AQUATICA

THE JOURNAL OF THE BROOKLYN AQUARIUM SOCIETY
VOL XXVII SEPTEMBER ~ OCTOBER 2012 No. 1

Photo: Kay Martin
At the 20,000 gallon reef tank display at the Long Island Aquarium

101 Years of Educating Aquarists

AQUATICA

VOL. XXVII SEPTEMBER - OCTOBER 2012 NO.1

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BROOKLYN AQUARIUM SOCIETY
CALENDAR OF EVENTS ~ 2012 - 2013

SEPT 14 **Mike Hellwig ~ Fish Breeding Contest with Ted Judy** ~ Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction.

OCT 12 **Giant Fall Auction** ~ Freshwater fish, plants, marine fish, aqua-cultured corals & dry goods, including a 55 gal. tank & stand.

NOV 9 **Gene Ritter ~ Reef Diving** ~ Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction.

DEC 14 **Holiday Party** ~ Members, their families and friends, all you can eat sit-down dinner • Fish Bingo & Prizes • BAS Awards presentations.

2013

JAN 11 **Joe Yaiullo - Marine/Reef Presentation** ~ Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction.

FEB 8 **Kathy Cardineau - Ponds the Easy Way** ~ Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction.

MAR 8 **Kevin Kohen - Salt Water** ~ Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction.

APR 12 **Mark Denaro - Where Rare Species are Common** ~ Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction.

MAY 10 **Giant Spring Auction** ~ Freshwater fish, plants, marine fish, aqua-cultured corals & dry goods, including a 55 gal. tank & stand.

JUN 14 **Laura Birenbaum - Coral & Marine Invert's Tolerances for Dry Shipping.** ~ Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction.

JULY/AUGUST ~ NO MEETINGS

SEPT 13 TBA

OCT 11 **Giant Fall Auction** ~ Freshwater fish, plants, marine fish, aqua-cultured corals & dry goods, including a 55 gal. tank & stand.

NOV 8 TBA

DEC 13 **Holiday Party** ~ Members, their families and friends, all you can eat sit-down dinner • Fish Bingo & Prizes • BAS Awards presentations.

What's In A Name? Much Confusion!

As Chairperson of the Breeders Award Program, I must research fish species to determine that the hobbyist who has bred that particular species, registers all of the particulars of that species onto the breeder form accurately and truthfully. On rare occasions, I must question the breeder regarding the spawning behavior or the environment or the aquarium parameters of that species if what the person has written is beyond the normal parameters of that particular species' requirements. In almost all cases, the hobbyist has rendered the information truthfully and accurately because many species can and do spawn outside of the range the "experts" list for them.

I use a multitude of methods to determine the accuracy of what the person applies to the breeder form. During the fish fry witnessing, I need to verify that the species is indeed the one supported by photographs or drawings. I use several research books such as ***Baensch Atlases*** on tropical fish, ***Tropical Fish Hobbyist*** research books on various species and also aquarium related books on particular geographic areas and their endemic species. I also make generous use of the World Wide Web, searching aquatic fish sites, international club sites, such as Planet Catfish, American Cichlid Association, American Livebearer Association, American Killifish Association, International Betta Congress; the list goes on and on.

I believe that I have all of this finally under control when the powers that be decide to change the names of fish species. Some of the experts say that the reason for the name change is to better align groups into families based on the species' fins, teeth and jaw bones and/or skeletal body bones. Others say the reason was to sell books with the updated species names. Any way you look at it, when one researches the fish presented, it is a nightmare to verify it wasn't presented before.

As an example; I found a very nice Central American cichlid that goes under the name *Cryptoheros myrnae*. The fish were in a plastic bag and obviously stressed, so the coloration and close inspection would have to wait until they

were home and acclimated to an aquarium prepared for cichlids. Through trial and error, I had tried to breed these fish. My error was trying to breed them in a gravel-free tank. After I moved several members that weren't breeding into another tank, I noticed the relocated fish were digging in the gravel and moving it to clear an area near the cave they wanted to spawn in. Aha! So that was a little secret they shared with me.

No problem. I added gravel and kept a pair, or what I believed was a pair, in a separate 10 gallon tank that contained caves. A couple of months went by and viola! a batch of little babies came out of the cave and were guarded and paraded around by mom and dad. Great!

Now I wait the required two months before I can register them as being successfully spawned and reared. I look up the species and discover the common name is Topaz cichlid. That name stirs my memory a bit. I check through the voluminous records of the Breeders Program and discover that I had already bred Topaz cichlids five years previous. In those days, they were called *Archocentrus myrnae*. No credit is given for breeding the same species twice, even though it went through a name change. I was aggravated and wanted to give the fish away at my earliest opportunity so I can clear my aquarium to breed another species.

The next species I want to breed is called *Melanochromis joanjohnsonae exasperatus*, a beautiful African cichlid that goes by the common name of "Pearl of Likoma." Oh wait, this species also had a name change. It was formally called *Labidochromis exasperatus*. All right, how about *Cichlosoma sajica*, the "T Bar Cichlid"? Wait! it also changed its name to *Cryptoheros sajica* - darn it, foiled again!

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HOW TO: Keeping Your Aquarium Cool
(Updated: 5/18/2012) by **Keith MacNeil**, a Reef Squad Member.
Thanks for allowing me to reprint this article in the ***Aquatica*** and also to our former BAS Board member, **Bob DeBonis** for finding it and getting permission for us to bring it to the attention of our members and the aquarist public in general.
To view this article in an interactive mode please go to article on our web site and click on *Causes of Heat in the Aquarium.* There is also a short film you can view on how to set up a chiller.
Thank you, **John Todaro,** Editor

CAUSES OF HEAT IN THE AQUARIUM

Our aquarium inhabitants rely on us for almost everything. Stable conditions, including the water temperature within the tank, are very important to a successful tank. With summer fast approaching, we need to start to watch for rising temperatures within our tanks and starting to think about how we are going to deal with them. There are many causes for warm water temperatures, as well as many solutions to help keep them at acceptable levels. In this article we will touch on some of the causes of excess heating of the tank's water as well as some ways to help negate them.

PUMPS

Reef tanks and marine tanks alike both need good water movement and circulation for the inhabitants to be healthy. To provide this water movement in the aquarium, pumps and/or powerheads are used. Both internal (submerged) and external pumps can add heat to the water as a means of cooling themselves. Different pumps will add different amounts of heat to the water. With a little research, you will be able to find out which pumps transfer the least amount of heat and the ones that transfer the most amount of heat to the water and can choose a pump that works best for your system.

LIGHTS

Corals in a reef tank require high intensity lighting to survive. These high intensity lighting fixtures can become another major heat producer. It will not matter whether you are using VHO, T5, PC or metal halide lighting. All these lights will produce heat that can affect the water temperature in your tank, especially when enclosed within a canopy. LED lighting may be one of the only exceptions and can be a great alternative, especially for nano tanks where cooling can be more difficult.

ROOM TEMPERATURE

Room temperature will also have a large effect on the temperature of the aquarium. The higher the room temperature is, the higher the temperature of the water in the tank will be. Summer time is usually the worst time of the year when dealing with room temperature problems, but even spring and fall can have their share of extremely warm temperatures. If lucky enough to have central AC, this may not be an issue for your tank, but otherwise trying to put your tank in a room that generally stays cooler (i.e., doesn't have the sun shin ing in the room all day long) can go a long way in keeping the temperature lower.

COOLING OPTIONS

Lucky for us hobbyists, there are many options for helping to keep a stable environment (i.e., temperature) within our tanks. Some methods are very simple, while others are a little more complex. Depending on the size of the tank and the amount of temperature changes needed, you will need to choose what method will work best for your application.

FANS

The use of fans can be a fairly inexpensive method for cooling your tank. There are a couple of different applications that can be implemented alone or together. First is using fans to blow the hot air that is produced by lighting fixtures away from the tank. Although this can lead to increased room temperatures, it will at a minimum keep a major heat build up from occurring directly over the tank. There are many choices in fans as well that can either be mounted directly to the rim of the tank or attached to a canopy.

The second use of fans for cooling the aquarium is by blowing air across the water surface. Bowing air across the water surface will cause an increase in evaporation in the tank. In turn, the evaporation will help cool the water in the tank. This is called evaporative cooling. Depending on the room temperature and humidity, a fan can cool a tank by 2-4 degrees fairly quickly. If the room temperature is high and humidity levels are also high, this will dramatically effect the ability of evaporation to cool the tank. One obvious disadvantage to this cooling method is the amount of water that will need to be replaced on a daily basis. For larger tanks, this can easily amount to 3-5 gallons per day from evaporation. (Using an auto-top off system comes in handy for this.) Some fans can also be loud, adding to the noise levels coming from the aquarium.

CHILLERS

Chillers, in my opinion, are by far the best method of cooling an aquarium. Chillers are basically heat exchangers. Most chillers use titanium coils and a refrigerant to cool the water as it passes by the coils. There are two main types of chillers available on the market today, inline and drop-in. The inline chillers require water to be pumped through the unit. The cooling of the water will occur within the coils located inside the chiller. These chillers can be placed anywhere in relation to the tank. For example, the chiller can be placed outdoors (in a protected shelter), in a garage or in a different room as long as the user is able to pump water into the unit. The drop-in chillers have the titanium coils external to the actual unit. The coils need to be placed into the sump where water can pass by the coils to be cooled. The advantage to this type of a chiller is there is no plumbing

needed, so it is very simple to install. One of the disadvantages of the unit is that it needs to be placed right next to the sump as the coils and flexible refrigeration line coming from the chiller are normally around 3-5 feet long.

Whether the inline or drop-in chiller works best for you and your tank, it is important to allow plenty of ventilation around either unit. The chillers will give off heat while they are cooling the water. If the chiller is placed in a closed area, such as a closet or aquarium stand without any opening, the unit will not be able to chill properly and could add extra heat to the tank.

CONTROLLERS TO HELP KEEP TEMPERATURES STABLE

Chillers will require a temperature controller to function. Some units come with built in temperature controllers while others have external or remote controllers.

What are temperature controllers and what can they do for your tank? As mentioned, chillers require a controller to function properly. A temperature controller will turn on and off a chiller or other equipment such as a fan at a given temperature setting.

For example, if you want your tank to get to a maximum temperature of 80 degrees F, you would set the controller to turn on the chiller when the temperature hits 80 degrees. The controller will turn on the chiller when the temperature gets above 80 degrees and then once the water has been cooled below 80 degrees, it will automatically turn the chiller off.

There are two basic types of controllers available, a single stage and a dual stage. A single stage controller will turn on and off one piece of equipment, such as a chiller or a heater. A dual stage controller will turn on and off two pieces of equipment, such as a chiller and heater. For the most stable temperature control of your aquarium, the dual stage controllers are the best option. The dual stage controller will turn on the chiller when the tank gets too warm and will turn on your heater when the temperatures get too cold. You can even get controllers such as the Digital Aquatics Reef Keepers or Neptune Systems Controller to monitor and control other aspects of your tank such as pH and ORP, as well as control your lighting system they are well worth the money.

FLOATING ICE METHOD

The floating ice method can be done many different ways, but one of the easiest methods is using empty two liter soda bottles (or smaller bottles for smaller aquariums). Fill the empty bottles with water and put them in the freezer, making sure there is enough room in the bottle for expansion of the water when it freezes (leave the top slightly open to allow air to escape during the expansion of water to ice). Then once the bottles are frozen, they can be placed in the sump or main tank to help chill the water. One of the advantages of this method is that it is very inexpensive to do. But there are many disadvantages to this method, including you will need to change the bottle throughout the day to help maintain a stable temperature in the tank. Unless you are home 24/7, this may be impossible to accomplish. This is a very “hands on" method of tank cooling, but not the most efficient cooling method. People have also used RO/DI ice cubes (or other filtered water cubes) to help with cooling their tanks. If you use ice cubes, just make sure your salinity doesn’t drop too much from their use.

CHILLING A NANO TANK

Many nano tanks come with fully enclosed hoods that contain their lighting system. Even when supplied with a fan built in to remove some of the heat, the canopy can trap heat within the aquarium. With their smaller volume of water, they are also more subject to quicker changes in water temperatures than a larger tank. The above list of options can work on nano aquariums, but many times a chiller can be your best option.

In years past, chillers have been very bulky and their horsepower (HP) was too large for smaller nano tanks. Luckily, many chiller manufacturers have seen how popular these tanks have become and have made some lower HP chillers available for nano tanks. JBJ offers a 1/15 and 1/10 HP chiller. Other manufacturers like AquaEuroUSA, Coralife and Sunlight Supply also offer chillers for tanks under 50-60 gallons.

All of the chillers will sit next to or below the tank and have water pumped through them by a small powerhead like a Maxi-Jet or Mag-Drive pump. You will also need some vinyl tubing to hook the powerhead up to the chiller, as well as running the water back up to the tank. In addition, JBJ makes a Connection Kit that can make life a little easier. I would also like to note that the chiller should not be placed inside of a fully enclosed stand as the chillers need to pull air through them to cool the water.

Some last chilling options I would like to mention for the nano tanks are the IceProbe and Microchillers that are available. These units are good for around a 10 gallon tank to lower the temperature about 6°F to 8°F below ambient air temperature. These are a good option either for acrylic tanks that can be drilled (for the IceProbe) or for tanks where a hang on the back type filter (the Microchiller) can be used. One of the advantages of these units is they don't use any refrigerant so they tend to be more reliable and environmentally friendly. To read more about how these chillers work you can read here.

HOW TO SETUP AN AQUARIUM CHILLER

To view this film go to the article on our web site and click on it to see this film.

YouTube

CONCLUSION

There are many factors that can be very difficult to control in a reef tank; temperature does not have to be one of them. While you do not have to keep your temperature at a single reading, the stability of keeping the temperature within a few degrees swing will help the overall health and well being of your tank. With the temperature staying within a controlled range, you are able to eliminate one factor that can put stress on your tanks inhabitants and hopefully lessen other stressors that can affect your tank.

Badman'sTropicalFish.com

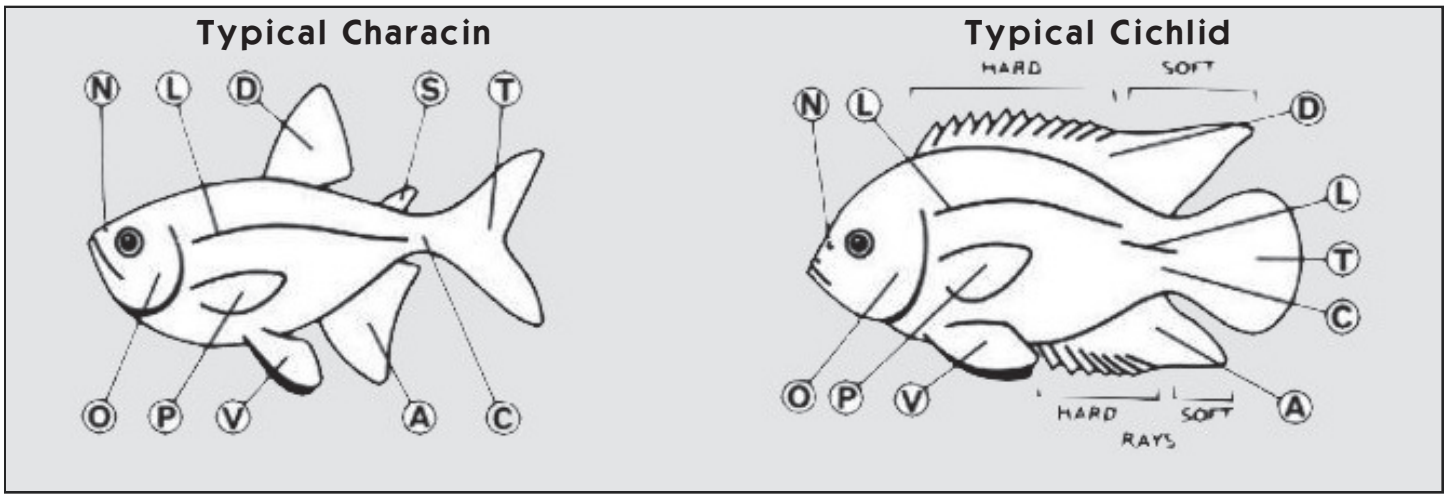
I hope you find Badman's Tropical Fish useful and entertaining. It has many sections on the care and upkeep of most of the tropical fish we keep today. They also have tried to make it as interactive as possible. You will find various polls and forms to add your knowledge on the site. As such, it will always be fresh and there is always something new. Spend some time and explore!
All questions should be posted on the site's message forum.
Don't forget to bookmark us! (CTRL-D)

Anatomy of a Fish

Learn to Identify and understand the Different Parts of a Tropical Fish

External Anatomy

Every hobbyist should try to acquaint themselves with the external anatomy of the fish they keep. The names of various fins and parts of the body are constantly occurring in the description of the species. I will try to help with the identification and definition of the various fish parts in the following section.



(N) Nose or nares
(S) Adipose fin
(T) Tail or Caudal fin
(L) Lateral line
(O) Gill cover or operculum
(A) Anal fin
(P) paired Pectoral or breast fin
(D) Dorsal fin
(C) Caudal peduncle
((V) paired Ventral or pelvic fin

FINS

The fins are made up of stiff rays covered by skin. Some may be jointed and some separate near the edge of the fin. In certain fish some of the rays supporting the find are bony, stiff and unjointed. They are referred to as spines. Almost half the fin rays in the Dorsal fin of Cichlids are bony spines. So the front (Anterior) portion of such a fin is called the Spiny Dorsal and the rear (Posterior) portion is called the Soft Dorsal. In Gobies and some other species, the Spiny Dorsal and the Soft Dorsal are completely separated and form two distinct Dorsal Fins. The number of rays in the fin is also used in classification.

FIN FUNCTIONS

Each fin on a fish is designed to perform a specific

function. I will list them here.

- **Dorsal fin.** Lends stability in swimming.
- **Ventral fin**. Serves to provide stability in swimming.
- **Caudal fin.** In most fish, the Caudal or tail fin is the main propelling fin.
- **Anal fin.** Also lends stability in swimming.
- **Pectoral fins.** Locomotion and side to side movement.
- **Adipose fin.** Stability.

Skin

The skin of fish is divided into two layers, the Epidermis (outer) layer and the Dermis. The Epidermis is made up of Epithelial cells, arranged one above the other. These cells are constantly shed and replaced with new ones. Inter-spaced between the Epithelial cells are slime cells which produce Mucoid secretions that form the very important protective covering we know as the slime coat. The Dermis lies under the Epidermis and many important functions happen there.

Scales

The deeper place Dermis of the skin is made up of connective Fibroblasts, Collagen and blood vessels. The scales of a fish lie in pockets in the Dermis and come out of the connective tissue. Scales do not stick out of a fish but are covered by the Epithelial layer. The scales overlap and so form a protective flexible armor capable of withstanding blows and bumping.

There are four types of fish scales.

- Placoid scales, also called dermal denticles, are similar to teeth in that they are made of dentin covered by enamel. They are typical of sharks and rays.
- Ganoid scales are flat, basal-looking scales that cover a fish body with little overlapping. They are typical of gar and bichirs.
- Cycloid scales are small oval-shaped scales with growth rings. Carps and similar fishs have this type of scale.
- Ctenoid scales are similar to the cycloid scales, with growth rings. They are distinguished by spines that cover one edge. Cichlids have this type of scale.

In the hobby, most fish will have two main types of scales, Cycloid and Ctenoid. In the Mailed Catfish, the scales are replaced by bony plates. In some other species, there are no scales at all.

Pigment (color) Cells

The many pretty colors and patterns seen in fish are produced by cells in the Dermis. The cells are named for the pigment they contain.

- Melanophores; Brownish-Black pigment called Melanin.
- Erythrophores: Red pigment.
- Xanthophores: Yellow pigment.
- Iridophores: Contain crystals which refract and reflect light, giving many fish their metallic look.

Fish can change color from one moment to the next. This is caused by the movement of Melanin grains within each cell. When dispersed, they absorb more light and the area of the fish darkens. When tightened, the fish goes pale.

Gills

Respiration is carried out by means of gills located under the gill covers. The walls of the Pharynx are perforated by five slit-like openings. The tissue between the slits is called the Gill arch, so on each side of the fish there are five Gill slits and Four Gill arches. On the Gill arches are mounted the actual Gills, a delicate system of blood vessels covered by a very thin Epithelium through which the gaseous exchange takes place.

Lateral Line

The lateral line consists of a series of scales, each

modified by a pore, which connects with a system of canals containing sensory cells and nerve fibers. It runs in a semi line from the gills to the tail fin. It can easily be seen in fish as a band of darker looking scales running along the side. The Lateral line has shown to be a very important sensory organ in fish. It can detect minute electrical currents in the aquarium water. It can also function as a kind of echo location process that helps the fish identify its surroundings.

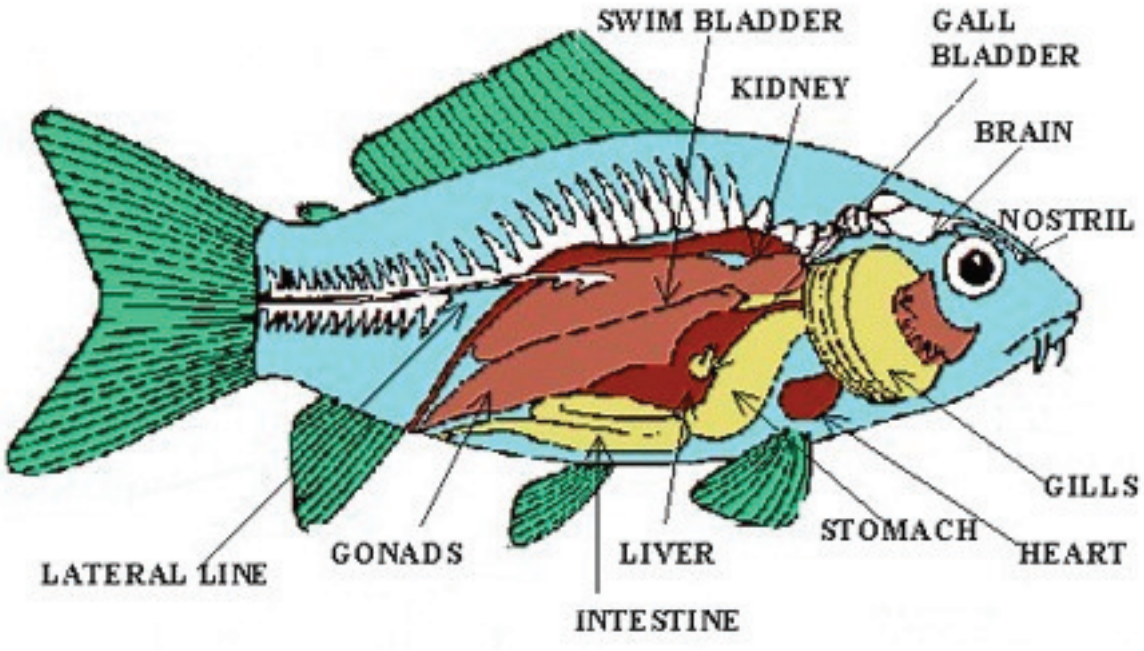
Other Senses in Fish

Fish have the five senses man has, as well as the Lateral line. In fish the importance of each sense is different than in humans. I will briefly describe them here.

- **Sight:** Vision underwater poses many special problems. The most significant is the small amount of light available in all but the uppermost layers of water. Vision under water is limited to a few yards at best and fish do not use this as one of their primary senses.
- **Smell:** In most fish the sense of smell is highly developed and is probably used more in the location of food than sight.
- **Hearing:** It has been shown that fish can hear, but its full function is still not understood.
- **Taste:** Taste buds in fish are located in the mouth and also in the skin covering the head, body fins, Barbels and lips. It's entirely probable that fish can taste food well before it enters their mouth.
- **Touch:** Fish also have elevated tactile sense and this is shown best in certain catfish who use their Barbels as extensions of their body.

Internal Anatomy

The internal anatomy of a fish rarely comes into play for the average hobbyist. The most important item to have a basic knowledge of is the swim bladder. This organ helps keeps the fish stable in the water. Various diseases can affect this organ and in the process affect the health of your fish.



Joe Graffagnino BAS, GCAS, NJAS

BLUE ANGELFISH

At a Greater City Aquarium Society meeting last year, fellow member Jerry O'Farrell came up to me and asked, "Have you bred angelfish?" I said that I had, but it was over 25 years ago. He said, "Good, then it's time you did them again," and he thrust a bag of 8 beautiful quarter size blue angels in my hand. Before I could respond, he walked away. I looked at the plastic bag full of fish and marveled at how beautiful and majestic these little cichlids appeared. The blue on their heads stood out in dramatic contrast to their silver bodies.

I brought them home and placed them into a 20 gallon aquarium. The pH was 7.2, the temperature was 80 degrees Fahrenheit and the General Hardness (GH) was 4. The angels grew quickly, especially the dominant male who soon eclipsed his tank mates. The group fared well with bi-weekly water changes of 30 – 40 %, and feedings of flake food followed by live black worms or frozen blood worms. Occasionally they were fed live brine shrimp and/or frozen cyclopeeze. After 8 – 10 months, the group started to pair off. I moved the non-pairs of angel fish into a 10 gallon, when in less than a month another couple had paired up. This new pair was moved into another 20 gallon tank.

The first pair decided to lay eggs on a thick piece of slate that was originally used to hold down a large wood decoration. Both parents cleaned the slate until it was immaculate, at least in their eyes. The gray eggs were laid in orderly rows of vertical succession. Both fish took turns in cleaning the area and fanning the eggs. It was definitely a model for teamwork. Within a couple of days, the eggs turned a dark brown/amber color and the parents proceeded to move the eggs to a new location. All cichlids prefer this birthing method. Normally, in 5 days the hatched fry would start swimming, with the parents escorting their children around the aquarium. There were no free swimming fry! It appears that the parents ate the fry either during the move or shortly afterwards.

The second pair of angelfish was sharing a habitat with Glo-Lite tetras, but that didn't stop them from laying eggs on a tall piece of driftwood. Both parents kept the Glo-Lite tetras to the farthest end of the aquarium. They also took turns cleaning and fanning the eggs. I noticed from both breeding pairs of fish that the eggs that were fungused were left alone and not removed. I thought this

was a poor cleaning job on the parents' part.

Since it was their first spawn, I believed that I should give them time to learn and educate themselves into proper birthing methods. I allowed them to have a couple of additional spawns hoping that they would improve. Both pairs of angelfish spawned every 15 – 19 days and a day apart. Both sets of parents never improved. I gave the second breeding pair to my friend **Vinny Babino** and kept the original pair. The next time the pair laid eggs, I removed the slate piece and placed it into a 5 gallon tank that was set up for hatching the eggs. I took the water from the parents' tank and filled the 5 gallon aquarium.

I had a 25 watt heater that had the heating coil wrapped with airline tubing. I did this to prevent the fry from killing themselves on the heating coil. I placed the air tube with air-stone under the slate piece so the air bubbles would travel in front of the eggs. I also added a dose of Acriflavin to reduce the infertile eggs from becoming fungused. As the eggs hatched, 5 days later, I moved the air-stone into an existing sponge filter several inches away from the hatching eggs and performed a water change to remove most of the Acriflavin. I replaced the water with parent tank water. The unfertilized eggs that did fungus remained on the slate until I removed them with a pipette. Several days later, the newborn fry were attaching themselves via their egg sack to everything in the tank – plant leaves, the slate piece, pieces of wood and rock. The fry can't eat until they are free swimming so I do not feed them because the food will only pollute the aquarium.

When the fry start to free swim, I start them off with live vinegar eels, along with 50 micron Golden Pearls. As they grow, I switch to micro-worms and baby brine shrimp (live or frozen); in about 3 weeks, I start on finely crushed flake food or micro-pellets and provide live food 3 times per week. They grow quickly and in another week or so they start to resemble their parents.

An interesting experiment was tried, accidently, when I neglected to replace the slate board they lay their eggs on. There was a large wood piece that wasn't solid, having holes throughout it. I saw them evaluating the wood piece, but I guess they weren't satisfied with it. The only other object in the tank, except for the large sponge filter or the heater, was a small flat rock that I used to keep the slate board from slipping.

Yes, they used a flat rock to spawn on. Again they fanned the eggs and never removed the fungused eggs, but this time when the fry hatched they didn't relocate them. They also never assisted the fry that became stuck to the fungus. After 8 days when the fry started to free swim, they escorted them around the tank. I believed that I had found the cure to angelfish cannibalism. Within 4 days after the fry were free swimming, the parents ate them anyway. I guess when the parents are bad they will remain bad.

The Practical Plant
Chapter 4

Hi, everyone. I hope you are all ready to plant this dream tank we've been working on. Good, because that's this month's topic, but before diving in headfirst, I strongly recommend that you first develop some kind of layout or blueprint of your intended design, the same way you would have your landscaping plans or blueprints before going to the garden center. It's important to have a plan because it is far better to plant the entire tank all at once. If you try to plant the tank a little at a time, you are inviting failure. The problem with the piecemeal approach is that a few lone plants in your tank cannot consume nutrients fast enough. The excess nutrients, combined with twelve hours a day of high intensity lighting, lead to an impressive display of algae's reproductive powers. The few plants in your tank will become covered with the stuff, and eventually die. So plan out what you like and fully plant the entire tank in one day or two so you can avoid an incident of the algae kind.

If you are not sure what you would like your tank to look like and need some layout ideas, take a look at the website run by the AGA (Aquatic Gardeners Association) at www.aquatic-gardners.org. Every year they hold an international aquascaping contest, and you can view spectacular entries from previous contests.

First I'm going to devote a little space to discussing the purchase of plants. The same way you would inspect a prospective fish, you should inspect plants as well. Select plants that are in good shape overall, but most importantly, they should have firm white roots. If the roots (or stems) are discolored, or getting mushy, stay away; the plant is most likely doomed. If it is a really hard to find specimen that you absolutely must have, you may attempt a heroic rescue. Stem plants usually rot from the bottom up. This may leave you with enough material to take a healthy cutting from the top. Remember you need at least two nodes to

plant into the substrate, and a couple of nodes with leaves above the substrate. If it is a rosette plant which is afflicted, examine it carefully. If it has a couple of healthy leaves and roots you may have a shot. Carefully use a scissor and cut away the affected roots and leaves as close to the crown as possible. Good luck; sometimes it works. I saved a sword plant this way.

One thing you should be made aware of is that the plant you purchase may end up looking totally different after some time in your tank. Just like fish, it helps to know what you are buying so there are no surprises. Many of the plants that we keep in our aquariums are really bog plants. The leaves of these plants may look totally different depending if they are grown submersed (underwater) to emerge (above water). Because these plants grow faster above water, that is how the nurseries grow them. In your aquarium the new growth will adopt the underwater growth pattern and the old leaves will likely die off.

Select plants that are in good shape overall, but most importantly, they should have firm white roots. If the roots (or stems) are discolored or getting mushy stay away; the plant is most likely doomed.

No matter where you get your plants from, snails and other critters may be hitchhiking along on them. If you wish to keep these hidden invaders out of your tank you need to disinfect the plants first. To disinfect your plants, prepare a bucket with a solution of one part bleach to nineteen parts water. Make sure you are using plain bleach, without any scents, detergents or other additives. Prepare a second bucket with water and a double dose of dechlorinator (Novaqua, Amquel, etc.). Dip your delicate plants for about one minute, and tougher plants for two. Remove from the bleach and rinse off in water, then soak for a while in the dechlorinator. This treatment will eliminate snails, pathogens, insect larvae, and algae. It's a good habit to get into.

There are actually a number of plants commonly kept in aquariums that are North American natives. If you wish to collect some wild plants yourself, more power to you. Just check the pertinent laws first. For the rest of you, I have a few suggestions. If you are planting a large tank, and need lots of plants, you may wish to go the mail order route. The big plus of mail order is selection. If you surf these sites you can see some really unusual, if not outright rare plants. The mail order prices are usually very competitive as well. The big down side is the shipping costs, and not being there to pick it out. But if you need a lot of plants, shipping is no big deal. I've done business with two of these companies and have been very satisfied. The two that I'm familiar with are azgardens.com and aquabotanic.com. Both delivered the products as advertised. I like Azgardens because in addition to some interesting plants, they also offer (in fact I'd say it's their specialty) unusual freshwater invertebrates. Freshwater shrimp are great in planted aquaria, but that's another article. What I like about Aquabotanic is that they directly import a lot of plants and sometimes come up with some really rare and oddball stuff. The noteworthy news for all you wet thumbs out plant shopping is that **Brooklyn Zoo and Aquarium** has become an authorized dealer for Aquabotanic.com. To the best of my knowledge, he is the only dealer around here. So if you live in the area, you are better off using the website as a catalog, and then have Mike at Brooklyn Zoo and Aquarium order it for you as part of his next order (and save the $20 shipping to spend on more plants, what else?). If you only need a few plants, or if you wish to supplement your incoming shipment with local finds, Brooklyn offers many great choices. Obviously, Brooklyn Zoo is high on my list. The chain stores will sometimes come up with something interesting, but they tend to deal in the more common/traditional aquarium plants. If you are out trolling Brooklyn for plants, it's always worth a look in the Asian owned shops. There are a few spread out along 86th Street, and there is another grouping of them on Eighth Avenue. They must deal with different suppliers and/or distributors because they often stock plants I do not see elsewhere.

Before going on your plant quest, there are a few things you will want to have waiting for you back at home. You are going to need a long pair of

stainless steel tweezers and scissors.These are available in 10" lengths, and are a must have items for aquatic gardeners. The tweezers come in both a straight tip and an angled tip. I like and use them both, but if I had to choose just one, I'd take the angled tip. You want to have all your decorations ready as well. I like my tanks to have a fairly natural appearance, so the bubble ornaments and sunken ships are out (but if you like them, fine; I'm not here to judge). If your tank is small, say under fifty gallons, you won't have room for a lot of rocks and things, so go light on these. Driftwood looks great in planted tanks. There are a few different types of driftwood commonly available for sale. You are most likely familiar with the kind that comes attached to a piece of slate. For reasons listed in my last article, this is not my favorite kind. But I do admit it has a different look from the other driftwoods, and confess to having used it. If this is what you plan to use, you need to soak it in water for a couple of weeks so it will sink. The other kinds of driftwoods are much denser and will sink without being presoaked and/or nailed to a slab. One of these I see marketed as Malaysian driftwood. It has a dark brown color and a heavily weathered appearance. The other kind I have seen marketed as Swahala or Mopani wood. It is two toned, a dark brown contrasting with lighter areas. Both are very nice. These last two options I described are going to turn your water brown. It is temporary and harmless, caused by tannins leaching out of the wood. If this bothers you, avoid it by presoaking these as well. Because they are not buried in the substrate to hide a hunk of slate, they are easily moved during maintenance.

Now that you burnt a tank of gas visiting half the pet shops in Brooklyn, and have a car full of plants, it's time to do it. Before you went plant shopping, you had the aquarium all ready and waiting. The tank is half full and any clouding has settled out. I have tried to do this as per **Mr. Amano's** recommendation, to fill it with much less water during planting. His stated reason is that this is better because the stem plants will not float out of the substrate as easily while you do your planting. My problem with his method is that with such a small volume of water in the tank, I can't see what I am doing. It also makes it harder to visualize what the finished work will look like. I also do not share his problem with the stem plants floating up. Sure, it happens occasionally, but it is not a rampant problem for me.

Now unpack your plants and disinfect them with bleach as outlined earlier. As you unpack them you will notice that most aquarium plants come in two basic forms. You have rosette plants and stem plants. The rosette plants have all their leaves radiating upwards from a central point (crown), and from the same point the roots radiate downward. They are commonly potted in rock wool, or just bare roots. The rest of the plants are stem plants. As the name implies, these plants are basically one long stem. Spaced fairly evenly along the length of this stem are points called nodes. These nodes will grow leaves above the substrate or roots below it (at least mostly below). Stem plants are usually sold in bunches, held together with a lead weight or rubber band. This is how they got the nickname "bunch" plants.

Most planting schemes break the tank into three planting zones. The first zone we will plant is the background. This zone roughly represents the rear third of the tank. This is where our tallest plants will go. Never let any of the plants dry out, work out of a bucket or tray of water. Let's start with our rosette plants. If they are potted, remove the plastic pot by cutting it down the sides and peeling it away. A strong pair of utility scissors will easily cut the plastic. Gently remove as much of the rock wool as you can, be careful not to damage the roots. If the roots are long, cut them off about halfway down. This will encourage new root growth, and make them easier to plant. Now this works best with two hands. Hold the plant on one hand, just above the crown. Make a hole or depression in the substrate with your free hand. Hold the plant in the hole, and cover it up with your free hand. Planting depth is very important with these plants. Do not plant so deep that the crown is covered by substrate. This will cause rotting and kill the plant. Many of the taller background plants will be stem plants. They are handled a little differently Carefully remove the rubber bands or lead weights holding them together. Most likely they will not have any roots worth talking about. Cut off an inch or two from the bottom of the stem. This is where the bunch was held together, and is usually too damaged to use. Prepare the plant by removing the leaves from the nodes on the lowest couple of inches. Do not plant any leaves under the substrate, this invites rotting. Depending on the plant species, the number of nodes per inch can vary greatly. Make sure you are planting at

least two nodes deep, preferably more. The more nodes you have under the substrate, the more robust and extensive the root system will be. Stem plants are very buoyant, if you try to plant them with your fingers they will float out of the hole 9 out of 10 times. This is where the tweezers come in. Grab the stem plant you just prepared by the lowest node with your tweezers and gently insert it into the substrate. This is another point on which I find myself at odds with Mr. Amano. He advocates planting stem plants very densely. He will even plant them two to a hole. I find that when planted too closely together, the lower regions of the plants suffer from lack of light. This causes the lower leaves to die. Also keep in mind that most stem plants will branch prolifically and, given a little time, fill in on their own. Stem plants are a love/hate relationship for me. I love the relative ease of propagating them, and they represent some of the most colorful plants you can find. The hate part comes from the unsightly roots that can form at the lower nodes. These are best handled by concealment with a well planned midground. This can be done with driftwood, rock or shorter plants. Anything that blocks the lowest potion of the background stem plants from view will work. This is what constitutes your midground. On really small tanks, you may need to skip the midground for lack of space.

The last zone is the foreground. Depending upon the look you are after there are a couple of interesting options for this zone. You can plant the foreground with very short plants. There are a number of really nice ones like Four Leaf Clover, Dwarf Sag, Japanese Pearl Grass and others. These foreground plants will form a nice living carpet across the front of your tank. Some of these plants, like the Japanese Pearl Grass, are composed of fine stems. This is when I plant like Mr. Amano and put two or three stems in one hole, Some of these plants, like the Dwarf Sag, are miniature rosette plants. Treat these like their larger cousins.

Whichever plant you choose for your foreground, it should be planted in a checkerboard pattern. The plants will fill in on their own. What I really like about the living carpet foreground is that it completely eliminates the last vestiges of substrate I have to vacuum.

The foreground also lends itself to a completely different look from the living carpet. You can try no plants, just decorative sand. The way this is done is by partitioning the tank with cardboard strips before adding the substrate. Hold the cardboard upright and in position with small rocks. Allow enough room behind the cardboard for the background and midground zones. Fill this area with nutrient rich substrate of your choice. The front is filled in with your sand. Gently remove the rocks that were anchoring the cardboard and fill in substrate as necessary. After the rocks have been removed and the levels of the two substrate have been made as even as possible, remove the cardboard strips. This is done by gently sliding the cardboard strips straight up. Obscure the boundary with small stones and you have a sand foreground. This technique looks nice, but does require a well thought out planting blueprint. I would not recommend this for your first endeavor.

Well, that about covers it for this installment of ***The Practical Plant.***

I hope that you join me next time as we enter the world of supplementation and fertilization.

Reprinted from the NYT on line

ROGER BRADBURY

Published: July 13, 2012

A World Without Coral Reefs

It's past time to tell the truth about the state of the world's coral reefs, the nurseries of tropical coastal fish stocks. They have become zombie ecosystems, neither dead nor truly alive in any functional sense, and on a trajectory to collapse within a human generation. There will be remnants here and there, but the global coral reef ecosystem — with its storehouse of biodiversity and fisheries supporting millions of the world's poor — will cease to be.

Overfishing, ocean acidification and pollution are pushing coral reefs into oblivion. Each of those forces alone is fully capable of causing the global collapse of coral reefs; together, they assure it. The scientific evidence for this is compelling and unequivocal, but there seems to be a collective reluctance to accept the logical conclusion — that there is no hope of saving the global coral reef ecosystem.

What we hear instead is an airbrushed view of the crisis — a view endorsed by coral reef scientists, amplified by environmentalists and accepted by governments. Coral reefs, like rain forests, are a symbol of biodiversity. And, like rain forests, they are portrayed as existentially threatened — but salvageable. The message is: "There is yet hope."

Indeed, this view is echoed in the "consensus statement" of the just-concluded International Coral Reef Symposium, which called "on all governments to ensure the future of coral reefs." It was signed by more than

2,000 scientists, officials and conservationists.

This is less a conspiracy than a sort of institutional inertia. Governments don't want to be blamed for disasters on their watch, conservationists apparently value hope over truth, and scientists often don't see the reefs for the corals.

But by persisting in the false belief that coral reefs have a future, we grossly misallocate the funds needed to cope with the fallout from their collapse. Money isn't spent to study what to do after the reefs are gone — on what sort of ecosystems will replace coral reefs and what opportunities there will be to nudge these into providing people with food and other useful ecosystem products and services. Nor is money spent to preserve some of the genetic resources of coral reefs by transferring them into systems that are not coral reefs. And money isn't spent to make the economic structural adjustment that communities and industries that depend on coral reefs urgently need. We have focused too much on the state of the reefs rather than the rate of the processes killing them.

Overfishing, ocean acidification and pollution have two features in common. First, they are accelerating. They are growing broadly in line with global economic growth, so they can double in size every couple of decades. Second, they have extreme inertia — there is no real prospect of changing their trajectories in less than 20 to 50 years. In short, these forces are unstoppable and irreversible. And it is these two features — acceleration and inertia — that have blindsided us.

Overfishing can bring down reefs because fish are one of the key functional groups that hold reefs together. Detailed forensic studies of the global fish catch by Daniel Pauly's lab at the University of British Columbia confirm that global fishing pressure is still accelerating even as the global fish catch is declining. Overfishing is already damaging reefs worldwide, and it is set to double and double again over the next few decades.

Ocean acidification can also bring down reefs because it affects the corals themselves. Corals can make their calcareous skeletons only within a special range of temperature and acidity of the surrounding seawater. But the oceans are acidifying as they absorb increasing amounts of carbon dioxide from the atmosphere. Research led by Ove Hoegh-Guldberg of the University of Queensland shows that corals will be pushed outside their temperature-acidity envelope in the next 20 to 30 years, absent effective international action on emissions.

We have less of a handle on pollution. We do know that nutrients, particularly nitrogenous ones, are increasing not only in coastal waters but also in the open ocean. This change is accelerating. And we know that coral reefs just can't survive in nutrient-rich waters. These conditions only encourage the microbes and jellyfish that will replace coral reefs in coastal waters. We can say, though, with somewhat less certainty than for overfishing or ocean acidification that unstoppable pollution will force reefs beyond their survival envelope by midcentury.

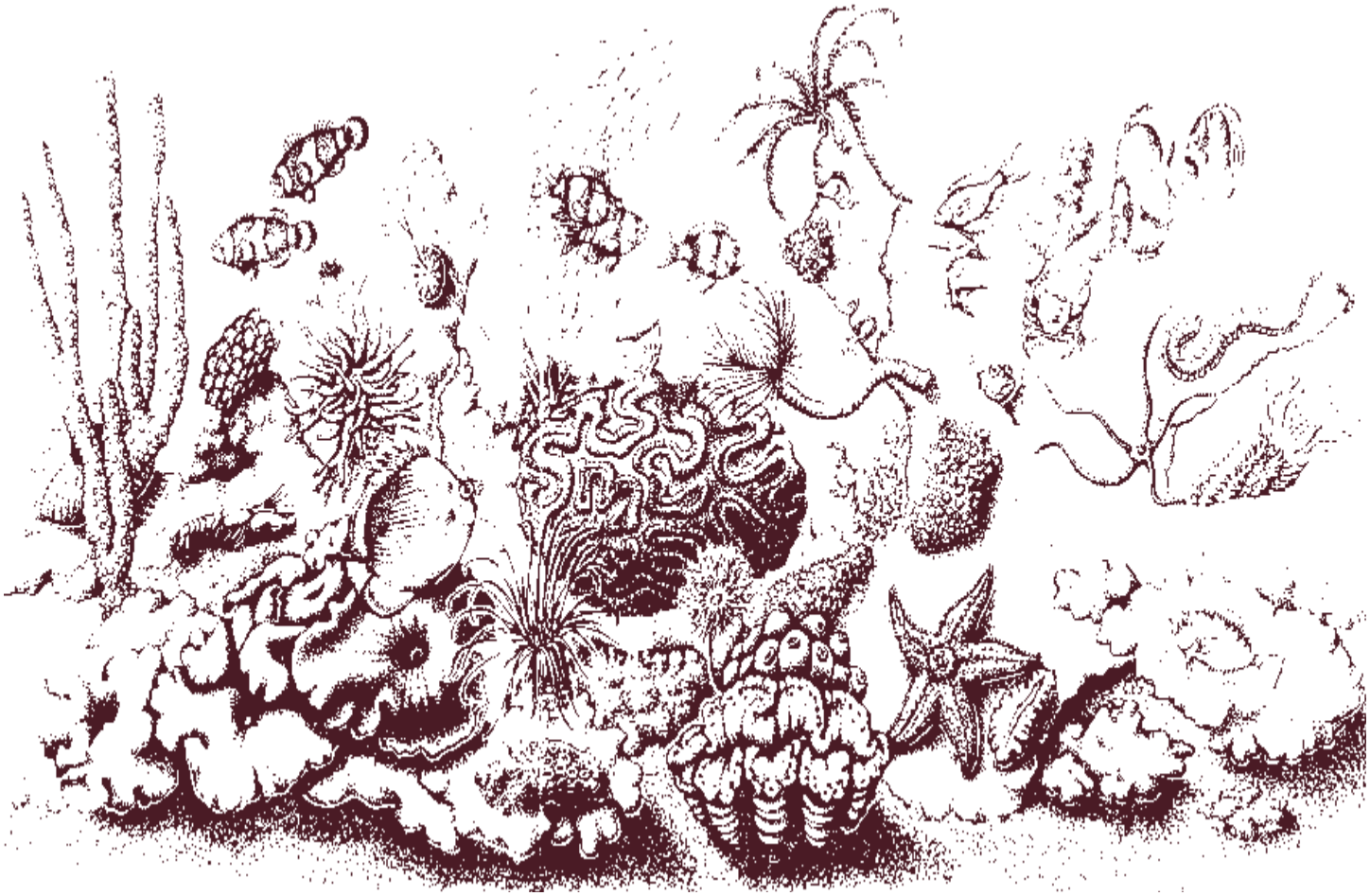
This is not a story that gives me any

pleasure to tell. But it needs to be told urgently and widely because it will be a disaster for the hundreds of millions of people in poor, tropical countries like Indonesia and the Philippines who depend on coral reefs for food. It will also threaten the tourism industry of rich countries with coral reefs, like the United States, Australia and Japan. Countries like Mexico and Thailand will have both their food security and tourism industries badly damaged. And, almost an afterthought, it will be a tragedy for global conservation as hot spots of biodiversity are destroyed.

What we will be left with is an algal-dominated hard ocean bottom, as the remains of the limestone reefs slowly break up, with lots of microbial life soaking up the sun's energy by photosynthesis, few fish but lots of jellyfish grazing on the microbes. It will be slimy and look a lot like the ecosystems of the Precambrian era, which ended more than 500 million years ago and well before fish evolved.

Coral reefs will be the first, but certainly not the last, major ecosystem to succumb to the Anthropocene — the new geological epoch now emerging. That is why we need an enormous reallocation of research, government and environmental effort to understand what has happened so we can respond the next time we face a disaster of this magnitude. It will be no bad thing to learn how to do such ecological engineering now.

Roger Bradbury, an ecologist, does research in resource management at Australian National University.



Joe Graffagnino BAS, GCAS, NJAS

Breeding Anabantoids with Emphasis on Bettas

Anabantoids are extremely interesting fish. Most anabantoids go through great lengths to prepare a nest site, attract a suitable mate and then place the fertilized eggs into the nest. After the fry hatch generally it is the father that cares for the fry and he chases mom away. As the children start to leave the nest, to explore their surrounding area, dad is kept very busy in protecting the fry, even to attack the hobbyist hand if it gets too close to the nest.

You can feel the frustration on the harried father as the little fry start darting away from home. He must try to eat to sustain his strength and health, protect and recapture his fry and spit them back into the nest continuously. It is no wonder that after several days of this hectic activity that he starts to cannibalize his offspring. I'm sure that many of us have thought the same with human offspring – remember the terrible two's?

I deviate from the story. Anabantoids can be separated into three distinct classes:

- Bubble nest builders - Examples of these are the majority of gouramies and *betta splendens* (Siamese Fighting fish).
- Submerged plant nest builders - Examples are *betta brownorum, betta coccina, betta tussyae* and *betta livida*. From Africa there is the *centopoma* species.
- Mouth brooders - They include *betta channoides, betta albimargineta, betta unamaculatum* and *betta macrostoma*.

The bubble nest builders I have found to be the easiest to spawn. Bubble nest builders build their nest to impress and attract a female to spawn with them. I generally have a Styrofoam cup cut vertically so the long side is now in half. I let that sit in a shallow tank, such as a 10 gallon with 6 – 9 inches of water at neutral pH (7.0) and a temperature of 80 degrees Fahrenheit. Water in Brooklyn comes from the tap soft (3-4GH) and neutral pH. Add floating plants such as duck weed and fairy moss so the fish can use the plant to anchor his bubble nest together.

At this point the male becomes very aggressive. He would even attack your hand or finger should it enter his territory. I keep the female in a small, clear glass container with the top of the container a few inches above the water line, in the same tank as the male, at the opposite side of his bubble nest. When the nest is complete and the females' abdomen has become full with eggs, it is time to release her into the tank. Within a couple of hours the breeding should begin. One method to know if the female has eggs in her is after feeding them a diet of live or frozen food such as black or blood worms for 5 continuous days, don't feed her for a couple of days. If she still has a round stomach area, then it's eggs. After spawning, the female should be removed from the aquarium to protect her from the male and to help her recuperate from her strenuous ordeal. Within a few days, the male will start chasing the fry that are hatching from the nest. He wants to keep them in his nest. At this point, I would remove the male and place him into a separate tank from the female.

Allow the fry to grow in their original aquarium. It is important to have the same water parameters for the male and female as was in the spawning tank. Also the surface air temperature cannot deviate more than 3 degrees Fahrenheit from the water temperature, for when the fry come up for their first gulp of air they could catch pneumonia. The fry will grow very quickly on baby brine shrimp (live or frozen). Depending on how many fry you want to keep it would pay to start moving the fry to grow out tanks after their first month or for many of them their growth would become stunted.

Species that are submerged plant nest builders are more difficult mainly because you normally can't see the nest or if there are fry in it. The usual method of noticing a successful breed is when you start seeing fry moving around the tank. Problem with this is that the parents may eat them and if there are other fish in the tank they will definitely eat them. Fish of this type generally like slow moving water and that the water is more acidic (4.5-6.5 pH). African *centopomas* fall into this category. I accidentally found a *betta brownorum* nest inside a submerged 35mm film canister.

Mouth brooders such as *betta macrostoma* utilize this type of spawning behavior. Breeding takes place between one pair of fish. When the female is gravid she initiates the mating process. The male wraps himself around her and squeezes the eggs from her while simultaneously fertilizes them with his milt. I have seen the female recover the eggs and at times the male will also recover eggs and while both fish face each other she will spit the egg into his mouthin both *betta channoides* and *albimargineta* species the females gathers the eggs in her mouth and spits them up over her head where the male is positioned to catch them. The male then holds the eggs until they hatch and he will release them from 14 to 28 days, depending on the species.

Anabantoids are beautiful and amazing fish. If the hobbyist wants to experience a different type of spawning behavior, I highly recommend them getting a group of anabantoids.

John Todaro photos: Kay Martin

SUMMER BUS TRIP TO THE LONG ISLAND AQUARIUM

Long Island Aquarium and Exhibition Center (formerly Atlantis Marine World) is an aquarium which opened in 2000 on Long Island in Riverhead. One of its biggest attractions is a 20,000-US-gallon (76,000 l) coral reef display tank, which is one of the largest all-living coral displays in the Western Hemisphere.

Indoor exhibits include Amazon Aviary (parrots), Amazon Rainforest, Best Buddies (clownfish & anemone), Coral Reef, Cuttlefish, Electric Eel, Flounder Find, Form & Function, Giant Pacific Octopus, Jellyfish, Lake Malawi Cichlids, Local Rocky Shores, Lost City of Atlantis Shark Exhibit, Megalodon Display, Moray Eels, Ocean Creatures of the World/Crab Villa, Piranha, Poseidon's Treasure Room, Puffer Fish, Ray Bay, Sand Shark Lagoon, Schooling Fish, Seahorses, Shipwreck/Artificial Reef, Tidal Marsh, and a touch tank.

Outdoor exhibits include Ancient Reptile Ruins, Koi Pond, Interactive Salt Marsh, Lost Temple of Atlantis, Otter Falls (North American river otters), Penguin Pavilion, Ray Bay, Sea Lion Coliseum, Seals, and Shark Reef Lagoon.

Interactive displays include Discovery Tower, Interactive Salt Marsh, Nemo's Family Fun Center, Poseidon's Peak & Playground, Ray Bay, Sea Lion Kiss, Submarine Simulator, Unearthing Atlantis, and the touch tank.

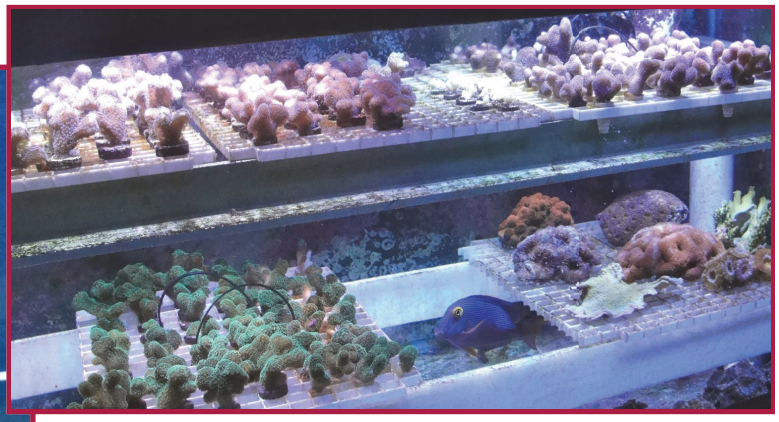
Popular Aquatic Adventures include Shark Dive, Penguin Encounter, Atlantis Explorer Tour Boat, Trainer Program, and much more!

Members and friends of BAS from left: **Seth Novick**, past president, **Al DiSpigna, Andrew Todaro, Julia Noonan, Jackie Murk** and that's joker **Stu Herskowitz** holding up two fingers over Jackie's head,
Editor and past president **John Todaro** and our one and only **Pauline Griffin** ready to enter the Aquarium.

From left **Diane Sears** and **Marie Licciardello's friend** pose for Kay in the Butterfly Exhibit

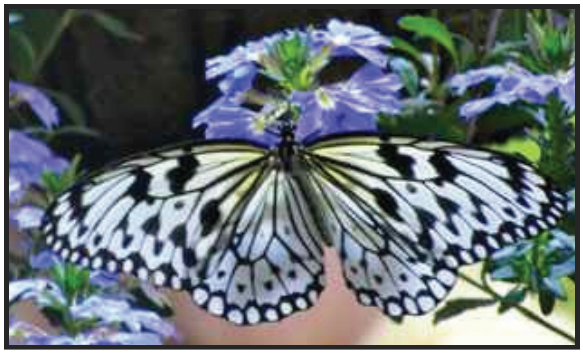
Joe Yaiullo, the Director of the L.I. Aquarium and BAS member, with a feathered friend. He took us on a behind-the-scenes-tour, something the average visitor never gets to see. Too bad you missed it!

Feeding frenzy time in the 20, 000 gallon reef tank.

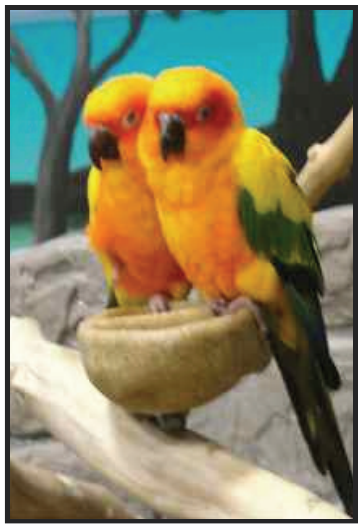


Rows of corals in the L. I. Aquarium's Coral propagation tank, one of the behind the scenes sights that Joe showed us. To the left is one of the grow out tanks for captive bred clownfish; below that is is a close up of the healthy clownfish that will be released into the 20,000 gallon reef tank.

One of the many exquisite Cuttlefish "flashing" colors. You have to see it to beleive the range of colors that they can produce.



The Long Island Aquarium has lots more than just fish. They have a wonderful butterfly conservatory with dozens of different types of butterflies; here's a small example of some of them.



They also have a very nice bird room with some wonderful birds that you can feed.

WE ALL GO ON A BOAT RIDE AND COLLECTION TRIP TO A SMALL ISLAND IN THE BAY.

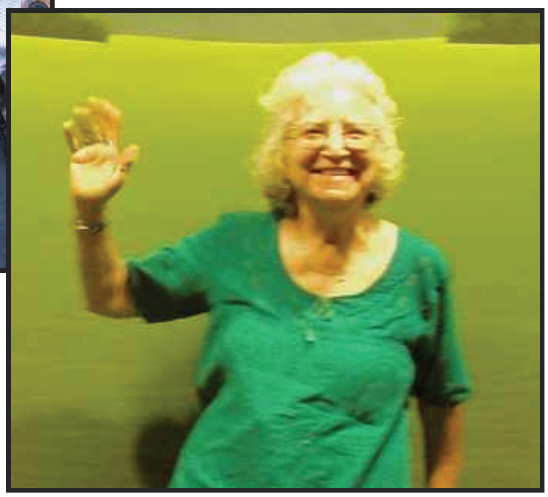
Some of the members using a seine net in the bay to catch the local wildlife, as the boat guide, **Annie**, in the blue T-shirt looks on.

The catch was brought on board and Annie showed us a female spider crab that was carrying up to 6 million orange eggs.

Out of the millions of eggs, probably no more than 5 or 6 individual eggs will make it to adulthood.

Above: **Steve Matassa** sits with and talks to **Bernard Deren** as a friend looks on.
Left: **Al, Seth** and **John** on the boat ride smile for Kay's camera.

Seals and sealions, penguins in their outdoor habitats.



Above: **Joe Graffagnino** listens to a funny story by **Walter Chow** at the aquariums cafeteria.

Left: **Kay Martin** gets to say goodbye to the L.I. Aquarium until next time.

Exchange Editor's Report

The Exchange Editor's job is reading publications from different clubs and suggesting items of interest to our members. This month's has a bit of a different flair to it. Most of it was taken from clubs across the country that we communicate with.

The Underwater News, Pioneer Valley Aquarium Society, March 2011.
Resealing an Old Aquarium Tank by **Nick Spinelli,** first published in January 2007 taken from Aquarticles.com. An excellent article with 15 step-by-step photos. If you are going to reseal an aquarium, this article is for you.

Paradise Press, Long Island Aquarium Society, March 2011.
Go For It! by **Vinny Kreyling**. This is a great article on the need for GFIs (ground fault interrupters) in a fish room.
Lucky, by **Vinny Kreyling**. He discusses pet superstores vs. Local fish shops.
It's a Fact of Life in The View… From The Other Side of the Tank, by **Margaret Peterson**. Margaret tells of losing a large number of *frontosa* when they sprayed the ceiling with lacquer spray prior to painting. Be wary of toxic fumes.

Fish Talk, Atlanta Area Aquarium Association, Georgia, Jan. 2011.
Exciting News from Ken Seiders at the Lettuce Box… By **Ken Seiders**. Ken talks about maintaining his pond in the winter in Georgia and trimming plants in overgrown indoor tanks.
Rockin' In the Rift Lakes by **Michael A. Risko, Jr.** *Julidochromis transcriptus* – The Masked Julie and *Julidochromis transcriptus* "Zaire Black." Michael writes about these dwarf cichlids from the Congo.
Breeding Corydoras Adolfi, by **Steve Smith** (reprinted from Fincinnati newsletter), a spawning report on this South American catfish.

Cichlidae Communique #184, Pacific Coast Cichlid Association (California) Jan/Feb 2011.
Chitande Island Lake Malawi, by **Pam Chin.** Pam writes about her visit to this island in Lake Malawi. There are great photos here.

Better Lucky Than Good, by **Michael Pyle** (first printed in CC#156). Michael writes about his success with *Julidochromis regaini "Sumbu"*, a Lake Tanganyika cichlid.
Ask Pam #98, by Pam Chin again. Pam answers questions in her regular column about cichlids with great expertise.

The Granite-Fisher, New Hampshire Aquarium Society, Volume 20, Number 4 April 2011.
Jonathan Farrand writes an article titled "Progression of a Planted Tank, Tank growth and Development: Stage One." He notes how a lot can change when you decide to keep aquarium plants. Especially when you let Mother Nature do the work.

The Gravel Gossip, Diamond State Aquarium Society, Volume 48, Nos. 6, September 2011.
The Amateur Hour by **Bob Berdoulay**. Nice story of Bob's early life growing up in New York City, his introduction to the fish hobby and the need to keep the "mom and pop" stores in business. Go to them and buy from them and they will survive.

Tank Topics, Greater Akron Aquarium Society, (Ohio).
The Dirt on Soil-less Worm Culture, by **Joe Reich**. Joe gives directions and has photos of how to set up a worm culture in a plastic food container with plastic needlepoint canvas and dry cat food pellets.
Cryptocoryne usteriana, by **Dave Williamson**. Dave writes about propagating this aquarium plant.

Tank Tales, Aquarium Club of Lancaster County (Pennsylvania). March 2011.
My Dream Tank: On a Fixed Budget, by **Scott McLaughlin**. Scott describes and creates his cichlid tank...great photos.
Selecting Your Aquarium, by **Michael Steffen** (Twisted Fisher). Michael gives advice on the placement of your aquarium. Is there electricity close by? Is there access to a water supply? Is there a window nearby? Is the floor level and sturdy? What equipment is needed? (tank, hood with light, filter, substrate, decorations, etc.) Good article.
Michael's Frog Farm: Spawning African Frogs, by **M.J. Shrom** (reprinted from March 1989). M.J. writes about spawning *Xenopus* species of African frogs and how to tell the difference between the dwarf frogs and the regular sized frogs. This is a must read article if you are raising African frogs.

Pisces Press, Nassau County Aquarium Society, March 2011.
Doctor Fish (*Garra rufa*), by an unknown author. This member of the carp family is found in the wild in parts of Turkey, Iraq, Syria, Jordan and Israel. They are used in spa treatments as they nibble away at dead or dying skin, usually from the feet.
Texas Aquatic Aquarium Plant Ban – Is New York Next???? Proposed legislation in Texas will ban many aquarium plants as potentially invasive, not-native aquatic plants.

That's it for now. See you all next time. Happy fish reading everyone.

Stu

BAS Breeder Points & Standings 2011-2012

Name	Title	Points
Larry Jinks	Grand Pubah Yoda	4,410
Joseph Graffagnino	Senior Premier Breeder	2,185
Frank Nell	Senior Grand Master Breeder	1,670
Tom Miglio	Senior Grand Master Breeder	1,400
Lisa Quilty	Advanced Grand Master Breeder	960
Vincent Babino	Grand Master Breeder	695
Michael Roman	Master Breeder	480
Roger Schillizzi	Advanced Breeder	220
Izzy Zwerin	Advanced Breeder	170
Pauline Griffin	Advanced Breeder	200
Steve Matassa	Advanced Breeder	115
Adam Engerow	Breeder	65
William Amely	Breeder	55
Mike Boscia	Breeder	55
Gary Vander Putten	Hobbyist	50
Al DiSpigna	Hobbyist	45
John Todaro	Hobbyist	40
Robert Strazzulla	Hobbyist	30
Seth Kolker	Hobbyist	25

Breeder Program Point Structure

Points Necessary	Title
25 points to 50 points	Hobbyist
51 points to 99 points	Breeder
100 points to 299 points	Advanced Breeder
300 points to 499 points	Master Breeder
500 points to 749 points	Grand Master Breeder
750 points to 999 points	Advanced Grand Master Breeder
1,000 points to 1,499 points	Senior Grand Master Breeder
1,500 points to 1,999 points	Premier Breeder
2,000 points to 3,999 points	Senior Premier Breeder
4,000 points +	Grand Pubah Yoda

C.A.R.E.S. Program

Joseph Graffagnino	*Tanichthys micagemma*	Sparkle Eye White Cloud
	Melanotaenia lacustris	Lake Kutubu Rainbowfish
	Belontia signata	Combtail Paradise fish
	Aphyosemion scheeli	Fundilopanchax scheeli
Michael Roman	*Xenotoca eiseni*	Redtail Goodeid
	Xenoophorus captivus	Green Goodei
	Zoogoneticus tequila	Crescent Goodeid
Frank Nell	*Tanichthys micagemma*	Sparkle Eye White Cloud
Larry Jinks	*Tanichthys micagemma*	Sparkle Eye White Cloud

Specialty & Maintaining Species Program Awards

Tom Miglio		Old World Cichlids, Cyprinids, Catfish, Characins,
	2001	Killies, Livebearers
Larry Jinks		Livebearers and Old World Cichlids
	2005	Catfish, Cyprinids, Anabantoids, New World Cichlids
		Senior Specialist Award (4 different species group)
	2009	Killifish, Expert Specialist Award (7 different species group)
Frank Nell	2005	Old World Cichlids
	2008	New World Cichlid, Livebearers
	2009/10	Catfish

Senior Specialist Award (4 different species group)

Lisa Quilty		
	2003	Catfish
	2007	Livebearer, Characin
	2012	Cyprinids
		Senior Specialist Award (4 different species group)
Joseph Graffagnino		
	2004	Old World Cichlids
	2005	Livebearers, Catfish
	2006	Cyprinids
		Senior Specialist Award (4 different species group)
	2007	Anabantoids

	2008	New World Cichlids, Invertebrates
	2009/10	Killifish
		Expert Specialist Award (7 different species group)

Izzy Zwerin

2008	Invertebrates

Pauline Griffin

2009/10	Catfish

Vincent Babino

2009/10	Cyprinids, Livebearers

Michael Roman

2012	Livebearers

Horticultural Award Program

Name	Title	Points
Izzy Zwerin	Senior Grand Master Aquatic Horticulturist	1,010
Joseph Graffagnino	Master Aquatic Horticulturist	695
Steve Matassa	Senior Aquatic Horticulturist	210
Mike Roman	Aquatic Horticulturist	90
Tom Miglio	Aquatic Horticulturist	75
Frank Zillitto	Aquatic Horticulturist	70
Vincent Babino	Beginner Aquatic Horticulturist	45

Horticultural Program Point Structure

Points Necessary	Title
25 points to 50 points	Beginner Aquatic Horticulturalist
51 points to 99 points	Aquatic Horticulturist
100 points to 299 points	Senior Aquatic Horticulturist
300 points to 499 points	Expert Aquatic Horticulturist
500 points to 749 points	Master Aquatic Horticulturis
750 points to 999 points	Grand Master Aquatic Horticulturist
1,000 points +	Senior Grand Master Aquatic Horticulturist

Coral Award Program

Name	Title	Points
Steve Matassa	Master Coral Propagator	670
Bernard Deren	Expert Coral Propagator	215
Ralph D'Allessandro	Expert Coral Propagator	210
Michael Roman	Expert Coral Propagator	100
Peter Kazlaukas	Beginner Coral Propagator	50

Coral Program Point Structure

Points Necessary	Title
25 points to 50 points	Beginner Coral Propagator
51 points to 99 points	Coral Propagator
100 points to 299 points	Expert Coral Propagator
300 points to 499 points	Master Coral Propagator
500 points to 749 points	Grand Master Coral Propagator
750 points to 999 points	Advanced Grand Master Coral Propagator
1,000 points +	Senior Grand Master Coral Propagator

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WE WELCOME A NEW SPONSOR REEFS2GO.COM

Reefs2Go.Com has joined the BAS family of quality sponsors. They're located in sunny Florida. Visit their web site to view the full line of saltwater fish, inverts, corals, live foods for marine fish and corals plus a complete line of saltwater dry goods and equipment. Get all the details on FREE SHIPPING and their 14 day Guaranteed Living or Credit policy. If saltwater is your passion and you're looking for deals, check their Daily Deals and Over Stocked Items page. For more great buys, check Buy 1 get 1 Free Offers. Check out the site. Read the testimonials and if you still have questions, call them Monday to Thursday from 10am to 5pm EST at **727-623-0914.**

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 with current BAS membership card.** A really great aquatic shop. Well worth the trip.
Absolutely Fish 1080 Route 46 W. Clifton, NJ 07013
Ph: **1 (973) 365-0200**
Open 7 days a week: Mon-Fri 12-9 Sat 12-8 Sun 12-5

Aquatic Wildlife, features 11,000 gal. of freshwater fish, plants & marine life. **Discount with current membership card.**
Aquatic Wildlife, 179D Demming St., Manchester, CT 06040
(In Panera Plaza) Ph: **1 (860) 648-1166**
www.aquaticwildlifecompany.com

Brooklyn Zoo & Aquarium Inc. A classic pet shop with a full line of aquarium supplies, freshwater, marine fish and corals. **BAS members get a 10% discount with a current membership card.** Some restrictions apply.
Brooklyn Zoo & Aquarium Inc.
2377 Ralph Ave., Bklyn, NY • Ph: **1 (718) 251-7389** Hrs:
Sat - Sun 10am - 6pm & Mon - Fri 10am - 8pm

"C" The Jungle Pet Store In the heart of Brooklyn carries a full line of pet supplies, tropical fish, birds, and small animals. They offer a **10% discount to BAS members with a current membership card.**
"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

Fauna is Manhattan's largest exotic pet boutique and a new sponsor of the BAS. **Dan offers a 10% discount to members.** They keep over 2,300 gallons stocked with freshwater, marine fish and corals. They also carry small animals, birds and reptiles. Make a point to visit and tell them you saw their ad in the *BAS Bulletin* and *Aquatica*. This store will blow you away!
FAUNA 265 West 87th St.
between Bway & West End Ave., NY, NY
Ph: **212-877-2473**
Hrs: M-W-T-F 11am- 7pm • Closed Tues.
Sat 11am-7pm • Sun 11am-6pm

Petland Discounts, the complete pet store, carries a full line of pet supplies for fish, dogs, cats, birds, reptiles and small animals. Also a variety of fish, birds, small animals and reptiles. Open 7 days a week. Locations in New York, New Jersey & Connecticut. Over 15 stores in Brooklyn. Shop on line at: See the white pages, for a store near you.
www.petlanddiscounts.com.

Mark's Discus: over 4,000 gallons of hormone free Brooklyn bred discus & angelfish. Mark stands behind his quality fish with a live delivery guarantee. Feel free to contact him with your questions. **10% discount for BAS members with current membership card.**
MARKSDISCUS.COM
You're welcome to visit their hatchery by appointment only. Call for directions.
Ph: **917-202-7699**
Open 7 days and all Holidays • 9am -11pm

Manhattan Aquarium has one of the largest Selections of Marine Fish & Corals on the East Coast. Located conveniently at 522 West 37th St. in Manhattan. You should check them out for all your Marine Fish & Coral needs.
Manhattan Aquarium
522 West 37th Street, NYC, NY 10018
Ph: 212 594-2271 • Fax: 212 594-2271
www.ManhattanAquarium.Com • www.UniqueCorals.Com

Pet Shanty. Family owned & operated; 3 rooms of freshwater fish & 1 of marine fish & corals. They stock a vast list of fish, posted on line at http://pet-shanty.com. They also carry other pets and pet supplies. Check them out; they probably have what you want. **Members get a 10% discount.**
Pet Shanty
2507 U.S. Hway 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

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

Royal Aqua World Inc. 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

Membership & Renewal Application Brooklyn Aquarium Society

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

Please check your address label to see when your membership expires

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:
WWW.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 1YEAR
1yr. $20	2yr. $36	3yr. $51	4yr. $68	1yr. $25	2yr. $45	3yr. $63	4yr. $85	(UNDER 18 YEARS)

*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 contact 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_____