

# THE WET PET GAZETTE

JUNE & JULY 1998



THE JOURNAL OF THE  
NORWALK AQUARIUM SOCIETY

## IT'S POND SEASON





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N.A.S. IS A MEMBER OF THE FEDERATION OF AMERICAN AQUARIUM SOCIETIES (FAAS) AND THE NORTHEAST COUNCIL OF AQUARIUM SOCIETIES, INC. (NEC)



## FROM THE PRESIDENT'S DESK

I hope everyone is enjoying their summer, the pool, the lake, maybe even a getaway vacation. Let's not forget that our show is right around the corner. Start now and get your favorite fish in show condition. Help make our show a success by entering some fish.

I would like to also take this time to congratulate Mark Broadmeyer, Mike Krasilovsky, Ed Katuska, and Gene Harris for winning F.A.A.S. awards. N.A.S. has always done well with the F.A.A.S. publication competition and this year was no exception - way to go guys!! Take a look at Sal's article for all the details.

Last, but not least, I would like to formally say goodbye, and thank you for all they have done, to three of our board members who have moved. Gene Harris - Maryland, Mark Kietel - Florida and Joe Canna - upstate Conn. All three were active on the show committee, helped at every club event and would do whatever was asked. You will surely be missed! Remember to stay in touch and good luck finding a new fish club.

This leaves the club with openings on the board. Anyone care to step up? We need your help it's your club too!

See ya 3rd Thursday

*BASIL*

## UPCOMING PROGRAMS

1998

February 19	Sal Silvestri, Apisto's
March 19	Jim Duncan sponsored by Lifeguard on Ponds
April 16	Dan Katz, Killies
May 21	Bing Seto sponsored by San Francisco Bay and Ginger products on Discus.
June	Fishy Bingo
July	No meeting
August 20	Lee Finely, catfish
September 17	Mark Broadmeyer, reef keeping
October 15	Basil Holubis, power failure
November 19	To be announced
December	No meeting Happy Holidays!

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# NORWALK AQUARIUM SOCIETY

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THE PICTURE FEATURED ON THE COVER OF THIS ISSUE IS THE 1997 WINNER OF THE HOME SHOW POND CLASS BELONGING TO JIM IORIO.

### NAS WHO'S WHO

PRESIDENT	BASIL HOLUBIS	(914)669-5030
V. PRESIDENT	CHARLIE GRANDEL	(203)775-9087
TREASURER	SARAH BETH DeMENT	(203)268-5358
SERGEANT AT ARMS	MICHAEL KRASILOVSKY	(203)227-7066
PAST PRESIDENT	ED KATUSKA	(203)375-4479
MEMBERSHIP SEC.	DOUG DEMENT	(203)268-5358
EDITOR	CHARLIE GRANDEL	(203)775-9087
EXCHANGES	ED KATUSKA	(203)375-4479
PROGRAMS	ANN BROADMEYER	(203)834-2228
BAP & FAAS	SAL SILVESTRI	(203)972-0610

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EXCHANGE EDITOR  
NORWALK AQUARIUM SOCIETY  
P.O. BOX 84  
NORWALK, CT 06856

### REGULAR MEETINGS AND PROGRAMS

There are regular meetings on the third Thursday of each month except July and December. Meetings are held at The Nature Center for Environmental Activities, 10 Woodside Lane, Westport CT. Meetings start at 8:00 PM. Each meeting includes a short business meeting, program or fish event, door prizes, raffles, auction, and refreshments. All regular meetings are open to the public

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### STATEMENT OF PURPOSE

The Norwalk Aquarium Society is not for profit, all volunteer organization, dedicated to the advancement and promotion of the aquarium hobby.



**A B.A.P. Report –*Apistogramma nijsseni*  
Don Maloney  
Norwalk Aquarium Society  
May 1998**

## The INTRODUCTION

Being a self-confessed African Rift Lake Cichlidiot, specifically lake Tanganikan Cichlids, I had no interest in keeping any other kind. It took many years before I would come to recognize that many South American dwarf Cichlids were indeed worthy of precious tank space in my fish room. I'm not afraid to say that one of the reasons for shying away from South Americans was water quality. Moderately hard alkaline water flows from my tap. Questions as to how to deal with this obstacle remained unanswered in my mind. Until I actually started keeping tanks with soft acidic water I realized that I had made more out of it than it needed to be. Change isn't easy.

Because tank space was, and still is limited in my fish room, I needed fish that were small and required small tanks, that's when I decided to try Apistos. The first dwarf species that became available to me was *Apistogramma steindachneri*. It only took a few more bucks to out bid the other members of the club to get my first South American dwarf Cichlid. They were brought in by a fellow club member as B.A.P. fry. An accomplishment I one day hope to achieve. *A. steindachneri* is considered by many to be one of the easier Apistos to breed, Good thing! It took quite some time before I was able to get them to spawn and get fry from them! To me, that fish should have been a twenty pointer! Oh, Sal!

Specializing in Tanganikan Cichlids created it's own problems when I decided to attempt breeding South Americans. All my tanks were hard alkaline water! Since adding a new row of tanks to the fish room was not an option, I had to choose which existing hard water tanks would be converted to soft, acidic water. That was a difficult challenge considering I had fish spawning in most tanks, fry in various stages of development in different tanks, yada, yada, yada. The real choice was to decide which species of Africans I would have to give up from the fish room and which Africans I dreamed about having I would not have, just yet. That was the hard part, having to wait for those dream fish a little while longer.

Wait? Why wait. Surely there was a dwarf Cichlid from South America that tickled my fancy, one that I've dreamed about having but thought too difficult to keep, let alone breed. What could that fish be? While trying to decide on a twenty point fish to spawn, in order to advance to the next plateau in our club's B.A.P. program, it hit me, a South American dwarf Cichlid that tickled my fancy, and a twenty point fish.

Hmm... *Apistogramma nijsseni*! Sure, I know what you're thinking, where does he think



he's going to find that fish? That rarely available fish? Come on, I belong to a fish club, what do you think?

## The FISH

Was first collected by Patrick de Rham in 1979 and later described and named by Sven O. Kullander in honor of Dr. H. Nijssen, curator of the Amsterdam Museum of Zoology. Being one of the prettier Cichlids to come out of South America the males exhibit a robust shape with a dorsal fin that lacks pronounced fin membranes commonly found in most other *Apistogramma* species. Sporting a whitish yellow belly with sky blue flanks and orange shoulders and long, yellow tipped pectorals the males are easily distinguished from others in the genus by the semi-circular, fire red ring bordering the rounded caudal fin. The females will not be out done by the males. Mature females are a brilliant greenish yellow with a deep black blotch on the operculum and on mid body. Their pectorals are also jet black with the last third bright yellow orange. Their colors intensify when the female has eggs or fry present. Occasionally, the same semi-circular fire red ring can sometimes be seen on the female, although it is not as pronounced as on the male and seems only to appear during certain moods. As far as size, males can grow to 8 cm and females to around 5 cm.

## The TANK

35 gallon breeder. This tank design was chosen for it's large surface area making it ideal for small territorial Cichlids and it's shallow water depth offers excellent light penetration for healthy plant growth and ease of maintenance .

## The DECOR

With the exception of a few well placed piles of rocks (for a rift lake tank) nothing makes a tank more breathtaking than plenty of lush vegetation. For this tank I chose Java fern and Java moss, some broad leaf plants and floating plants, coconut shell halves and some small, sturdy shale caves. For substrate I chose fine gravel 1" deep

## The WATER

Water that is of low pH value and extremely soft is mandatory in the breeding of these little Cichlids. I collect water two ways. One, rain water gathered from the roof of my house into a plastic 55 gallon drum..

Then I bring into the house the amount of water I will need for a water change ahead of time so it will warm up. I firmly believe rainwater is by no stretch of the



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**DIRECTIONS FROM THE WESTPORT NATURE CENTER:**

**MERIT PARKWAY NORTH, TO ROUTE 8 NORTH TO EXIT 27, AT THE MOBIL STATION LEFT  
ONTO ROUTE 63, TWO LITES LEFT ONTO RUBBER AVENUE (DUNKIN DONUTS ON THE RIGHT  
HAND CORNER), WE ARE LOCATED IN THE MOUNTAIN VIEW PLAZA WHICH IS 1.2 MILES ON THE  
LEFT**



imagination, pure. Two, tap water is also used and both rain and tap water are filtered through Aquarium Pharmaceutical's Tap Water Purifier. Then it is trickled through peat to produce a water with a pH to around 6.0. The water temperature of the new water is slightly cooler (70F to 72F) than that of the aquarium which is kept at 80F-84F. The addition of slightly cooler water definitely aids in triggering the spawning ritual. Water is changed about 10-15% every 2 weeks.

## The FOOD

The fish are fed a variety of foods. This is important as proper conditioning of the fish insures beautiful, healthy fish and frequent spawns. Frozen foods like Blood worm and Brine shrimp are fed most often because of their relatively high nutritional value and, most importantly ease of use. I'll treat them occasionally with live brine shrimp, and mosquito larvae when their "in season". When I'm pressed for time they'll get Tetra Cichlid flakes. Yes they'll take dried flakes! I've heard stories of fishkeepers Going to extreme lengths to procure all sorts of live foods for these fish. That was not the case for me.

## The FILTRATION

3 box filters with ceramic noodle, peat, and floss. Filters are changed when they appear very dirty. I'll change the floss in one filter during a water change. Maintain good air flow to the filters as this does several things; 1. The box filters will be operating at maximum effectiveness 2. Higher water temps (84F) require more aeration to achieve the desired oxygen saturation point. And 3., maybe related to 2, higher aeration will keep that annoying filamentous algae at bay.

## The LIGHTING

1 36" plant bulb @ 12" above water level. The photo period is 16 hours. Healthy plants, if you're going to keep them, is important because dead and dying plants don't help keep the water clean.

## The TANK MATES

9 Cardinal Tetras, 4 *Crenicara filamentosa*. 1 *Plecostomus* sp. and 2 *Ottocentrus* cats. Note: I eventually removed the Tetras after young nijsseni fry vanished spawn after spawn. Note on a note: young fry continued to vanish even after the Tetras had been removed! But that's for later on in the story!

## The SPAWNING





May 2, 1997. Less than two months after receiving this pair of dwarf Cichlids the female deposited approximately 36 eggs under the roof of a slanted piece of shale. The eggs themselves are not directly attached to the roof of the cave; instead the eggs are attached to the roof by means of a small filament. With regular water changes and ample food and shelter these fish spawned regularly every six weeks or so. I can't say for sure exactly what time of day they spawned or for how long. I've never witnessed the event. What I have seen is when the female is close to the chosen spawning site and the male, whether intentional or not, swims by she will turn her body broad side to him tilt to one side and with fins erect flex from side to side in an arching motion. The female does not allow the male to come close to the fry. These are the kinds of interactions between the pair that I've noticed. It seems the male is not terribly interested in them (the fry), but he will fend off intruders at the perimeter of their invisible territory. Up until now they've spawned regularly, I've seen little wrigglers on the gravel, But soon after they're gone, all gone! Where are the fry?

### Rearing THE FRY

Whenever breeding a species of fish for the first time I always let the pair try to rear the fry themselves. I believe that letting nature have its way is usually the best way. One of the greatest pleasures in keeping Cichlids, above all other kinds of aquarium fish, is to have the opportunity to observe the one behavioral trait that has made Cichlids so successful, both in nature and among hobbyists. Their unwavering commitment to care for their young long after hatching. The extent of which, not seen in any other family of aquarium fishes.

However, like Baseball, three strikes and you're out! In the case of this fish, eggs were laid and fertilized and fry would hatch, But they wouldn't get very old before they would all disappear. As you read earlier I thought the fry fell to predation, but that was not the case. This stumbling block had left me with no choice, I had to remove the fry from the mother at a very early age, about 5-7 days post hatching.

Once all the eggs hatch inside the cave, the mother will excavate a small depression in the gravel not far from the cave. She will pick up the fry within her mouth a few at a time and place them in the depression where she'll guard them. She will move them around the tank from pit to pit. At this time the female is showing her best colors. This is the time when fry will begin to disappear. I had to make a crucial decision. Should I try rearing the fry artificially?

I placed the fry in an Aqua King power filter box which is hung on the inside of the tank (so a heater is not needed). It is filled with clean water from the "parent tank" a small aged sponge filter, a light sprinkling of old gravel and a small plant.

You want to use everything aged as these contain the bacteria necessary for the nitrogen cycle and more importantly Infusoria, tiny critters that live on the plants surfaces and are the fry's first real food. Water changes are kept small and frequent. The water I use after the initial fill up is a 50/50 combination of parent tank water and the new treated rain/tap



water discussed in the WATER section above. Note: don't forget to warm up the new water if it's been outside or unheated in your basement. Put small amounts on the water heater if you have one or invest in a heater to keep your stored water warm.


At 7-9 days old the fry are about 2 mm long and not able to swim freely, probably due to the fact they've got a large crimson red yolk sac under their little bellies. The fry will not take food until the yolk sac is almost fully absorbed. When they do, they'll take newly hatched Brine shrimp. At a whopping 2-3mm long the fry seem intimidated by the shrimp but their growing hunger pain overcomes any reservations and they soon make short work of the baby shrimp. You'll know when they are eating when you see the pecking action of these feisty little fish and the over-sized belly when they are full. It's fun to watch. At about two weeks old I moved the fry to a 5 ½ gallon tank with every thing I used in the smaller container only a little more gravel and a larger plant since the 5 ½ is bigger. Like a new tank I set up the 5 ½ in advance of the move in order to stabilize it. At this point the fry are about 4-5 mm long and resemble adults. Caution, keep feeding them and keep the water clean, they are growing faster now. At five weeks they are about 7-10 mm long. I moved them again to a 10 gallon. I didn't just dump them into the 10 gallon from the beginning because the smaller tanks help insure that they will find the food and they won't be lost in an oversized tank. After about two months you should be out of the woods with the fry, they'll be fully formed and very capable of taking care of themselves.

## In CONCLUSION

Keeping and breeding *Apistogramma nijsseni* is a worthwhile experience for any Aquarist willing to spend the time and tank space and to challenge his or her fish keeping skills. I highly recommend trying them!

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**FAAS REPORT**  
**RESULTS OF THE PUBLICATION AWARDS PROGRAM**  
by Sal Silvestri

It's been a couple of years since I had the privilege to write about NAS winners of the prestigious FAAS Publication Award. The Norwalk Aquarium society has always been a society to reckon with in this contest but in the past couple of years interest waned and we went through a dry spell. Finally some old and new members decided that the vacation was over and it was time to get back to business on hand. For the benefit of those that don't know about this annual competition I'll give you a quick rundown. FAAS (Federation of American Aquarium Societies) has an annual Publication Awards contest(which includes Canada and Central America). All member societies (which can be up to 100) can enter in any of the 24 different categories. The competition is both excellent and fierce. It's for this reason that it's a great **accomplishment** to win in any category.

So, at this time, it gives me the greatest of pleasure and an honor to announce the winners of the 1997 FAAS Publication Award.

Ed Katuska	THIRD PLACE	Best General Article on a family of Fish
Michael Krasilovsky	FIRST, SECOND & THIRD	Best Article by a Junior Member
Category III		
Gene Harris	FIRST PLACE	Best Article not nominated in any other category
Mark Broadmeyer	THIRD PLACE	Best Editor & Publication (6 issues or more)

**CONGRATULATIONS** to all of you for a great accomplishment. Let's see if we can add to this list next year! I hope that this serves as an inspiration for others that were afraid to put "pen to paper" or "fingers to keyboard".



## A Brief History of Angels

By John Todaro

BROOKLYN AQUARIUM SOCIETY

The angelfish was first described in 1823 by Lichtenstein. The Germans were the first to import and try to breed angels in the aquarium, around 1911. They tried for 13 years and had little success, but by 1924 a new angelfish was imported that did breed in captivity. The *Pterophyllum eimekei*, which was named after Wilhelm Eimeke, a Hamburg dealer who was the first importer of the fish.

At the time it was thought *P. eimekei* was different enough to have its own specific designation. It wasn't until the late 1940's that the designation was questioned. Finally, in 1967, the question was settled, *P. eimekei* was just a variant of *P. scalare*. Today the official name of the common angelfish is *Pterophyllum scalare*. The latin word *Pterophyllum* means "winged leaf," a term that certainly describes the long fins of the angelfish.

The first angelfish in America came from Germany in 1915 and were called Brazilian half-moons. The price for an adult pair ran about \$75.00. As you can imagine that was really big money in those days. It was a fish that only the very rich could afford to own. Since few Americans could lay out the cash for these beauties, few attempts were made to spawn them. It wasn't until the introduction of the smaller *P. eimekei* that hobbyists were able to breed angelfish. As recorded in the 1927 book, *Fishes In the Home* by IDA M. MELLEN of the New York Aquarium, the first successful breeders of *P. scalare* were WILLIAM L. PAULLIN in Pennsylvania, and FRANKLIN BARRET of Philadelphia, who succeeded in raising one hundred fry to adulthood in the spring of 1921, and JULIUS RIEWE in Chicago.

Today the angelfish is among the most popular of all fish and one of the most common of all cichlids found in the home aquarium. Years of crossbreeding and interbreeding have created a wide range of color varieties. In the early 50's a half-black was developed in Germany, and soon after that angels with very dark background were developed in Florida. By 1955 solid black angels were being sold. Again in Germany, in 1956 a single angelfish mutation led to the veiltail variety. In 1958 they appeared on the market in the U.S. and hobbyists crossed them with black angelfish to produce black veiltails and silver-lace veiltails. The marble angel appeared in 1963 but died out. By 1969, CHARLES ASH fixed a version of marble angels which are the ancestors of today's marbles. Soon another variety, the blushing angel, was developed, this time in Connecticut in 1965. It's delicate, but not so much as the black. Marbles are quite hardy.

In the early 1970's the gold was developed by CARL NAJA in Milwaukee by constant backcrossing over many generations. The big drawback to this fish is that the golden coloration doesn't develop until the fish is 3 to 6 months old. Up to this point it looks like a washed-out silver angel with a slight green cast. Color variations now range from gold-faced marble veiltailed, silver albino and beautiful leopard angels to the newly developed blue angel. This fish (I now have a breeding pair) has a "bluish" cast or "sheen" to the body, the anal and dorsal fins are black. A nice looking fish that still needs more intense breeding to bring out the blue sheen.

### KEEPING AND BREEDING ANGELFISH

The angel is a peaceful fish and should be kept in the largest tank you can afford. A 30-gallon is a good choice. A 50 is even better. Keep the tank well planted towards the sides and back. I recommend tall plants such as Amazon Sword plants, Sagittaria and plants from the *Cryptocoryne* family. I also use floating plants such as Duckweed, *Salvina* and *Riccia*. Floating plants tend to keep angels calm and give them a feeling of security. This is true of most fish in general.

I like to keep angels in their own tank (a specimen tank) in schools and let them pair off naturally. I'd recommend you get anywhere from 6 to 9 fish. Match them for size, color and finnage. Keeping the water neutral to soft, 7 to 6.8 or 6.6, and keep the temperature at about 80 will keep them happy.

Angels are big eaters, some would say pigs. They will eat most any live food, blood worms, brine shrimp, fruit flies plus frozen and dry foods; all are taken greedily.

You can easily tell when your fish have paired off, since they will display to each other, expanding their gills, making head movements and staking out a corner of the tank as their own.



Once the fish have paired off you should remove them to their own tank, or remove their tank mates, as they will turn aggressive towards them. My choice is to remove the tank mates, trying to keep the pair from becoming too stressed out. One way is to divide the tank with a sheet of "egg crate" used for lighting fixtures or a piece of plastic or glass.

Give the pair a place to lay their eggs such as an overturned flower pot or a piece of slate set at a slant in the tank or a broad leaf plant. An Amazon sword will do nicely. I like a piece of earthenware tile set against the glass; this way I can remove the eggs to a hatching tank if the parents turn out to be less than good parents - that is they start to eat their progeny.

You can make a positive identification of the sexes by the shape of the genital papillae: the male's is pointed. The female's ovipositor is blunt or rounded. If the male is old enough you may see a slight swelling or "hump" on his forehead' a head hump is common on many male cichlids.

A young inexperienced pair most likely will eat all or most of their first spawn. Don't be discouraged; a good healthy pair will be ready to breed in two weeks and will handle their progeny a bit better; for the most part I would remove the eggs or the parents after a couple of days.

After spawning, the pair take turns fanning the eggs and picking out the white unfertilized eggs. In about two days the first signs of life can be seen when the tips of the tails become visible; after about 125 hours the life of the fry really begins. The egg mass will vibrate; that's all the little tails wiggling like mad. At this point I like to remove the parents; there is not much more they can do for their babies, except to eat them. They've worked hard and are a bit confused... "Honey, I lost the kids" must be what they're thinking. Distract them by feeding them well.

Once the fry are free swimming they will use up their yolk sacs in about 35 hours. Now start feeding them micro-worms and/or newly hatched brine shrimp. The fry will tend to school. Feed them two to three times a day if you can. I think you can fool mother nature a bit by keeping the light on 24 hours a day; it keeps the fry eating. Look for fat round bellies.

A diet of newly hatched brine shrimp, careful water changes, and 24-hour light and warmth (82-84 F) should help to grow them quickly. Once you see a school of angelfish gliding through your tank you'll know why this fish is one of the hobby's all time favorites.

\*\*\*\*\*

A Brief History of Angels by John Todaro BAS, is reprinted from Aquatica, The Journal of The Brooklyn Aquarium Society, Volume VII, Number 5, January 1994

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## A Saltwater Tank for Beginners and Others

by Demetrios Litsakis

LONG ISLAND AQUARIUM SOCIETY

I won a Goldfish at a carnival in 1965. In 1974 having gone from Guppies to Africans, I decided to take the plunge into saltwater.

After reading as much as I could find on the subject, I put down my hard earned money on a 29 gallon set-up. Through a combination of skill, luck and good advice I persevered, eventually establishing and maintaining fish and reef tanks on a professional level. Which brings us to the subject of this article.

There are three basic types of people who keep saltwater fish:

- 1) Designer Fish People - they choose fish to match their decor.  
No one who belongs to an Aquarium Society fits this description.
- 2) Trophy Fish People - It's expensive! so they want it - it's cool, etc. Some of these people are actually good fishkeepers, so this is not a put down.
- 3) The Rest of Us - average working stiffs with a budget, etc.

This article is geared more to the last category, as I will attempt to show you how to establish a saltwater tank with a minimum of expense and heartache.

The basic rule of fishkeeping are the same for most fresh and saltwater fish:

- 1) Do not overcrowd.
- 2) Do not overfeed.
- 3) Perform routine maintenance on a regular schedule.
- 4) Buy only from a reputable dealer who maintains good stock in a clean store.
- 5) Rules are only guidelines.

1) STOCKING A TANK - a rule most of us have heard is the inch of fish per gallon of water for freshwater fish. For saltwater fish a ratio of 1/2 inch of fish per gallon of water is much safer.

2) OVERFEEDING - freshwater fish, coming as they do from smaller bodies of water, are more tolerant of overfeeding. Saltwater fish will die faster from less pollution than most freshwater fish.

3) ROUTINE MAINTENANCE - there is no such thing as benign neglect and those expensive little beauties will reward care with long healthy lives and neglect with failure. Set up a schedule and stick to it.

4) FISHKEEPING IS AN ART - What works for me may not work for you, after almost 20 years of doing this, I've found that even the "experts" disagree and that except for certain flagrant violations, rules are useless if common sense is not applied. Ask for the reason behind doing something. Think about it, if you still like that reason apply it to your circumstance. If not, look elsewhere for an answer.

Since this article was written for people just getting into the saltwater hobby and probably on a budget, I will limit my discussion to things you must have, and things you should have for your tank. There are better and easier ways to do things - but they are much costlier and so I will skip them (e.g. wet/dry filters).

THE TANK - I believe that the best overall value in tanks is a 29 gallon, so this is the tank I recommend to a beginner. It uses the same equipment and floor space as a 20 gallon long, while giving you additional water volume and height for decoration and swimming space. A 30 gallon tank works just as well, but cost goes up disproportionately.

THE HOOD - I prefer a glass canopy with strip lights to a hood, due to greater flexibility and ease of maintenance. If you can find/afford one, strip lights with double bulbs is even better. **A NOTE ABOUT ELECTRICITY: ELECTRICITY AND WATER = DEATH** Yours or your fishes. Please install or have your electrician install GFI circuits where you plug your tank in. The life you save may be your own. This goes double for



saltwater which conducts electricity even better.

**THE FILTER** - Without going into major discussions on high-tech equipment, remember this is the budget version. The one filter you must have is an undergravel filter (preferable one piece) you should also add an outside power filter, but you can do this later. The undergravel filter should be sized to the tank and can be operated using two air columns or one column with a powerhead. Personally, I prefer using a powerhead but either way you'll get the job done. You should also get an external power filter, but as I said earlier you can add one after your tank is up and running. I do not advocate using filters like the Whisper or Penguin lines because of their limited options on filter material and capacity. This type of filter incorporates carbon and glass in single units, which means you cannot remove the carbon from the filter (more on this later). Select a filter rated from 200-300 gph, but make sure it's saltwater safe.

**HEATER** - This is one area where you must not economize. Select a good "submersible" type heater 100-150 watts. Such as the Ebo Jager or Visitherm heaters, remember frozen, fried and poached fish do not look good in a fish tank!

**HYDROMETER** - This tells you how much salt is in your water by measuring the specific gravity. There are 2 basic types - floating and dip type, while the floating type is often more precise, it is also more fragile an harder to use. I prefer the dip type.

**TEST KITS** - You can have your local pet shop test your water but it is better to do your own tests. There are several good master kits which include the 3 "must have" tests - Ammonia, Nitrite, and Nitrate and other "nice to have" test such as pH and Copper. Purchase a master kit or individual tests as you see fit.

**MISCELLANEOUS EQUIPMENT** - Nets, buckets, siphons, thermometers and towels you know about these by now.

**REMEMBER** - No metal, bleach, ammonia, soap, perfume, insecticide or paint in, on or near your new tank. Rinse everything including yourself thoroughly before putting it in your tank.

**GRAVEL** - Crushed coral is the preferred substrate for your tank. Do not use oyster shell, sand, coral rubble, dolomite, shells, glass, or colored grovels in your tank. While some of these are viable options, they are often more trouble than they are worth. Crushed coral is also a natural buffer, helping to keep your pH up at the desired level automatically.

**DECORATIONS** - Plastic plants, skeletal coral, Reeform coral substitutes, sea shells (buy - don't collect these unless you know how to cure them) are all good choices, with Reeform type coral replicas being the most environmentally responsible choices. Do not use rocks, live rock, or especially live coral, as these are definitely not suitable for neophytes. Beware of plastic plants with wire bases (NO METALS).

Set up your tank in the desired location. Be sure it is level and preferably out of line from any windows, as direct sunlight can cause havoc in your tank!

Install your undergravel filter. If you use a powerhead, purchase one of approximately 200 gph capacity and use only one uplift tube and cap the rest. If you use an airpump select the largest capacity pump you can reasonably afford and use gang valves to control the flow. If you have difficulty with either installation, ask your pet shop. I they can't help you - find another store. This is very basic technology for most pet shops.

Rinse your crushed coral very thoroughly until the water runs clear. You will need about 40 lbs of gravel to fill a 29 gallon tank to approximately 2 inches over the filter. Make sure you rinse the gravel well or you'll be stuck with cloudy, milky water for days afterward.

Set your heater for 75o F - install it in the tank below the water level. If you like, you can set it horizontally 1" or 2" above the gravel, so as to hide it better. Do not cover it with gravel or coral, as this can lead to breakage.

If you have an outside filter, install this also but, be sure to leave the carbon out of the filter. This is one of the reasons I don't like Whisper type filters, the carbon is included inside the filter pad.

Aquascape the tank to suit your taste but, please be sure to leave adequate hiding places for your fish, as well as free swimming space. You are now ready to add water.

Mix your water with a good salt mix. I find Tropic Marin and Red Sea salts to be among the easiest to use and quick dissolving, while maintaining consistent quality. A 25 gallon box of salt mix should be just about the right amount to fill your tank. Before adding the water to the tank, use your hydrometer to measure a specific gravity of 1.020. This is the salinity I prefer to use in my fish tanks. Use more or less salt or water to achieve this mix.



Be sure the salt is fully dissolved, as it will raise the salinity if it dissolves later. Add a good dechlorinator and run your system for 24 hours before adding fish. Check your thermometer to be sure your heater setting is accurate and re-check everything to be sure it works. Be sure that you are not running any carbon or resin in your system.

After 24 hours, your water should be crystal clear, 75o temperature, with a salinity or specific gravity of 1.020. If all of these parameters are met, you are ready for your first saltwater fish. If your water is milky or cloudy - you didn't rinse well enough - wipe down your glass and do a water change, the floating coral dust from your gravel can be fatal to any fish you put in.

FIRST FISH - The first fish you put into a tank are called starter fish. The reason for this (other than the obvious) is that these fish are hardier and less expensive if they die. I recommend four to six fish of the Damsel family - Blue Devils, Domino Damsels, Striped Damsels, etc. While those cute little orange and white striped clowns are relatively inexpensive, they make poor starter fish, as they are very sensitive to ammonia. Select fish that come from disease free tanks and are not obviously stressed out. Tanks with dead fish in them, are not good choices. Acclimate your fish the same way you would a freshwater fish and introduce them to your tank.

You may have noticed that I just mentioned fish being less ammonia sensitive. Freshwater aquarists know the pollution problems associated with ammonia as the "New Tank Syndrome". Marine or saltwater aquarist know this phenomena as "The Cycle". What takes a short time in freshwater tanks, tanks as long as 4 to 6 weeks in saltwater tanks. Part of this is because ammonia becomes more toxic as pH goes up. The other reason is that the bioload in a marine tank is disproportionately higher than that of a freshwater tank. Many authors recommend using "dirty" or used gravel or filter media to "seed" your tank and speed up the cycle. Unless you are very sure of the source, DON'T. Why introduce someone else's problem to your tank. Over time bacteria form in your tank which convert the ammonia to nitrite, which is only slightly less toxic.

Several days after you introduce to your tank, test the levels of ammonia in your water, following the instructions in your kit. Do not pour tested water back in your tank. If all is working properly, you will see the ammonia level climb high, followed by a dramatic drop in ammonia levels indicates the successful completion of the first part of they cycle. Begin testing for nitrites, which will follow the same pattern as the ammonia, a slow steady rise followed by a dramatic drop. This is because another group of bacteria have also colonized your substrate. These bacteria called nitrobacter convert nitrite into less toxic nitrates, which most fish are able to tolerate much higher levels of.

Continue to test for nitrite and ammonia, as well as nitrates. The presence of nitrates in your water coupled with readings of 0.01 or less of nitrites and ammonia indicate a complete cycle. Wait a few more days and do a 50% water change to your tank. Be very sure that there is no chlorine in your makeup water and that the salinity is the same, as you do not want to kill off your bacteria bed. At this point many aquarists rush off to buy new fish, DON'T. Wait a while, read up on the fish, learn about them. Establish a routine pattern of maintenance - 5% to 10% every week or two is easy to do and will yield good results with little work.

**Congratulations! You are now a saltwater or "marine" aquarists. GOOD LUCK!**

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## BREEDING TAENIACARA CANDITI by Sal Silvestri

Norwalk Aquarium Society

This beautiful dwarf cichlid was first found in the Amazon drainage. They were mostly collected in shallow ditches and pools in which the water temperature was around 82-95 degrees. The first time I saw this cichlid was in the book - Afrikanische Cichliden I by Linke-Staeck, and it was "love at first sight!". Unfortunately in the U.S. they were not available, but I was told that they were available in Germany. I immediately contacted some hobbyist that on occasion would import fish from Germany. Three months later they came in, but I was only able to purchase three fish, and paid a "pretty penny!". In this case money was irrelevant, "I think?!?"

The **Taeniacara Canditi** has an elongated, slender, and a bit laterally compressed body. The main feature that distinguishes the sexes is the enormously large, prominently spade-shaped, caudal fin of the male. Also the male has long ventral fins. Females have very unspectacular finnage. Both sexes have broad, continuous, and deep black lateral band. Males reach 2 3/4" (7cm) total length and the females only 1 1/2" (4cm). As "delicate" as **T. Canditi** appears, in reality it's not. The males attack and successfully drive substantially larger fish from their territories. But they are very sensitive to water changes. The only way to avoid losses when moving them to other aquaria is by using a very long acclimation period. Like many **Apistogramma** males, males of **T. Canditi** tend to be polygamous, too. This obviously is the reason why they're extraordinarily antagonistic toward one another and can fight to the death in the confines of an aquarium.

Therefore, my three fish were kept in a well planted 20 gl. tank with lots of hiding places. Also, smaller tetras or similar "dither fish" shouldn't be lacking in their tank. The male can respond to them when defending his territory so that the females are harassed less. The water was medium soft and fairly acid (pH 6.0). They do best with water temperature between 80-86 degrees. I personally don't like to go above 82 degrees. As my trio grew they all developed that beautiful "**spade shaped**" caudal fin. It seemed that I had three "males!" "I'm just lucky I guess!". At full maturity they were 2" S.L. and just as beautiful as the picture in the book. I was not able to purchase any more **T. Canditi** for the next five years. But last year I received another phone call from a hobbyist friend of mine, who is really hooked on South American dwarf cichlids, asking me if I was still interested in purchasing **T. Canditi**. I couldn't get the "Yes" out fast enough! This time I purchased a guaranteed pair (M & F) and my friend purchased two pairs. We figured that between the two of us we should be able to get a breeding pair. They were very small (3/4" T.L.) but some of them already exhibited the "spade-shape" caudal fin.

I housed my pair in a 15 gl. tank with the same set up as before. Well, this time my pair turned out to be two females. "So far my luck is running true to form!". But, on the bright side of things, my friend did end up with two true pairs (M&F). As faith as it, one of my friend's female died so he gave me the extra male. At this point the 15 gl. tank was not big enough. The sub-dominant female was being continuously harassed and couldn't establish a territory of her own. So I moved them to a 20gl. long. This arrangement brought "peace" to the aquarium.

At this point I proceeded to change the water chemistry to meet their need for breeding. This was accomplished by doing a partial water change (5%) every two days and replacing the water with de-ionized water, which was very soft (10 microSiemens) and a pH of 6.0. **NOTE** - a general comparison between conductivity (**microSiemens**) and **dH** (degrees of hardness) can never be very accurate, but for fishkeeping purpose **35 micoSiemens** can be taken to equal approximately one **dH** (0-3dH= soft water). This process was continued until the water in the tank measured 70 microSiemens and a pH of 5.5. A couple of months passed and I wasn't seen any interaction between the sexes.

In the interim I also lost one of the females, she performed one of those great disappearing acts. You know what I mean! "Here today and gone tomorrow, without a trace!" Anyway, the pair co-existed peacefully for another two months without anything happening.



In November 91 I was able to purchase another adult female. I put her in with the other two and watched them closely. I didn't want another dead body on my hands. Within a week the new female took over the cave of the original female. I conditioned the trio by feeding a mix of live baby and adult brine shrimp, chopped-up black worms (only twice a week) and a good brand flake food. Within two weeks I was noticing that the new female would approach the male and start twisting and shaking her body in front of the male trying to entice him to follow her in her cave. "This was an encouraging sign!". Two days later she disappeared and I would only catch glimpses of her as she poked her head out of her cave. This was a real good sign! After one week she finally emerged from her cave. In contrast to **Apistogramma** females, females of **Taeniacara Canditi** don't have a strong **black/yellow** coloration. Only the ventral fins exhibit a prominent black edge and a quince-yellow interior. The sure sign of an existing brood is to see if the female exhibits an up and down pump-like motion of the back of the body, pivoting at about eye level. She uses this motion to signal to the fry that all is safe. "**THERE IT WAS!**". With my heart pumping as though I just finished running a marathon I looked around for fry, and "there they were!" Very small specs hopping off the gravel, underneath mom. I estimated around 20 fry.

Care of the spawn is undertaken exclusively by the female. At this stage her territory is expanded to the **ENTIRE** tank, she would not tolerate anyone. This is what I meant when I stated that they require a large tank. The male and the other female were viciously attacked on sight. Since I didn't have a dither fish in the tank they took the full impact of her aggression. In order not to loose the other two I removed them and left mom alone with her brood. The fry are very small and slow growers. For their first food I fed them microworms twice a day. After one week I graduated them to baby brine shrimp. After one month the female seemed to be filled with roe again and was acting restless. She would swim up & down the front of the tank relentlessly, as though looking for something. At this time the fry were 1/4" T.L. and basically on their own, so I moved them to their own tank. I was only able to catch 12 fry, the others I left in the tank.

After the fry were removed I put the male back. I waited for an argument to ensue but to my surprise the male immediately took over his old territory and within hours the female was again doing her breeding dance in front of him. Two days later she disappeared and after a week she came out with fry. So, as before, I again removed the male. Mom and fry are doing fine.

For the time being this set-up seems to be working for me, and I'm not about to question success. So, if you should get the opportunity to purchase this beautiful dwarf cichlid and want to try something different and challenging, "**GO FOR IT!**". I highly recommend it.

## N.A.S. BOARD OF DIRECTOR MEETINGS

THURSDAY, JULY 9 - THE DEMENTS HOME

TUESDAY, AUGUST 11 - NATURE CENTER

THURSDAY, SEPTEMBER 10 - SAFARI STANS PET SHOP (RT. 7 WILTON AT STAPLES PLAZA )

TUESDAY, OCTOBER 13 - NATURE CENTER

THURSDAY, NOVEMBER 12 - THE SILVESTRI HOME (203)972-0610

TUESDAY, DECEMBER 8 - NATURE CENTER

ALL ARE WELCOME TO ATTEND ANY BOARD MEETING. IN FACT THE BOARD WOULD LIKE TO INVITE YOU TO ATTEND, THE MEETINGS START AT 8:00 P.M.



## 10 TIPS FOR A HAPPY POND!

From Tropical Fish Supermarket Brooklyn, New York (718) 338-5069  
Up-Load By FISH BAS and the Brooklyn Aquarium Society

Go slow and plan ahead. You use plans to add a deck or another room to your house right ? A pond is a lot more than a bucket of water in your yard. It's an addition to your house. Take the time to plan it out properly; location, ease of access, amount of sun, leaves, electricity, plumbing, viewing, etc.. let us help you out. Bring your ideas to us and let us look them over.

In our climate zone try to go at least 2 feet into the ground to ensure your fishes survival through the winter months.

Incorporate shelves in the pond around the perimeter and some shallow areas for planting marginal plants, submerged plants, and lilies, Make sure they are flat and square, not sloped ! ( or else your plant pots will slide over and fall from time to time. )

Definitely filter your water. Sure you can achieve a clear thriving pond through the use of plants and such, but it's too hard and too limiting. Biological filters help to keep algae blooms to a minimum, and provide clear healthy water for your fish.

Use a UV Sterilize., It's an expensive addition, but an invaluable asset in pond management. A UV light kills off free swimming algae, bacteria, and parasites in the water. you will never have that " pea soup " look in your pond again !

Use marine salt in your water. We use 1 pound per 40 gallons of water in our pond here at the store. Salt can help to kill off unwanted parasites and aids in the process called osmosis in your fishes cells. It helps to fight off those red sores you sometimes see on pond fish and Koi.

You can feed often, especially as the weather warms, but feed small quantities at a time ! pelleted Koi food floating around the pond for more than 8 to 10 minutes will result in cloudy water, just like in your tank inside. Uneaten food will also feed loads of nutrition to free floating algae, resulting in green water. Mater. Many small feedings a day are much more desirable than one big feeding a day.

Feed a varied diet. You don't live on just bologna every day right ? the different ingredients and different textures of varied foods are good for your fishes digestive tract.

six to 8 hours of direct sunlight a day is plenty. If you have more than this you might have a tough tome with algae, and that dreaded "pea soup " look.

Make sure you take the time to enjoy your pond ! At the end of a busy day, there is nothing like going out in your yard to smell the air, listen to the water gurgle, feed your buddies and unwind. Your pond can be a refuge for you. A place to relax and let go all of your day to day tensions and worries. And also remember that your pond is an ongoing adventure for you and your family to enjoy from month to month and even year to year. As seasons change there is always one more plant to add or another rock you find in the mountains that will sit just so by your falls etc.. A pond is a soothing family experience, just like your fish tank. Get your feet wet and have some fun !

Feel free to pick our brains here at Tropical Fish Supermarket !

A note from the editor, I called Charlie Murphy the owner of the Tropical Fish Supermarket, and was told if you have any questions at all to give him a call or stop in and he will be more than happy to help out.



## Setting Up An Aquarium For Plants

by Eric Kauschen

San Francisco Aquarium Incorporated

Since the popularization of the Dutch Plant Aquariums by many of the major aquarium magazines in recent years aquarists have begun to turn their attention from artificial plants to live aquatic plants. For many people, live plants seem to be these mysterious things that elude their grasp as they see plant after plant die in their tanks. What I hope to do is give some basic information on setting up a planted aquarium so that it will give you the minimum amount of work and the maximum amount of enjoyment. First off, let's look at the aquarium we're going to build. I'll make it a 55 gallon tank. This is a good size as it has plenty of room for the plants to grow out over time. I'll be building a South American Community for this since in any of the easy to grow plants come from this area. Whether the tank is glass or acrylic is a matter of preference. Each has their strong points, so I'll leave the decision up to you.

I've decided to start from the top down so we can tackle the toughest point first -- lighting.

Lighting an aquarium in the past usually meant tossing a couple of incandescent lamps. This works (sometimes), but incandescent light tends to produce large amounts of heat, and an inadequate spectrum and amount of light. If you intend on growing plants you'll need a balanced spectrum of light that closely approximates the spectrum of daylight. There are many ways to do this, but I've found that one of the most effective is with fluorescent bulbs.

Fluorescent bulbs are very efficient in that they put out small amounts of heat, and more light per watt than the incandescent type bulbs. Fluorescents also tend to more closely approximate the spectrum of daylight than do incandescents. For lighting I'll use a fixture fitted to accommodate four tubes. I'll choose a mixture of two cool white and two daylight (or vitalites) for the lighting arrangement. These tubes are 48S long, are 40 watts a piece and will give us a good light output in the neighborhood of 10,000-12,000 lumens. The CRI, or Color Rendering Index, is a scale from 0-100 that describes how closely the spectrum of a tube matches the spectrum of natural daylight. 100 equals a perfect match. With this set-up our CRI should be somewhere in the neighborhood of about 85-95.

I'd go much more in depth on the subject of lighting, but we only have so many pages in the magazine and the topic of lighting would fill a book by itself!

Next we'll tackle the filtration system. You have many different choices here, but one choice I would like to forget here are undergravel filters. I've never had success with them when trying to grow plants, and I don't know of anyone who has. You may get plants to grow a bit with them, but you'll have much better luck without them.

I'd suggest either a Wet/Dry filtration system, such as those used with the Mini-reef aquariums, a canister filter, or a good outside power filter. Each has its merits to it, but the main line here is what you want and what you can afford. Aside from providing a place for nitrifying bacteria to colonize, the filter moves the water around the aquarium. The current helps the plants by making them grow strong stems and leaves and it also helps to keep an even temperature and disperse nutrients to the plants.

If you choose the canister filter by all means use a spray bar with it. The spray bar doesn't have to be above the water to break the water's surface, you can place it under the water a bit and it'll work great.

Now the substrate. I prefer washed river gravel. It's cheap and easy to find and works very well for growing plants. We'll use approximately 2-3 pounds per gallon so we'll need between 110 and 165 pounds of gravel. The goal is to build up a gravel bed of about 3-4 [inches?]. First take two thirds of the gravel and rinse it well with water. Then mix this with a gravel additive such as Tetra's Hilena Initial D, or Dupla's Duplarit. These additives when mixed with the gravel give the plants a good rooting medium as well as an initial supply of nutrients to feed on. After the gravel and additives are mixed thoroughly you can add them to the tank. Wash the last third of the gravel and pour it on top of the other gravel.

Now you're ready to fill the tank with water. Water requirements for plants are not too crucial, although extremes should be avoided. At pH of about 6.6 to 7.0 with a hardness of about 20-30 ppm will do fine for our South American community that we're setting up. If you want to use one of the fancy undergravel cable heaters great, they're excellent at keeping the gravel warm and keeping the water circulating slowly through the gravel, but they are expensive. We'll be using two 100 watt heaters stationed at either end of the tank. All that's left is to



fill the tank about two thirds of the way with water, start the filter, and turn on the heaters and establish a temperature of about 78! to 82! F. Once e verything is up and running, you can ignore the aquarium for a day or two. This will give the water time to clear and stabilize. Now you can go and get your plants. For this tank we'll need the following plants:

- 4 Large Amazon Swords (*Echinodorus martii*, *E. major*, *E. bleheri*, (etc.)
- 10 Dwarf Chain Swords (*E. magdalensis*, *E. latifolius*, *E. tenellus*, *E. quadricostatus*)
- 10 Alternathera (*Alternathera lilacina*, *A. sesssalis*)
- 10 Pennywort (*Hydrocotyle leucocephala*, *H. vulgaris*)

There are many other plants to choose from, but these are a few basics that'll get you started. I went low on the number of plants because all of these plants are relatively fast growing and within a year you should have a tank that's filled with plants.

The Large Amazons will be used as background pieces. They'll grow very big (I've seen some three foot ones that you wouldn't believe!) The large swords also will begin to send off runners and those can be pushed into the gravel to grow more swords.

The dwarf swords are very fast growing foreground plants that will send little runners across the gravel constantly and will provide a nice lawn-like texture.

The Pennywort provides a contrast to the swords with its rounded leaves. It grows very fast and will need to be cut back often and the cuttings can be replanted.

The Alternathera provides a very pretty red color to contrast the swords and pennywort. Alternathera also needs lots of light so be sure not to crowd it.

When planting make sure to leave enough room between the swords to grow out. Also keeping the Pennywort and Alternathera together while remembering not tocrowd it will create a nice effect also. Any additional ornaments such as driftwood or rock should be added now. Once you've finished with the aquascaping and planting you can start the tank on a cycle of about 10-14 hoursa day of light. If you have a timer for the lights it makes things easier and more stable for the plants.

Now is a good time to let the plants have a head start. If you can hold off for two weeks to a month your plants will have time to adjust to the tank and take hold. If you are going to use an aquatic plant fertilizer (and I recommend that you do) you can start using it now. Plants need food too and the fertilizer will stimulate them to produce new shoots and growth.

After the initial run in period it's time to add your fish. Either add some gravel from an established aquarium or us one of the commercial bacteria cultures to seed your tank. Now, just like with any other aquarium add a few fish at a time.

The choice of fish is up to you but since we're building a South American Community you might add some Cardinal Tetras, Neon Tetras, Black Skirt Tetras, South American Dwarf Cichlids, Discus, Angels, some of the small catfish, the list goes on.

One fish in particular that I'd like to recommend is the *Otocinclus*. This is a dwarf suckermouth catfish that eats mostly algae. If they are added before the other fish and only allowed to eat the algae off the plants (they won't hurt the plants) your tank will remain almost algae free. I'd suggest about 10 *Otocinclus* to start with.

Some fish to beware of are the plecostomus. Many people think that since plecs are suckermouths that they'll eat the algae off the plants (they will), unfortunately they don't always know that they should stop at the algae and will often destroy frilly plants and suck large holes in swords. When they get larger they movements will tend to break the stalks of your plants. The only other warning is against any fish that is a vegetarian in nature or grows quite large they will either eat your precious plants or break them all to pieces.

With these few suggestions and caveats in mind the choice is yours. Maintenance of a tank such as this is quite simple. Any dead plant material should be removed when noticed. If a plant has several dead leaves on it, they should be pulled off immediately. Dead and dying leaves cause plants to expend energy in an attempt to



save tissue that is dead.

You may see some algae on the front glass from time to time that will need to be wiped off. Water changing consists of about a 15%-20% change every month or two. You'll find that an aquarium such as this will give you a large amount of stability and the plants will keep excess ammonia, nitrite, and nitrate down to very low levels, so as not to overwork your biofilter. Lights will need to be changed about twice a year and that's pretty much it for maintenance other than feeding the fish.

While in this example I used a South American community as the basis you could easily build an African community around plants such as Anubias, Ammania, Lil>opsis, and Nymph>a. A Southeast Asian community might contain Cryptocorynes, Aponogetons, Criniums, and Rotalas. The combinations and possibilities are endless. Your imagination is the only limiting factor.

If you need ideas for aquascaping your tanks with plants there are many good books available at your local fish store that show naturally planted tanks in very beautiful settings. Books by Tetra and Dupla come to mind immediately as good examples for someone looking f or aquascaping examples.

I hope I've managed to help some of you that are interested in plants, and if you weren't interested I hope I've managed to nudge you enough to try live plants.

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May be reprinted by aquarium societies provided two (2) copies of the publication the article appears in are sent to the following address: SFAS, Inc. P.O.Box 34069 San Francisco, CA 94

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September	11 - 13	TROPICAL FISH SOCIETY OF RHODE ISLAND AUCTION AND SHOW
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