



# AQUATICA

THE JOURNAL OF THE BROOKLYN AQUARIUM SOCIETY  
VOL. XXIII JANUARY ~ FEBRUARY 2009 No. 3

## SEA ANEMONES



Illustration:  
Courtesy of Park Slope Gallery



# AQUATICA

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Meetings are open to visitors. Refreshments are served. Membership is \$25 per year family/\$20 individual/\$15 for students under 14. Send inquiries or membership checks payable to:

**Brooklyn Aquarium Society** c/o Membership Chairperson, P.O. Box 290610, Brooklyn, NY 11229-0011.

On occasion, the Brooklyn Aquarium Society uses its mailing list to send notices of interest other than society business to our members. If you do not wish to have your name used in this manner call, **the Hotline** 718 837-4455 and leave a message.

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# BROOKLYN AQUARIUM SOCIETY CALENDAR OF EVENTS 2009-2010

## Happy New Year

**FEB 13 ~ Gene Kogan ~ How to Raise, Breed & Feed Angelfish & Glo-Lite Danios** ~ Marine fish & aquacultured corals, freshwater fish & dry goods auction • Discount books & sales.

**MAR 13 ~ Bob Larsen ~ The Glorious Guppy** ~ Freshwater & marine fish, aquacultured corals, plants auction • Discount books & sales.

**APR 10 ~ Tony Vargas ~ Diving On The Philippine Reefs** ~ Marine fish & aqua-cultured corals, freshwater fish & dry goods auction • Discount books & sales.

**MAY 8 Spring Auction** ~ Freshwater fish, plants, marine fish, aqua-cultured corals & dry goods auction; including a 55 gal tank & stand • Raffles • Discount aquarium books & sales • Door prizes.

**JUN 12 Meet The Experts** Experts will answer your questions at a Freshwater fish table, Plant table, Marine table and a Live/Frozen foods table. Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction • Discount books & sales • Door prizes • Raffles • BAS Elections.

### Summer Break July & August

**SEPT 11 ~ TBA**

• Freshwater & marine fish, aquacultured corals, plants auction • Discount books & sales.

**OCT 9 ~ Fall Giant Auction** • Freshwater fish, plants, marine fish, aquacultured corals & dry goods auction • Discount books & sales • Raffles • Door prizes.

**NOV 13 ~ Greg Sullivan ~ Building Filter Systems For Fresh & Marine Aquariums** • Freshwater & marine fish, aquacultured corals & plants auction • Discount books & sales

**DEC 11 ~ BAS Holiday Party** Members, their families & friends • All you can eat dinner.

• Fish Bingo & prizes • BAS Awards presentation.

All Events held the 2nd Friday of the Month at 7:30pm at the Education Hall of the  
New York Aquarium ~ Surf Avenue & West 8th Street ~ Brooklyn, NY (unless stated)  
We request a \$5 Donation for non-members, good towards membership the night of the event only.

**FREE REFRESHMENTS AND FREE PARKING AT EVERY MEETING- UNLESS STATED**

### NOTICE TO ALL MEMBERS

A motion was made, seconded and passed at the March board meeting (3/7/08) that membership cards be made up and handed out the night a person joins the BAS. If you join or renew by mail you must come to the next general meeting to get your card. Publications will still be sent by mail.

Web memberships do not get a card, and only get publications that may be on-line. The cost of mailing has gone up and this is a cost-saving measure.



# THE COLUMBIAN TETRA CHALLENGE

Breeding *Hyphessobrycon columbianus*



**M**y friend, and fellow fish nut, **Bob DeBonis**, acquired a group of eight Colombian tetras. This is a very beautiful large tetra that has a blue and silver body with red dorsal and tail fins. This species of tetra is somewhat rare in the hobby and, from what Bob has told me, not that easy to breed. He asked if I would want to try to get them to spawn I could not resist a challenge so I said "sure, why not?" I have been fortunate in breeding fish species, but this has been with cichlids and catfish. I have little experience with tetras or Characins of any kind. I thought this may not be an easy task, but I was determined to try. I set them up in a 10-gallon high [H x L x W] tank with driftwood, almond leaves and jammed the tank with java moss. I figure that this would be a good holding tank while I set up a breeding tank. I had planned on using a 10-gallon long [H x L x W] aquarium that would have

sm a ll clay flower pots on the bare bottom to support a plastic mesh screen that would be approximately 3 inches off the bottom. Above the screen would be some java moss and artificial yarn mops that I use for killie fish spawns. I figure that the tetras would scatter their eggs over the moss and yarn and that some eggs, if not most, would fall thru the screen onto the bare glass bottom. Once through the screen, the spawning group would not



be able to eat the eggs.

A little history on this species: they come from Columbia, South America (hence their name). They grow to a length of 2 – 3 inches, and their water conditions are hardness of 6 – 15 dH, a pH of 6 – 7 and a temperature range of 75° – 81° degrees Fahrenheit (24° – 27° degrees Celsius). They are a schooling fish that enjoys its own company. They will eat just about anything – flakes, frozen food, freeze dried or live food (especially black worms). They scatter their eggs over the bottom and in the plants.

These beautiful fish were full grown at 2 3/4 - 3 inches long and tall by tetra standards. The breeding environment was 6.2 pH, with a water temperature of 80° degrees Fahrenheit. I started performing my weekly water changes and noticed something darting across the bottom of the tank. The breeding group stays at the top and middle of the tank. Looking closer at the bottom of the tank I noticed several tetra fry of different sizes. This means that the tetras have been laying eggs for some time in this tank. I think that the most interesting point on breeding fish is what makes them comfortable enough to breed in an artificial environment. Good, high quality foods, regular and consistent water changes, along with an established aquarium environment that suits the particular needs of the species of fish you're working with, will bring a successful spawning of the fish species (most times).

I removed the breeding group

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and placed them into a 35 - gallon aquarium with the same type of water and environment conditions, except for the Java moss and mops. I want to raise the brood that exists and not have multiple broods occurring in several tanks. The fry I left in the original tank and feed them frozen baby brine shrimp and frozen rotifers. I also feed them crushed plant flakes and live vinegar eels. The fry grow fast. I believe that the parents will eat the eggs recently laid but not eat the hatched

fry. This may not be true with the larger siblings, as they may try to munch on their younger brothers and sisters. I will remove the larger fry and place them into a small tank. This allows the small ones to rapidly gain size while keeping the larger ones in a holding tank. When the fry are similar sizes, I place them with the original group.


Columbian tetras are a very beautiful and interesting fish to raise and breed. They will eat just about anything and get along with other fish their size. They may bully and fin nip smaller fish. These fish would be a welcome addition to any community aquarium. To enhance their colors, keep them in well-planted aquariums and feed foods that are high in beta-carotene, a natural color enhancer.

Get some Colombian tetras and enjoy them!





**Robert DeBonis** is a BAS board member and as such has taken on the job of looking for pertinent articles for *Aquatica*. The following article caught his eye and he brought it to my attention, and I had some questions about its accuracy and the many comments made online about this article. I suggest interested readers log on to [www.practicalfishkeeping.co.uk/pfk/pages/item.php?news=1899](http://www.practicalfishkeeping.co.uk/pfk/pages/item.php?news=1899) and read the extensive discussion that this report elicited.

Following is Bob's letter, I thought readers should be aware of the concern that reflects Bob's, my, and the Board's thinking about the threat that over-collecting fish has on the wild population.  JT

Dear John,

I read the comments on the article when I first contacted you. I went back and re-read it including the comments sent in after I first read it. It seems opinions vary from "expert to expert," but as a hobbyist who received some of the original wild *Danio Margaritatus* (Galaxy Rasboras) last year or the year before, I do believe they are endangered in the habitats they were originally found in.

I've read too many articles over the last couple of years indicating how few are being netted from their original habitat to believe all is well with them.

That is not to say they don't exist abundantly in other areas in Myanmar where they have not yet been discovered, but that is just speculation. Regarding *Puntius denisonii*, even the skeptics about over collecting acknowledge that destruction of the rain forest and over pollution of their habitat is causing declines in their numbers to what "may be" dangerous levels. My point is that like Global Warming, when the evidence becomes scientifically measurable, it may be too late to reverse it. Overcollecting may only speed up the inevitable; however, at some point it becomes a moral and philosophical issue.

Do we need to continue the wholesale extraction of wild fish from their natural habitats to meet hobbyist demands for cheap fish when we have successfully bred them in captivity; or will we do the responsible thing as stewards of the environment and restrict collecting to a reasonable level to give the fish at least a fighting chance to survive in the wild? It is my rather conservative opinion that as long as a captive raised fish is available, the only time wild stock is necessary is for breeding purposes to strengthen the genetic diversity of the fish. My position on this is firm, but as long as money is the prime mover of the hobby, this may be a lost cause.

I don't think it is misinformation to print this in *Aquatica* because as a leading Aquarium Journal we should print credible controversial articles based on scientific research and get our members involved and thinking about these issues. Besides, the article does have a reputable pedigree, **Prasad G, Ali A and R Raghavan** (2008) - **Threatened Fishes of the World: *Puntius denisonii*** (Day 1865) (Cyprinidae). **Environmental Biology of Fishes**(2008) 83:189-190.n. These are important issues that can have Global implications. They can be compared to the now famous Butterfly theory in physics (Chaos theory) which attempts to explain how a butterfly flying in the Pacific can effect climate thousands of miles away and why long term weather prediction with any degree of accuracy may be impossible even in the future.

As the editor, if you decide to print the article, which I hope you do, you may want to add a footnote about the ongoing controversy involving opposing opinions concerning the overcollection and near extinction of these fishes.

As always best regards,

*Bob*

# *Puntius denisonii* THREATENED BY AQUARIUM TRADE



Scientists have highlighted the threatened conservation status of the Red lined torpedo barb, *Puntius denisonii*, a popular aquarium fish. **Prasad, Ali and Raghavan** summarised the current knowledge on *Puntius denisonii* in the latest issue of the journal *Environmental Biology of Fishes*, as part of the journal's regular *Threatened Fishes of the World* series.

Their paper claims that *Puntius denisonii* is officially regarded as "Endangered", and that the aquarium trade is responsible for the demise of the fish.

## Population decline

Raghavan, who wrote a paper on the "boom and bust fishery" of South India's Western Ghats region, said that the species has a highly fragmented distribution and is restricted to certain parts of the Chalakudy, Kallar, Periyar,

Achencoil, Pamba, Valapattanam, Chaliyar, Chandragiri and Bharatapuzha rivers of Kerala.

Referencing an article by **Matt Clarke** of *Practical Fishkeeping*, Raghavan said that the species was still being exploited on a large scale, despite serious population declines.

A study undertaken by **Gopi** in 2000, which examined the freshwater fishes of Kerala State, found that *Puntius denisonii* was "rare". A 2006 study by **Kurup** and **Radhakrishnan**



recorded the species as "very rare".

In 2004, a study by **Sudhi** claimed that the population was dwindling at an annual rate of 70%.

Juvenile captive-bred *Puntius denisonii* filmed at Aquarama 2007, Singapore.

### Captive breeding

Thankfully, *Puntius denisonii* is being bred in captivity on a commercial scale in Indonesia.


However, at present consumer demand is not pushing retailers to demand captive-bred fish and it remains difficult to tell whether fish on sale in retail outlets are captive-bred or wild caught.

As a result of conservation concerns *Practical Fishkeeping* advises avoiding this species unless you can be sure stocks are captive-bred.

Prasad, Ali and Raghavan said that some fisheries research institutes had now initiated conservation programmes to breed the species in captivity.

The authors recommend that authorities generate data on population dynamics, stock characters and the life history of the fish.

They have also suggested that catch and effort is reduced through efficient fisheries management programmes, and have recommended that in-situ conservation strategies, such as no-take zones and protected areas, are established to help protect the future of the species.

*Puntius denisonii* is also seen on sale as Denison's barb and Miss Kerala and is known locally as Chorakanni and Chorakaniyan. 

For more information see the paper:

Prasad G, Ali A and R Raghavan (2008) - *Threatened fishes of the world: Puntius denisonii* (Day 1865) (Cyprinidae). *Environmental Biology of Fishes* (2008) 83:189-190.

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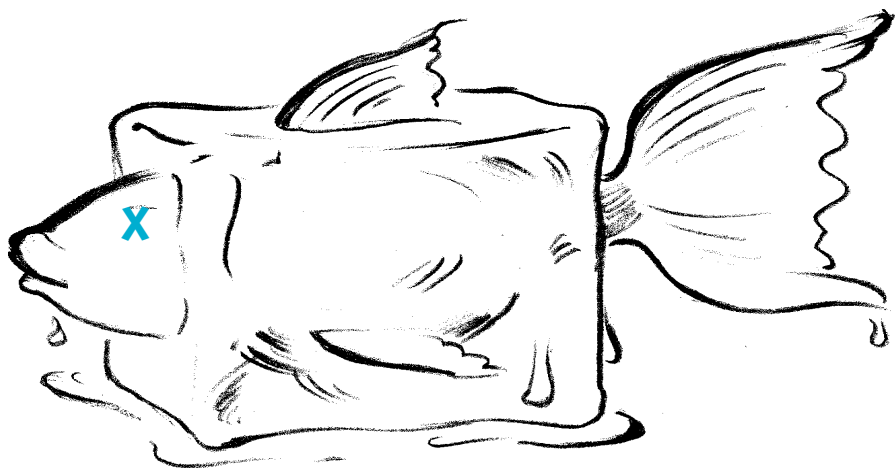
To read some of the other comments generated by this article go to: [practicalfishkeeping.co.uk/pfk/pages/item.php?news=1899](http://practicalfishkeeping.co.uk/pfk/pages/item.php?news=1899)

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# HOW I SURVIVED AN ICE STORM, BUT MY FISH DIDN'T!



**T**o say I had a really bad weekend is the understatement of the year...and it just didn't get better! Here's what happened... On December 12th, there was an ice storm up here in New England; you caught some of it down in Brooklyn that weekend also. I awoke to discover that the power was out...something that has happened here in the past. The outage started about 5:30 am Friday morning and my son Andrew was away at college. It was a good thing too; his room would have been like a deep freeze.

I've joined a small local fish society here in Vermont, the Otter Valley Aquarium Society, and this year I offered to hold their holiday party at my place on Saturday. But with no heat, no lights, no running water (an electric pump brings my water up from my well), I had to cancel the party. So now here I am with all this food in my fridge...none of it went bad since the kitchen was colder than the fridge.

In the summer when power goes out due to heavy rainstorms or lighting strikes, my fish have all survived. Past

power outages in the winter haven't been longer than a couple of hours...and that's not much of a problem, and I've never lost a fish because of them...This time I wasn't as lucky.

Not only did I freeze my ass off, but I lost a 55 gallon tank filled with over half a dozen adult angelfish that were given to me as young angels by **Al DiSpingna** and **Bob Strazzulla** when I first left Brooklyn to live here. Along with the angels, I lost 3 huge synodontis catfish I've had for 7 or 8 years. There was nothing I could do. I tried the hot water bottle



trick filling the bottles with water I had boiled pasta in the night before, (luckily I had put in propane burners a few years back) so with a match I could boil water... but there was just too much cold water in a 55-gallon tank to really heat it for over 24 hours. The temperature in the tank went down to 40°F. And that was much too cold for the fish to handle...All gone.

The power didn't come on until Saturday morning at about 10am. That was over 30 hours of cold. As it was, I moved my canary and finch cages from the kitchen wrapped in big bath towels, and my daughter's dog I'm dog sitting for to the TV room where I have a fireplace and spent the night in front of the fire place - feeding logs to the fire every couple of hours all night long. I slept in a chair I dragged right up to the fireplace and put on a couple of sweaters. I was exhausted by Saturday morning I checked and the birds made it through the night. I immediately went to the front room to check the 55 gallon tank...It was a horrible sight. From what I could tell, all the angelfish were dead... I just couldn't face dealing with cleaning it out...I said to myself, I'll do it Sunday.

I also have a small fish room in my basemen with about a dozen tanks of killiefish that I thought would have the same fate...but lo and behold, the basement seemed to be warmer... not by much, but enough for all my killifish to survive.

No heat, no water, no lights. Thankfully, I have oil lamps and flashlights. On top of that, I ran out of a medicine that I take and the pharmacy was also closed. the whole town, for what it is, was closed.

That morning at about 9 am, I called the pharmacy and they had just gotten power and told me to come down and pick up the meds.

The warmest thing I did Saturday morning was to ride in my car. When I got back to the house, the lights were on.

The power came on Saturday morning at about 10am. That was over 24

hours of no heat, filtration and aeration for my tanks.

I quickly turned up the heat in the house and called for a delivery of fuel oil. My tank was down to 1/4. They were here in about an hour...up here they're serious about heat...if you don't have it you die...just like my angels!

Sunday morning, I gathered my water change bucket, hose and a large net and went to work...how sad to dip out a full-grown angelfish and put it in a plastic garbage bag. How much worse to do it over and over again. Just as bad to remove two 7-inch *synodontis* catfish.

As I was in the middle of this grisly job, I spotted a flash of pink in the tank behind a large piece of driftwood. What the hell was that? Could anything have survived? And there it was; a small pink tetra given to me by my daughter who broke down her small tank in the summer to concentrate on college work. I had totally forgotten about it, and there it was it was, alive, alive! I was amazed it survived the cold and the angelfish didn't. I now call it "Pinkie the Survivor."

How this black (pink morph) tetra survived is still a mystery to me... I spoke to a friend and he said tetras can handle low

Now "Pinkie" has a whole 55-gallon tank to itself.

So the lesson I've learned is - if I seriously want to keep fish and myself alive when the power fails again...I will! I have to look into getting a generator. I just can't let this sort of thing happen again. I've checked on line and found generators that are fueled by propane and since I have a propane tank that seems to me to be the way to go.

I loved those angelfish and hated losing them since not only were they beautiful, but a gift from friends and as bad as it was, I think - what if it were a reef tank? The thought makes me shudder...You'll excuse me... I'm going to throw another log on the fire.



# CHECKERED DWARF CICHLID

*Apistogramma inconspicua*



I had obtained a group of these tiny fish from fellow fish-aholic **Larry Jinks**. Unlike some Apistos, this species did not have flamboyant red colors and they don't tear themselves to pieces in close quarters. The group consisted of a large dominant male and five smaller fish. I could not sex the others because lesser males look very similar to young females in size and coloration.

These fish originate from Bolivia and Brazil in South America and are found in the Amazon, Guapore and Paraguay River basins. Their environment is 6.5 – 7.9 pH, water hardness of no greater than 10 DH, with a temperature range of 23 – 28° degrees Celsius (73 – 83° degrees Fahrenheit). Their size is from 3.7 – 7 cm (1 1/2 – 2 3/4 inches). The female lays her eggs on the cave roof, where she remains with the eggs and fry

until they are free swimming. At that point the male and female watch over the young fry.

The dominant male is quite stunning in his coloration. From the corners of his mouth over his cheeks and gill cover are a bluish green iridescent color and a blue green shine on his sides. His anal fin starts with yellow, quickly becoming green and then blue. He controls a harem of females and chases all other males away.

I housed the group in a 2 1/2 gallon aquarium that had a couple of different types of small caves, plenty of java moss, a corner filter consisting of charcoal and ammonia chips and a heater set to 80° degrees Fahrenheit. The fish acclimated well to their new home. Even after several weeks, there were no nipped fins. After a couple of months, I noticed that a couple of the fish had started to change color. The male was becoming more vibrant in his blues and green coloration. Two smaller fish had changed to a bright yellow color with a black band over their eyes. The male was jumping from cave to cave and chasing smaller Apistos away. There were no “dither” fish in this small tank, so the male contented himself with chasing smaller males. While performing a water change a female charged out of the cave and attacked the siphon hose. A sign she is guarding fry or eggs. I decided to remove all the other fish from the tank and relocate them to a five-gallon tank. Mom was left alone to care for her brood.



**I noticed that a couple of the fish had started to change color. The male was becoming more vibrant in his blues and green coloration. Two smaller fish had changed to a bright yellow color with a black band over their eyes.**




About a week later I noticed several tiny fry at the entrance to the cave. Their bellies still had a yolk sack so I did not feed them. I started to perform 10% water changes, opposed to the usual 30%. A

few days later the fry were out and about with mom close by. This tank had a lot of algae in it that the fry could pick on for a “snack.” I feed a mixture of finely crushed cichlid flakes, “Golden Pearls” and imitation brine shrimp and frozen baby brine shrimp. These fry must be the slowest growing babies I have ever witnessed, after 3 months the majority was still only a half-inch in size.

Like many dwarf cichlids they are tolerant of small tank space and will take any food types.

*Apistogramma inconspicua* are a very interesting and well-behaved cichlid and would be ideal for a small community aquarium. They are great at keeping the snail problem under control.

Try these little Apistos; I know you will enjoy them. 

# LIGHTING

## FOR SALT WATER & REEF AQUARIUMS

**L**ighting for aquariums can be a very confusing topic. There are many opinions out there; some are based upon hard data, others upon personal experience. Which lighting to choose: Normal fluorescent (NO), Very High Output (VHO) fluorescent, metal halide (M/H), compact fluorescent (CF) or a combination thereof? How many fixtures? What wattage bulb(s)? All of these questions must be answered before you go out and spend a lot of money on a lighting system that may or may not be adequate for your tanks' inhabitants.

By asking yourself the following questions, you will, in the long run, save lots of time and money.

### 1 What type(s) of organisms do I want to keep?

This is the prime factor to consider when purchasing as lighting system. If you are going to try your hand at a reef tank containing primarily mushroom anemones and soft corals, VHO lighting, even in a deeper tank, may be sufficient (although CF or MH lighting would be even better). If you are going to keep predominantly stony corals, especially SPS (small polyped stonies) corals like *Acropora*, *Stylophora*, and the like, compact fluorescent or metal halide lighting are perhaps your best options, especially if you wish to keep the intense color seen in many of these species. There is one last option, that being that you will want to light

the tank simply to view the inhabitants, in which case Normal fluorescent lighting will be sufficient.

### 2 How long and wide is my tank?

If you are using fluorescent lighting, the number of bulbs needed becomes more complex as the limiting factor becomes with width of the tank. In order to achieve the intensity required by some stony corals, you may need three or more VHO fluorescent bulbs (Normal fluorescent bulbs are not advised except on extremely shallow aquaria or tanks where no hermatypic corals are to be kept). Compact fluorescent lighting comes pre-set for various tank widths and lengths, and

there is little guess-work when using this type of fluorescent lighting. Whenever possible, compact fluorescents should be utilized in place of VHO lighting. When dealing with metal halide lighting, the number of lights you will need depends, in part, on the length of your tank. In general, it is safe to say that if your tank is 2' long or less, one metal halide fixture should do. However, if your tank is longer (3' or better) you should have at least one metal halide fixture per two foot length (i.e. for a six foot long tank, three metal halide fixtures should be sufficient). If the tank is overly wide ( $> 2'$ ), you will need to take that into account as well, and add an additional lighting fixture or two to compensate for the added width.

### 3 How deep is my tank?

This is THE most important to know when deciding on a lighting source. Forget about using the old adage of "watts per gallon", since with today's variety of lighting sources it has, in my opinion, little validity. My personal rule of thumb is this: that if the tank has a depth  $< 16"$ , you might consider Normal or VHO fluorescents, depending on what it is you want to keep. If the tank depth is  $16"$  to  $20"$ , VHO or compact fluorescents should be used to achieve light penetration to the bottom of the tank. Anything greater than  $20"$ , use either compact fluorescent or metal halide lighting, depending upon the depth. A good guide to choosing the proper wattage is that for tanks  $16"$  or less in depth, anything from a 110 watts to 220 watts will be sufficient. For deeper tanks, use either 250 watt or 400 watt bulbs.

From research I have done, it has been noted that NO and VHO

fluorescent lighting do not penetrate as far as and with the same intensity of equal wattage of compact fluorescent and metal halide lighting. In fact, it was noted that half the intensity of NO fluorescent lighting was lost within the first  $6"$  of depth while with VHO fluorescent the same loss occurred within the first  $12"$  of depth. Power compact fluorescent lighting lost half its intensity at approximately  $19"$  of depth. With metal halide lighting of equal wattage, this same loss did not occur until  $23"$  of depth. This is mainly due to the fact that any fluorescent light source is considered to be as line light source, and produces a diffused light. Metal halide, on the other hand, is considered a point source light. Water is a diffusing medium, so by using an already diffuse light source over a diffusing medium, you are further diffusing the light (i.e., making it less intense). This situation, while it does occur with metal halide, it not as obvious as a point source light has greater "punching power." This is not to say that metal halide lighting has no place in tanks  $< 16"$  deep. Quite the contrary. It has been noted that using low wattage metal halide, even in shallow tanks, increases coral growth and promotes color intensity, results that are not always seen with other lighting sources.

### 4 What type of housing should I use?

There are several varieties of bulb housings available to the hobbyist, with each style providing a different area of coverage and reflection rate. Each fixture throws off its own "cone of light," and this needs to be taken into consideration when choosing fixtures. Also, each shape has its own reflective properties that are a consideration as

well. When using metal halide, you should purchase fixtures that are parabolic in shape if possible. This type of fixture will direct most of the light down into the tank. Pendant metal halide lighting is a good example of this. The disadvantage to this is that light is focused into a somewhat narrow area. There are wider curved fixtures that throw a somewhat focused beam of light into the tank, and these work out well for the majority of uses. Boxlike fixtures will also work providing you can replace the (usually) flat reflective surface with a curved one. With NO or VHO fluorescent lighting, you have little choice in the fixture style. The shapes most commonly available appear to be adequate to the task at hand. Compact fluorescent lighting, on the other hand, provides fixtures which, while not as good as parabolic reflectors, provide more focusing of light than do other reflectors used with fluorescent lighting. In order to get maximum reflection into your tank, make sure the reflective material used in fluorescent fixtures is made of polished metal or an equivalent material. Plastic reflectors tend to yellow over time, and reflect less and less light as they age.

## 5 What type(s) of bulbs should I use?

When choosing any type of lighting, you should use a bulb whose Kelvin rating is no less than 6500 K. Lower Kelvin ratings will provide you with a light that is yellow to very yellow, and will throw off the color rendering a bit. With reef tanks, you will find that you may need to supplement this lighting with actinic 03 bulbs to correct the spectrum. It is my opinion that bulbs of 6500 K to 10,000 K are adequate for

most situations, although some hobbyists, including myself, have used 5400K bulbs with great success. There are 20,000 K bulbs available, but they tend to be quite blue and, as in the case of a <6500 K bulb, the color rendering may be thrown off. If you decide to go with a 20,000 K bulb, you may find that you will need to supplement with one or two NO or VHO full spectrum bulbs to help improve the color rendering. 20000K bulbs have much less red in them than do the lower Kelvin bulbs and tend to make things look very blue. When choosing a compact fluorescent system, you should attempt to find bulbs of a color temperature of 6700K and 7100K (if you like info on this, I can post that as well). A 1:1 combination of these bulbs is ideal for reef tanks.

## 5.1 Are actinic bulbs necessary? (reef systems only)

The next question that comes up is if supplementation of actinic 03 radiation (that is, lighting that ranges from ~380 nm to ~480 nm, with a major peak at ~420 nm) is needed with the higher Kelvin bulbs. In my opinion, if you are using a bulb 10,000 K or greater, supplementation is not absolutely needed. HOWEVER, the increase in coral growth and color provided by this supplementation makes it well worth the additional expense. Supplementation is advisable if you are using bulbs of 6500 K or less, and especially if you are using lighting of 5500 K or less. When using fluorescent lighting, you will need to use a combination of bulbs in order to get both as proper spectrum for the corals and a good color rendering for you. Usually a 1:1 ratio of actinic to full

spectrum should be sufficient for most purposes. If you decide to use compact fluorescent lighting, a 1:1 ratio of 7100K and 6700K bulbs is, in my experience, your best choice for reef systems as this combination closely resembles that of the absorbance spectra for *zooxanthellae*.

In clear reef environments, the wavelengths of maximum penetration fall between 440 nm and 490 nm. This may explain, in part, the spectral peaks of chlorophyll b and some carotenoid pigments. This is not to say that other wavelengths are not represented or utilized by *zooxanthellae*, just that their energy relative to the above-mentioned range is not as great, especially as one goes deeper. It must be remembered that the greatest absorbance occurs within the relatively narrow range of ~ 450 nm to ~ 460 nm. So, where does this leave the reef hobbyist? While the actinic 03 bulb is adequate to the task, the 7100K compact fluorescent tubes appear to be superior since it peaks at ~460 nm (with a smaller peak at ~420 nm), matching more closely the absorbance spectra of *zooxanthellae*. Utilized with a compact fluorescent of 6700K, the spectrum matches very closely that of the absorbance spectra for *zooxanthellae*, with peaks in both the ~400 nm to ~550 nm range and a smaller peak in the ~650 nm to ~700 nm range. In theory, then, the *zooxanthellae* are able to utilize a greater portion of the light hitting them than they might using an actinic 03/ full spectrum bulb combination. Practical experience has shown me, as well as a host of other hobbyists, that the use of these bulbs in combination allows for superb stony and soft coral growth and color, matching those produced by metal halide lighting of similar wattage.

## 6 Should I use a reflector with my lights?

The answer to this is a resounding **yes**, no matter what type of tank you are keeping. Fortunately, most fixtures come with a reflector already built in. You want to use a reflector that is made of polished metal, as this will provide the highest amount of light reflection. Many reflectors are painted white which, while it does reflect light (not as much as polished metal, though), tends to diffuse the light as well and so is not as desirable as a reflective material. If at all possible, you should place the reflector so that it is parabolic in shape, as this will provide maximum reflection. Next best is a simple curve. The least effective is a flat surface although it will do if no other option is available.

## 7 What about fluorescent bulbs with the built in reflectors, or "twist" type bulbs. Are they really that much more effective?

While both are indeed more effective, they are not that much so and may not be worth the additional cost. In the case of a "power twist" type bulb, you may get an increase in intensity of 10%. This means that with a 40 watt bulb, you will get an output equivalent to that of a 44 watt bulb. Bulbs with built in reflectors also provide additional intensity, but perhaps not as much as is thought. While light is indeed "lost" to the tank from the top of the bulb (unless a reflector is used), it must be realized that this light, bouncing off the reflective material, is then passed AGAIN through the bulb. By then, there is a slight loss of intensity. So, the desirability of such lights is

really up to the individual hobbyist, but in my opinion a good in-fixture reflector is far superior to a bulb with a built in reflector.

## 8 How high should my lights be above the tank?

This really depends on the type of light you are using. With fluorescent lighting of any type, you will want the fixture as close to the tank as possible so that way the maximum amount of light will reach the organisms. With metal halide lighting, generally speaking, 6" above the water is sufficient. Remember that for every foot above the tank, you will lose half the intensity. The closer, the better. HOWEVER...if your corals are not used to the more intense metal halide light (going from VHO to metal halide, for instance) or if you are changing bulbs, going from a lower Kelvin rated bulb to a higher one or just changing the bulb after 2500 hours of burn time, you may want to bring the lights up a bit higher, perhaps 12" to 18" off the tank, to give the organisms time to adjust to the increased UV output. Then over a period of a few weeks (how long will depend on how your corals react to the new lighting), lower the lights until they are once again 6" above the tank.

## 9 What about using UV shields on metal halide lamps?

Is this a necessity? In my opinion, no it is not. Most shields will block out a good portion, if not all, of the UV and possible the actinic 03 radiation put out by the bulb. In some corals, especially the more colorful species, it is the UV that provides the need for UV protective pigment production. It is these protective

pigments that provide the intense colors we see in our corals. Without the UV, I find that the colors tend to fade with time. If you decide to go sans shield, you **MUST** protect the bulb against direct water contact. A slight bit of water spray, such as from an airstone, will usually not bother the bulb, but a direct splash may indeed shatter it.

## 10 How long should the photoperiod be?

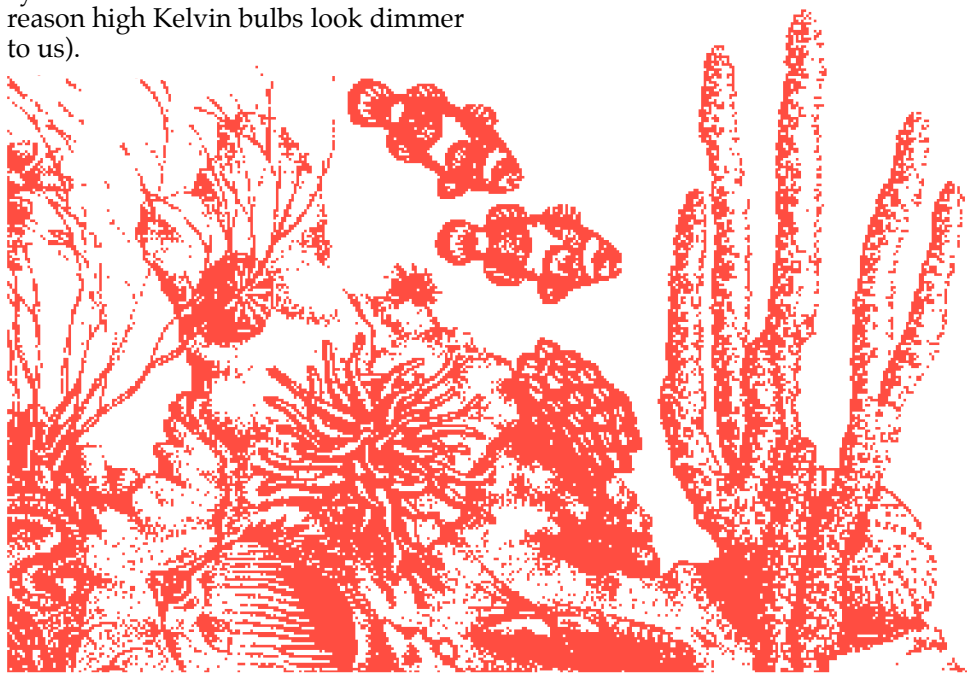
Under normal circumstances, a photoperiod of 8 to 10 hours should be sufficient. More, and you run the risk of an algae bloom and/or stressing your corals due to an extended photoperiod. With less, your corals and freshwater plants may not do as well due to a lack of sufficient photoperiod. The easiest way to regulate photoperiod is to place your lights on a timer. This allows for an automatic day/night cycle without you needing to be there. Some reef hobbyists have arranged their lighting so that the actinic 03 bulbs come on first, then the metal halide(s), this being done so as not to "photo-shock" the corals. It should be remembered that although blue light may not appear bright to us, it is bright to the corals so there may be no benefit to doing this. One problem that faces hobbyists is that they are not home a good portion of the day. To compensate for this, they leave the lights on well past the 10 to 12 hours actually needed. Here again, the timers come into play. It may be to your advantage to set the timers so that the lights come on at 10:00 a.m. or 11:00 a.m., and go off anywhere between 8 pm and 11 pm. This way, the organisms in question get the light they need, and the lights are on when you are home to enjoy the tank.

## 11 How often should I change my bulbs?

Generally speaking, ANY bulb should be changed after 2500 hours of burn time (3000 hours at most). Much after this, the intensity decreases dramatically, and you tend to have a spectral loss at the blue/UV end. Changing bulbs at a regular interval will avoid this. As an example, suppose you are burning your lights 10 hours a day. Assuming 30 days per month, you would want to change the bulbs every 8.5 months at minimum or 10 months at maximum. Do NOT assume that just because a light is bright means that it is still valuable as a light source. This is not always the case.

Our eyes are far more sensitive to the red/yellow/orange areas of the spectrum, whereas the greatest loss occurs down at the blue/UV portion (a portion of the spectrum to which our eyes are not as sensitive. That's the reason high Kelvin bulbs look dimmer to us).

Over time, as the bulbs dim, your corals become accustomed to the lower spectral intensity. Suddenly, as you change the bulbs, these animals are blasted with higher levels of UV radiation as well as visible light. This is the primary cause of "coral burn" or coral bleaching in captive specimens. In order to avoid this, whenever you install new lighting, or when changing from a lower intensity bulb to a higher intensity bulb, you might want to raise the fixture higher over the tank. Then over a period of a week or two, slowly lower the fixture back to its original height. This applies mostly to metal halide lighting as other lighting sources do not seem to produce the same effect. This will give the corals time to adjust to the greater intensity. If raising the lighting is not an option, placing a sheet of glass or UV blocking acrylic between the bulbs and the corals should suffice.



# An Old Favorite Revisited: The Paradise Fish



# The Paradise Fish

**FAMILY:** *Anabantidae*

**SCIENTIFIC NAME:** *Macropodus opercularis*

**COMMON NAME:** Paradise Fish.

**REGION:** Shallow waters of eastern Asia.

**SIZE:** up to 4 inches.

**TEMPERATURE:** Between 59°F-75°F.

**WATER QUALITY:** pH 6.0 to 8.0 and dGH 30°

**HABITS:** Quarrelsome, not a good community fish. Best kept in a species tank.

**FOOD REQUIREMENTS:** Omnivorous; live, frozen & flake foods.

**SEX:** Male is more colorful and has substantially longer fins.

**BREEDING:** Easy to breed. Young fish and females can be kept together, but adult males will fight if kept together in a small tank.

The Paradise fish is the granddaddy of all tropical fish. It was first introduced into the hobby in Paris in 1869 by **Carbonnier**. It wasn't until 1876 that it was introduced into America by **Adolphus Busch** (from "this Bud's for you" fame). No kidding!

The Paradise Fish was regarded as an aquarium novelty back then and the breeders of long-tail Goldfish feared the presence of this "menacing stranger" among their highly developed but defenseless long finned beauties. Of course, they should never have put Paradise Fish in with their Goldfish in the first place.

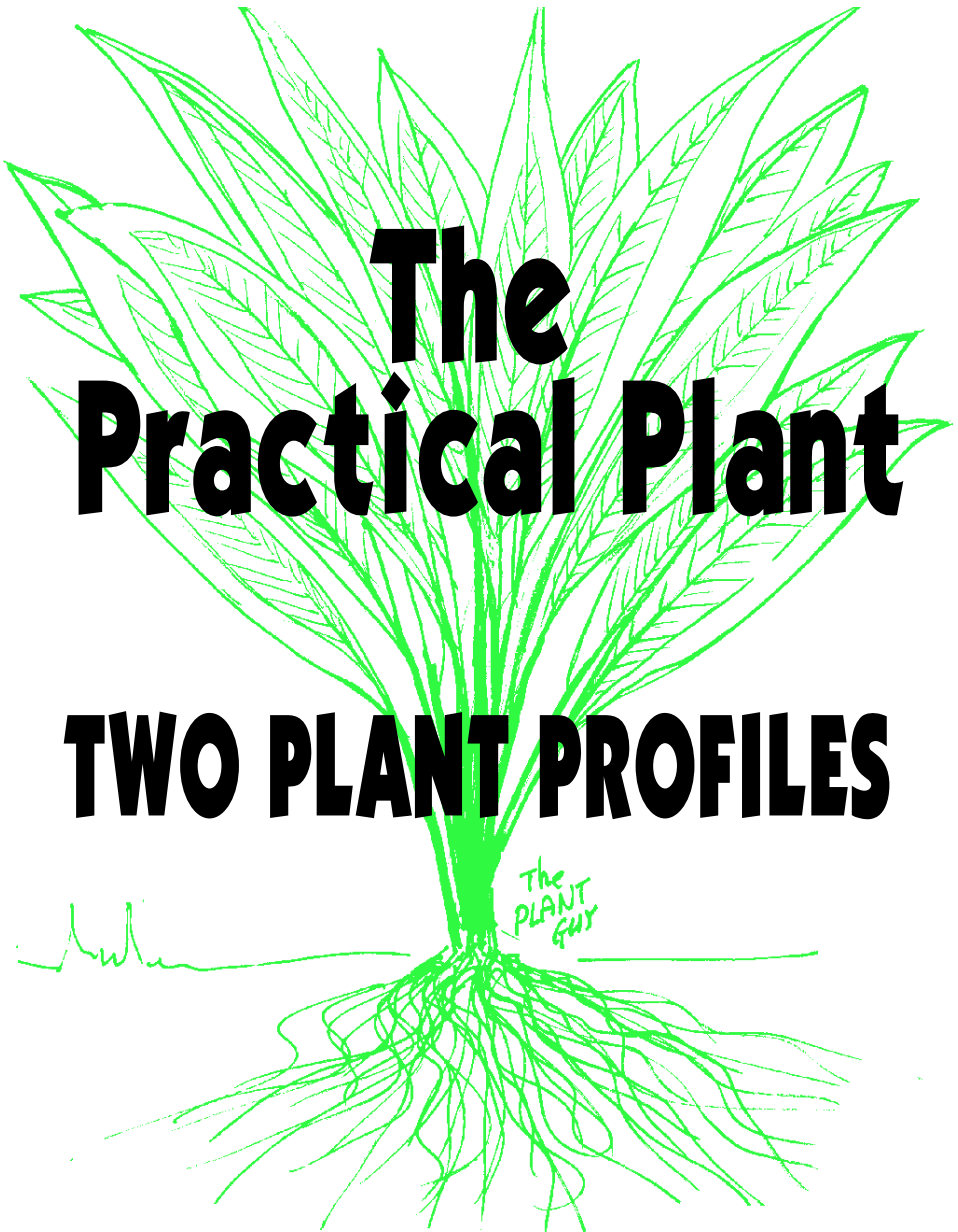
Paradise fish can withstand water down to 50°F, but should be kept between 70°F to 75°F. They are not particular about water quality. They can be very aggressive among themselves, particularly at spawning time, so it's best to keep them in a species tank that's densely planted, with a small amount of floating plants for the male to anchor his bubble-nest.

The species breeds like Bettas and the eggs will hatch out in about 24 hours. After three to five days in the nest, the fry become free-swimming and can be fed on infusoria, then brine shrimp nauplii. They're easy to raise.

Breeders have developed an albino strain and a black strain and these strains can be easily found in most shops. The Paradise Fish is well suited to pond culture, as it can handle moderate chilly spells.

This is a beautiful fish and worth another look for a small desktop tank or first fish for a beginner or, as Adolphus Busch might put it... "Hey bud, this fish is for you!"







## 1 Propagating: *Anubias nana bonsai*

**A** *nubias nana bonsai* is a great plant that deserves a place in any tank. It is a newly imported subspecies thought to be native to Cameroon. This plant is extremely hardy and tolerant of a wide range of water and lighting parameters. It is a plant that will allow for a wide range of artistic possibilities. All Anubias are considered rare because of their extremely slow growth, and this one is even more so. Because of this rarity the plant commands a high price. Despite the slow growth I have found *A. nana bonsai* to be fairly easy to propagate, it requires more patience than talent. If you like to collect oddballs and rarities then this plant is for you.


*Anubias nana bonsai* is so stunted in size it is striking. This plant is so small that the largest of its leaves are no bigger than the fingernail on my pinky. This diminutive stature makes it well suited as a foreground plant. The Anubias plants have tough leathery leaves which are left alone by most fish. Anubias in nature are not true aquatic plants as they are only submerged for

part of the year. Yet the plant has proved to be highly adaptable and will readily accept a life permanently submerged. They will rarely flower in the aquarium. It is best to grow *A. nana bonsai* anchored onto a piece of stone or driftwood. Tie them in place with thread. I usually recommend a 100% cotton thread to attach plants to driftwood so that the thread will rot away in time. Since *A.*

*nana bonsai* will grow so slowly, I use a polyester thread and cut it away when I am sure that the plant is firmly attached.

I am keeping this plant in a twenty gallon long tied onto rocks and driftwood. I am using Caribe Sea's "eco-Complete" as a substrate. I have a Whisper 30 hang on power filter. The aquarium is heated to 78°, the GH is about 60 and the pH is 6.8. Since the aquarium is only 12" tall, I chose a fixture made by Coralife called the "Aqualight T-5 double." I would describe the lighting on this aquarium as the "upper" end of moderate, but the plant is known to do well with significantly less light. The system is CO2 enriched as well. Since the bio-load in this system is

fairly heavy, and many of the other plants in this tank are slow growing species as well, I only supplement this aquarium with potassium and trace elements. And these are used sparingly. To propagate this plant, the rhizome is divided. It is quite firm and should be cut cleanly. Scissors tend to crush it, so it is best to use a scalpel or single edge razor blade to take the rhizome cutting.

I will also remove the roots from the cutting. I need the rhizome cutting to grow new roots so it will attach itself onto its new anchor. Cut the roots off as close to the rhizome as you can without damaging it, and then tie it in place. 






## 2 Propagating: *Cambomba caroliniana*

This is a beautiful plant. There are several species of *Cambomba* which are commonly available for sale. This particular species is probably the most common. This plant's natural range extends from the Southeastern United States down into Southeastern South America. The species name means that it originates from Carolina. Out of all the *Cambomba* species this one is the easiest to cultivate. That is not to say it is easy. This plant is fairly demanding. It requires really good lighting. It also prefers soft, slightly acidic water.

This plant prefers slightly cooler temperatures and should really not exceed 76° F. If it is kept at too high a temperature, the distance between the nodes will become extended, detracting from the beauty of this plant. If it is kept cooler, it will grow denser. *C. caroliniana* naturally comes from areas with a fairly rich substrate, so root fertilization is in order. Any of the commercial tablets will be fine; just press it into the substrate near the plant. When *C. caroliniana* is kept properly it can grow rapidly. This plant can attain lengths of nine feet. It will also branch profusely. The plant, however, is very delicate and damages easily, so it must be handled gently. The leaves are described as filiform and it divides into fine segments. Overall, the plant is green with the stems taking on a light reddish brown color. I have also read that the plant is edible, but have not

sampled it myself. Obviously, you should not keep this plant, with herbivores as it will end up on the menu.

To propagate this plant, just take some stem cuttings and plant them in the substrate. Leave the lower portion in place and it will branch profusely to generate more stems you can use for propagation. If you can meet this plant's needs, it will make a highly decorative addition to your aquascape. There are a few variants (subspecies) from various locals and each has a slightly different look. This plant is very susceptible to algae infestation which it will not be able to survive; as such, it should only be placed into well established tanks. 

**EDITORS NOTE:** Members with questions about aquatic plants or setting up a planted tank can contact **Isidore (Izzy) Zwerin**, our plant editor. You can call him at (718) 449-0031 between 7pm to 10pm, Monday to Friday.

# How to Write an Article

**W**riting articles for your club publication is easier than you may think. Most people who write articles on a regular basis do it to share their experiences with others so they also can be successful. Where would this hobby be right now if the pioneers had not shared their aquarium knowledge? For some, putting thoughts into print is an easy task. Unfortunately, this is not the case for everyone.

There are a few misconceptions about article writing, the main one being that an article does not have to be multiple pages in length. You are writing an article, not a book. Most club publications are not of a size to handle very long articles without breaking them up into monthly segments. A lot of good information can be written from one to two pages.

Second, it does not have to be written in scientific format. Unless you are writing a college thesis keep it simple. Most of your readers are going to be fellow hobbyists, some being beginners. Third, do not worry about spelling, or mistakes with grammar. A good editor should proofread your material and make the proper corrections.

When I wrote my first few articles, it took me forever. I was concerned about all the things mentioned above. After you write a few, you'll be surprised how easy it becomes. I find that making a few notes before I begin is a great help. The hardest part seems to be where to start. I usually break the article up into small parts and then paste it all together when it seems all the bases have been covered. With the help of modern day computers and word processing software, this is a very easy task. There are many different topics to write about, but most of the articles that I see in our publication talk about recent spawning success, so we'll use this as our example. Using a step by step formula like the one below can make anyone a successful author. **Let's begin here:**

### **1: The Fish**

You should list both the common and Latin name of the fish, if applicable. Tell how you came across this specie, what family of fishes it derives from, or any other information you may have, such as how long it has been in the hobby, who discovered it and when, etc. This information is available on most species that have been in the hobby for a while.

### **2: Description**

What does the fish look like? Note shape, finnage type, coloration(s) and size it obtains. List any noticeable differences between the sexes. It is also good to describe the temperament and deportment. Are they aggressive or community fish? Are they shy or not so skittish? Are they bottom dwellers or mid-water swimmers? These are just a few examples.

### **3: Natural Habitat**

Where are the fish found in nature? What country? What part of that country? Are they river fish or lake fish? Do you know anything about their natural

diet, natural enemies? Is the climate seasonal or tropical? Are there flood seasons and so on? This is one of the harder paragraphs in most articles because most of the information requires research. I find it interesting to look up this sort of information so I usually include it in my writings.

### **4: Diet**

List the foods that you are feeding. Tell how many times a day you are feeding. Are they specialty feeders? Are there any type of food(s) you would advise the reader not to feed this fish and why? Did a certain food promote color or maybe a growth spurt?

### **5: The Tank**

What is the size of the tank that houses these fish? What are the parameters of the water? List all other tank inhabitants. Tell what percentage and how often water changes are made. Give a good description of the tank interior. For example, heavily planted, lots of rock-work and caves, etc. How is the tank being filtered? What type of lighting system is in use and how long is the environment being illuminated each day? What is the normal temperature of the tank?

### **6: Spawning Tank and Conditioning**

Tell if the fish spawned in their regular tank or if a separate spawning tank was used. If the latter applies, list the size, water quality, lighting and filtration type of the tank. List all conditioning foods. Let us know if the male and female were separated for a while and then joined for breeding purposes. If a breeding group was used, list the ratios of the sexes.

### **7: The Spawn**

Note the coloration of the fish during spawning: did they intensify in color?

What was used as a spawning site? Did breeding take place in the morning or evening? If they were egg layers, were they open spawners, cave dwellers, mouth brooders, or were the eggs scattered? Approximately how many eggs were produced? How about size and color?


### 8: Rearing the Fry

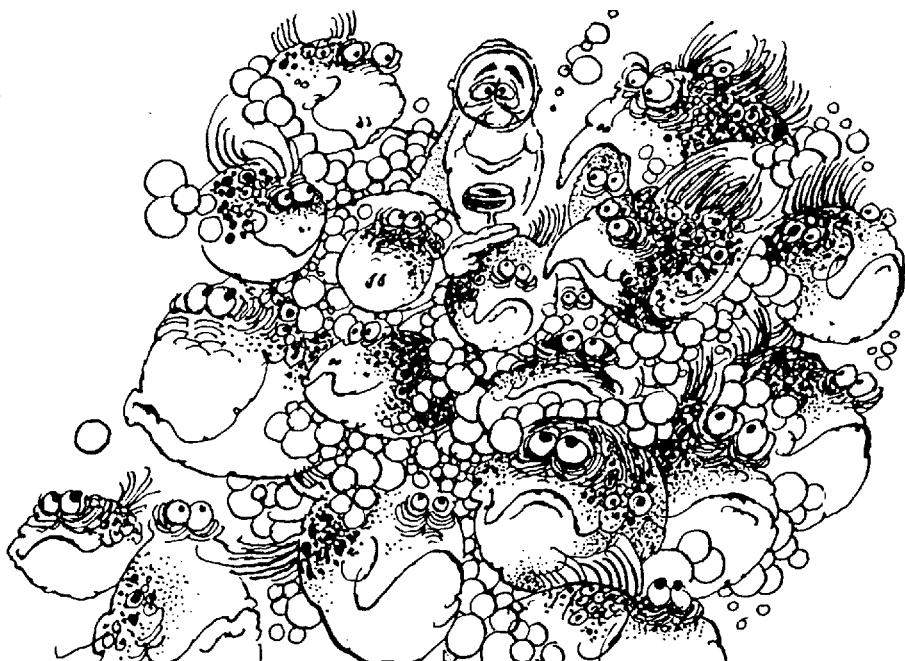
How many days did it take for the eggs to hatch? When did they become free swimming? Was there parental care, by one parent or both? How long after the free-swimming stage were the parents with the fry? List their first food, amount and frequency of water changes and ratio of fry survival.

### 9: Conclusion

Note any recommendations you may have about your adventure. Were they difficult or a good beginner's fish? Are there any unusual characteristics or behavioral patterns that you noticed? Was your experience here a good one

or are you ready to find a tall bridge?

As you can see, breaking down the article in this format allowed us to cover all the necessary information about the fish and the spawn. Using this formula would give you nine or ten paragraphs (1 to 2 pages) of good informative writing to share with others. Just place the different paragraphs in order and presto, instant article. If you go down the list, you will notice that most of the information needed for a successful spawning article is already in your head since you are the one that raised and spawned the fish. It is just a matter of organizing your thoughts on paper. When your article is complete, check for spelling and grammar errors. I find it is a good idea to put the article aside for a week or so before handing it in for print and read it over one more time. There may be a thought or two that will come to mind, which you may like to add. Give it a try. 





## The Breeders Award Program of the Brooklyn Aquarium Society

It is through the BAP that we measure our advancement as aquarists as we gain the necessary knowledge and skill to allow the species we keep to reproduce. Our purposes are to encourage more participation among the members of our club, to recognize outstanding achievements, and to share knowledge of breeding techniques.

This is a noncompetitive program, which recognizes all members equally according to their ability and willingness to experiment without regard to the size of setup or any time limits. All points earned are cumulative, over an indefinite period of time.

### POINTS & AWARDS

Every time you spawn a fish, you earn points according to our point classification list. As you accumulate points you earn:

<u>TITLE</u>	<u>AMOUNT OF POINTS</u>
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<u>Hobbyist</u>	25 pts
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<u>Breeder</u>	50 pts
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At least 20 pts must be from the 10, 15 or 20 pt category.

<u>Advanced Breeder</u>	100 pts
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At least 40 pts must be from the 15, or 20 pt category.

<u>Master Breeder</u>	300 pts
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At least 30 pts must be from each of the 5, 10, 15 pt categories, 40 pts must be from a 20 pt category. The remaining pts could be obtained from any category.

<u>Grand Master Breeder</u>	500 pts
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<u>Advanced Grand Master Breeder</u>	750 pts
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60 pts must be from 5, 10, 15 pt category and 80 pts must be from a 20 pt category.

<u>Senior Grand Master Breeder</u>	1,000 pts
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80 pts must be from 5, 10, 15 pt category and 100 pts must be from 20 pt category.

<u>Premier Breeder</u>	1,500 pts
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<u>Senior Premier Breeder</u>	2,000 pts
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<u>Grand Pubah Yoda Breeder</u>	5,000 pts
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### ADDITIONALPOINTS ARE GIVEN

- If a breeder elects to write an original article on his spawn or plant propagation, with references, an additional 5 pts will be awarded.

- 1st Time Spawn for a fish species (for BAS) will receive an additional 5 pts in addition a fish has been reclassified under a different scientific name, it will not count as a new species or as a 1st time spawn, unless it has not been bred under its former name. An additional 10 pts will be given with an original article (with references) of 300 words or more, about the spawn. The time frame for this article will be three (3) months from the date of the spawn.

## AWARDS

- 25– 100 pts [Hobbyist, Breeder, Advanced Breeder]  
 – certificates  
 300 pts [Master Breeder]  
 – 5 X 7 plaque or equivalent  
 500 pts [Grand Master Breeder]  
 – 8 X 10 plaque or equivalent  
 750 pts [Advanced Grand Master Breeder]  
 – decorative 8 X 10 plaque or equivalent  
 1,000 pts [Senior Grand Master Breeder]  
 – large plaque/ trophy or equivalent  
 1,500 pts [Premier Breeder]  
 – larger trophy or equivalent  
 2,000 pts [Senior Premier Breeder]  
 – largest trophy or equivalent  
 5,000 pts [Grand Pubah Yoda Breeder]  
 – huge trophy

### SPECIALTY SPECIES PROGRAM & MAINTAINING SPECIES PROGRAM

- |  |            |
|--|------------|
| • Anabantoids  | 6 species  |
| • Brackish Water   | 3 species  |
| • Catfish  | 5 species  |
| (1 species must be from other than Corydoras, Asidurus, Brochis) |            |
| • Characins  | 6 species  |
| • Cichlids - New World (American)                                | 12 species |
| • Cichlids - Old World (African/ Asian)                          | 12 species |
| (no more than 5 mouth brooders)                                  |            |
| • Cyprinids  | 10 species |
| • Killifish  | 7 species  |
| (at least 2 species must be annuals)                             |            |
| • Livebearers  | 8 specie   |
| • Marine fish  | 3 species  |
| (only true marine varieties)                                     |            |
| • Marine invertebrates & corals                                  | 7 species  |
| (2 species other than snails)                                    |            |
| • Native American [egglayers]                                    | 3 species  |

### SPECIALTY PROGRAM AWARDS

- **Specialty Species Award**  
 - Certificates for single species group.
- **Senior Specialist Award**  
 – plaque or equivalent for achieving 4 different species groups.
- **Expert Specialist Award**  
 – plaque or equivalent for achieving 7 different species groups. With the exception of invertebrates for Senior and Expert Specialist Award.

### HORTICULTURAL AWARD PROGRAM

- Plants reproduced must conform with the following definition of an aquatic plant: An aquatic plant is one which, in the wild or natural state, can be found in the submerged form, or floating, as a normal occurrence at some time during the course of any one complete season. The objectives of the Horticultural Award Program are:
  - To recognize outstanding achievement in growing and propagating aquatic plants.
  - To gather knowledge and information about aquatic plants and their environment.
  - To identify new plants.

When a plant reproduces you earn points according to our pt classification list.

As you accumulate points you earn:

### TITLE: AMOUNT OF POINTS

**Beginner Aquatic Horticulturist** 25 pts

**Aquatic Horticulturist** 50 pts

At least 20 pts must be from the 10, 15 or 20 pt category

**Senior Aquatic Horticulturist** 100 pts

At least 40 points must be from the 15 or 20 pt category

**Expert Aquatic Horticulturist** 300 pts

At least 30 pts must be from each of the 5, 10, 15 pt categories, a minimum of 40 pts must be from a 20 pt category. The remaining pts can be from any category.

**Master Aquatic Horticulturist** 500 pts

**Grand Master Aquatic Horticulturist** 750 pts

60 pts must be from 5, 10, 15 pt category and 80 pts must be from a 20 pt category.

**Senior Grand Master Aquatic Horticulturist**

1,000 pts

80 pts must be from 5, 10, 15 pt category and 100 pts must be from 20 pt category.

**Premier Aquatic Horticulturist** 1,500 pts

**Senior Premier Aquatic Horticulturist** 2,000 pts

### ADDITIONAL POINTS ARE GIVEN

- If a breeder elects to write an original article on his plant propagation, with references, an additional 5 pts will be awarded. The time frame for this article will be three (3) months from the date of the spawn.
- Extra points will be awarded for plants that flower, equal to the point value of plant.
- Extra pts will be awarded for plants repro-

duced sexually, equal to the pt value to which the plant belongs.

### AWARD

25 – 100 pts [Beginner, Aquatic and Senior Aquatic Horticulturist]

– certificates

300 pts [Expert Aquatic Horticulturist]

– 5 X 7 plaque or equivalent

500 pts [Master Aquatic Horticulturist]

– 8 X 10 plaque or equivalent

750 pts [Grand Master Aquatic Horticulturist]

– decorative 8 X 10 plaque or equivalent

1,000 pts [Senior Grand Master Aquatic Horticulturist]

– plaque or trophy or equivalent

1,500 pts [Premier Aquatic Horticulturist]

– large plaque/trophy or equivalent

### CORAL AWARD PROGRAM

Corals propagated/reproduced must conform with the following definition of a marine coral: A hard coral is the hard skeleton secreted by certain tiny sea animals, such skeletons collectively, forming reefs, islands, etc. A soft coral is the spreading by propagation of live, simply celled, marine animals that share the same habitat, forming colonies or groups of soft coral, in the oceans of the world. The objectives of the Coral Award Program are:

- To recognize outstanding achievement in growing and propagating corals.
- To gather knowledge and information about both hard and soft corals and their environment.

• To identify new corals. Every time your coral reproduces you earn points according to our pt classification list. As you accumulate pts you earn:

<u>TITLE</u>	<u>AMOUNT OF POINTS</u>
<b>Beginner Coral Propagator</b>	25 pts
<b>Coral Propagator</b>	50 pts
<b>Senior Coral Propagator</b>	100 pts
<b>Expert Coral Propagator</b>	300 pts
<b>Master Coral Propagator</b>	500 pts
<b>Grand Master Coral Propagator</b>	750 pts
<b>Senior Grand Master Coral Propagator</b>	1000 pts

### ADDITIONAL POINTS ARE GIVEN

- If a breeder elects to write an original

article on his coral propagation, with references, an additional 5 pts will be awarded. The time frame for this article will be three (3) months from the date of the propagation.

### AWARDS

25 – 100 pts [Beginner, Coral Propagator and Senior Coral Propagator]

– certificates

300 pts [Expert Coral Propagator]

– 5 X 7 plaque or equivalent

500 pts [Master Coral Propagator]

– 8 X 10 plaque or equivalent

750 pts [Grand Master Coral Propagator]

– decorative 8 X 10 plaque or equivalent

1,000 pts [Senior Grand Master Coral Propagator]

– large plaque/trophy or equivalent

### BREEDER OF THE YEAR AWARD

An annual award that is presented to the hobbyist who has breed the most fish, plants and/or coral propagation and, in the view of the BAP committee, has demonstrated a devotion to the expanding of the species through generosity, patience and support of the club. Examples are donating fry to other members, help and support other breeders and support the BAS. The BAP chairperson reserves the right not to present this award if it is believed that no one person has shown the qualities and characteristics that set them apart from other hobbyists.

### CLAIMING POINTS

- When you have spawned your fish they must be “witnessed” that is, a member of the Breeder Award Program will come to your home to inspect the fry and parents and verify the species within 7 days of the time they become free swimming. A committee member will revisit to verify the fry are alive 60 days after free swimming or fry may be brought to a club meeting after 60 days.
- A minimum of six (6) fry will be considered a spawn, if maintained for 60 days. Special consideration will be given to fish that are less prolific and to Junior members, upon request of the breeder to the committee, to waive the six (6) fish minimum.
- Marine fish will be 20 point fish if the fry

are free swimming for 30 days.

- Corals and plants – a committee member must be notified immediately and the committee member must inspect the “cutting” within 7 days, the “cutting” must be re-visited to determine reasonable growth within 60 days of original viewing. Floating plants by doubling the amount, bunch plants by doubling the number of rooted growing stems, runner or divided plants must have one healthy plant capable of living independently.

Sexual reproduction; the flowerings must be identified in full bloom attached to the parent plant. For seeded plants there must be a healthy seedling sufficiently developed to be identified as the offspring of the parent plant.

- Plants must have a viable offspring or grow offshoots that develop root systems. Acceptable methods are by cuttings, offshoots, runners, or plantlets that develop their own root systems and can survive on their own. Flowering or seed production, and by flower pollination from the members own plant.

- All requirements must be completed within 4 months after a BAP committee person witnessed breeding. If not completed, the spawn is not eligible for the BAP.

- You must be a member in good standing with BAS.

- Points may be obtained only once per species of fish/coral invertebrate/plant. If a

fish has been reclassified under a different scientific name, it will not count as a new species. Color variations do not count as a separate species. Different Latin name counts as a different species. Examples are Discus [*Symphysodon aequifasciatus* “Pigeon Blood” and *Symphysodon aequifasciatus* “Gold Dragon” only one counts. *Corydoras metae* and *Corydoras melini* are different species (different last names) thus both count.

- Points may be awarded to families or couples and to individuals, but not to both.

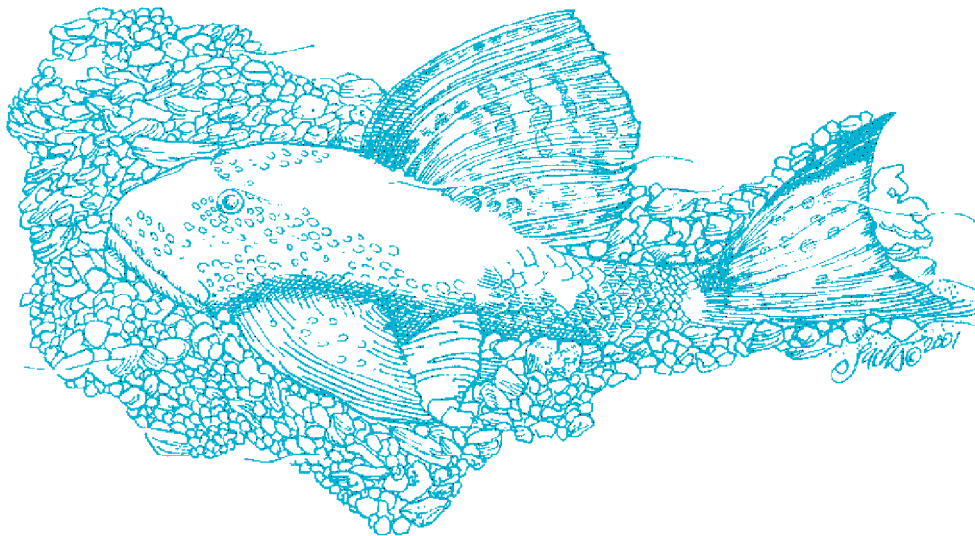
- It is the breeders responsibility to complete all necessary forms, verify the forms are submitted, the proper points are recorded and that the spawns are verified.

- Partnerships on points or family membership in Breeders Award Program, the points will only be awarded to the family group or to one (1) member.

### BREEDERS AWARD COMMITTEE

The Breeders Award Committee will consist of a chairperson and an even number of other members. The chairperson and the members shall be approved and appointed by the Board of Directors.

For more information on the BAP please contact **Joe Graffagnino**, BAS President.





## BROOKLYN AQUARIUM SOCIETY BAP/HAP SUBMISSION FORM

MEMBER NAME			
SPECIES LATIN NAME			
SPECIES COMMON NAME			
DATE SPAWNED/PROPAGATED		CLASS:	
SPECIES TYPE: (CHECK ONE) <input type="checkbox"/> FISH <input type="checkbox"/> INVERT <input type="checkbox"/> CORAL <input type="checkbox"/> PLANT			
WATER TYPE: (CHECK ONE)		<input type="checkbox"/> FRESHWATER <input type="checkbox"/> SALT WATER <input type="checkbox"/> BRACKISH	
TANK SIZE		SUBSTRATE COLOR	
FILTER TYPE		TEMPERATURE	
WATER CHANGE VOLUME		pH	
WATER CHANGE FREQUENCY		HARDNESS (GH)	
SUBSTRATE TYPE		SPECIFIC GRAVITY (SP.G.)	
SUBSTRATE DEPTH		NUMBER OF FRY	
FOOD USED (CHECK ALL THAT APPLY) <input type="checkbox"/> Live <input type="checkbox"/> Frozen <input type="checkbox"/> Flake <input type="checkbox"/> Freeze Dried <input type="checkbox"/> Other_____			
SPECIES BRED ON/IN (CHECK ALL THAT APPLY) <input type="checkbox"/> Rock <input type="checkbox"/> Log <input type="checkbox"/> Cave <input type="checkbox"/> Plant <input type="checkbox"/> Glass <input type="checkbox"/> Peat <input type="checkbox"/> Pipe <input type="checkbox"/> Mop <input type="checkbox"/> Filter Tube <input type="checkbox"/> Earth <input type="checkbox"/> Other_____			

<b>For Coral &amp; Plants fill out the section below as well</b>			
PROPAGATION METHOD USED:			
TYPE OF LIGHTING USED:			
TOTAL LIGHTING WATTAGE		# OF HOURS ILLUMINATED	
FERTILIZER & SUPPLIMENTS USED (IF ANY)		HOW MUCH/HOW OFTER	
1			
2			
3			
4			
5			
6			
7			
8			
USING CARBON ENRICHMENT? <input type="checkbox"/> NO <input type="checkbox"/> YES - DISCRIBE:			
WITNESSED BY:		DATE:	

<b>DO NOT WRITE BELOW THIS LINE ----- OFFICIAL USE ONLY</b>			
ARTICLE SUBMITTED		# OF PAGES	
FIRST TIME BAS SPAWN		FLOWERED	
RE-VISITED BY		DATE	
CERTIFICATE #		POINTS	
DATE PRESENTED		BAP CHAIRPERSON	

**PLEASE PATRONIZE OUR SPONSORS. THEY SUPPORT US.  
WE MUST SUPPORT THEM!**

### **ABSOLUTELY FISH**

**Absolutely Fish's** staff is knowledgeable and can help you solve your aquatic problems. They offer a 15% discount on select fish, marine life & supplies when you present your current BAS membership card. A really great aquatic shop and well worth the trip. Make a day of it!

#### **Absolutely Fish**

1080 Route 46 West Clifton, NJ 07013

Ph: 1 (973) 365-0200

Open 7 days a week: Mon-Fri 12-9 Sat 12-8 Sun 12-5

### **ALTI@ALTISREEF.COM**

**Alti's Reef.com** Check out Rob's web site to see what's in stock. Discounts for current BAS members. Purchase over \$125 and get a free frag, and free shipping! Guaranteed overnight delivery to most locations in continental U.S. via U.S.

Postal Service Express Mail.

**alti@altisreef.com**

Alti's Reef 83 Chariton Dr., East Stroudsburg, PA 8301

### **PET SHANTY**

**Pet Shanty** Family owned & operated; stocks 3 rooms of freshwater fish & 1 of marine fish & corals. They stock a vast list of fish which is posted on line at <http://petshanty.com>. They also carry other pets and pet supplies. You've got to check them out; they probably have the fish or corals you want.

#### **Pet Shanty**

2507 U.S. Hwy 22, Scotch Plains, NJ 07076

Ph: 1 (908) 889-8262 • Fax: 1 (908) 889-0803

Mon-Fri: 10am-9pm • Sat: 10am-7pm •

Sun 10am-5pm

### **AQUARIUM ADVENTURE SUPERSTORE**

**Aquarium Adventure Superstore** has 500 tanks of freshwater, marine fish & corals and a great selection of equipment. **Scott** has a special 50% off all fish with a 5 fish limit, and 30% off any one item, except tanks and tank kits. Not to be combined with any other offer. Discounts to BAS members with current card.

#### **Aquarium Adventure Superstore**

177 Glen Cove Road, Carle Place, NY 11514

Ph: 1 (516) 294-9699 [www.aquariumadventure.com](http://www.aquariumadventure.com)

Mon-Sat 10-9 • Sun 11-6

### **PETLAND DISCOUNTS**

**Petland Discounts** the complete pet store carries a full line of pet supplies for fish, dogs, cats, birds, reptiles and small animals. They also carry a variety of fish, birds, small animals and reptiles. Open 7 days a week. Locations in New York, New Jersey & Connecticut with over 15 stores in Brooklyn. You can shop on line at: [www.petlanddiscounts.com](http://www.petlanddiscounts.com) See the white pages, or their ad on page 22 for a store near you.

### **PACIFIC AQUARIUM & PET INC.**

**Pacific Aquarium & Pet Inc.**, in Manhattan's Chinatown, carries ornamental goldfish, koi, freshwater fish, & aquatic plants. BAS members get 10% discount with current membership card (Discounts not to be combined with other specials). They have a full line of aquarium supplies, and you can order custom size tanks.

#### **Pacific Aquarium & Pet Inc.**

46 Delancy St., NY, NY 10002 • Ph: 1 (212) 995-5895

Open 7 days a week and all holidays 10am to 7:30pm

**PLEASE PATRONIZE OUR SPONSORS. THEY SUPPORT US.  
WE MUST SUPPORT THEM!**

**Aquatic Express Inc.**

**Aquatic Express Inc.**, specializing in marine fish, corals & aquaria. Tell them you're a member of BAS and you will get 10% discount on corals in stock.

**Aquatic Express Inc.**

451 Grandview Ave., Ridgewood, NY 11385 Ph: (718) 456-3020  
Mon - Fri 11am - 8pm, Sat 11am - 7pm, Sun: 11am - 6pm

**AQUATIC WILDLIFE**

**Aquatic Wildlife** features 11,000 gallons of freshwater fish, plants & marine life. Discounts to members with current membership card. Well worth the trip.

**Aquatic Wildlife,**

179D Denning St., Manchester, CT 06040

(In Panera Plaza)

Ph: 1 (860) 648-1166

[www.aquaticwildlifecompany.com](http://www.aquaticwildlifecompany.com)

**BROOKLYN ZOO & AQUARIUM INC.**

**Brooklyn Zoo & Aquarium Inc.** is a classic pet shop. They have a full line of aquarium supplies, freshwater, marine fish and corals and offer a 10% discount to BAS members with presentation of a current membership card. Some restrictions apply.

**Brooklyn Zoo & Aquarium Inc.**

2377 Ralph, Ave., Bklyn, NY • Ph: 1 (718) 251-7389  
Hrs: Sat-Sun & Mon 10am - 6pm Tue-Fri 10am - 8pm

**ROYAL AQUA WORLD INC.**

**Royal Aqua World Inc.** has over 100 tanks of marine fish, hard & soft corals, freshwater fish, goldfish & koi imported from Japan, plus plants and pond supplies. BAS members get a 10% discount on all purchases with a current membership card. Open 7 days a week.

**Royal Aqua World Inc.,**

815 65th St., Bklyn, NY 11220

Ph: 1 (718) 238-0918

Hrs: 7 days a week 10:30am-8pm

**Wonderful World of Fish n' More**

**Wonderful World of Fish n' More**. A full line aquarium store w/ maintenance & installation services. A beautiful retail store with over 2,500 gallons, dedicated to marine fish & corals. They take pride in offering the best customer service, competitive prices & healthy livestock.

**Wonderful World of Fish n' More**

25-71 Steinway St. (between 28th & 25th Ave.)

Astoria, NY 11103 • Phone: (718) 278-0708

Hrs: Mon-Fri: 12am-9pm • Sat: 11am-8pm

Sun 11am-7pm

**"C" The Jungle Pet Store**

**"C" The Jungle Pet Store** located in the heart of Brooklyn carries a full line of pet supplies, tropical fish, birds, and small animals. They also offer a 10% discount to BAS members with a current membership card. Stop in and see what new livestock has arrived.

**"C" The Jungle Pet Store**

247 New Lots Ave., Bklyn NY 11207

Ph: 1 (718) 649-2536

Hrs: Tue -Sat 10am-8pm • Sun 10am-6pm

**DIVINE WOOD**

**DIVINE WOOD**, "Where Elegance Becomes Affordable." Aqua wall aquariums, tables and credenza's with built in aquariums. Wall aquariums are great for displaying Bettas. Functional tables with 18 gallon aquariums built in - just add fish, plants and enjoy. Visit Dennis and see all the Liquid Beauty Creations for yourself.

Special discounts with current BAS membership card.

**Dennis Alestra**

Divine Wood, 128 Port Richmond Ave., Staten Island, NY. 718-981-9222.

[www.divinewood.net](http://www.divinewood.net)



Educating  
Aquarists  
Since 1911

## Membership Application Brooklyn Aquarium Society

2008/2009

Meetings are held at the NY Aquarium Education Hall on the 2nd Friday of the month at 7:30pm. Knowledgeable speakers on fish care and culture, door prizes, raffles, and fish auctions. All meetings are free to members.

Visit us on line: [BROOKLYNAQUARIUMSOCIETY.ORG](http://BROOKLYNAQUARIUMSOCIETY.ORG)

NAME \_\_\_\_\_ OCCUPATION \_\_\_\_\_

ADDRESS \_\_\_\_\_ CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

PHONE (DAY) \_\_\_\_\_ (EVE) \_\_\_\_\_ (FAX) \_\_\_\_\_

E-mail \_\_\_\_\_

Address \_\_\_\_\_

TYPE & LENGTH of MEMBERSHIP: (CHECK ONE)

INDIVIDUAL

FAMILY

[ ] \$15 STUDENT 1 YEAR

(UNDER 18 YEARS)

1yr.

\$20

2yr.

\$36

3yr.

\$51

4yr.

\$68

1yr.

\$25

2yr.

\$45

3yr.

\$63

4yr.

\$85

\*

If family membership, please list all family members. Only first two listed will have voting rights.

1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_

4 \_\_\_\_\_ 5 \_\_\_\_\_ 6 \_\_\_\_\_

Number of tanks [ ] marine [ ] freshwater [ ] Do you breed fish?  
[yes] [no]

If yes, what types do you breed: \_\_\_\_\_

Special interest (if any) \_\_\_\_\_

How did you hear about BAS? \_\_\_\_\_

[friend] [dealer] [flyer] [Aquatica] [mag ad] [online] other \_\_\_\_\_

To volunteer check [yes] [no] A board member will get in touch with you if you check yes.

On occasion the Brooklyn Aquarium Society uses its mailing list to send notices of interest to our members.

If you DO NOT wish to receive these mailings please check here [ ]

### Official use

Member number: \_\_\_\_\_

Type of membership [F] [I] [S]

Date paid: \_\_\_\_\_

Board approved date \_\_\_\_\_

Amount paid: \_\_\_\_\_

Renewal/member since \_\_\_\_\_

Mail This Form Or A Copy And Your Check Payable to Brooklyn Aquarium Society to  
BROOKLYN AQUARIUM SOCIETY, ATT: Ms. LITA GOLDBERG, MEMBERSHIP CHAIRPERSON  
P.O. BOX 290610, BROOKLYN, NEW YORK 11229-0011