AQUATICA

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VOL. 31 MARCH ~ APRIL 2018 No. 4

Striped headstander - *Anostumus anostomus*

107 Years of Educating Aquarists

AQUATICA

VOL. 31 MARCH-APRIL 2018 NO. 4

Contents

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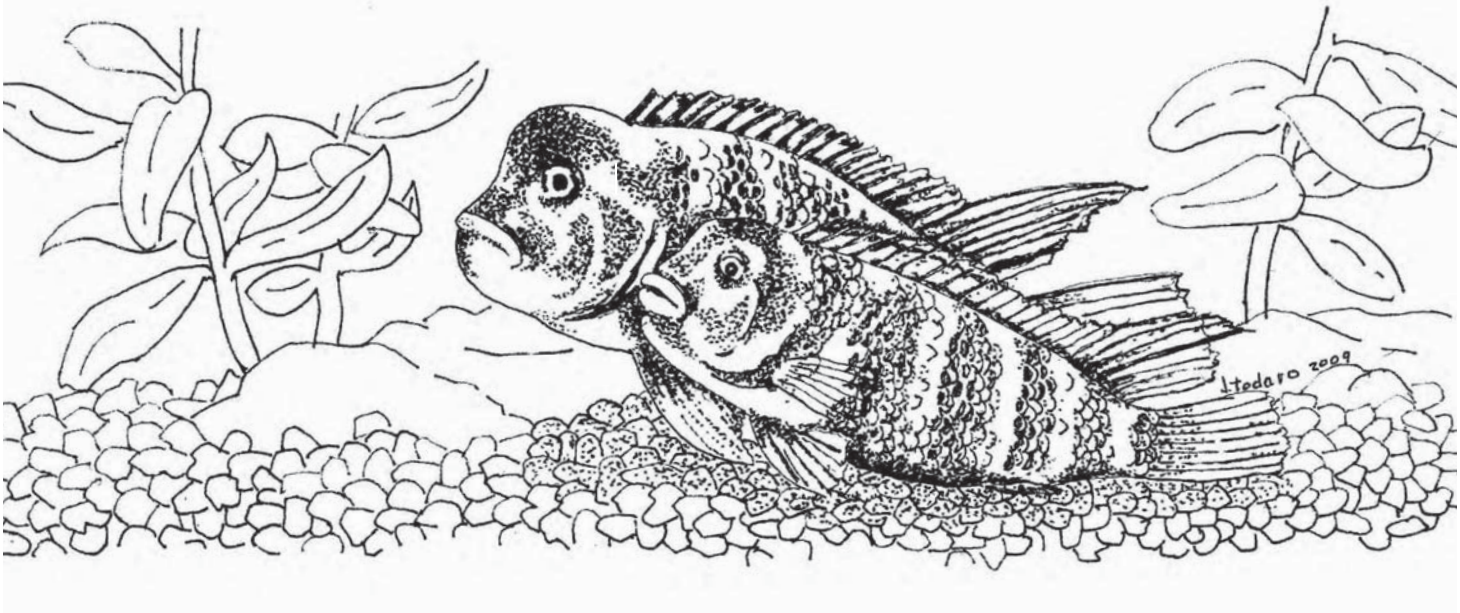
Brooklyn Aquarium Society

Calendar of Events ~ 2018

MAR. 9 Nathanial Curtis, ZooMed ~ The Science Behind the Spectrum ~ Followed by an auction of marine fish, aqua-cultured corals, freshwater fish, plants & dry goods.
APR. 13 Joe Ferdenzi ~ Basic Marine Aquariums ~ Followed by an auction of marine fish, aqua-cultured corals, freshwater fish, plants & dry goods.
MAY 11 Giant Spring Auction ~ Freshwater fish, plants, marine fish, aqua-cultured corals, dry goods, including a brand new 55-gallon tank & stand.
JUN. 8 James Perrenod, President of Discus R Us ~ Q & A Session ~ Followed by an auction of marine fish, aqua-cultured corals, freshwater fish, plants & dry goods.

NO MEETINGS JULY & AUGUST

SEPT 14 Justin Spall ~ H20plants.com - Setting up a Plant Room ~ 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 brand new 55-gallon tank & stand.
NOV 9 Greg Sage ~ Selective Breeding ~ Followed by an auction of marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction.
DEC 14 Holiday Party ~ Members, Their Families & Friends • Fish Bingo & Prizes • BAS awards presentations.



TONY KROEGER – BAS

SEXING AQUARIUM FISH

A COMMERCIAL BREEDERS TIPS

One of the greatest joys and challenges as an aquarist is to breed your fish! Being involved in the ornamental fish industry as a commercial farmer, importer, exporter and distributor levels for over 45 years, I have had an opportunity to work with thousands of species and color mutations of fish. In other words, "How do I sex my fish?"

One of the questions I'm frequently asked is "How do I know if I have a pair?" Some species of fish are very easy to sex, while admittedly others are very difficult and have even professionals scratching their heads and guessing.

Most if not all fish, however, do offer at least some visual clues to help you determine their sex.

Let me elaborate on things I look for when sexing fish. Follow these tips and you

1 In amost all vertebrates, there is a size differential between male and female.
Fish follow this rule:

Generally speaking, look for the following:

- **Catfish** - Females are larger than males.
- **Barbs** - Females are larger than males.
- **Rasbora** - Females are larger than males.
- **Danios** - Females are larger than males.
- **Killies** - Females are larger than males.
- **Tetras** - Females are larger than males.
- **Marine Clownfish** - Females are larger than males.
- **Lionfish** - Females are larger than males.

- **Seahorses** - Males are larger than females.
- **Damselfish** - Males are larger than females.
- **Cichlids** - Males are larger than females.

Livebearers are a mixed lot. Numerically speaking, in most species the males are smaller than females. But some of the most popular aquarium livebearers (Ex, Mollies) reverse this.

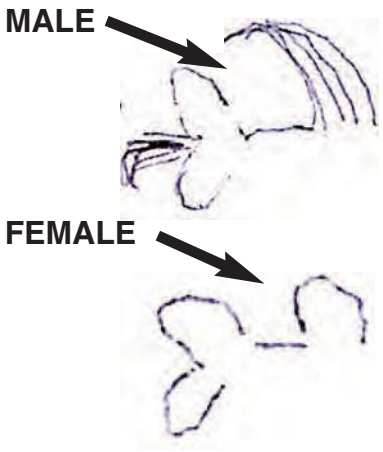
2 **Color** - In most fish, males have much brighter and more intense colors. Look for intense red, orange, blue and green colors. The brighter fish showing these colors will usually be a male. This pattern holds true with both freshwater and marine fish. One very noticable exception is West and Central African dward cichlids. All jewel fish *Hemichromis* species, *Chromidotilapia* species, "Kribensis" *Pelvicachromis* and *Nannochromis* have brightly colored females and rather subdued males.

3 **Finnage** - The fish with the longest, fullest and most extended finnage in the tank will always be a male. The longer the fins, the more likely it is to be a male. The two common exceptions to this rule that I think of are freshwater angelfish, *Pterophyllum scalare/altum* where finnage is usually the same, although male's finnage is sometimes shorter, and the Oscar, *Astronotus ocellatus*, where finnage is virtually identical.

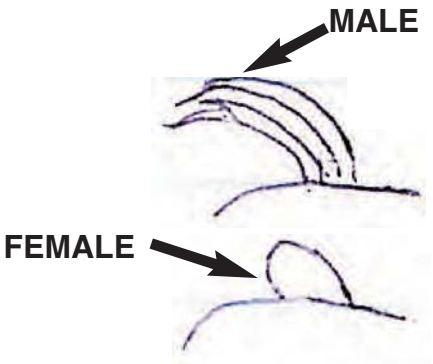
Let's look at some specific examples:

•**Tetras:** Many tetras can be sexed by the following;

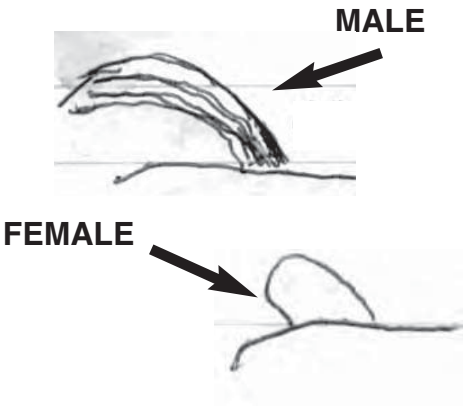
•**Congo tetra** - Extended dorsal and center of caudal



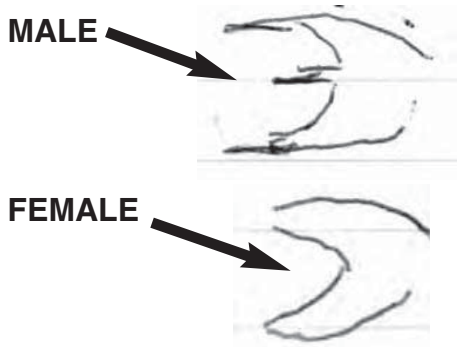
•**Longfin alestes** -*Brycinus longipinnis* - Extened dorsal



•**Bleeding heart** - *Hyphessobrycon erythrostigma* -Extended Dorsal



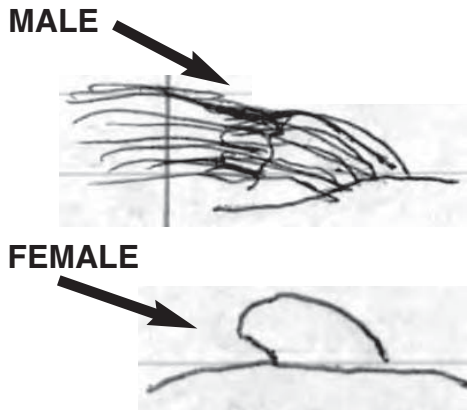
•**Emperor tetra** - *Nematobrycon palimeri* - Extended caudal.



Some barbs also may be sexed this way:

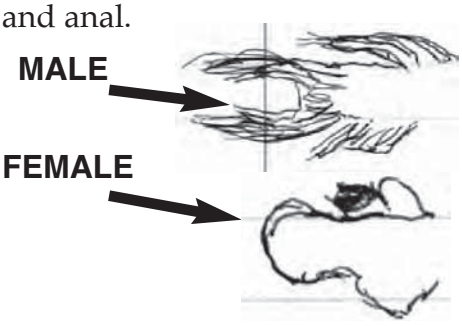
•**Hifin barbs** - *Capoeta arulius* - Extended Dorsal

•**Filament Barbs** - *Puntius filamentosus* - extended dorsal

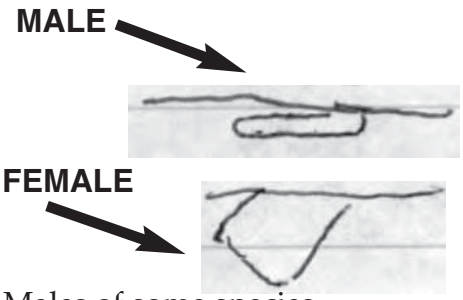


•**Killies** - Look for extended lyretail/trident caudals and extended dorsal/anal fins.

•**Red Aphyosomion** - *Aphyosemion bivittatum* - Expended Lyretail caudal, dorsal and anal.

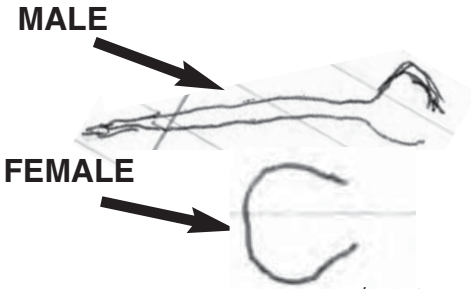


•**Livebarers** - Extended caudal, dorsal fins, gonopodium.
All male livebearers (except goodeids) have a gonopodium, a modified anal fin to facilitate sperm transfer. Females have a fanlike anal fin.

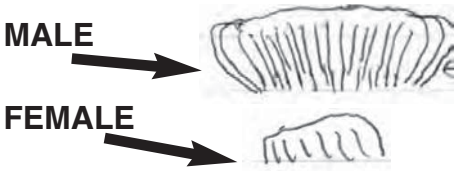


Males of some species
Ex: swordtails, guppies, mollies also have fin extensions.

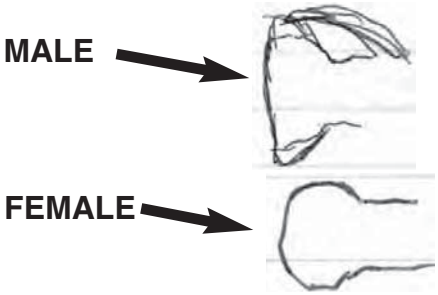
•**Swordtails** - *Xiphophorus helleri* - Sword on caudal.



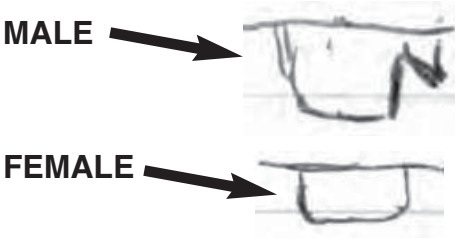
•**Mollies** - *Poecilia latipinna/velifera* - Dorsal extention.



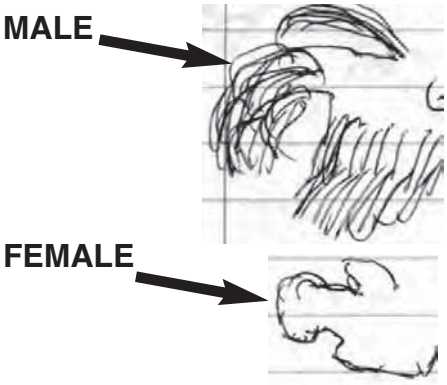
•**Guppies** -*Poecilia reticuata* - Extended dorsal & caudal.



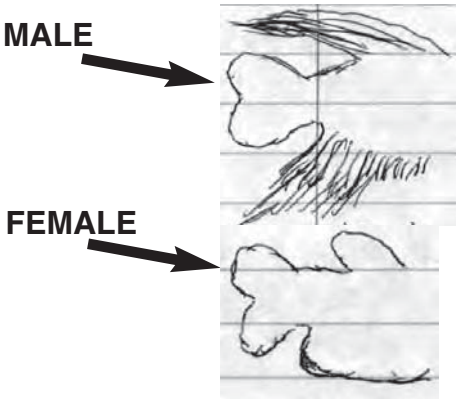
•**Goodeids** are the exception in livebearers. They have an andropodium. Think of it as a lesser developed gonopodium. Sorry goody fanatics!
It is a notched anal fin.



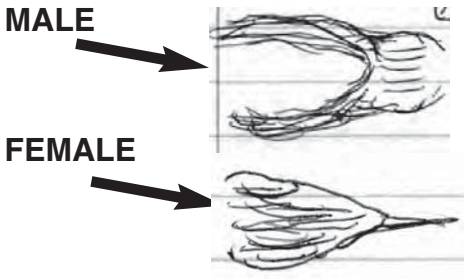
•**Gouramis** - Extended dorsal, anal and/or caudal fins.
•**Betta** - *Betta splendens* - Extended fins.



All *Trichogaster* gouramis
•**Pearl gourami** - Extended dorsal and anal. Males dorsal & anal ends in a point.

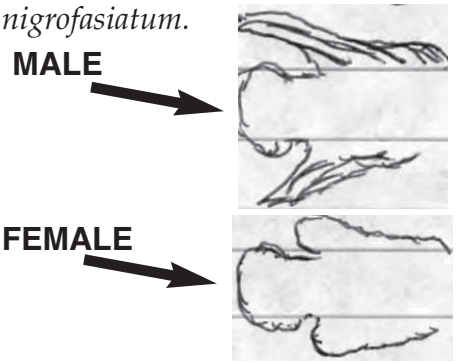


This method works for all Colisa species too.
This method works for all *Macropodus* (paradise fish) but most of them have either an extended lyretail or spade tail in males.
•**Black paradise fish** - *Macrropodus concolor*
•**Spiketail paradise** - *Pseudosphromenus dayi.*



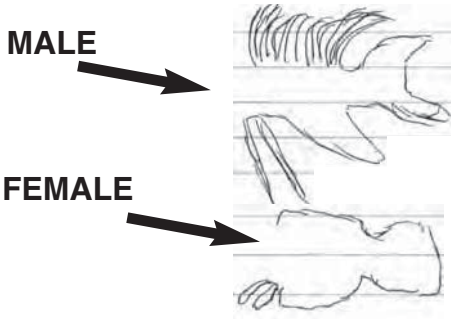
This same spade tail applies to the various •**Licorics gouramis** - *Parosphromenus* species and
•**Croaking gouramis** - *Trichopsis* species.

•**Cichlids** - Extended dorsal, anal and sometimes caudal fins.
•**Convict cichlid** - *Archocentrus nigrofasiatum.*



All Central American cichlids can be sexed this way.

•**Banded dwarf cichlid** - *Apistogramma bitarniata* - Extended dorsal, anal and lyretail and extended ventrals.



Most if not all, *Apistos* follow this although in some species no lyretail caudal is present. Two variations on this are
•***Apisto agassizi*** in which the male only has a spade tail and the
•Ram- *Microggophagus ramirezi* in which the male has an extended dorsal.

Most **Geophagus, Acara, Aequidens** and other South American cichlid species (except Angels and Oscars) can be sexed on the basis of extended and pointed dorsal and anal fins.

Rift Lake African cichlids generally follow the same rules, although the finnage in many species is not quite as long.

Mbuna and *Haplochromis* species add egg spots to the anal fin, but this is not a 100% guarantee, as some females will on occasion have 1 or 2 egg spots.

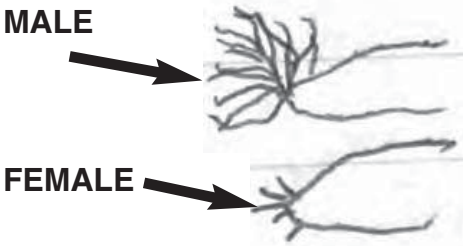
This extended/fuller pattern even extends to

West/Centeral African dwarf cichlids whose color pattern is completely opposite the norm.

4 **Color Pattern** - Look for bolder, more noticeable reds, blues and greens or contrasting stripes or spots especially on the fins and flanks of males, as these are used in courtship display to females.

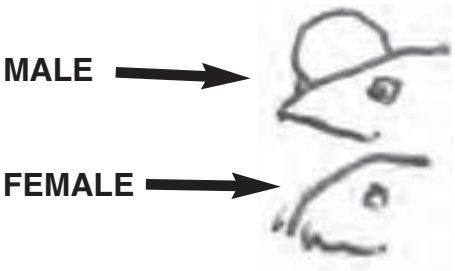
5 **Protuberances/Growths** - This is a prominent characteristic in some catfish and cyprinids and cichlids. Ex: Koi/Goldfish males get small white bumps called breeding tubercles all over their heads and gill plates when ready to breed.

In the case of *Ancistrus*, the male's bristlenose is much bigger, denser and more branched.



Protuberances - Nuchal humps - Cichlids have these.

• **Lionheads** - *Steatocrannus* Species, Geophagus species and some Haps.



6 **Behavior** - Generally speaking males only will stake out breeding territories. Cichlids, some tetras, damselfish, some catfish and some gouramis follow this rule.

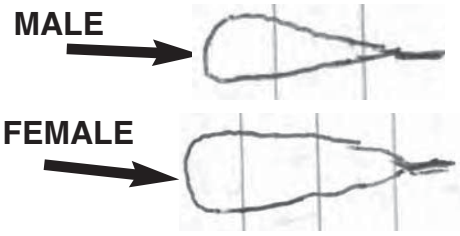
Female cichlids will defend fry vigorously wherever they are but do not specifically stake out a terrotory.

7 **Body Profile** - This is a bit trickier and takes a bit of experience, but is a very reliable guide.

Females are usually heavier built; males are more slender. This works with almost all fish when viewed from the side.

It does not work, however, with most catfish. They must be viewed from the top, especially *Corydoras*. All corys can be very reliably sexed by looking from the top down. Females are much broader.

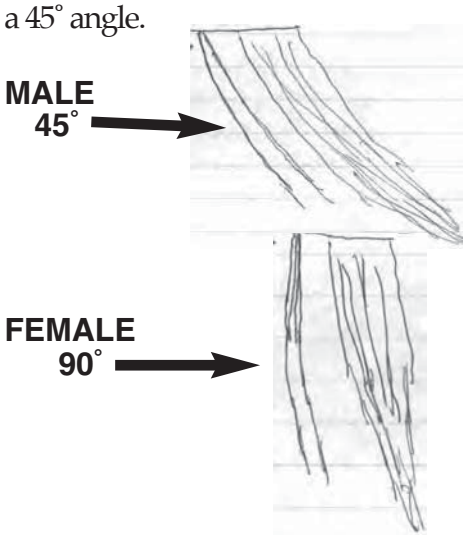
• ***Corydoras aeneus*** - Top view



Now two tips for the two species I mentioned as non-conformist: Angels and Oscars.

• **Angels** - Admittedly angels can be tough to sex. But if you have a good eye, it's pretty easy to do. I sex them based on finnage profile.

Generally speaking, females' ventral and anal fins are at 90˚ angle of attachment to the body. Males are at a 45˚ angle.



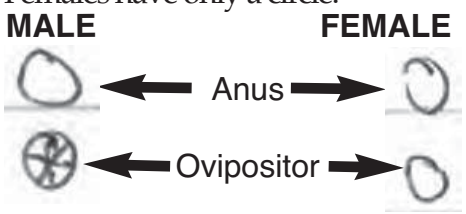
Some male angels have a small nuchal hump when older, but I find the fin profile angle to be very accurate even with young angels.

Oscars - Another tough to sex fish. Again, it can be done, but it takes a skilled eye and the oscar will definitely not cooperate with you.

To sex them; you must net the oscar, remove it from the water and physically flip the fish upside down. Not particularly likely to make your oscar happy with you.

Find the vent of the oscar. Near it you will find the ovipositor (spawning tube) opening.

Looking at the ovipostor opening; males will have a snowflake marking inside the opening. Females have only a circle.



This too is a very reliable method, but it does take a bit of practice and effort to handle what is bound to upset a breeder size oscar.

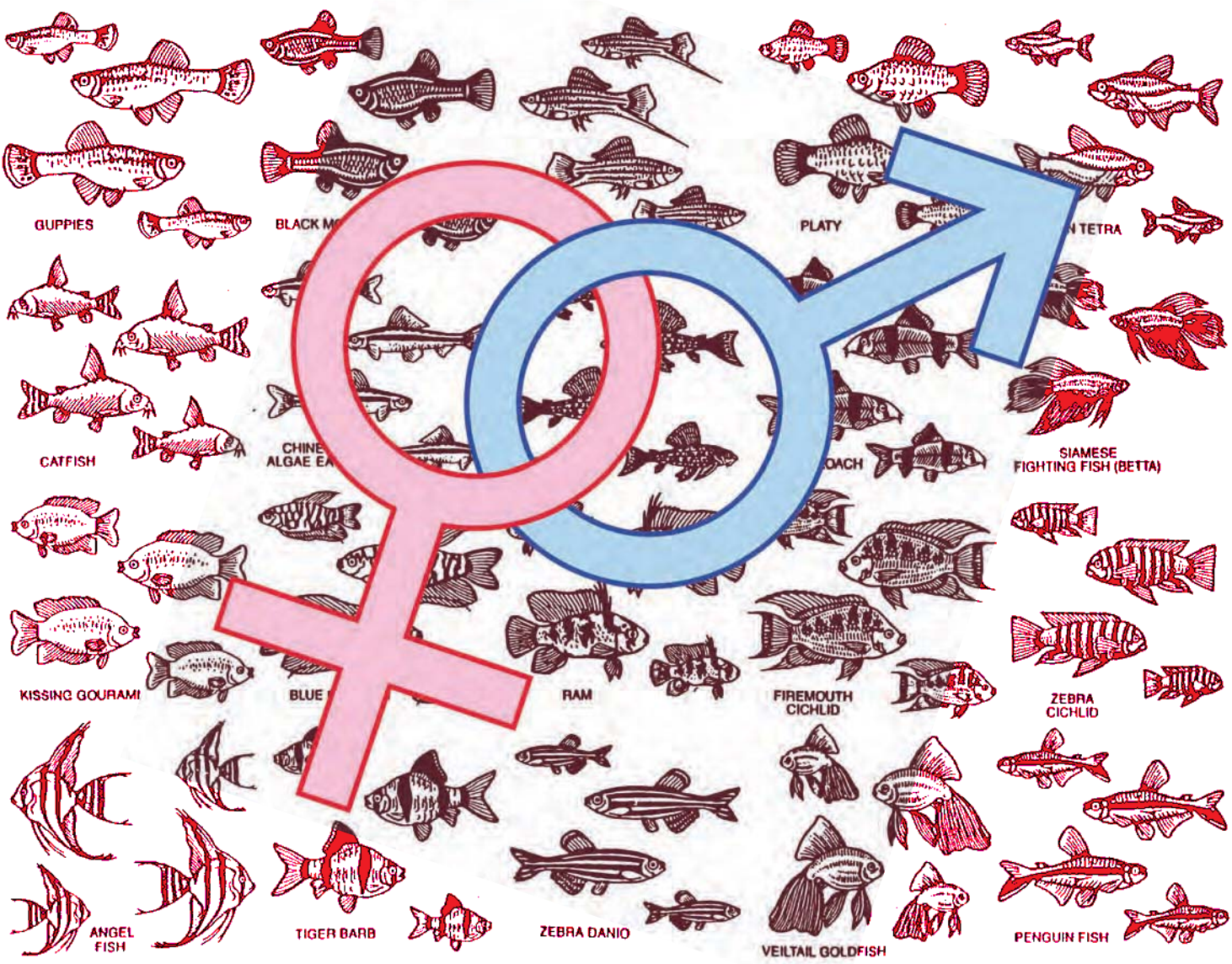
This method works on other larger difficult to sex cichlids, such as chocolate cichlids and discus too.

One Final Note:

Many marine fish, Ex; **Wrasse, clownfish, groupers,** are Hemaphrodites. That is they can change sex based upon necessity. So if you are breeding marine fish you will have to deal with that also.

I hope these tips help you sex your fish. Good luck. Happy breeding!

Tony



Holly Paoni – MAS

Reprinted from the *Darter* July/August 2016 Vol 42. No. 4
The publication of the Missouri Aquarium Society

Madagascar Lace Plant

Growth, Varieties & Reproduction

***Apontogen madagascariensis*, is one of the most recognizable aquatic plants in the trade. It is most often used as a centerpiece in the aquascape due to its long, flowing, fenestrated leaf structure. It's said to be difficult to grow successfully, but I have found it quite easy.**

Madagascar Lace is found thriving under varying conditions on its native island of Madagascar. Conditions ranging widely from full sun to almost complete shade; varying pH, GH and KH readings; temperature variations up to 25 degrees, and substrate types. However, all the substrates are rich in nutrients. This *Apontogeton* does not take a several month hibernation period like many other species, but does need a deep and very nutrient rich substrate to grow continuously. Growth slows down in the summer, so it is actually a cooler water plant that takes summers off without dying back! I have grown, bloomed, and propagated this plant under varying conditions.

My first fish room had a water chemistry

that rivaled Lake Tanganyika, an African rift lake with close to the hardest water in the world! My last fish room had moderately soft water pH was 6.4 to 6.8 depending on time of year and GH and KH each have averaged 80 ppm. There were seasonal temperature variations in both fish rooms. Depending on time of year and placement of the tank, temperatures ranged from 60 to 85 degrees, but the Madagascar Lace *Apontogeton* grew very well in both rooms.

There are actually 3 species and a few hybrids of this *Apontogeton* available in the hobby. The first variation has narrowed leaves with a regular skeletalization, *Apontogeton madagascariensis* var. Madagascar. The next variation, *A henkalianus*, has wider leaves and an irregular fenestration. The last variation is major with wide leaves and a very regular skeletalization. All are bulbed,

Leaf fenstration (windowing)

rooted plants that form a rosette leaf pattern. The leaves range from a few inches long to three feet long. I grew mine under very low to moderate light with calm to mild water currents because I use mainly sponge filters. In my experience, higher light levels lead to unwanted algae growth on the skeletonized leaves. Madagascar Lace can take higher light and do well under those conditions, but why chance the algae and make maintenance harder?

Double Flower Stalk

There are a couple of ways to propagate this plant. First and easiest is bringing the plant to bloom and producing seed. Just changing the light bulb to a brand new and more intense one and adding a new root tab fertilizer was all it ever took for me to get this plant to bloom. The bloom is a stalk of small, paired lavender colored flowers. Pollinate them by using a small, clean toothbrush to brush the inside of each without re-cleaning the brush between. Brush each bloom twice to be certain you have pollinated all the flowers on the stalk. It will take a short time for the flowers to turn into seed. The second way to propagate this *Apontogeton* involves splitting the bulb itself and is much more difficult.

See **Gary Lange's** article in the May 2016 issue for a discussion of this technique.

Frank Cowherd - PVAS

Reprinted from *The Delta Tale* The offical publication of
the Potomic Valley Aquarium Society Vol. 37, No. 3

TIPS FOR YOUR FISH ROOM

SALT IS ALL YOU NEED!

STERILIZE YOUR AQUARIUM AND AQUARIUM-RELATED ITEMS

All hobbyists who have multiple tanks think about how to prevent the spread of diseases, parasites and other undesirables (like snails and hydra) from one tank to another by nets, algae scrapers, and even filters.

In public aquariums, they solve this dilemma by having a set of siphon tubes, nets, algae pads and scrapers for each aquarium. There is no sharing of equipment between tanks. I find this a bit expensive and, besides, I do not have the room for that many duplicate things in my fish room. What we need is a solution we can dip or rinse our aquarium or related equipment in and know it has effectively destroyed any organism we would not want transferred to the next aquarium.

You can kill disease organisms with bleach, alcohol or a variety of commercial products. With care, you could even use detergents. I have actually used the clothes washer to clean a bunch of dirty sponge filters (10 in one wash) with laundry detergent. They came out clean, and after two rinses, I had no problem when using them in aquariums with fish and plants. But it was initially a worry that there could be residual detergent in the sponges.

Bleach is easy to use, but you do need to use gloves or your hands will smell like bleach for a day or longer. Bleach is more effective at higher concentrations, but higher concentrations are harder to handle. At moderate concentrations, it does not easily kill snails, and for other organisms it needs contact for at least a few minutes to be effective. Residual

bleach is a concern that is usually addressed with extra rinses followed by the use of a chlorine-removing agent, like Prime, Amquel, or sodium hyposulfite. Also, you do not want to breathe the gases coming off of bleach for very long. But with the right concentration and the right time of contact, bleach is useful. At low concentrations and short contact time, procedures are known for treating plants and fish eggs with bleach to remove undesirable organisms.

Sodium chloride is common salt. It has many advantages over all of the other sanitizers/sterilizers. Really, salt is all you need in the fish room for disinfecting equipment. At low levels, it is non-toxic to fish and plants and even has some beneficial effects like helping to prevent velvet outbreaks and promoting the slime coat on fish. At high concentrations, it kills snails, leeches (like those that come in with black worms), planaria, hydra, all types of external fish parasites, and all types of bacteria. It also kills residual algae on equipment at high concentrations.

Salt can be used effectively both in its granular form and in solution. In the granular form, it can serve as a scouring agent to help remove algae from surfaces before filling the tank back up again. Other than that use, I prefer using salt made into a water solution.

You can buy salt packaged in a number of different ways to make the solution. Kosher salt and non-iodized table salt can be bought in small sizes but is a bit more expensive than others. Ice melting salt is cheap but often contains black solids that look ugly but cause no problems. I like the salt used for water softening. It comes as rock salt or pellets in 40 to 50 pound sacks and is $5 to $7 per bag. See **Figure 1.**

Figure 1: Commercially available rock salt in a 40-pound bag.

Adding salt to water until no more salt will go into solution forms a saturated salt solution (SSS). I start by adding at least 1200 grams of salt (4 cups is about right) to a gallon jug and then fill the jug with water. Hot water will speed the dissolution process. Stir well and then let set an hour or overnight, and then stir again. If cold water is used, it may take a day or more to prepare a fully saturated solution. There must be some undissolved salt on the bottom of the container, meaning that all the salt that will dissolve in the water has been dissolved, and no more will go into solution. Basically that is the definition of a SSS. See **Figure 2.** Since there is little difference in the amount of salt that will dissolve in hot or cold water, I make the assumption that there is 27-weight % salt contained in the SSS. The gallon of SSS will therefore contain 1244 grams of salt and 3361 grams of water for a total of 4605 grams. A one-cup portion (240 milliliters) of this solution contains 78 grams of salt. This SSS can be used in a variety of ways to disinfect or sterilize while cleaning your aquarium and related equipment.

If you are in a hurry, the salt solution you

get by mixing 4 cups of salt with enough water to fill a gallon jug will contain enough salt after 15 minutes of mixing to effectively kill any organisms which it comes in contact. But if you plan to also use it to prepare any of the other solutions mentioned below, you need the SSS. That solution may take a day to form even with occasional stirring.

The basic thing to note in **Table 1** is that a SSS contains greater than 7 times more salt than seawater. No animal or plant is going to live in this solution. Even if you are in a rush and only mix for a few minutes, the solution made by contacting 4 cups of salt with water as described will contain enough salt to disinfect your aquarium equipment. You can even disinfect your hands in it.

Figure 2: Undissolved salt indicates the solution is saturated.

First, the SSS can be used straight. Once your aquarium is empty, simply pour in a quart or two of the SSS into the tank. Then using a scrubby pad or even a washcloth, rub down all surfaces of the tank. The SSS will kill any organisms it comes in contact with, even in the crevice between the glass and silicone sealant, or under the plastic rim. It effectively kills these organisms in a matter of a minute or less. So by the time you have completed scrubbing down all the insides of the tank, and maybe some of the outside, you are ready to drain out the SSS and rinse. A single rinse is sufficient. In fact, just draining can be sufficient since the little bit of salt left will be diluted when you fill the tank and can be beneficial. If you ever have to clean and disinfect a very large aquarium, like a 200-gallon tank, using a SSS is the way to go. A SSS is nontoxic to you and any residual salt when you are finished does not have to be removed. It can simply be diluted with the water you use to refill the tank.

The recovered SSS from the tank cleaning can be used again and again unless it becomes too diluted with water. It will still be effective even when diluted with an equal volume of water. I run the solution through a fine net to remove snail eggs, snails, and other dead organisms prior to reuse. I am not positive that a SSS will kill snail eggs since the egg cases are fairly tough, but scraping them off the glass likely exposes the eggs sufficiently to kill them.

A SSS offers a great way to sanitize gravel. Drain the gravel as much as possible and then add enough SSS to cover it. Then stir the gravel for a few minutes to make sure the salt comes in contact with each piece of gravel. This offers a way to make sure the gravel from a diseased tank is not used in setting up a tank. Drain out the salt solution and rinse the gravel, if you want, prior to use. Untreated gravel from a healthy tank can be used to reactivate the bioactivity in a newly set up tank.

If you use an algae pad or scraper in more than one tank, you may be transferring diseases and/or undesirable organisms from one tank to another. Between uses if the pad or scraper is submerged in a SSS for a minute or two, it will be clean of disease, snails, etc. and safe for use in the next tank. If the next tank is one that can handle the extra salt, there is no need to rinse the pad or scraper. If the tank's occupants are sensitive to salt, a rinse in tap water should be sufficient.

Nets can be stored in a container of a SSS to disinfect them. But note that salt crystals

TABLE #1
WEIGHT PERCENT SALT IN VARIOUS SOLUTIONS

SOLUTION.	WT% SALT	SPECIFIC GRAVITY.	NOTES
LOW TONIC LEVEL 1 TSP/GALLON	0.13%.	~1.0013	USED TO PREVENT VELVET PARTICULARLY IN KILLIES or FOR FRY OF MOST FISH.
HIGH TONIC LEVEL 3TSP/GALLON	0.39%	~1.0039	MAX MEDICINAL DOSE FOR FRESH WATER FISH
SEAWATER	3.5%	1.0250	NORMAL FOR MID OCEAN
ARTIFICIAL	3.1%	1.0210	MARINE AQUARIUM EASIER SEAWATER TO MAINTAIN AT THIS % SALT
BRINE SHRIMP	2.5%	1.0190	BBS HATCH QUICKER AT THIS HATCHING SOLUTION LOW % SALT
BRINE SHRIMP RAISING SOLUTION	4.0%	1.0286	MAX RANGE FOR RAISING BRINE SHRIMP
SATURATED SALT	27%	1.1993	BASICALLY NOTHING CAN LIVE IN THIS SOLUTION (THINK SALT-CURED FOODS)

formed during drying can destroy nets that are not rinsed before drying. So rinse the net in fresh water before drying or just leave the net in the solution until the next use. A dip of the net in the SSS between uses for a minute is also effective. A SSS can be used to sterilize spawning mops, spawning cones and slates just before use. This makes sure that the spawning site is not going to provide bacteria that might destroy the eggs.

A SSS can be diluted to make the salt solution used to hatch baby brine shrimp. To make a liter of this 2.5% salt solution, dilute 94 grams (79 mL) (1/3rd cup) of the SSS with 921 mL (3.8 cups) of water. To make a gallon of this 2.5% salt solution, dilute 362 grams (302mL) (~1.25 cups) of the SSS with 3538 mL (14.75 cups) of water. To verify that the solution is made properly, use a refractometer or other aquarium specific gravity instrument to confirm the specific gravity is close to that wanted, as given in TABLE 1. The reason this lower salt solution causes brine shrimp eggs to hatch quickly is that more water goes into the egg membrane to burst quicker than it would at higher salt concentrations.

A SSS can be used to dose salt to an aquarium to help promote fish

health or to treat some fish diseases. Adding solid salt to the aquarium is not a good thing since the solid goes to the bottom and can take a while to dissolve. The high concentration of salt at the bottom around the undissolved salt can kill any fish or plant that stays in it too long. The correct way to add salt to an aquarium is to add salt as a solution. A SSS is great for this purpose, and because it is a concentrated form of salt, it makes quick and easy to dose small or large aquariums. The normal dosage is one teaspoon of salt per gallon on the first day. The same amount can be dosed on the second day and then the third day also, if no improvement in the fish is noted. No more than three doses should be used. After a week, do a water change and replace the lost salt if the treatment needs to be continued. For instance, salt treatment for ich or velvet needs to be continued for at least two weeks since the cyst form of ich and ich on the fish cannot be killed by salt. Only the free-swimming form of ich that hatch from the cyst can be killed by salt or any other ich cure.

To dose a 10-gallon aquarium with a therapeutic amount of salt (5 grams or one teaspoon per gallon), first subtract the volume that objects such as sand and ornaments, like driftwood, take up in the aquarium. A typical 10-gallon aquarium will only hold about 8 or 9-gallons of water if it has gravel and is not filled to the top. If it is a bare bottom tank filled to the brim, it probably does contain 10-gallons of water. Assuming there are 10-gallons of water in the tank, add 185 grams (154 mL) (~3/4th cup) of the SSS to the aquarium. This amount should be added slowly (over 15 to 20 seconds) to the most turbulent area of the tank, either to the flow returning from the filter or where there are bubbles rising from a sponge filter or air stone. Extrapolation for dosing larger aquariums is straightforward.

One other use of a salt solution is to remove external parasites from fish or to treat fin rot or ich or any external injury on a fish. Note that this also gets rid of parasites on the fish's gills. The solution you should use is equivalent to artificial seawater, or 3.1% salt. If you have a marine aquarium, just use some of that liquid as described below. To prepare one liter of a similar 3.1% salt solution, mix 117 g (98 mL) (0.4 cup) of the SSS with 902 mL of water. Since the salt concentration is not that critical for removing external parasites, the brine shrimp hatching solution can also be used equally as well. This seawater-like solution is then used as a dip. But before you start, prepare the container where you will put the fish once it has been treated. The fish is caught in a net and dipped in the solution for 30 seconds to 10 minutes or more, depending on the size of the fish. The smaller the fish the shorter the time used for the dip should be. Be prepared to net the fish so it can be removed from the dip solution quickly. Leaving the fish in the net while dipping can result in the parasites being caught in the net. Fish will struggle trying to swim normally in this seawater. If they do not swim, they will float. Once they stop struggling or the time has lapsed, they should immediately be placed in a container of their normal water. They should not be placed back in the aquarium from which they came if you think there are free-swimming parasites still present in that tank. Since this treatment is time sensitive

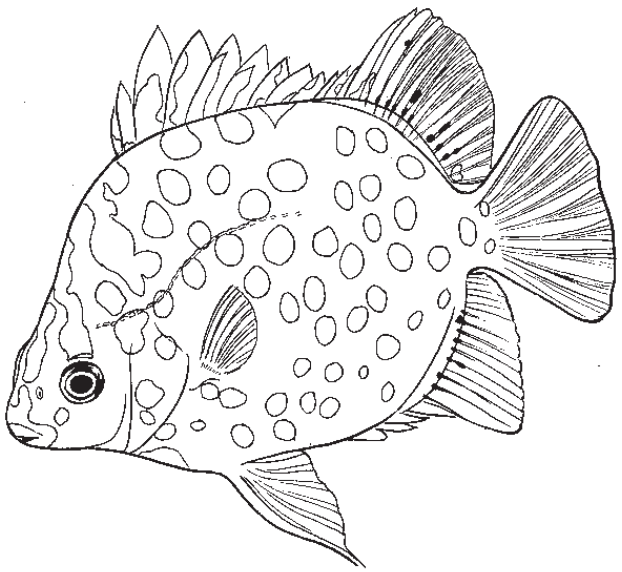
and if too long, can have a knockout effect on the fish, it may take several minutes for the fish to recover. This procedure is one of the procedures used by public aquariums as part of their quarantine for new fishes since it is so effective at removing parasites. Experience with this method is needed to predict the effective dip times without making it too long. Death of the fish can occur with too long a dip. Until you have that experience, shorter times are better than longer times. Angelfish and characins, for instance, appear to be more sensitive to the salt concentration of seawater. For these fish, a more dilute salt solution can be used to rid the fish of external parasites or help heal a wound. A solution made by diluting any of the above mentioned solutions with an equal volume of water should be a good place to start. Fry and young fish should not be dipped.

If you overdo the time you use when you dip a fish in the brine, it may appear dead, but leave it in fresh water for at least 15 minutes to allow it time to revive. They often do. Use water in the revival container that is at the right temperature and other water conditions for the fish. Keep notes so the next time you do not use too long a dip time.

Interestingly, if you want to see firsthand what many fish parasites look like, you can actually collect them in the following manner. Purchase either feeder goldfish or minnows used for bait. A dozen of either or both should be sufficient. Prepare at least a quart of the seawater-like concentration of the salt solution as described above and place the solution in a container with a clear bottom. Place the goldfish or minnow one at a time in the solution without the net around them so the dead parasites will fall to the bottom. When the fish has been in the solution for about 10 seconds, net the fish out and put in a separate tank containing clean fresh water. After all the fish have been dipped, take a close look at the bottom of the treatment container. You should find a number of different fish parasites dead on the bottom. They can be picked out and viewed under a microscope if desired. Minnows and goldfish from different sources may have different parasites. The reason these fish have so many parasites is that they are raised outdoors in ponds and are therefore exposed to them continuously.

For those who want to know how the SSS can kill these organisms, the answer is dehydration. The high salt content in the SSS compared to the salt content inside the organism causes the water inside the organism to migrate out of the organism because of osmotic pressure. The tougher skin on the fish allows them to survive the treatment for a much longer time than the much smaller undesired organisms. Interestingly if you have parasites on marine fishes, a dip of the marine fish into fresh water kills the parasite because the water osmotically enters the organism and causes their cells to rupture. The fish survive because it has a much tougher skin and is a much larger organism.

A SSS should be found in every fish room for all of the above reasons. A SSS is cheap and easy to make, and by using it, you will be a more successful aquarist.



Tony Kroeger - BAS

SEEING THINGS DIFFERENTLY:

MEET THE STRIPED ANOSTOMUS
Anostomus anostomus

Some people see the world differently; well, so do some fish! Meet the Striped Anostomus, a South American headstander hailing from Guyana and Venezuela that reaches about 7" inches in length.

This is one of those "character" fish that the first time you see it, you want one. Owning one is a sure sign of being a certifiable "fish fanatic."

Striped Anostomus have a very pleasing color pattern. A light yellow body hosts three broad chocolate brown stripes running nose to tail, the bottom two of which have zig-zag edges. A thin white belly stripe and silver iris ring accentuate the stripes All fins except the pelvics have fire engine red bases extending about halfway out of the fins. A pretty fish, indeed.

For the size of the fish, the mouth is small and is completely upturned. This leads to some interesting back flip gymnastics if the fish finds a choice morsel on the substrate that it wants.

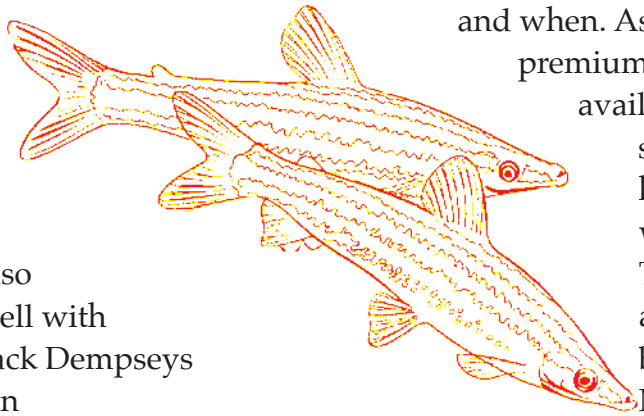
Striped Anostomus always swim head down at about a 45° degree angle when healthy. You can always tell a sick Anostomus; it swims head up!

Being a larger characin, striped Anostomus need a bit of room. I suggest at least a 55-gallon aquarium. Use a power filter, dark substrate and background and tough plants such as *Anubius* or swordplants. Striped Anostomus love eating algae and soft plants, they will nibble soft bunch plants down to stubs.

Always cover their tank. They are superb jumpers. They tolerate most tap water, but slightly soft and acidic is best. Keep them warm, 76 to 84°F. I change 25-30% of their water weekly.

Striped Anostomus are best kept in a shoal (6 or more specimens) or alone. Three or four will bully each other until only one is left. Usually they are fine in a community tank, but do not put them with long finned fish such as bettas, angels

or pearl gouramis which they sometimes harass for no apparent reason. Keep this fish with short finned fish only in a community setting.



Striped Anostomus also hold their own amazingly well with cichlids. A shoal kept with Jack Dempseys make a stunning combination

Striped Anostomus are omnivorous. They love frozen mosquito larvae, frozen daphnia, frozen tubifex, frozen bloodworms and live blackworms, as well as most high quality flake foods and micro pellets. Their small mouth usually cannot accommodate full size pellets.

Striped Anostomus must have veggies to maintain their beautiful colors. Feed them sinking spirulina tablets (which they will nibble on all day), raw or blanched fresh zucchini or summer squash slices, kale, watercress, duckweed, dandelion leaves and veggie flakes.

A particular favorite of most specimens is canned Del Monte green beans. Why Del Monte, you ask? I'm not really positive but I think it's because Del Montes are packed in water with no added sugars. I've tried other types of canned beans but found them to be refused. So Del Monte it is!

Oddy enough, I've found this preference for Del Monte canned green beans extends to vegetarian plecos such as the medusae pleco also.

Striped Anostomus love strong currents. In nature, they live in fast flowing streams in and near rock clefts. Strong lighting gives them algae to nibble on, so light their tank well.

All striped Anostomus sold are wild caught. Commercial breeding protocols for this fish are being developed and hopefully soon farm bred specimens will be available.

Both Guyana and Venezuela quota limit how many striped Anostomus can be exported and when. As a result, expect to pay a premium price for this fish. It is only available seasonally. Better stores and online vendors have it in season. Buy it when you see it offered. The price will not go down and the collection quota may become limited if you wait. Market demand for this beautiful headstander is always high. Demand always exceeds supply, hence its premium price.

Striped Anostomus are long lived fish if you consistently meet their needs. This fish will not tolerate poor water quality. Ammonia and Nitrite spikes easily kill it. Skip your weekly water changes so nitrate builds up and the fish will start to twitch and scratch.

Striped Anostomus are very sensitive to temperature drops. Any temperature below 74˚F guarantees a bad case of ick, which is very hard to cure on this fish. If it catches ick, raise the water temperature to 88˚F, add heavy aeration and use a half dose of a commercial ick remedy. This will usually do the trick.

Striped Anostomus are exceptional fish that can be challenging to keep. Every one should try this beauty at least once.

Happy fishkeeping.

Tony

Dr. Paul V. Loiselle – NJAS
Reprinted from *The Reporter*, August 2012
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The Banded Barbs Revisited

Last year, (2012) ***The Reporter*** published a review I wrote of the banded barbs (Loiselle, 2011 a, b). Since the appearance of this two-part article, I have had the opportunity to maintain three of the species I cited therein. I would like to take this opportunity to both present color photographs of these species and share my experiences with fish that I had previously known only in the pages of reference books.

Earlier this year, I was invited to present a program on barbs to the Coast Aquarium Society. The monthly meetings of this Orange County-based aquarium society are characterized by massive auctions that typically last for three hours. As a rule, this exercise affords me plenty of opportunity to socialize with fish friends I only get a chance to visit once a year. This time around, the auctioneer's announcement of a bag of wild-caught *Puntius partipentazona* immediately caught my attention. I had never seen this species offered for sale before and felt that this opportunity to pick up a trio was too good to pass up. After three minutes of less than frenzied bidding, the fish were mine. I subsequently learned that the fish were collected from a tributary of the Mekong River by Coast member Dr. **Anthony Mazeroll,** who supervised a visit to Cambodia by group of students from Soka University of America earlier that year.

Readers familiar with my earlier article may recall that I expressed serious reservations about the suitability of this species as a community tank resident. This rather gloomy projection was based upon its morphological similarity to the tiger barb, a species well known for both bullying conspecifics and nipping its tankmates' fins. I was certainly less than sanguine about how the members of the trio would interact with each other. However, I felt that I would at least be able to get some good photos of this species before they did one another in. I wasn't particularly worried about their prospective tankmates - neither *Tilapia ruweti* or *Gobiocichla ethelwynae* has long fins or is particularly inclined to turn the other operculum in the face of harassment!

I am pleased to report that my prediction about the behavior of this species in a community setting was dead wrong. The fish are a reverse trio - a single female and two males. In the time I have had them, there has been no inter-male bullying or harassment of the female by the males. The fish either swim together as a group or else for reasons best known to themselves, form a large mixed species school with the five *Puntius hexazona* with whom they share their

tank. They ignore their cichlid tankmates, who ignore them in turn. The only interactions with other fish I have observed take place at feeding time. A skunk loach is a long-time resident of this tank. He will sometimes grab a bloodworm too large to easily swallow and carry it to a quiet corner where he can consume it at leisure. Individual *P. partipentazona* will sometimes chase the loach and attempt to steal his prize away. In all fairness, however, I have observed *P. hexazona* behaving in similar fashion and every now and again, seen the loach pursuing a similarly laden barb!

As a quick glance at the accompanying illustrations will make clear, this species is easily sexed (Figures 1 and 2.). Females lack any trace of red in the ventral fins. There is also no question that *P. partipentazona* is also less colorful than *P. tetrazona* (Figure 3.). However, if its fins sport less red than do those of the tiger barb, it still shares with that species its eye-catching bold black banding. However, its placid behavior in a community setting contrasts dramatically with the boisterous nature of its Sumatran congener. To my mind, in this case, manners should clearly trump looks! I think that one reason this species has never enjoyed a degree of commercial success is its lack of a catchy common name. Neither Four-and-a-half Banded Barb or Partially Five Banded Barb falls trippingly from the tongue! I would propose instead referring to this species as the Siamese Tiger Barb, a designation that is both descriptive and biogeographically accurate. It should certainly be a simple matter to arrange for the importation of this species, which occurs ubiquitously in Thailand, peninsular Malaysia and on the island of Singapore. However, as some Thai exporters list the tiger barb under the erroneous designation *P. partipentazona*, it may be necessary to specify wild-caught specimens when ordering this species from Thailand to be assured of actually receiving the real item!

As I mentioned in the second installment of my 2011 article, most of the fish that have been illustrated as *P. pentazona* and presently being sold under that name are actually P. hexazona. The true *P. pentazona* is a more elongate species characterized by a black spot on the back immediately below the last rays of the dorsal fin. While shopping for cat food at Animals N'Things, a local pet shop some three months ago, I spotted a tank of fish being sold as Six-banded Barbs. The two individuals left in the tank did indeed have six vertical bars, but as can be seen from the accompanying illustration (Figure 4.), they also sported the tell-tale diagnostic black spot on the back of *P. pentazona!* Needless to say, I wasn't going to pass up the opportunity to photograph this elusive species, and a bag containing the two fish joined six flats of canned cat food at the check-out counter. The fish have shared a six-gallon Eclipse tank with long-finned white clouds, *Danio choprae*, some juvenile *Pachypanchax sakaramyi* and an unidentified Corydoras catfish. Their behavior towards each other and towards their heterospecific tankmates has been completely exemplary. I can unreservedly recommend this species for a community tank and will certainly have no hesitation about purchasing additional specimens should the opportunity present itself.

Puntius foerschi is the third banded barb I have been able to acquire this year. In the second installment of my 2011 artcle, I implied that this species was most closely related to the snakeskin barb, *Puntius rhombocellatus*. As can be seen from the accompanying illustrations (Figures 4 and 5), *P. foerschi* actually bears a stronger resemblance to *P. pentazona.* The behavior of both species in a community setting is exemplary. For whatever reason, this species does not seem to be imported as frequently as the snakeskin barb. Finding

specimens may thus prove to be something of a challenge, but as is the case with *P. pentazona*, this species is well worth the effort. *Puntius pentazona, P. foerschi* and *P. rhombocellatus* are all black water species. While they will adapt to neutral, moderately hard water, they certainly look their best over a pH range of 5.5 - 6.5 and in relatively soft water < 10° DH. I strongly suspect that successful breeding of all three species requires soft, acid water. Hopefully one or two of our members who specialize in egg-scatterers will take on the challenge of breeding these highly desirable barbs. Having a few bags of locally bred fish on our spring auction table would certainly be well worth looking forward to!

Literature Cited

Loiselle, P. V. 2011a. Tetra-, Penta-, Hexa-: A Review of the Banded Barbs. I. The *Puntius tetrazona Group.* ***The Reporter*** (June 2011): 12 - 18.

2011b. Tetra-, Penta-, Hexa-: *A Review of the Banded Barbs. II. The Puntius pentazona Group.* ***The Reporter*** (July 2011): 16 - 21.

Figure 1. A young male Siamese tiger barb, *Puntius partipentazona*. The red coloration of the ventral fins is more intense in older specimens.

Figure 2. A female Siamese tiger barb. Note the absence of red in the ventral fins.

Figure 3. A male tiger barb. While Puntius tetrazona is certainly more colorful than *P. partipentazona,* the much more placid temperament of the Siamese tiger barb more than compensates for its less intense fin coloration.

Figure 4. A male, *Puntius pentazona*. Although this specimen sports six vertical bars, the conspicuous black spot on its back immediately below the last rays of the dorsal fin unambiguously proclaim its identity.

Figure 5. A young female *Puntius foerschi.* This species is remarkably similar in appearance to *P. pentazon*a differing only in the presence of intercalary black spots between vertical bars 2, 3 and 4.

Figure 6. A male *Puntius rhombocellatus.* The snakeskin barb is obviously closely related to both *P. pentazona* and *P. foerschi.*

Tony Kroeger - BAS

Spots before your eyes?

Breeding the 3 spot blue gourami
Trchogaster trichopterus

Blue gouramis are the first gourami I bred. It was an accident! At 10 years old I had a pair spawn in my community tank. I even raised 2 fry, but no BAP points there!

But after that experience, I truly wanted to breed them the right way.

What follows is how I do it. But first a bit of general information about the 3 spot blue gourami.

Native to most of Southeast Asia, blue gouramis (and any of its color mutations: gold, opaline, platinum, lavender) grow to about 4 to 5 inches. All varations of this fish are pretty.

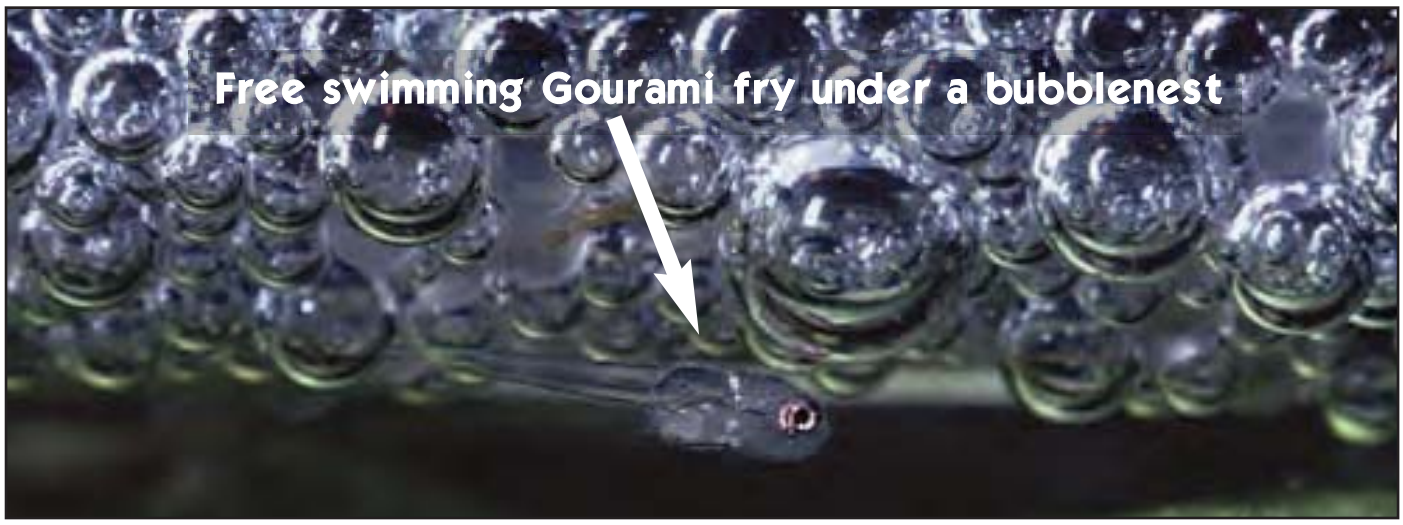
Blue gouramis are very hardy, long lived fish. They eat all foods offered and tolerate any tap water you can drink. Available everywhere at cheap prices, all fish are pool bred now.

This is an excellent beginning gourami to breed. Of course, first you need a pair. Fortunately sexing these gouramis is easy. Males have much longer and pointed dorsal and anal fins. These fins in females are rounded. Color is much more intense in males and all ready to spawn females have a much more rounded belly.

I separate my pair to condition them. But I put their 2 aquariums side by side so they can see each other. I use 5-gallon aquariums to condition them. I add water, a sponge filter, a heater and that's it. Set the water temperature at 78˚F.

Condition your pair separately for 10 days; during this time change 50% of their water in each 5-gallon tank every day. Feed the breeders heavily on frozen glassworms and live or frozen blackworms 3 to 4 times a day. Soon the female will start to fill with eggs and the male will start to blow a bubblenest to impress the female.

Always use a male that is smaller than the female. If you do not, he may badly beat or even kill her if she is not ready to breed or accept him as her mate.



After 10 days' conditioning, you are ready to set up the breeding tank and move your pair into it. I use a 20-gallon long tank. Fill it to 6" inches deep with medium-hard water, with a pH between 7.0-8.0 and keep the temperature at 80˚F. Add some floating water sprite and a flowerpot cave or PVC pipes, for the female to hide in if the male gets too rough. Cover the tank to keep the air humid.

Put the female in a net breeder initially and add her first. Then add the male who usually will immediately start building a new bubble nest, usually in the water sprite.

When he is done with his new nest and displaying for the female, release her and remove the net breeder (usually in about 24 to 48 hours).

Courtship will then resume in earnest. Initially, this is a rough and tumble affair. Expect the female to get bitten, chased and suffer some minor fin tears.

After which the pair will settle down to the business at hand underneath the bubblenest.

A typical gourami handshake ensues and the freshly spawned eggs float up into the bubblenest. Spawns are usually quite large, 600 to 1,000 eggs for mature fish. Spawning usually takes several hours.

Once spawning is over, the female must be removed or she will be killed. Be careful not to disturb the bubble nest. After spawning, never put the female directly into another tank with fish in it. She needs to rest; give her a tank of her own for a day or two and feed her well so she can recover.

The male will carefully care for and tend the eggs thru hatching until the fry are free swimming. Hatching occurs in 24 hours at 80˚F and fry are free swimming about 3 days later. The male will carefully retrieve any newly hatched fry that are not free swimming that fall out of the nest, and blow them back into the nest. Remove the male once the fry are free swimming.

Some but not all fry can eat baby brine shrimp initially, so I feed a combination of green water, Liquifry and live baby brine shrimp so even the smallest fry get enough to eat initially. Soon all fry will eat baby brine shrimp.

Add an airstone with the fry and keep the cover on tight to keep both the humidity and temperature high and stable. The fry are easy to raise.

For an easy to breed gourami, this one is hard to beat!

Happy fish breeding.

Tony

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

Zucchini Strips & Chips Munchies

Bristlenose, plecos and suckermouth-catfish keepers know that zucchini is one of their most favorite foods. They will spend hours gathered around zucchini strips or chips munching away.

Many other fish love to nibble at zucchini.

Preparing zucchini is really simple, if you can boil water, you can prepare Zucchini Strips & Chips.

As simple as it is, there are a few things you should know about feeding zucchnini to your fish.

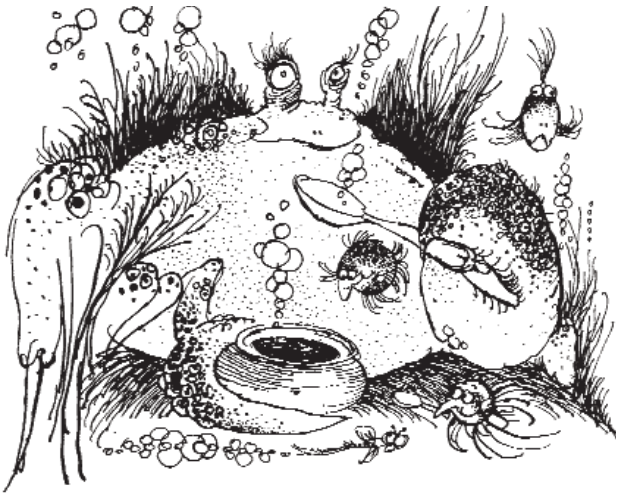
First thing to take into account is that raw zucchini floats. To get it to sink, you have to par-boil it.

Another thing to consider is that as the catfish eat their way through the delicious tender center of the chip, they can get their heads caught in a "zucchini skin necktie."

Not a good thing! This could dangerously block their gills. To make sure this doesn't happen, score the zucchini skin chip with a knife, so when they eat their way through, the skin will just fall open.

Really lazy aquarists serve zucchinis cut in long strips. This affords more than one bristle nose to spend happy hours munching away with no danger of the dreaded "zucchini skin necktie."

If you're even lazier, serve it raw, of course, you'll have to hold the strips & chips in place with a rubber band to a small rock or driftwood, or you can use a seaweed or lettuce clip with a suction cup to hold it where you want the zucchini.



RECIPE

INGREDIENTS:
Fresh zucchini

YOU WILL NEED:
Pot to par-boil zucchini

PREPARATION:
Cut zucchini into either chips (rounds) or strips (lengthwise)
Boil water and and par-boil the zucchini.
Cool the zucchini and serve.
Par-boil only what you will serve. as it will not do well refrigerated.

Joe Graffagnino - BAS

The breeding of *Tatia intermedia*

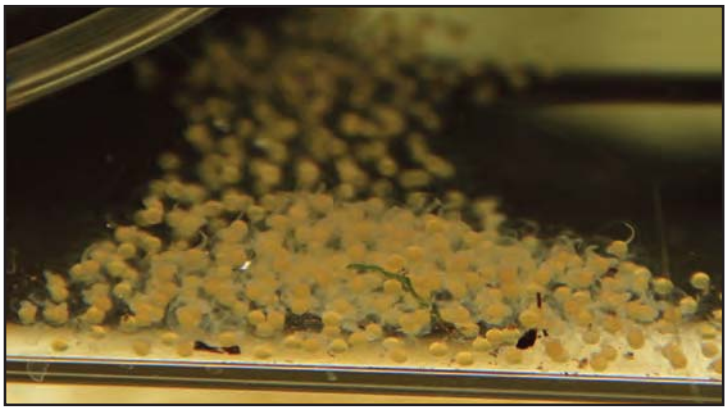
On July 6, 2016, I attended the Greater City Aquarium Society event that had **Ruben Lugo** as the guest speaker. Since I am a catfish lover, I was intrigued not just by the subject matter but also because Ruben has been able to breed several catfish species, mostly in the *plecostomus* family, which has never been done before. I have been an active member of Greater City for almost as long as I have been a member of the Brooklyn Aquarium Society, which is over 40 years. I found a couple of bags in the auction of young groups of *Tatia intermedia*. I was able to win two bags of these fish and brought them home to a 10-gallon tank. I have had *Tatia perugiae* (honeycomb catfish) previously and enjoyed these beautiful, yet secretive South American wood cats. *Tatias* are from the family *Auchenipteridae* (meaning driftwood), Subfamily *Centromochlinae* and in the genus *Tatia.* They were the second *Tatia* species to be discovered in 1877 by F**ranz Steindachner.** The first *Tatia* species discovered was the T*atia aulopygia* by Kner in 1858.

Tatias come from South America, and this particular beauty hails from the Amazon and its tributaries in Brazil. The males have modified anal fins to impregnate the females, similar to a goodeidae. Females are usually slightly larger and rounder in their mid-section. They will grow to about three inches. When they smell food, they zoom around just under the surface of the water seeking insects or other edible delights. If nothing is found on the surface, then they go to the mid water area and finally the bottom area in search of worms or bugs. In an aquarium, they eat anything – flake food, pellets, frozen, freeze-dried or live worms.

They enjoy a water temperature of 75-80˚F and a

pH of 6.5-7.2. I had five fish that survived and thrived. Several times a week, I feed the group live black worms and the other days flake food, pellet and frozen food such as mosquito larvae, blood or tubifex worms. I had three air stones and another operating a corner filter on the smaller end panel of the tank. I had small plastic caves, wood pieces, wassertang plants over the wood pieces and two clay tube caves (1 1/8" H x 1 3/8" W x 6 3/8" D).

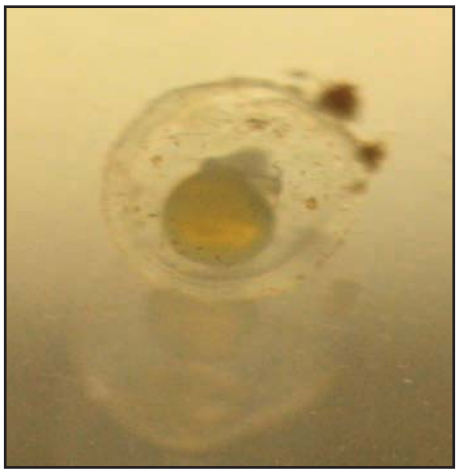
On May 13, 2017, I had started to perform a water change and noticed little balls floating around the bottom of the tank. Looking closer I discovered they were eggs. They were clear and slightly adhesive. I could see the fry's eyes within the gelatinous loose egg. The aquarium's temperature was 80˚F with a pH of 6.5. I moved 47 eggs into a plastic shoe box and added an air stone and java moss. The *Tatias* laid their eggs in the clay log cave and then tossed the eggs out. Once outside the cave's entrance, the



Egg cluster of 125 – 150 eggs (*Tatia intermedia* eggs)

eggs swelled by absorbing water to create a cushion surrounding the embryo.

The next day, a different pair of *Tatias* spawned in the same clay log cave. I had to leave but returned a few hours later and found that opaque/white eggs were in a clear honeycomb nest between a wood piece and wassertang plants. Interesting

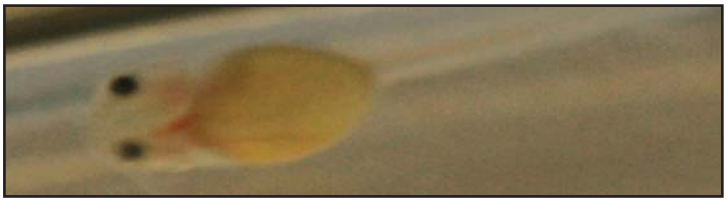


Egg in membrane cushion with head forming.

that out of the five tatias, I had two pairs. The mass of eggs did not fungus and even the snails left them alone.

The honeycomb nest required a high degree of maintenance. I had left a small batch of eggs in the parent tank. There was little water movement at the bottom of the tank where the eggs had settled. The eggs, when out of the nest, were quickly engulfed with plant debris, wood shavings and loose matter that were on the bottom. The embryo sack was slightly adhesive and whatever started to attach to the egg seemed to suffocate the fry within. I tried to place the nest of eggs in a pint plastic container. However, without water movement, the nest collapsed and everything fungused before the fry were able to leave the nest. I then placed an air stone in the next batch of eggs in the pint plastic container. Too much aeration destroyed the eggs; too little caused the nest to collapse. I found that aeration that produced slight nest movement to gently rotate was perfect to keep the nest alive until the fry embryos hatched. The egg absorbed water for a membrane cushion and the embryo stayed within the cushion until able to break free in a couple of days. I eventually moved future nests into a plastic fry holder that hooked onto the outside of the aquarium. It had a water input that could be regulated for faster or slower water flow. The water exit location had a plastic door with bars on it but it was too large an opening and fry could flow into the main tank and were probably eaten by cichlids

Embryo still transforming (squiggle line in NE corner is the umbilical cord that maintains the embryo to the protective membrane cushion that encases the developing fry)



Shows blood flow to head, heart and egg sac.

or characins, depending on the tank I had placed them on. I added a small piece of nylon stocking or filter fiber to prevent the fry from escaping and yet allowed water to flow through. This was perfect for the nest and egg hatching.

When the eggs started to hatch, the fry wiggled and tossed around trying to get out of the cushion they were in. When they finally broke free, they were tiny opaque/white babies with a large egg sack attached. The egg sack was absorbed in a few days; as the nutritious sack was being absorbed, the fry started to change color. They went from a clear, semi-white to a yellow and after the egg sack was totally absorbed, they turned a black/brown color. A few days later, they were miniature replicas of their parents.

I feed them microworms with daily water changes. No matter what I did, the fry started to die off. In reading about them I discovered that most breeders found high losses for the first couple of spawns. I moved the fry from small tanks to large tanks, changed filters and started feeding a multitude of different foods. In an act of desperation, I split the next spawn with half going into a 10-gallon tank with a sponge filter and the remainder of the fry going into a 15-gallon tank that was part of my wet/dry system. In the 10-gallon tank, as the days went by, the losses continued to climb. In the wet/dry system I wasn't losing as many. I also noticed that the majority of the fry enjoyed the top layer of water next to the intake water tube (I had a sponge filter over the intake tube). Even though there was a constant flow of filtered water into and out of the aquarium, the tatias toward the bottom of the tank were dying, but not the fry that stayed at the top of the water column. I started to incorporate a poly filter pad in the aquarium and I could see that it helped somewhat.

I finally found a more successful system with minimum losses of one or two a week. I placed the fry into a small and shallow aquarium (6"H x 8"W x15 ½" L= 3 gallons). I covered the sides (except for a front glass viewing area) with newspaper; even the glass canopy was covered so not much light could get through. The fry and adults came out to eat when the tank was dimly lit. If the lights were on, they would stay hidden; of course live brine shrimp would draw them out. They would race around the tank gobbling up any food they found and immediately return to a cave or under plants. I used a small sponge filter, added a poly filter strip, heavy aeration using 6" air stones and performed 50% water changes daily of day old dechlorimined and dechlorinated. I think the 50% water changes are most important. If I let a day go without a water change; I would find a couple of dead fry the next day.I found that freeze dried foods, as well as Golden Pearls, micro-worms and powder or pellet foods caused more fry to die. Only live or frozen baby brine, frozen rotifers and crushed flake food worked without losses. *Tatias* are not fast growers and they are tricksters – they lie on their backs and sides and won't move so you think they're dead. After I siphoned them up into a waste bucket that was when they came alive and started swimming. More than once I had to scramble to try and catch them before they went down the drain.

Tatia int fry

Tatias are a very interesting fish species that are easy to spawn (they lay eggs every 15–16 days), but it is difficult to keep the fry alive. If you enjoy a challenge, then raising tatia fry is the way to go.

I added photos of various fry stages using a macro lens that I think you will find interesting.

Ryan Curtis - BAS

TheShrimpFarm.com is the place to go for freshwater shrimp. The new owner is **Ryan Curtis**, with a new 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.

Blue Dream Shrimp

Scientific Name: *Neocaridina heteropoda.*
Common Name: Blue Dream Shrimp.
Temperment: Peaceful.
Care Level: Easy.
Breeding: Easy.
Origin: Taiwan.
Found in the wild: No.
GENERAL WATER PARAMETERS
pH Range: 6.2 - 8.0.
Temperature Range: 65° - 85°F.
***GH* Range: 4 - 8.**
***KH* Range: 3 - 15.**
TDS Range: 150 - 250.

Life Span: 1 - 2 Years.
Size: 1/2" inch.
Gestation Period: 30 Days.
Diet: Omnivore.
THE SHRIMP FARM'S WATER PARAMETERS
pH Range: 7.0 - 7.4.
Temperature Range: 72 - 76.
***GH* Range: 7.**
***KH* Range: 8.**
TDS Range: 175-200.
Full Grown Size: 1" - 1.25".
Approximate Purchase Size: .75" - 1".

Ryan

Izzy Zwerin ~ BAS

The Practical Plant PROPAGATING Anubias Coffeefolia

Anubias coffeefolia is a great plant that you should welcome into your aquarium. This plant is extremely hardy and tolerant of a wide range of water and lighting parameters, as are all Anubias species. It is a plant that will also allow for a wide range of artistic possibilities. The Anubias are considered rare, and somewhat expensive, because of their extremely slow growth. Despite the slow growth. I have found *A. coffeefolia* to be easy to propagate; it requires more patience than talent.

The Anubias genus is native to tropical West Africa. *Anubias coffeefolia* superficially resembles *A. nana* but the leaves have deeper lateral veins and slightly more of a downward arch. New leaves are an attractive red-brown color. It will grow slightly larger than *A. nana*. The roots will sprout out from the rhizome and wrap around anything you choose to anchor the plant on. The leaves will emerge from the rhizome as well, and tend to alternate leaning to the left or right. Leaf blades are described as elliptical. The Anubias have tough leathery leaves which are left alone by most plant eating fish. Anubias in nature are not true aquatic plants as they are only submerged for part of the year. The plant has proved to be highly adaptable and will readily accept a life permanently submerged. They will rarely flower in the aquarium. You can grow *A. coffeefolia* in a medium-rich substrate; however, you must not bury the rhizome as this can promote rotting. The rhizome should be weighted in place on top of the substrate until the plant takes root. I prefer instead to grow my Anubias species anchored onto a piece of stone or driftwood. Tie them in place with thread. I usually recommend a 100% cotton thread for attaching plants to driftwood so that the thread will rot away in time. Since *A. coffeefolia* will grow so slowly. I use a polyester thread and cut it away when I am sure that the plant is firmly attached.

My *A. coffeefolia* is being kept in a 20-gallon long. I am using Caribe Sea's "eco-Complete, as a substrate. I have a Whisper 30 hang on power filter. The aquarium is heated to 78˚, the GH is about 60; and the pH is 6.8. Since the aquarium is only 12" tall, I chose a fixture made by Coralife called the "Aqualight T-5 double." I would describe the lighting on this aquarium as the "upper" end of moderate, but the plant is known to do well with less light. The system is CO_2 enriched as well. Since the bio-load in this system is fairly heavy, and many of the other plants in this tank are slow growing species as well, I only supplement this aquarium with potassium and trace elements. To propagate this plant, I had to wait until the rhizome was about 4" long. It took a few months for the plant to grow to this size from a 2" specimen. The rhizome is quite firm and should be cut cleanly. Scissors tend to crush it, so it is best to use a scalpel or single edge razor blade to take the rhizome cutting. I will also remove the roots from the cutting. I need the rhizome cutting to grow new roots so I can attach it to driftwood. Cut the roots off as close to the rhizome as you can without damaging it, and then tie it in place onto your choice of an anchor (stone/driftwood).

Tony Kroeger - BAS

FEATHERDUSTERS

AAHCHOO!

NOT THAT KIND....

Feather dusters in your reef tank!

A reef tank is not a reef tank without feather dusters! These tube encased worms are very popular reef tank denizens.

Most feather dusters offered for sale come from the Atlantic or Caribbean. Prices are always reasonable. All specimens offered are wild caught. Feather dusters are easy to keep and good beginners reef inverts.

The worm's body is encased in a dull brown/gray protective covering. Its feathers serving to filter feed. The feathers wave constantly, but are rapidly withdrawn inside the protective tube if danger threatens. The feathers can be withdraw extremely fast - in the blink of an eye, only to gradually reappear and reopen several minutes later.

"Feathers" come in a wide range of colors, but usually are varying shades, lines, spots, speckles or stripes of white and brown. Most feathers are up to about 4" inches across.

The more brilliant colored feather dusters obviously cost more. Feather dusters are easy to care for; they stay where you put them, so space usually is not a problem.

Be very careful when placing your duster

that you do not damage its tube. Such damage can be fatal to the feather duster.

Place your duster over soft sand substrate or carefully between live rocks. Use a power filter to provide current so it can filter feed. Give your duster good water: 1.020 - 1.024-54, pH 8.0 - 8.3, temperature 75˚ - 78˚F. A partial water change of 20 -25% a month is appreciated.

Dusters are filter feeders, but will eat small meaty bits like bits of clam and adult brine shrimp too. I feed my dusters a little tidbit or two a couple of times a week. I add thawed baby brine shrimp daily. You can give them the "juice" from thawed shrimp, clams, squid, etc. Just pour it over them; they love it!

Sometimes feather dusters will drop their feathers! Don't throw the duster away! It means your dusters spawned. They drop their feathers so as not to filter feed on their own progeny.

Leave them undisturbed and the feathers will usually grow back in 2 weeks or so. Do not disturb your duster during this time unless you see slime coming out of its tube. Slime indicates your feather worm has died. In such a case remove it and throw it away. before it fouls your whole reef tank.

Feather dusters are great reef inverts for beginners and for advanced reefers too.

Happy reefing.

Tony

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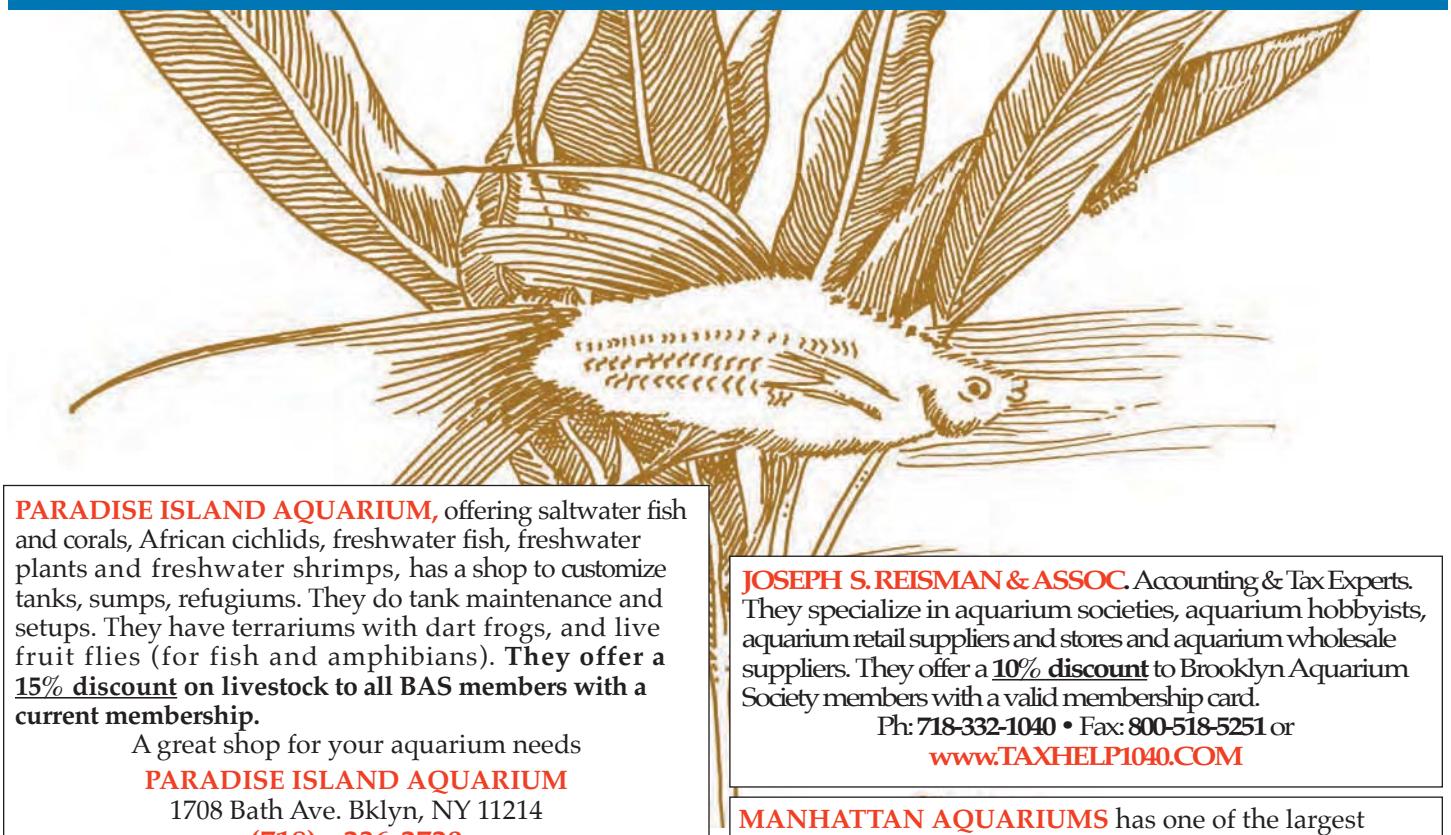

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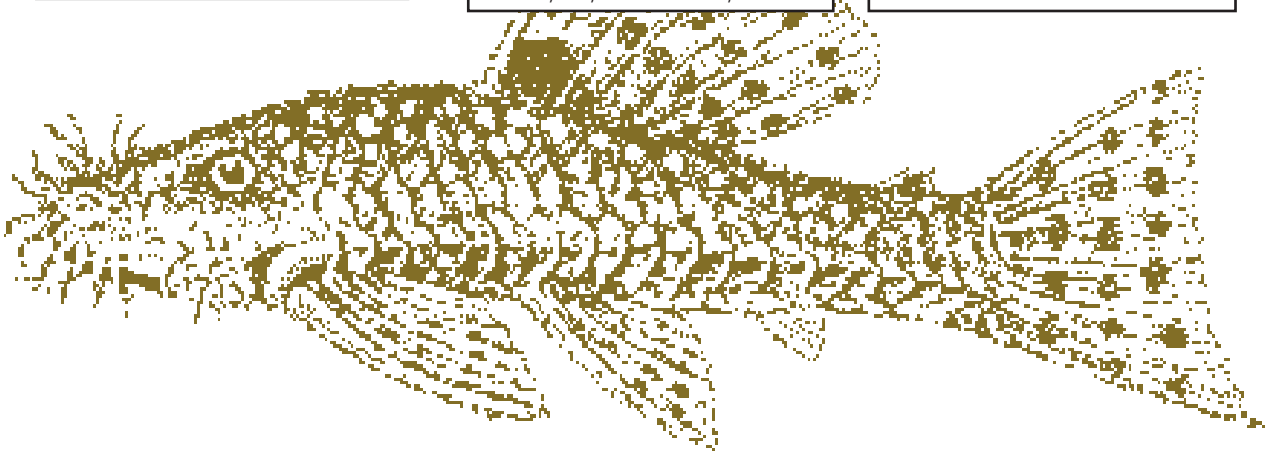

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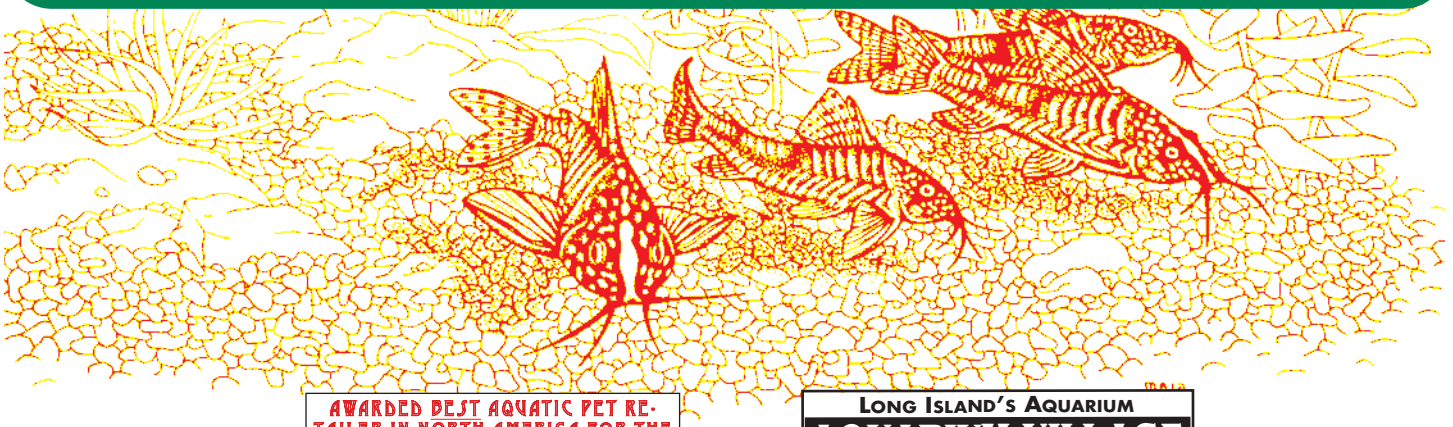

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*If family membership, please list all family members. **Only first two listed will have voting rights.**

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)_____

_____

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To volunteer check [yes] [no] A board member will contact you if you check yes.

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Member number:_____ Type of membership [F] [I] [S] Date paid:_____ Board approved date _____
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