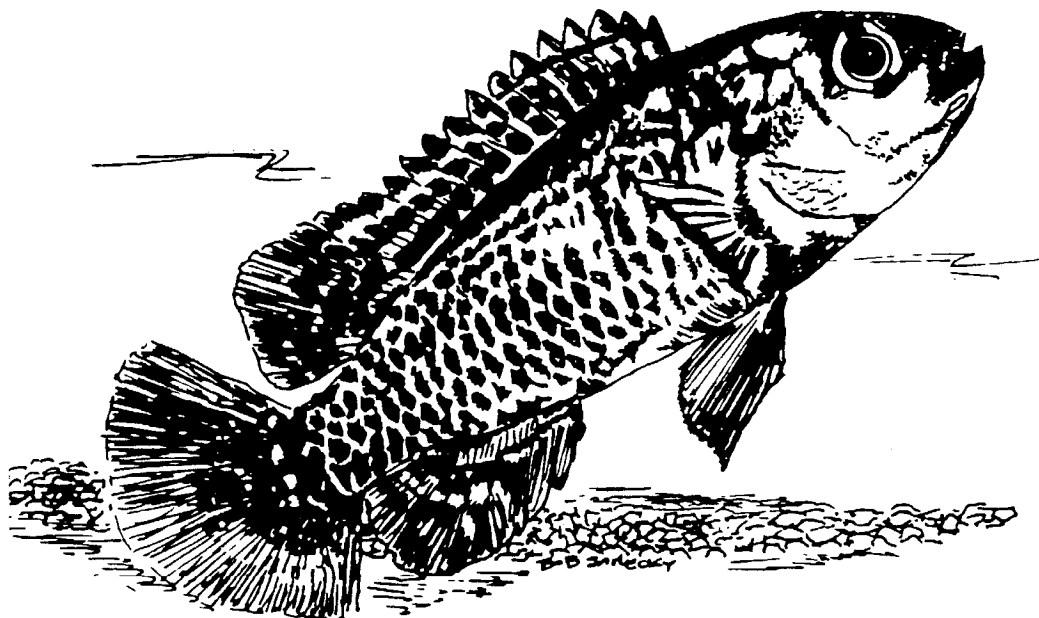
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- Loiselle, Dr. Paul V. "Matchmaking for Cichlidophiles." Freshwater and Marine Aquarium, Dec. 1981, pp. 30-34, 76-79.
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- . On Aggression. New York: Harcourt, Brace & World, 1963.
- Vierke, Jorg. Dwarf Cichlids. Neptune, N.J.: T.F.H. Publications, 1979.
- Weiner, Lawrence A. "The Albino Zebra Spawns." Tropical Fish Hobbvist, Jan. 1977, pp. 12-14, 96-106.
- Wickler, Wolfgang. The Sexual Code. Garden City, New York: Doubleday, 1972.

BREEDERS AWARD PROGRAM

<u>NAME</u>	<u>POINTS</u> (through July 15, 1983)	
Garland Neese	905	++++
Gerry Hoffman	680	++++
Woody Griffin	555	++++
Pat & Maggi Mahoney	625	+++
Darrel Holman	550	+++
John Jessup	505	+++
Vince Edmondson	460	+++
Ruth Brewer	305	+++
Jim Hajdics	275	++
Art Lembke	165	++
The Wagners	165	++
Kenny Warren	90	+
Gene Aldridge	80	+
Tom Wright	80	+
The Thompsons	55	+
Amy Stirman	50	+
Frank Anglilietta	45	+

++++ master
+++ advanced
++ intermediate
+ breeder



FISHROOM VISIT

DELTA TALE a few months ago threatened a surprise visit to the Mahoney's fishroom for this new column... But with Pat in and out of the hospital... we elected not to bug them... then decided maybe our own fishroom TALE should be told first.

The Thompson family runs between 15 and 35 tanks varying in size from 3 gallon to 125 gallons. Currently the roster is one 125-gallon community tank; two 55-gallon (one with firemouths; one with Texas Cichlids); one forty-long with dwarf cichlids (mixed community); two 20-gallon tall, angels in one Keyhole in the other); a thirty-tall (currently occupied by "Pat Albert" an attack gold fish which survived our Arowana to become our break-in-the tank critter; a twenty-long (no fish right now just plants); a 15-gallon (with Elephant Nose) and mixed corys; and four 5-gallons which hold a mixed bag of tetras, killies and hetra andrea. Two utility room tanks are reserved for medical and two 5-gallon tanks are installed in a utility room refrigerator to preserve black worms.

Since Ron travels a lot all tanks have multiple heaters and filters so that in the event of a break-down, Kaye or Binkie can simply kill the marked switch, shutting down the offender without causing massive headaches. The filter cleaning chores are performed as necessary on alternating equipment so a seasoned filter is always in place.

Most all tanks are decorated with plants, varying gravel sizes and rock work. Lighting is flourescent 12 hours per day. Water changes are a strict 25 per-cent per week accomplished by 50-foot hoses. One siphons to a basement drain (or in the summer to the garden) the other is the feed hose which takes tap water through a Bon-Del in line filter and temperature control unit. The utility room also contains elevated 10-gallon drums--one for seasoned fresh water, the other for a 7 percent salt solution used for medical and/or brine shrimp raising.

Other household critters include a dog (that thinks it is a cat) and a cat (that thinks it is a dog) plus a mated pair of cockatiels, and a dwarf parrot (the real boss of the house). Uh.. make that two dogs... Bear is our newest, a four-month-old Akita, that we spend a lot of time watching grow. The hampsters live in the utility room. Strange as it may seem there are few fights or outright conflicts about.

Well, thats a visit to our fishroom (zoo maybe. Anyone can join in this column by writing up your own room (or house) or if invited we'll write it up for you for DELTA TALE...The Thompson Family

THE TREASURY

TREASURER'S REPORT

July 1, 1983

Beginning balance...

\$2,347.13

Income...

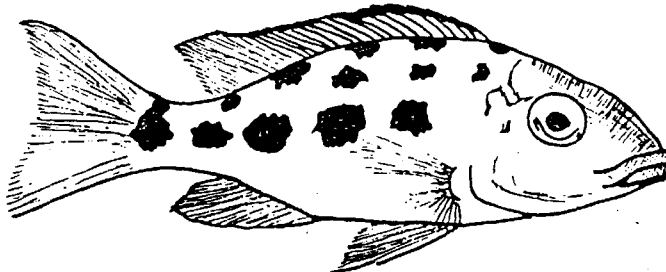
Dues	71.00
Auction bills paid	277.33
June Raffle	10.00
June T-Shirts	10.00
TOTAL	368.33

EXPENSES

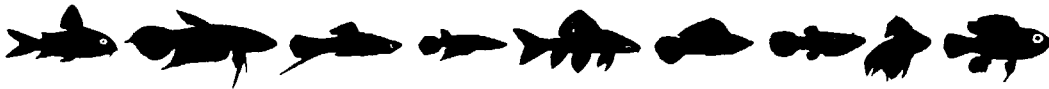
Soft drinks, lunch, Show and Auction	118.53
Washington Post	97.65
Librarian/treasury supplies	42.59
Print June Delta Tale	50.00
Postage June Delta Tale	28.00
ways and Means, Show/Auction	14.74
P.O. BOX Rental	45.00
TOTAL	396.51

ENDING BALANCE

\$2,318.95



POTOMAC VALLEY AQUARIUM SOCIETY



POST OFFICE BOX 6219 SHIRLINGTON STATION ARLINGTON, VIRGINIA 22206

APPLICATION FOR MEMBERSHIP

DATE _____ 19__

NAME _____

STREET _____

CITY _____ STATE _____ ZIP _____

TELEPHONE CONTACTS H _____ B _____

Number of tanks _____ Time in hobby _____

Fish you have spawned _____

What can this club do for you _____

What do you want to do for the club _____

Which sub-groups of fish interest you _____

How long do you plan to be in this area? _____

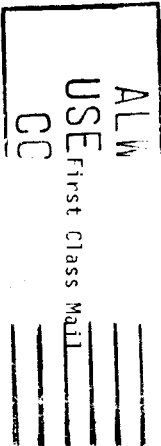
Occupation _____

Membership dues for the Potomac Valley Aquarium Society are:

Family	\$10.00	Corresponding	\$5.00
Individual	\$7.00	Junior (under 18)	\$3.00

Please send application and check for dues to address above.

Potomac Valley Aquarium Society
P.O. Box 6219
Shirlington Station
Arlington, Va. 22206



All Cichlids
Michigan Cichlid Assn.
P.O. Box 391
New Baltimore, MI 48047

1983 Meeting Dates:

Aug. 8	Oct. 10
Sept. 12	Nov. 14
	Dec. 12

Meeting will be held at the Jefferson Fire House Community Room,
Route 50 and and Graham Road, Falls Church, Va. Doors open at 7:30 p.m.;
Bowl Show registration 7:45 to 8p.m.; meeting starts at 8 p.m.

