AQUATICA

THE ON-LINE JOURNAL OF THE BROOKLYN AQUARIUM SOCIETY
VOL. 32 SEPTEMBER - OCTOBER 2018 No. 1

Copperband Butterfly - *Chelmon rostratus*

107 Years of Educating Aquarists

AQUATICA

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The **Brooklyn Aquarium Society Inc.** is a non-profit organization 501(c) (3) for people interested in the aquarium hobby and the study of aquatic life. The Society meets the 2nd Friday of each month except July and August at the Education Hall of the New York Aquarium at Coney Island, Surf Avenue at West 8th St., at 7:30 PM. 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:

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Brooklyn Aquarium Society
Calendar of Events ~ 2018

EDUCATING AQUARISTS SINCE 1911

Welcome
to an Exciting New Season of Adventures in Fish Keeping!

Great Speakers &
Great Auctions

SEPT 14 Justin Spall, H2OPlants.com - Setting Up a Plant Room. ~ Followed by an auction of marine fish, aqua-cultured corals, freshwater fish, plants & dry goods.
OCT 12 Giant Fall Auction ~ of marine fish, aqua-cultured corals, freshwater fish, plants & dry goods..
NOV 9 Greg Sage - Selective breeding ~ Followed by an auction of marine fish, aqua-cultured corals, freshwater fish, plants & dry goods..
DEC 14 Holiday Party ~ Members, their families & friends • Fish Bingo & Prizes • BAS awards presentations.

Anthony P. Kroeger – BAS

A WALK AROUND A FISH FARM!

We often hear the phrase
"Captive farm raised ornamental fish."
But really what is a fish farm like and what goes on there?

Let's look at and take a walk around a typical fish farm in Florida.

First thing you see at most fish farms are the pools. Rows and rows of them. Pools can vary in size depending on the species being raised. Most pools, however, average 75'L X 25'W X 5'D. Each pool usually contains one species only. Pools are harvested about 3 to 6 months after "seeding" with breeding stock, usually. Harvesting is done as needed for orders.

On most farms, aeration/aerators are used on the majority of pools. Almost all farms have water taps to their pools to use in case of drought.

Usually once a year pools are fully harvested, drained and cleaned using a power washer. It's about the same as cleaning your swimming pool, but much dirtier! Oh, and you have only one pool.

A fish farm may have as many as 50 to 500 pools! A lot of work indeed.

Most fish farms have very few buildings on them. The major building all fish farms have is the "packhouse." This is where the fish are held prior to shipping out.

Inside the packhouse may be concrete burial vault vats, large concrete pools, aquariums of all sizes with drain holes drilled in the bottom, huge fiberglass vats or any combination of all of the above.

All harvested fish are placed in these and held indoors without being fed for 24 to 36 hours before shipping so as to "clean out" their digestive tract and lower the amount of ammonia in the bag when they arrive to customers. A typical packing house will have rows and rows of such holding areas, sometimes numbering in the hundreds or even greater.

Walking through a full packing house prior to shipment is as close to heaven as an aquarist can get! Each tank or vat contains

one species only. All holding receptacles are aerated; no filters are used.

One side of the packing house contains the "packing line." This is a series of long tables (sometimes metal roller conveyor belts). Boxes with bags and water are lined up to put the fish in. The fish are placed in the box, which is moving down the line to air cylinders. Air is added and the bags resealed with rubber bands or metal staples/clips. The box then moves to the tapping station where the bag is checked for leaks, placed back into the box then sealed. The box then moves down the line to be stacked in the loading area to await customer pickup or transport to

Most egglayer producing farms have a breeding house near the packhouse.

The breeding house usually contains stacked rows of thousands to tens of thousands of 2 to 5-gallon aquariums each with a bottle brush in it. These tanks are used to spawn tetras, some barb's ex; tiger barbs, harlequin rasbora, etc. The resulting fry grow out in vats or pools. All breeding tanks are used only once, then cleaned and reset. You think cleaning your 55-gallon is a lot of work? Try cleaning 1,000 2-gallon tanks every week to breed your fish in! This brings a new meaning to the concept of work!

Breeding houses are always dimly lit.

Cichlids are a bit different as they require larger, permanently set tanks rather than small, temporary tanks as noted above.

Angels and discus fall into this breeding style category. Breeding buildings are generally not available for public viewing.

Some but not all farms have "screen houses." These are essentially large greenhouse style buildings covered with shade cloth which are usually removeable or retractable and filled with vats.

Screen houses hold breeding stock; usually this is newly acquired stock waiting to go into pools or stock in holding while the pool is being cleaned.

Some farms use screen houses to breed new or rare species, such as silver arowana, fire eels, Synodontis catfish, Tanganyika cichlids.

All farm buildings usually have disnfectant foot baths for your boots at the entry door to avoid cross contamination with diseases. Biosecurity is very important on a fish farm.

Many fish farms have barrier beams around them if they're near a waterway to prevent non-native species from escaping, and of course almost all farms have a storage shed for equipment odds and ends.

The last thing you'll see as you leave the farm with your new box (boxes if you're a fish nut) of fish is the farmer walking back to his pools to prepare more fish for the next customer.

I hope you enjoyed our little walk around the fish farm.

Happy fish keeping!

Tony

What Makes Your Freshwater Aquarium Too Acidic And How To Correct It.

Are your fish covered in mucus? Gasping? Or dying? You may have an acidity problem. It is not always the case that you can see an acidity problem directly with the naked eye. The water may appear clean, but the pH is too low.

A low pH level means the water is too acidic. You need to monitor your pH levels and make adjustments to the environment quickly if you have a low pH. An unsafe pH level must be corrected to preserve the health of your aquarium. Equally, a reading that is too high is dangerous.

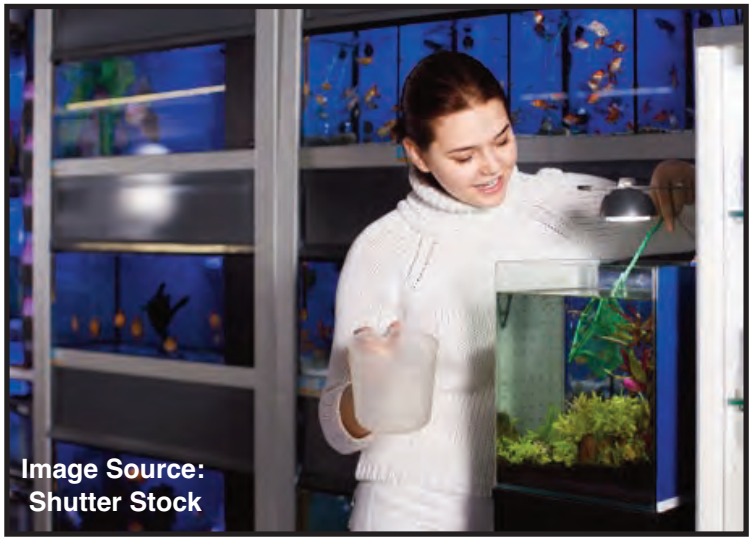
What is pH and why does it matter?

- pH stands for the 'potential of Hydrogen.
- A pH scale numbers from 1 to 14.
- The pH level refers to the acidity, or alkalinity of the water. It is a scientific scale used to determine the characteristics of a liquid.
- 7 is neutral, e.g.s. water that we drink.
- A pH of less than 7 is acidic (like a lemon).
- A pH greater than 7 is alkaline (like soap).
- The lower the number, the stronger the acid.
- The higher the number, the more alkaline the solution.

What is the pH of a healthy freshwater aquarium?

6.6 to 7.8 pH

A healthy freshwater aquarium is neither too acidic nor alkaline. These are measures used to describe the balance of chemicals, and biological products, which are present in the water,such as gases and wastes such as nitrates. The filtration of water removes some of these products and keeps your water clean.



What makes your aquarium acidic?

- There is a delicate balance between your fish, their waste products and the bacteria that feed off the waste.
- When this balance is upset, it can lead to an increase in toxins in the water.
- Ammonia and nitrates are consumed by nitrification bacteria. If the water pH goes below 6, these bacteria die, and the water becomes flooded with waste products.
- Overcrowding can also cause excess waste.
- Too many fish in a small aquarium will produce too much waste. Your filter system will become clogged.
- It is a good idea to check with a specialist about how many fish you can keep in the exact size aquarium you have.
- Tannic acids or tannins come from certain plant and wood materials, such as driftwood. They may leach into the water.
- The type of water you use to fill your tank is also important. Check the pH as different areas have slightly different levels.

Why is pH important? Why do I need to monitor the pH?

One of the biggest problems that aquarium owners have is maintaining the correct pH level. All the fish have adapted to the unique water environment that they come from, and thrive in those exact conditions. Fish are very sensitive to changes in their environment. Just like the air we breathe, the water in your tank must meet set conditions for your fish to be healthy and safe.

A change in the pH of the water can be very harmful to your fish. It is not something you can see just by looking at the water, but needs to be tested on an ongoing basis. An acidic freshwater aquarium is harmful and can cause illness and death to your fish.

What is a healthy pH range? Why is it important to the fish?

- Freshwater aquarium fish are happiest in water that has a pH range between 6.6 and 7.8. This is the healthiest pH of water for your aquarium.
- This pH level is ideal and actually provides an antiseptic effect, meaning that the water will help your fish to stay healthy!

Carbonate Hardness °KH	Carbonate Hardness in mg/l (or ppt) calcium carbonate	Water Conditions
0 - 2	0 - 36 mg/l	Very soft; pH liable to be unstable, and plant growth poor
2 - 5	36 - 89 mg/l	Soft; unsuitable for livebearers and goldfish, but good for barbs, tetras, angelfish, etc.
5 - 10	89 - 178 mg/l	Moderately hard; good for a broad range of community tropicals
10 - 20	178 - 350 mg/l	Very hard; ideal for brackish water fish, livebearers and cichlids from Malawi, Tanganyika and Central America; tolerated by hardy community tropicals
20 +	350 + mg/l	Extremely hard; too hard for most community tropicals, but good for hardwater/ brackish water fish

Image Credit: http://www.wetwebmedia.com

How to correct an acidic aquarium!

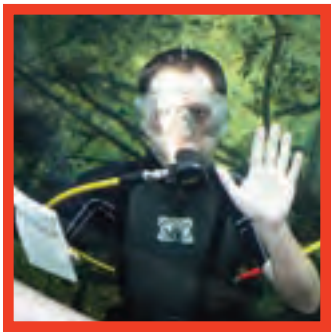
There are different ways to manage the pH of your tank. There may be a single factor causing an acid problem, such as overcrowding, in which case you may need a new tank. Generally, the following are good practices and suggestions to correct an acidity issue.

There are two elements that you need to look at – your water and filtration – when correcting an acidic aquarium. Adding rocks, corals, plants etc. are natural filters, and help to adjust the pH.

- Replace 25% of your water on a monthly basis. Be sure to clean as much of the waste out as possible. This is the minimum time before you need to replace some water.
- If possible replace 25% of the water every 2 weeks.
- Boil any wood before putting it in your tank. This will remove tannins.
- Monitor the pH levels, ammonia, and nitrates.
- Add Baking Soda: one teaspoon to five gallons of water. Be sure to **REMOVE YOUR FISH FIRST**. Once the conditioned water is added to the tank, the fish will need to be re-acclimated to your tank. (The same procedure as when they are new – float your fish in a bag (for at least 15 minutes) to get used to the temperature etc.)
- Crushed coral: inserting coral into the tank will also raise the pH.
- Rocks: adding rocks will also increase the pH. These can be put into the tank directly or placed into a bag and added near to the filter. (There are a variety of rocks to use from limestone to pebbles.)
- Products from your local specialist such as alkaline buffers, acid buffers, and water softener pillows. These products will adjust the pH of your tank.
- A Reverse Osmosis filter is a highly specialized filter that removes most waste products. It is very effective but expensive.

A healthy pH level will lead to greater success. Always monitor the pH level of your freshwater aquarium. The delicate chemical balance in the freshwater environment is very important for the health of your fish and your aquarium inhabitants.

Toby



I'm **Toby Sanders** with more than 15 years of experience in the aquarium sector. I'm totally passionate about creating my blog, **Aquarist Guide blogspot.** I enjoy sharing all of my knowledge to help you guys effectively build your own tank. I believe that when you find the easiest way to raise your lovely fish successfully throughout my blog, you will definitely fall in love with fish keeping - more than a popular hobby.

The Black Tetra
Gymnocorymbus ternetzi

Photo: Joe Graffagnino

The Black Tetra or, as it is sometimes called, the black skirt tetra, hails from South America. Countries they reside in are Paraguay, Argentina, Bolivia, Columbia, and Brazil. All tetras are in the Characin family. They enjoy water parameters of 6.0 – 8.0 pH, temperature range of 68 – 79˚ degrees Fahrenheit and of medium hardness.

I was able to obtain a young group of eight fish from a fish store and brought them home to a waiting quarantine tank, where I kept them for one month. I then moved them to a 15-gallon tank with nothing in it except a couple of small pieces of coral and a large sponge filter. I fed them a variety of flake food and frozen bloodworms. They grew quickly. It is easy to identify mature fish. The males are darker and have slender bodies, while the females are lighter in color and have plumper stomachs.

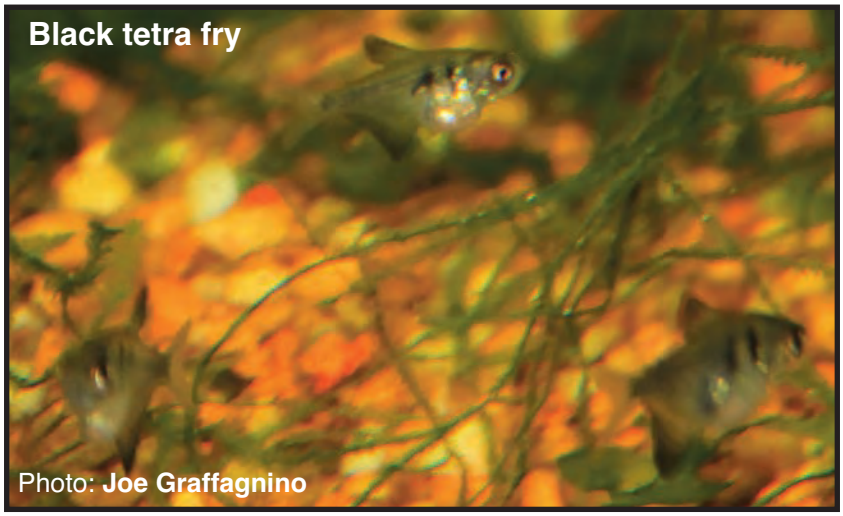

Black tetra fry

Photo: **Joe Graffagnino**

After 10 days of heavy feeding of frozen bloodworms or live black worms, I pulled two pairs and placed them into a 2 ½ -gallon tank. I use this size tank for breeding tetras and barbs. I have two small clay flower pots on the bottom of a bare tank. On top of the flower pots, I place a tight fitting plastic mesh screen (used for needlepoint). On top of the screen, I place a small sponge filter on one end of the tank and a small amount of Java moss on the opposite end. I position the 2 ½ -gallon tank on a small wooden stool in front of the only window in the room. Tetras and barbs usually spawn when the first light comes through the window. I check the aquarium around mid-morning and hope that the fish laid their eggs in and around the java moss since they are egg scatterers. They are also voracious egg eaters so, after they run through a spawning sequence, they turn and try to eat as many eggs as possible on their return trip. The small holes in the plastic mesh allow the eggs to fall through onto the glass bottom of the tank where the fish can't eat them. Lights in the room do not bother this species of tetras, although some species lay eggs that are light sensitive and must be kept in the dark for several days until they hatch or the room light will make them sterile.

The eggs are visible on the bottom of the tank and resemble tiny pearls. Do not use any fungus medication on the eggs since they will hatch in 18 – 24 hours. The fry are so tiny they are barely visible to the naked eye and will just hang on the glass as they absorb their egg sack before they start free swimming. Once the eggs are visible, return the parents to their main tank. On the fourth day after spawning, the fry start swimming and are now visible. At this point, you start feeding them paramecium and/or micro tiny powder food. If you don't have this type of starter food, you can add java moss from an existing tank since the java moss will have various types of tiny food morsels to keep the baby tetras happy for a week or two when they will be larger.

When the fry starts growing, you need to separate the larger fish from the smaller ones. I usually move the larger fish to a smaller tank, say a 5-gallon tank, and the small fish can be moved to a 10-gallon tank after being in the hatching tank for one month. After several weeks, the fry will grow very quickly and the small ones will catch up in size to their larger brothers and sisters. At approximately four months, you will be able to sex them.

I think the Black Tetra is a fun and easy fish to spawn and raise. These fish are quite hardy and look great in a planted aquarium or in a bare tank. Try them; you will definitely enjoy them.

Sy Angelicus - BAS

Catfish Dreams

Pictus Catfish

Pimelodus pictus

ZZZZ This catfish will wake you up, its got the wow and flash factors down pat!

Hailing from Columbia, I've seen specimens in the aquarium that exceed 6" inches. Materials I've read say it grows larger, but I've never seen any larger, excluding its whiskers.

Pictus are really pretty Catfish. A metallic silver body covered in medium size spots and a snow white belly make this fish a standout. This pattern continues into the caudal, dorsal and large adipose fin. The other fins are clear. Their eyes are black and rigged with a silver iris and very long whiskers.

This bread and butter catfish is regularly imported and available at most aquarium stores at very reasonable prices.

Pictus cats are easy to keep and fairly hardy too. A 29-gallon aquarium will house 3 juveniles easily. I use a power filter to keep their water clean. I keep mine in medium hardness 7.0 - 7.8 pH, and a temperature between 74˚ and 80˚ F.

This fish loves large volume water changes. I change either 30% twice a week or 50% once a week, if time is tight. Be sure to give each pictus a cave or PVC pipe all their own. But many times they will share with a friend. Be sure to cover the tank; this fish jumps well.

Pictus cats eat any food offered greedily. Flake, pellets, frozen all are fine. They love small earthworms. They will stuff themselves with so much food that they look like they swallowed a marble.

That large mouth can easily swallow small tankmates too! This fish is sure death by night on neons, cardinals and guppies. Keep this fish ONLY with fish its same size or larger. It's peaceful with similar size fish.

Large fish, if they bother them at all, learn quickly to leave them alone. The dorsal and pectoral spines are venomous. I once had an 8" oscar harassing a 3" pictus, but once stabbed, the oscar never bothered the pictus again. Pictus will stab you too if you frighten it. If you are stung, run as hot a water as you can stand over the sting. This breaks down the venom. Seek a doctor's attention if needed. A sting burns like fire and is not a pleasant experience. Keep your hand out of the tank! Pictus always get their fins snagged in a net. The only way to get them out is to cut them out of the net with a small scissors and you are asking to be stung if you do this, and anyway you will have ruined the net. Always move pictus using a glass or plastic container and be careful!

Pictus are very active fish; they do fine alone or in small groups. They are nocturnal fish, but quickly get used to searching for food morsels in the light using their long whiskers... but they remain active at night too.

Pictus are fairly hardy, but do catch ich easily if chilled. Use any dye or copper medications at 1/2 strength.

Never use malachite green on this fish; they're extremely sensitive to it.

This is one of the best catfish there is for the hobbyist and well worth dreaming about and owning.

Signing off until next time...**ZZZZ!**

Sy

SPECIES PROFILE

Scientific Name: *Pimelodus pictus.*
Common Name: Pictus Cat.
Distribution: Rio Orinoco and Amazon basins in Colombia, Venezuela, Peru and Brazil.
pH Range: 5.8 - 6.8.
Temperature Range: 72˚ - 77˚F.
Water Hardness: 1-15 ppm.
Size: Around 5" inches.
Temperament: Peaceful enough, but bear in mind this is a predatory species. Unfortunately, it's often sold as a bottom dweller for the community of smaller fish, a situation which must have led to the deaths of countless neons, guppies and similarly-sized species. It's really only suitable for roomy tanks with occupants that can't be swallowed. It can also bother slower-moving tankmates (such as many cichlids) with its activity levels and long barbels, especially at night or when feeding. Robust, active species therefore make the best tankmates. Rainbowfish, medium to large-sized characins, cyprinids and tough catfish such as Loricariids or Doradids are all suitable.

Although a single specimen will survive by itself, it's a shoaling species by nature and will be much more outgoing and active when maintained in a group of six or more. If kept alone, it tends to remain hidden during daylight hours, emerging only after lights out..
Sexing: Unconfirmed, although adult females are likely to be stockier in build than males.

Diet: Very easy to feed. It mainly preys on aquatic invertebrates in nature, but in the aquarium will greedily accept just about anything offered. Meaty items such as live or frozen bloodworm, Tubifex or small earthworms are particularly relished, but dried sinking foods will also be taken. Take care not to overfeed as this is one of those species that will habitually gorge itself until it can literally take no more, ending up with a hugely distended stomach. It only really needs to be fed every few days when adult.

The feeding response of a group of these is very frisky indeed once they smell food in the water, quickly achieving a frenzied state. You may need to add food at night until the fish are acclimatised to their surroundings.
Breeding: Not thought to have been achieved in the hobby.
Notes: There are currently 32 genera and over 80 species included in the family *Pimelodidae*. *P. pictus* is the most popular member of the genus in the hobby, as it's one of the smaller, prettier species. There are a couple of geographical variants imported. Fish from Colombia have a peppering of tiny dark spots all over the body, the Peruvian form has much larger spots on the body and small spots on the head.
Reference:
Seriously fish.com

Ryan Curtis - BAS

TheShrimpFarm.com is the place to go for freshwater shrimp. The owner is Ryan Curtis, the mailing address: The Shrimp Farm USA, 2401 East Washington St, STE 200 A2, Bloomimgton, Il 61704 and has set up an Aquarium Shrimp Forum http://theshrimpfarm.com/forum/index.php. You can go to this forum and ask questions, talk to other shrimp nuts and discuss anything and everything related to Freshwater Aquarium Shrimp.

BLACK FISHBONE PINTO SHRIMP

Scientific Names: *Cardina Cantonesis* sp.
Common Name: Black Fishbone Pinto Shrimp
Other Common Name: Pinto Shrimp
Temperment: Peaceful

Breeding: Intermediate
Care Level: Intermediate
Origin: South East Asia
Found in Wild: No

General Water Parameters
pH Range: 5.8-7.4
Temperature Range: 62-76˚F
GH Range: 4-6
KH Range: 0-4
TDS Range: 100-200
Life Span: 1-2 years
Gestation Period: 30 days

The Shrimp Farm's Water Parameters:
pH Range: 6.5-6.8
Temperature Range: 70-76˚F
GH Range: 4
KH Range: 3
TDS Range: 150-175
Full Grown Size: .75 1.25"
Approximate Purchase Size: .75"-.95"

The actual markings on individual shrimp will vary greatly! If you want to see our current stock and their fishbone markings, please go to our site and click contact us and request more photos.

Ryan

Anthony P. Kroeger – BAS

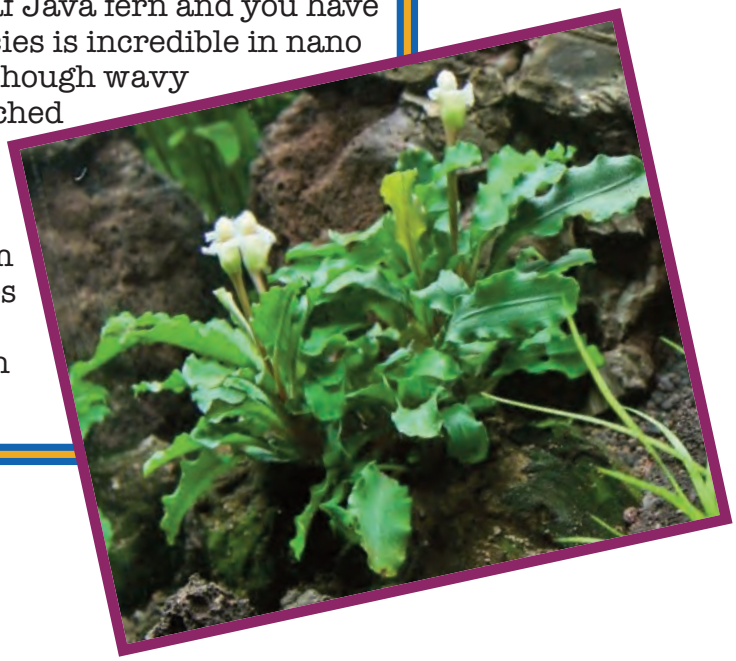
FRESH OFF THE PLANE

**It's not just new fish that come in on planes.
New plants do too!
Let's look at 3 very pretty new plants
for your planted tank.**

***Ludwigia* "Sp" dark orange**

This plant is a stunning color mutation of what is believed to be *Ludwigia natans*. Developed in Germany by Vinningen Nurseries, the leaves are tangerine orange with chocolate brown veins and a black stem. Absolutely stunning. Very easy to grow, this plant needs high light and heavy fertilization to maintain its gorgeous colors. CO_2 dosing is highly recommended. This ludwigia can grow very tall, up to 20 plus inches, thus it is well suited as a background plant. Replication is easy;just cut the tips and replant. A sure showstopper for your aquarium. However, price is high.

Wavy leaf buno - *Bucephalandra* Sp.
"Wavy Leaf" *Bucephalandra* is an entire genus of plants. The wavy leaf species of which this is the first imported and is taking the hobby by storm! Think of a pygmy wavy leaf Java fern and you have this plant! Native to Borneo this dwarf species is incredible in nano tanks. Low light, very hardy, slow growth, though wavy leaf's are *Lithophytes* - (plants that attached themselves with small roots to submerged wood or stones just like *Anubius*.) Use rubber bands to hold them in place until they root themselves. Most plants are shipped in from the EU and are cloned. This plant reproduces extremely slowly with beautiful deep green colored wavy leaves. Expect to pay to obtain this new plant, but well worth it.



***Ludwigia* Sp "Firestorm"**
Jawdropping! Even this word doesn't do this color mutation justice. This plant looks like a forest fire in your tank! Developed in Eastern Europe the leaves are fire engine red with black stripes. A black stem completes the effect, One of the prettiest plants available on the market.

Believed to be developed from *Ludwigia repens*, this plant requires CO_2, heavy fertilization and high light to maintain its color. This is not a beginners plant. But for anyone with aquatic plant experience, this plant is the Holy Grail! It doesn't get much redder than this. Not cheap, but prices are at least reasonable given this plant's beauty.

Hopefully these 3 new plants pique your interest!
Happy plantkeeping.

Tony

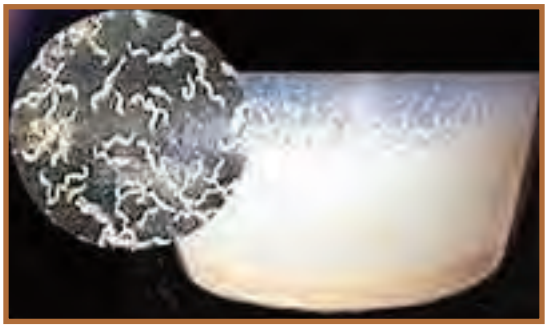
John Todaro – BAS
From the Brooklyn Aquarium Society's publication
SCRUMPTIOUS MEALS & LIVE FOOD TREATS Compiled, Edited & Written by John Todaro

Microworm Culture Basics

The nematode *Panagrellus* sp., commonly known as "microworms" to tropical fish hobbyists, are a great alternative when the fry are too small for brine shrimp nauplii.

Microworms are one of the simplest live foods to culture. They produce a dependable harvest and are tolerant of environmental variables. They are small, usually less than 1/16" inches long, white, unsegmented worms that are in constant motion. Because of their size, they can be fed to fish that are too small to take brine shrimp nauplii.

The worms can remain alive in fresh water for twelve hours or longer.



Microworms are livebearing and release 10 to 40 young every 1 to 1.5 days for about a 20 to 25 day life span. Therefore, each female can produce approximately 300 young in their lifetime. The young reach sexual maturity in about three days. So, if you take care of the cultures, you can see you will almost never run out of microworms.

Starter cultures are available from biological supply houses, mail order companies or at society meeting or from other aquarists.

Cultures ship well and can last for over six months at slightly above 32° degrees.

They can be cultured in almost any shallow flat, water tight container, everything from a plastic refrigerator container with a snap lid. You can also use butter tubs or any flat type container (punch holes in the lid; microworms need oxygen).

Starting a culture is easy. If you can, buy the culture mix from the biological house. I've found it works best because they provide a bacterial inhibitor mixed in to help keep the culture "sweet."

But microworms can be happy living in many other cereal grains, such as oatmeal flakes, corn meal, baby oatmeal cereal, etc.

Cooking the oatmeal for 5 to 7 minutes helps stop mold from forming.

The mixture should have a consistency of what else, oatmeal. The media is then spooned into the container and spread to a thickness of about 1/2" to 3/4" inches. Sprinkle a tablespoon of baker's yeast or Fleishmenn's® yeast over the oatmeal and mix in. Make sure the media is cool, then with a spoon or popsicle stick spread the microworms on top. Keep the culture in a well lighted area at 68 to 85°F.

Note that at the higher the temperatures, the culture will grow faster, but the culture will last longer at lower temperatures. It's up to you how fast you need microworms to feed your fish.

In three to seven days, the surface of the media should appear to shimmer with the movement of the microworms, and they will start climbing up the sides of the container.

The worms can now be harvested. Use a popsicle stick to scrape them off the sides of the container and swish them off into the fry tank.

A culture should last for about 3 weeks and give you enough worms for the average fry tank.

You should have at least two or three cultures going at any one time. This will give each culture time to regenerate.

Joe Graffaginino – BAS

X-RAY TETRA

Pristella maxillaries

Also known as the X-ray tetra this fish originates from South America. The countries you could find them in are Venezuela, Guyana, Suriname, French Guiana and Brazil. It's called the X-ray tetra because its body is translucent. It is the only species in the *Pristella* genus. Sexing these tetras is not difficult – the females have larger bodies and plumper stomachs.

The X-ray tetra can live 4 - 5 years and reaches a length of 1 ½ - 2 inches. It enjoys a 6.0 - 7.0 pH and a temperature range of 70 – 82 degrees Fahrenheit. It does best in soft and slightly acidic water. It will eat anything small enough to fit in its small mouth such as flake food, mosquito larvae, brine shrimp or daphnia.

I was able to obtain a dozen of these fish from a local fish shop. I placed them in a 10-gallon tank with a corner filter and fed them crushed flakes followed by cut up frozen bloodworms and at times frozen mosquito larvae. After a few months, I tried to breed them. I took the fattest two females and the largest male and placed them in a 2 ½-gallon tank. I use

a tetra/barb breeding tank of 2 ½-gallons that has two small flower pots in a bare bottom tank, above and resting on the flower pots is a tight fitting plastic mesh net that has tiny holes in it (the type used in needlepoint). I add a small sponge filter on one end and a small piece of java moss on the opposite end. I stop feeding them when they are in the breeding tank. I place the tank at an angle that would have the first rays of morning light shine on the tank. Tetras and barbs like to spawn at the crack of dawn. These fish are egg scatterers so when they spawn, the eggs are mostly around the java moss plant. However, many eggs go all over the tank and most slip through the holes in the mesh netting. The next day I looked at the tank and sure enough, there were 40 – 60 eggs on the bottom. I placed the breeding trio back in with their siblings.

A couple of days later, I noticed that all the eggs fungused. This could be because the male was not mature enough or that the eggs were sensitive to the light in the room. Some species of tetras are sensitive to too much light for both their eggs and fry. The light could sterilize the eggs and even kill newborn fry. It's best to keep the eggs and fry in the dark for a week or so until the fry can grow. After a couple of weeks, they become tolerant to the room lighting.

I fed the group foods high in protein for three weeks in the hopes of getting a better yield of fertilized eggs. I then pulled another trio into the breeding tank and set it up the same way to get the morning sunlight. The next morning I kept the lights off in the room and used a red cover shield on my flashlight. Again I found eggs, but this time I moved the aquarium to a dark room after removing the trio of adults. After 4-5 days I added a small amount of the tiniest size Golden Pearls and some infusoria, then left them alone for another few days. The fry would find food to eat from the Java moss and the small amounts I added to the tank. I fed them sparingly because I didn't want to pollute the tank.

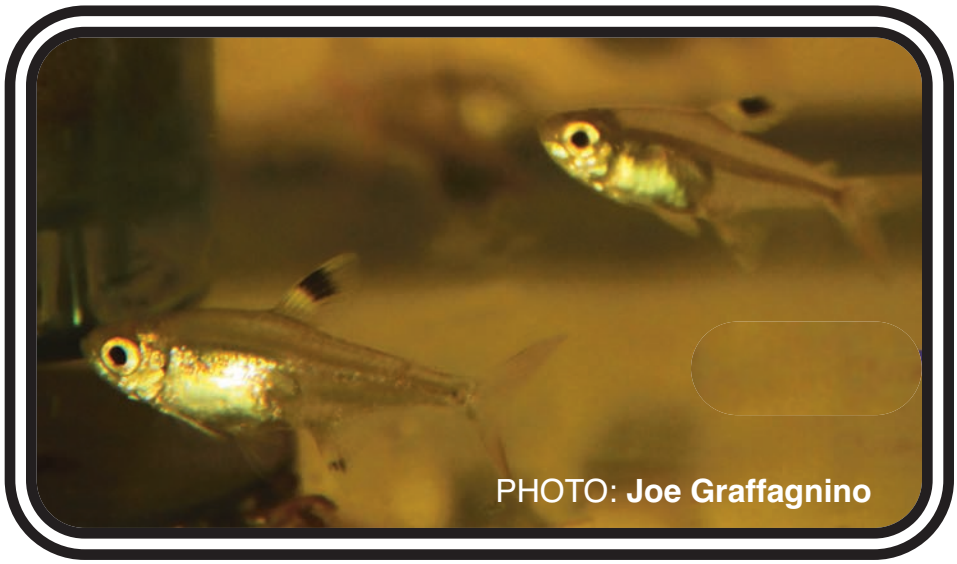


PHOTO: **Joe Graffagnino**

After approximately 3 weeks I returned them to the main room and found about 50 fry swimming. Within another month I moved the group, now numbering 30 individuals, to a 5-gallon tank. I performed 10% water changes weekly and the fry grew quickly. The X-ray tetra is an interesting, pretty fish that requires a little work to get them to spawn and raise the young, but it is well worth it.

A school of these beauties swimming together is a sight to behold. Go get yourself some X-ray tetras and enjoy them.

Anthony P. Kroeger - BAS

Top Hardy Butterflies for Your Marine Aquarium

I know! I know!

Butterflies do not have a reputation as hardy marine fish! But like every rule there are exceptions. Having imported many species of butterflies I find the following 10 species to have the least transport losses, the fastest recovery time and are the fastest to return to feeding.

Like all butterflies, they require clean, well filtered, oxygenated water, a pH of 8.0, and a temperature of 72° to 82°F, salinity of 1.020 - 1.024 (unless noted). Keep all butterflies in a roomy tank. Sociable species are noted*.

Butterflies are <u>not</u> beginners' fish, but any marine aquarist with an established cycled tank should be able to successfully keep my choice of the following top 10 hardy butterfly species:

#1 Bannerfish - *Heniochus acuminatus*

Basically black and white banded with a 1/4" yellow posterior. A long dorsal fin; also called a pennant butterfly.
*Does well in small or large groups. Reasonably priced, easy to feed - eats all frozen, most pellets and flakes over time. Keep warm 79°- 82°F. Susceptible to ick if chilled. Native to the Pacific, Red Sea to Indonosia.

#2 Yellow Longnose Butterfly - *Forcipiger longirostris*

Sunshine yellow body, chocolate forehead, white throat, black spot in anal. A beautiful butterfly. Eats small frozon foods: brine shrimp, chopped/minced clams and scallops, may accept micro-pellets.Very hardy, not sociable with other butterflies but peaceful with all other fish. Reasonably priced. Native to Pacific - East Africa to Indonosia.

A trick to initiate feeding with this and the next butterfly is to "paint" unthawed brine shrimp into coral crevices on a dead head in your aquarium; as the shrimp thaw, the butterfly (and all other fish) will snap them up off the coral head.

#3 Copperband Butterfly - *Chelmon rostratus*

Silver,orange stripes, black rear ocelli, yellow/orange fins. This butterfly is a favorite with a very mixed reputation. It is like pulling teeth to get some to feed. Never buy this butterfly without seeing it feed first! Do not buy any copperband whose forehead looks pinched or skinny when you look at it head on; also the nape should be filled out and not sunken. Assuming you buy one that is feeding, you should not have any problems. Feed the same as #2. Copperbands are from Australia and cost more, but generally have much less feeding issues than the Indonesia yellow longnose butterfly.

Not sociable with other butterfies. If you can buy the Australian fish, it is well worth the difference in price. Prices are moderate to moderately high.

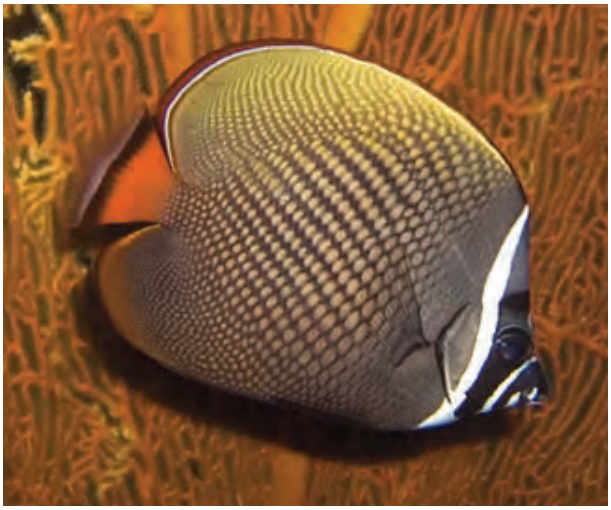
#4 Double Saddle Butterfly - *Chaetodon ulietensis*

One of my personal favorites. White body, two black saddles, yellow posterior, black caudal peduncle spots. Not sociable with other butterflies. *Sometimes may be kept in pairs. Double saddles readily eat most foods, even flakes! Once established, they are very long lived and hardy. Moderatly priced. Native to the Pacific and Australia's barrier reef.
An excellent choice for your marine aquarium.

#5 Raccoon Butterfly - *Chaetodon lunla*

Yellow body, black eye stripe, shoulder stripe and fin edges, brown upper body overlay, white head stripe, black spot in caudal peduncle. Another chow hound, eats most high quality meaty marine foods, eventually flakes and pellets. Readily available. Their prices are moderate to high. Native to most of the Pacific, Hawaii and the Red Sea. Specimens are always the best feeders and the hardiest. Well worth the price difference.

#6 Redtail or Collared Butterfly - *Chaetodon collare*



Black/red tail, black body, yellow diamond scales and stripes overlaid, white shoulder band. Easy to feed. Accepts all meaty marine foods, flakes and pellets eventually. *Sometimes they can be kept in a small shoal. Make sure all fish are the same size and added to your aquarium at the same time. Test trial in a reef tank. Some specimens are fine others are not. Very hardy and long lived.

A Pacific native, fish from Sri Lanka/India are hardiest. Moderate prices.

#7 Threadfin Butterfly - *Chaetodon auriga*

White body,orange posterior 1/3rd, black eye band, black diagonal body striping, black dorsal ocelli. This butterfly usually feeds well too! Eats all meaty marine foods once acclimated.
Some specimens will learn to eat flakes and pellets.
* Sometimes they can be kept in a small shoal (see #6). Peaceful with all other fish except other butterflies. A Pacific native (wide area).
Moderately priced.

#8 Lattice Butterfly - *Chaetodon rafflesii*

Yellow body, black fishnet overlay, black eye band /dorsal/caudal bands, orange snout, caudal, rear anal. Not reef safe. Not sociable with any butterflies. Will eat most quality meaty marine bits: shrimp, clams, scallops, sponge, etc. Eventually, possible pellets and flakes. Very hardy once established. Native to a wide Pacific range. Moderately priced.

#9 Tinker's Butterfly - *Chaetodon tinkeri*

Very expensive. If money is an object forget this deepwater butterfly. White body, brown spots, posterior 1/3rd black, yellow eye band/snout, blue fin edges. Eats all foods readily but must have top notch water quality at all times. Pacific native - a deepwater fish. Rarely available, it comes from Hawaii or the Red Sea. Not sociable with other butterflies.

#10 Blue Cheek Butterfly - *Chaetodon semilarvatus*

To me, this is the "king of the butterflies" Outstanding in every way! Sunburst yellow body, blue cheek/eye mask, red body and fin strips. Very expensive. Your truck payments cost less! Red Sea endemic species, it needs a higher salinity 1.024 - 1.026. *Sociable and can be kept in shoals if your bank account will allow it. Feeds on all fresh or frozen meaty foods readly and easily. Will rapidly learn to accept pellets and high quality flakes. A vigorous feeder once established. This is the only butterfly of which I've never lost any in either transit or acclimation. I had a shipment arrive in 28˚F in a blizzard. The boxes sat on the tarmac an hour and when they were opened were a balmy 48˚F. Half frozen, laying on their sides, every single blue cheek survived! Most did not even catch ick! They're also sold under the trade name "Arabian butterfly" or "Golden Arabian butterfly." They must have top notch water quality at all times or they become susceptible to odinium. I have seen this butterfly kept in reef tanks with zero problems. But I would watch it closely. Although the double saddle (#4) gives it a good run for its money, to me, the blue cheek/gold Arabian butterfly will always be #1 in my book!

Tips to Select Your Butterfly

1. **Ask to see the fish feed. Buy only fish that eat.**
2. **Look at the forehead/nape area head on. Do not buy any fish with a skinny or pinched nape from a head on view.**
3. **Look for extended finnage or laid at rest only. Not clamped finnage.**
4. **Look for dark eye color. Do not buy any fish with pale/faded eyes.**
5. **Buy only active fish. Butterflies are always moving in mid water. Given top quality water (and a healthy bank account in #9 and #10), any moderately experienced aquarist can successfully keep these top 10 hardy butterflies.**

Try one in your home soon!

Happy fish keeping.

Tony

Joel Antkowiak - ACLC

Reprinted from *Tank Tales,* October 2011 Vol. 40 No. 9
The publication of the Aquarium Club of Lancaster County

Bread 'N Butter

AQUARIUM PLANTS

Bread 'N Butter is a series of articles on those fishes that are commonly referred to as "beginner's fish" and oftentimes are among the first fishes that one keeps in an aquarium.

I am taking a step away from the swimming type of bread and butter species to keep more in line with this month's newsletter theme of aquascaping. In the modern aquarium shop, there are hundreds of species of aquatic plants available for hobbyists to grow in their home displays. This article will serve as an introduction to some of the most common and basic types.

BUNCH PLANTS

One of the first groups of plants that the beginning hobbyist encounters is the 'bunch plants.' Although many of these plants are unrelated botanically speaking, they are usually grouped together. They consist of plants that are sold as a small bunch of stems or cuttings that readily put down roots in their new homes. Often times, they are weighted by a strip of lead, which should be removed. The most common of these is *Egeria densa,* or anacharis. It can also be found under the names *elodea* and Brazilian waterweed. This is a quickly growing species when offered moderate lighting and kept between 55-77˚F. It will also thrive while free floating. The temple plants of the genus *Hygrophila* are also easily grown. Species commonly encountered include *H. polysperma, H. corymbosa* along with its 'compacta' variety, and *H. difformis. H. difformis* is also called water wisteria and has bright green, ferny looking leaves. *H. polysperma* has leaves that are lanceolate and about 1-1½" long, and can be green or pink depending on the variety. *H. corymbosa* has larger leaves than *H. polysperma*, perhaps to 3" in length. Other plants that are commonly sold in bunches include *Rotala sp.*, *Cabomba sp., Ambulia sp., Ludwigia sp.*, and *Bacopa caroliniana.* These are all a little more difficult to grow than anacharis and temple plants.

SWORD PLANTS

These plants are usually used as show pieces in a display aquarium. The sword plants hail from the genus *Echinodorus*, and most will grow 12 - 18" inches high. The exception to this rule is the pygmy chain sword, *E. tenellus*, which will produce a carpet of small 3-4 inch high plants and is a great foreground plant. The sword plants are some of the many plants available for aquarium cultivation that have multiple growing forms in their natural state. Most commonly, plants that are sold in stores have been grown emersed, or with their roots in water and the plant above the water line. Rarely will you find a plant available commercially that has been grown submersed, or entirely under water. This is because the availability of carbon in the atmosphere is much greater than it is in water. Therefore, the plants will grow more quickly if grown emersed. Sword plants are among the many species that will benefit greatly from the use of carbon dioxide injection in the aquarium, especially if given ample lighting.

There are about 26 known species of

sword plants. Of these, there are about a dozen that are commonly available, the most popular of which is the Amazon sword plant. Two species are sold under this name. *E. bleheri* and *E. amazonicus*. Others most commonly available are the radican sword - *E. cordifolius*, the ruffled sword - *E. major*, and the rosette sword - *E. parviflorus*.

THE CRYPTS

The water trumpets from the genus *Cryptocoryne*, or 'crypts', are also usually available in the emersed grown form, but can be found in the submersed form as well. There are about 60 or so species of Crypts, though maybe a dozen that are readily available. The name 'water trumpet' is a reference to the shape of the inflorescence, or flower, of the plants. These plants will generally grow well in lower light conditions than the sword plants. They will also stay a bit smaller, maybe 8-12 inches as a general rule, though some species will grow larger.

Some crypts have been cultivated into different color forms that can make interesting additions to the aquarium without having to provide different growing conditions. The most common of these is *Crypt. wendtii*, which comes in red, bronze, green and the "Mi Oya" variety that is a reddish bronze color. Other common crypts are *Crypt. blassi, Crypt. ciliata, Crypt. parva, Crypt. lutea, Crypt. lucens, Crypt. pontederifolia, Crypt. moehlmanni*, and the more grassy species such as *Crypt. balansae, Crypt. spiralis,* and *Crypt. retrospiralis*. Several other species are occasionally seen in the hobby.

A phenomenon that frequently occurs with crypts when they lose their leaves when transplanted is called 'crypt melt'. It may take a newly planted crypt up to 30 days or more to generate new leaves once it has melted. All emerse grown plants will go through the melt, and sometimes submerse grown forms. Crypt melt makes it imperative that, when buying crypts, the root stock is healthy. Crypt melt is so common that some growers are now shipping crypts without leaves to save on shipping costs, and because the leaves will be lost anyway.

APONOGETONS

These plants are fully aquatic. They may live in temporary still or flowing waters and will survive a dry period in the form of a bulb or tuber. The bulbs are sometimes available in stores as 'mystery plant' because the distributer lost track of the species of some bulbs and sells them as a 'see what you get' fun type of marketing strategy. They are generally easy to grow and require period of dormancy. Of course, there are always exceptions to every rule, and the exceptions are usually the most desired species. Such is the case with plants are more difficult to cultivate, and only the most experienced aquarist will be able to grow their lace plant multiple times from a single bulb. The Madagascar lace plant, *A. madagascariensis*, may also have a tendency to grow algae on its leaves if the lighting is not correct, filling in the lattice structure of the leaf.

More common and much more easily grown species include *A. ulvaceus, A. boivinianus, A. crispus, A. natans,* and *A. rigidifolius*.

THE GRASSY STUFF

There are two genera of plants that are almost grass-like that are very popular for the aquarium. The genus *Sagittaria* contains about 30 species and is closely related to the sword plants. It consists of mostly amphibious marsh plants that have long stemmed aerial leaves that are oval to arrow shaped. But the smaller submerged species have more linear shaped leaves and multiply rapidly by runners in the aquarium. *S. subulata* is the most common of these in the aquarium, whereas its larger cousin, *S. platyphylla*, is also frequently encountered.

The second and more popular grassy plant genus is *Vallisneria*. The corkscrew val, *Val. tortifolia,* is a medium sized plant with bright green tightly twisted leaves. *Val. spiralis* is similar in size but a slightly darker green in color and not as tightly twisted. Very popular as a background plant is jungle val, also called giant val. Most are usually sold as *Val. gigantea*, but are actually *Val.*

americanus. The leaves of this plant can reach 3 feet in length and it will quickly form a living wall at the rear of your aquarium.

ANUBIAS SP.

Plants of the genus *Anubias* prefer low light conditions and are sometimes difficult to keep because algae tends to grow on their leaves faster than they grow, which is about 1 leaf per month or sometimes less. They are characterized by broad, sturdy, dark green leaves that come in many different forms. The *Anubias* like to be attached to a piece of porous rock or driftwood, as opposed to burying their roots in the substrate. Most often encountered are various forms of *An. barteri,* including *An. barteri* var. *coffeefolia* and the diminutive *An. barteri var. nana*.

FLOATING PLANTS

Last but not least in this short introduction to aquarium plants, let's talk a bit about some of the common floating plant species. There are several species that are very popular with aquarists because they provide cover for fry born in their tanks. Others are used primarily as pond plants but can be over wintered in the aquarium. The most commonly available pond plants are water lettuce, *Pistia stratiotes*, and the water hyacinth, *Eichhornia crassipes*. These plants float at the water surface and send roots down into the water. These root systems can provide ample spawning sites for killifish and other egg placers, and hiding places for fry. They require high light levels to over winter in the aquarium.

There are 4 other floating plants that I want to touch on. Hornwort, *Ceratophylum demersum*, and guppy grass, *Najas guadalupensis*, will fill a tank in short order if given the proper growing conditions and are excellent plants for breeding killifish and livebearers. They grow totally submerged and a single stem can reach up to 3 meters in length.

Crystalwort, *Riccia fluitans*, is also commonly used to provide cover at the water surface for fry. However, more recently and more popularly, it is being used as a 'ground cover' in planted aquaria. It is placed on a rock and wrapped with netting that allows it to grow through, forming a lawn like effect. Last but not least, water sprite (*Ceratopterus thalictroides*) is a great plant to use either rooted in the aquarium substrate, or allowed to float freely. Moderate light and soft, mildly acidic water will make this plant grow and multiply, providing all of the previously mentioned advantages of floating and of rooted plants. Small plantlets develop at the edge of the plant leaves and quickly develop into miniature water sprite plants.

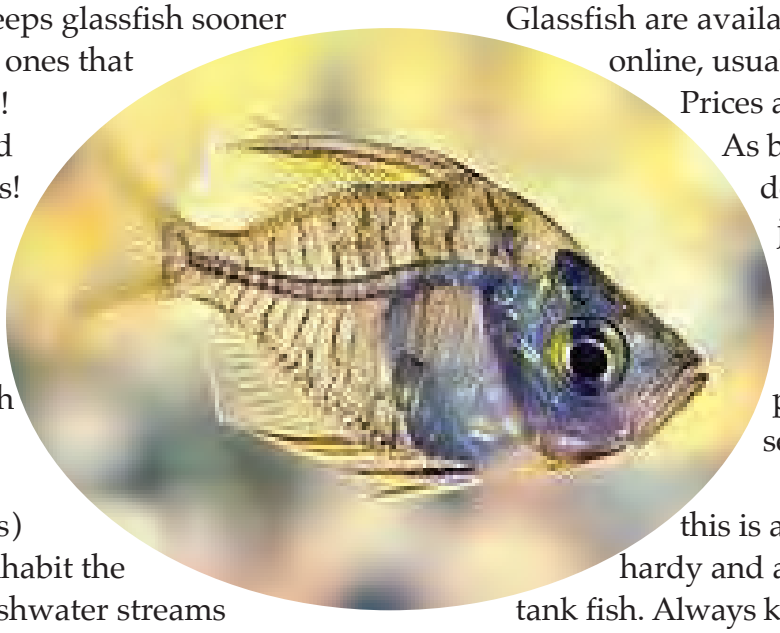
Anthony P. Kroeger – BAS

THE GLASSFISH

Chanda ranga

Every aquarist keeps glassfish sooner or later, usually ones that are painted! Yes! Literally painted with neon strips/colors!

I'm not here to discuss the ethics and merits of painting a fish so it sells; rather lets look at the glassfish and its needs.



Glassfish are small (up to 2"inches) transparent fish that inhabit the brackish water and freshwater streams from India to Thailand. These streams usually are full of vegetation.

The body of the glassfish is transparent! Yes, you can see the bones! Its natural color is a green tinted body. Only males have neon blue and dorsal and anal fin edging when in good condition. Any "painted" ones you buy will lose their colors within 6 to 8 months as the paint wears off.

Glassfish are available in all stores and online, usually in painted colors. Prices are always reasonable. As best as I can tell painting does them no harm, but just the same it must be stressful to be "painted." Regardless; "painted" glassfish are very popular. I import and sell them every week.

Except for feeding, this is a good beginner's fish, hardy and a peaceful community tank fish. Always keep this fish in a school of at least six fish.

A 15 or 20-gallon tank is fine for six glassfish. Not a real active fish, but it does not hide either. Plant the tank heavily; use a black or dark color substrate and background. A small power filter or sponge filter is fine for their needs.

Glassfish need hard, alkaline water. Keep them warm, 78 to 85˚F. I add 1 teaspoon of

Kosher table salt per 2-gallons of water. This fish likes water changes! I change 50% once a week.

Feeding this fish can be problematic; initially tempt them with frozen brine shrimp, daphnia and, if possible, live blackworms, an item it cannot refuse. Eventually most glassfish will accept high quality flakes.

Very hardy if kept warm and long lived. The only disease problem they have is *Lymphocystosis*. This looks like cotton puffs growing on the body of the fish. This is incurable - destroy the fish!

Glassfish are unique and different. Try some in your aquarium.

Tony

John Todaro – BAS

SPECIES PROFILE

Scientific Name: *Pseudambassis ranga.*
Common Name: Indian Glass Fish.
Distribution India, Pakistan, Nepal, Bangaldesh, Myanmar, Thailand, Malaysia.
pH Range: 6.5 - 8.0.
Temperature Range: 68 - 86˚F.
Water Hardness: 8-20 H
Size: 3.2" inches.
Temperament: Peaceful and shy; do not keep with aggressive species. In freshwater can be kept with barbs, livebearers, smaller rainbowfish, loaches. In brackish tanks mollies, bumblebee gobies and chromides. This is a shoaling species and will not do well if kept singly or in pairs. Keep ingroups of at least 6. Males become territorial when spawning but physical damage is rare.
Sexing: Males have blue edging to the dorsal and anal fins and are slightly deeper yellow on the body than females. These colors are apparent when the fish are breeding. The males swim bladder (which is clearly visible) has a pointed back edge.
Diet: Will accept most live, frozen and dried foods.
Breeding: Not too difficult, although the fry are difficult to raise. Provide the fish with a heavily planted aquarium. Stock 6-8 adult fish. Situate the tank so it receives direct sunlight in the morning. Feed a high quality, varied diet. Maintain a temperature of around 70-75°F. A pH of neutral is fine. When in breeding condition, look for an intensifying of the colors of the males, and round bellies on the females. Do a large water change with warmer water (around 80-84°F) in the evening. The fish should spawn in the morning. Each pair may deposit up to 200 eggs, these will be found stuck to plant leaves and stems. Remove fish at this point. Eggs are very sensitive to fungus. Dose tank with a weak solution of methylene blue. Fry will hatch in 24 hours and will hang from plants. They'll be free swimming in another 3-4 days. Difficult to raise, they do not actively seek food. Instead wait for morsels to drift by. Feed heavily with live brine shrimp nauplii and create a slow current in the tank. Do small water changes to keep conditions perfect.
Reference:
Seriouslyfish.com

Lee Van Hyfte - EIAA

Reprinted from *Fin Flap* August 2017 the publication of the Eastern Iowa Aquarium Society

Breeding the Ruby Clown Cichlid

Mikrogeophagus altispinosus

Breeding the ruby clown cichlid was a long endeavor. My first and greatest challenge was finding healthy brood stock. I found that this fish is often overwhelmed with internal and external parasites. It literally took years of review to find a healthy pair.

I managed to find a seemingly healthy fish and worked on attempting to sex out a group to bring home. This was a challenge in and of itself, as the fish are not well defined. I picked out 4, which turned out to be 3 males and a female. So over a period of time a pair bond was formed and they sought out sites in my planted tank to breed.

A year had passed and yet no breeding had taken place. 1 male had succumbed to the common wasting disease found in this fish. I knew I had to take efforts, as the probability would be that all 4 were still carrying a parasite. I treated them with 3 doses of Flubendazole and the outcome was a drastic change in behavior and breeding effort.

I moved the adult pair over to a 20L aquarium to give them some alone time though a few dwarf rainbow fish were added as dithers. I will admit I had a bad attitude with the fish and decided breed or die trying. I took them from 300ppm and dropped them into water of 75ppm., Though this is a dangerous proposition in terms of osmotic shock, it actually worked and induced the spawn I was hunting for.

The spawn yielded a veritable cloud of young and estimated the hatch to be in the 300 range. I did not go to extreme efforts to save the large spawn and allowed nature to take its course with them. The fry had hatched after 3 days and were free swimming after another 3 days. They were much larger than their cousins the Blue ram and most took to newly hatched baby brine shrimp immediately. For those that did not take

the BBS an aged and fuzzy almond leaf was added to the aquarium. It was noted that immediately upon placing the fuzzy leaf into the aquarium that the young began to feed on the hyphae of the mold; often noted was a battle of tugging and pulling at these fine threads. It was quite unique to see.

The parents were fierce, even more than the Blue ram. The mother would often attack the glass and parade her extended fins back and fourth until I walked away from the aquarium. The male of this species is less involved in the primary care of the young and often he would display and then lose interest and wander off to another area of the aquarium.

The set up was a sand bed with a large piece of Malaysian driftwood and java fern. I maintained the temperature at 78-80˚F and an air driven sponge filter was in place. The pair was fed on BBS, Hikari frozen Brine shrimp, Hikari Mysis shrimp, and Hikari bloodworms. A few rounded flat stones were placed in the aquarium as a safe breeding site and has proved to be their preferred place for egg disposition over the wood.

The fry grew fairly well and at about 3 months had attained ½ inch in size. I let them remain with the parents to hopefully learn useful breeding and family traits. At ½ inch I remanded them over to their own 20L aquarium so that the pair would have the opportunity to breed yet again. The pair, following typical ram behavior, had not bred until the previous spawn was removed.

The fish has proven itself a bit easier to breed and easier to maintain once healthy fish are found. It is my suggestion to either find the rare tank raised fish or be prepared to treat the future brood stock for gill flukes as this parasite seems prevalent in this species. I find the fish love the planted aquarium and are fiercely protective once breeding occurs. It must be remarked the use of a night light during breeding trials appear critical much as it does in other dwarf cichlids.

God Bless, and Keep It Fishy,

Lee Van Hyfte

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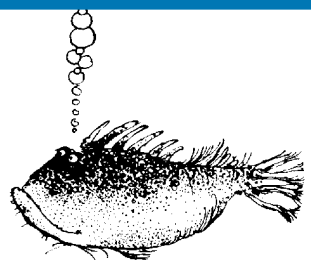

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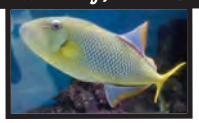

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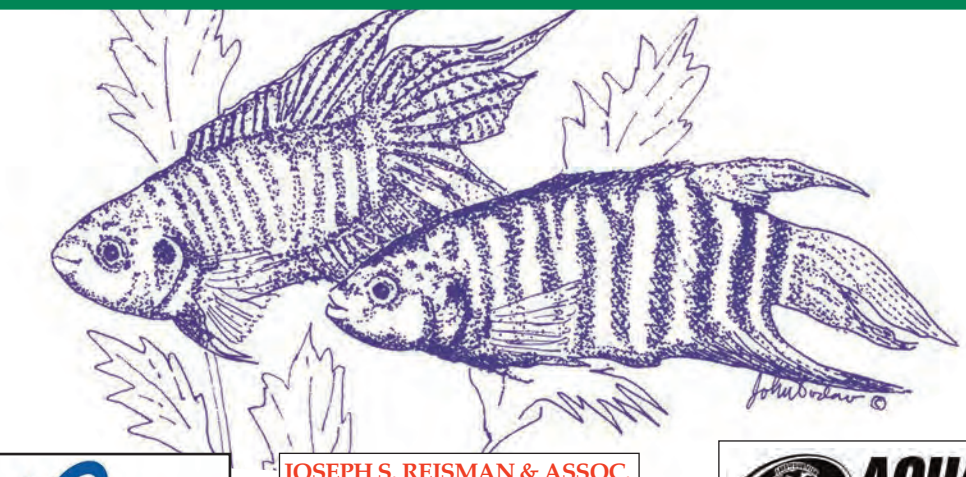

THE BENEFITS OF BEING A MEMBER OF THE BROOKLYN AQUARIUM SOCIETY

Your Membership Card is your Passport to becoming an *"Educated Aquarist."* Don't lose it. Put it in your wallet or purse. You'll need it to attend Monthly Events and get discounts at participating pet stores.

YOUR MEMBERSHIP BENEFITS INCLUDE:

Free Admission to all general meetings, held on the 2nd Friday of the month (except July & August) at 7:30 pm at the New York Aquarium, Education Hall at Coney Island, Surf Avenue at West 8th Street, Brooklyn , N.Y. The Society presents expert speakers on all aspects of the hobby, from freshwater fish to marine aquatic life. Door prizes and raffles at every meeting. Breeder Awards Program (BAP) – Certificates and trophies awarded. General meetings are open to the public ($5 donation is requested for non-members good toward membership that night). Free parking and free refreshments.

Special Interest Groups (SIGs) hold meetings, free at members' homes, for members only. Here's your chance to network with members with the same interests. Discuss, ask questions, learn, teach and develop your expertise in freshwater and/or marine aquarium keeping.

***Aquatica* The Journal of the Brooklyn Aquarium Society,** our bi-monthly (5 issues except July & August) award winning publication is on our web site. Each issue is filled with articles on both marine and freshwater aquaria keeping. Articles can be downloaded.

The ***BAS Bulletin.*** All members receive our monthly (10 issues except July & August) Newsletter, the *BAS Bulletin* via email, keeping members up to date on the latest events at the Society, notices of interest and monthly regional society events. All non-commercial members are entitled to a free classified want ad in each issue, to sell, give away or request fish or dry goods.

The **BAS is on-line at BASNY.ORG.** You'll find up-to-date information about our monthly events, links to other aquarium societies in the US and stores, manufacturers and related aquarium sites. We have an on-line library with downloadable articles. We have our own BAS forum, where you can interact with other freshwater, marine or reef members and post free hobby-related classifieds where members sell and trade fish, corals, plants and equipment.

BAS Hotline: For the latest information call the **BAS 24 hour Hotline 718 837-4455** for event and inclement weather information. If you need advice on fish keeping, breeding or where you can find rare or hard to find fish, you can often get help calling the Hotline. Help from the Hotline is always free.

Volunteer: The Brooklyn Aquarium Society is an organization run by volunteers. Without them there would be no BAS. Volunteers help set up events, write articles, coordinate projects, assist and work on committees, help at auctions and meetings. Join in, help, learn and have fun doing it. Call President, **Steven Matassa**,at **(347) 277-4793.**

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