



AQUATICA

THE ON-LINE JOURNAL OF THE BROOKLYN AQUARIUM SOCIETY
VOL. 29 MARCH ~ APRIL 2016 No. 4



Frogspawn coral ~ *Eupahyllia divisa*



105 YEARS OF EDUCATING AQUARISTS
AQUATICA

VOL. 29 MARCH - APRIL 2016 NO. 4

CONTENTS

PAGE 2 THE AQUATICA STAFF.

PAGE 3 CALENDAR OF EVENTS.
BAS Events for the year 2016

PAGE 4 CATFISH DREAMS. Tony dreams about catfish from around the world.
ANTHONY P. KROEGER - BAS

PAGE 5 SPECIES PROFILE. The Asian bumblebee catfish, *Pseudomystus siamensis*.
JOHN TODARO - BAS

PAGE 6 DON'T TALK WITH YOUR MOUTH FULL! A review of one of the first fish kept by aquarists, the Egyptian Mouth-brooder, that's not often seen in pet stores today, but worth looking for.
ANTHONY P. KROEGER - BAS

PAGE 8 SPECIES PROFILE. The Dwarf Egyptian Mouth-brooder *Haplochromis multicolor*.
JOHN TODARO - BAS

PAGE 9 JOE'S NEW FISH ROOM. An in depth look at the development of Joe's new fish room.
JOE GRAFFAGNINO - BAS

PAGE 15 NOTABLE NATIVES. A report on a rarely available but stunningly beautiful fish, the Bluenose Shiner, *Oteronotropis welaka*. It's well worth looking for and acquiring.
ANTHONY P. KROEGER - BAS

PAGE 17 CLASSIC BEEF HEART RECIPE. This is a version of the all time classic beef heart recipe.
JOHN TODARO - BAS

PAGE 18 RED RILI SHRIMP. Statistics on this freshwater dwarf shrimp and breeding of dwarf shrimp in the home aquarium.
RYAN CURTIS - BAS

PAGE 19 HOW I GOT RID OF PLANARIA IN MY SHRIMP TANK. Advice on how to eradicate this freshwater pest in the home aquarium.
RYAN CURTIS - BAS

PAGE 20 THE DWARF BARB. *Barbus phutunio*. A profile of this barb that is not often seen in pet shops.
ANTHONY P. KROEGER - BAS



PAGE 21 SPECIES PROFILE. The Dwarf barb, *Barbus phutunio*.
JOHN TODARO - BAS

PAGE 22 THE PRACTICAL PLANT. The Four Leaf Clover *Marsilea quadrifolia*, a really nice plant that looks great in the foreground, and is fairly tolerant of water conditions.
IZZY ZWERIN - BAS -

PAGE 23 LESSER KNOWN LIVE-BEARERS. There are many species of livebearers which occasionally grace our aquariums and are well worth our attention. This column will focus on some of them, starting with the Butterfly Goodeid.
ANTHONY P. KROEGER - BAS

PAGE 24 SPECIES PROFILE. The Butterfly Goodeid, *Ameca splendens*.
JOHN TODARO - BAS

PAGE 25 THE AMAZON BIOTOPE AQUARIUM. Biotope aquariums are those that only use flora and fauna from a single region; They tend to look very natural and are worth the effort.
Andy Gordon & Michelle Stuart
- Fishtanksandponds.net

PAGE 27 DO FISH DRINK? This article answers this often asked question.
THE RALEIGH AS NEWSLETTER

PAGE 28 MEET THE STONY CORALS. Various families and species are discussed in this column; the first is Frogspawn coral.
ANTHONY P. KROEGER - BAS

PAGE 30 GOLDFISH. Part 1. The Varieties
JENNIFER WILKINSON - CAS

PAGE 34 SUPPORT OUR SPONSORS. THEY SUPPORT US. WE MUST SUPPORT THEM.

PAGE 36 SPONSORS ADS.

PAGE 38 MEMBERSHIP APPLICATION.

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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 ~ 2016

2016

MAR 11 Sal Silvestri ~ Breeding & maintaining *Apistogramma* Genus and Other S. American Dwarf Cichlids ~ Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction.

APR 8 Richard Pierce ~ Seahorses, Pipefish & Sea Dragons ~ Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction.

MAY 13 Giant Spring Auction ~ Freshwater fish, plants, marine fish, aqua-cultured corals & dry goods including a new 55 gal. tank & stand.

JUN 10 Rit Forcier ~ Goodeid Livebearers ~ Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction. BAS elections

JULY/AUGUST - NO MEETINGS

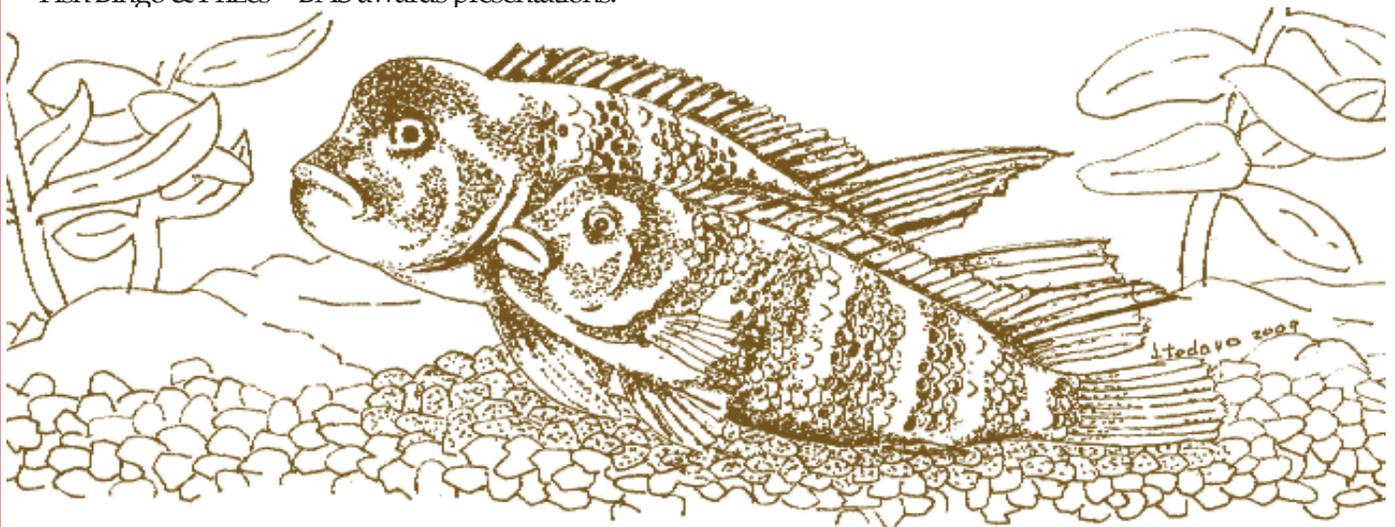
SEPT 9 Joe Graffagnino ~ Joe's New Fish Room ~ Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction.

OCT 14 Giant Fall Auction ~ Freshwater fish, plants, marine fish, aqua-cultured corals & dry goods, including a new 5 gallon tank & stand.

NOV 11 Daniel Kopulos (Fauna) ~ How Collecting Practices Affect the Marine Hobby ~ Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction.

DEC 9 Holiday Party ~ Members, their Families and Friends Dinner.

• Fish Bingo & Prizes • BAS awards presentations.



Catfish Dreams



TRAVELING THE GLOBE

THAILAND

I LOVE CATFISH! I EAT, SLEEP AND DREAM CATFISH! I LOVE TO TRAVEL TOO! SO TOGETHER LETS GLOBETROT AND MEET SOME CATFISH THAT YOU CAN DREAM ABOUT (AND OWN) TOO!



ur first stop is Thailand, land of pagodas, Buddhas, mysterious temples, jungles and the Asian Bumblebee catfish, *Pseudomystus siamensis*.

The Asian Bumblebee Catfish has a chocolate brown body with vertical stripes of varying width running along its length. The dorsal has a black or brown marking at both its base and tip. The caudal contains brown bands, vertically. The adipose fin is large and long, whiskers are short; the eyes are black or brown. This fish's color pattern is very pleasing. Bumblebee catfish are regularly imported in season from Bangkok in 100 specimen/bag lots. In season their price is very reasonable, out of season, expect to pay more.

Keeping this fish is easy. I keep mine in 6.8-8.0 pH, temperature between 72 and 78°F, moderately hard water. They love water changes so I change

25% of their water twice weekly. This fish is native to soft water, but seems to adapt to most water types easily. Don't let their water temperature fall below 72°F; they will catch ick easily if chilled.

Bumblebees are also very sensitive to any dye medications. Never use malachite green on them and only use methylene blue or acriflavine at 1/2 strength. If they do come down with Ick slowly raise the temperature in the tank to 86°F with heavy aeration.

Ick dies at 86°F and the Bumblebees will tolerate the high temperature, even though they don't like it.

Bumblebees eat any food offered with gusto - flakes, frozen, pellets and small tankmates! Yikes!

Yes, only keep Bumblebees with fish about their same size. They're peaceful with anything they cannot swallow.

Forget about keeping neons or harlequins





rasboras with them. Bumblebees consider these fish as snacks.

A 29-gallon tank is fine for a Bumblebee or a small group of them. Bumblebees defend small territories. Be sure each has its own cave and use a good quality power filter to keep their water clean.

To my knowledge, Bumblebees have not been bred in the aquarium yet.

It's important to never move Bumblebees

in a net, always use a glass or plastic container. Bumblebees have very sharp pectoral fin spines, these will easily cut your fingers and also get stuck in a net! Always move these fish with great care.

One last thing, Bumblebees make a croaking and barking noise too! I'm not sure it's my dog or my Bumblebees that just woke me. But time to find out, until next time - ZZZZZ, catfish dreams. 

sy

John Todaro - BAS

SPECIES PROFILE

Scientific Name: *Pseudomystus siamensis*.

Common Name: Asian bumblebee catfish.

Distribution: South Asia They are mostly found in the Bangpakong River, Thailand.

pH Range: 6.6 - 7.2.

Temperature Range: 68 - 80.6°F.

Water Hardness: 4 - 21 dGH.

Life Span: 4 - 6 years.

Size: 5 - 6 inches.

Temperament: Peaceful with its own species, but they will eat smaller fish.

Sexing: Females will have a stockier body shape; all males will have slender bodies.

Diet: Carnivores, but in time will accept

commercial catfish pellets or wafers.

Breeding: As of yet, there are no reported cases of Asian bumblebee catfish breeding in the aquarium.

Remarks: It is important to provide dark hiding places for these fish.

Lengths of black pvc piping are ideal as these fish love to hide away. They will become territorial to each other if kept in a small tank. A larger tank will allow you to keep a small group. If croaking noises are heard in the night, this is the first sign of disputes between them.

Reference:

- www.aqua-fish.net/fish/asian-bumblebee-catfish.





DON'T TALK WITH YOUR MOUTH FULL!



Egyptian Mouth-brooder
Pseudocrenilabrus multicolor

Long before any auratus, zebra morph or peacock hit the scene or before people thought of the Rift Lakes, a beautiful African mouth-brooder took the aquarium world by storm.

The year was 1903, 113 years ago. That fish was the Dwarf Egyptian Mouth-brooder, then known as *Haplochromis multicolor*.

Hailing from the Nile and reaching a length of 2 1/2" inches, this beautiful fish was the first aquarists were exposed to with mouth-brooding behavior. Now this easily bred and cared for fish is very hard to find in pet stores. No commercial producers exist that I am aware of.

The best chances at finding them is thru the ACA (America Cichlid Association) or perhaps speciality stores.

Males are stunning and rival many Rift Lake species. A chocolate brown body overlaid with red, each scale is edged in neon blue or green. Neon green gill covers, bright red fins with Neon blue markings. This is one very colorful fish! At breeding time, it's more spectacular as all the colors intensify. Even their eyes are red and gold!



Females are brown shading to gold honey on the sides to a white belly. Females seldom reach 2" inches in size.

This fish likes hard, alkaline water with a temperature between 72 - 80°F. I change 25% of the water twice a week. Water changes help intensify their color.

A 10-gallon tank with a small power filter is fine for a trio. A 20-gallon tank would allow for a male and 3 or 4 females.

Decorations are simple: some fine-grain sand and a few flowerpots on their sides or PVC tubes and some hornwort or water sprite left floating, that's it!

Egyptian Mouth-brooders are not choosy at all and eat everything. A diet of bloodworms bring them into breeding condition fast.

Breeding is very easy! The males will dig a 3" inch or so pit and dance in front of the female, his fins spread wide. His color intensity's leading the female to the pit where they will circle each other, the female releasing up to about 100 mustard seed sized and colored eggs. The male fertilizes them as they circle and the female picks them up in her mouth on the next round.

When finished spawning, her jaw will be bulging with so many eggs it looks like it is broken. Now the female will seek shelter in the flower pots, away from the male. It is best to remove the male and other females after spawning is complete.

However, if need be you can move a brooding female. I have never had one spit out her eggs even if being netted and moved to another tank. But I prefer just to leave her in her own tank.

The female constantly chews the eggs, oxygenating them and turning them so as to prevent fungus. After about two weeks, the fry are released. They feed on any food offered, baby brine shrimp, microworms and crushed flake food.

The female does not eat while brooding... absolutely nothing at all! Once you see free swimming fry, it's best to remove her to her own tank and feed her separately for at least a week so she can gain back lost weight prior to returning her to the male's tank.

If you decide not to move her, you can "steal the babies" from her by using clear airline tubing to gently siphon them away from her. If you frighten the fry, they will return to the female's mouth. So be patient doing this. The fry are easy to raise and grow quickly.

Temperament-wise, this fish is scrappy. It does well in a community tank of "fast" fish (ex: rainbows, danios, serpaes, tiger barbs, etc.). This old favorite deserves to be a popular again!

Look for them and try some; you'll enjoy having them! Happy fishkeeping. 🐟

Tomy



Photo: A. Salmagne



SPECIES PROFILE

Scientific Name: *Pseudocrenilabrus multicolor*.

Common Name: Dwarf Egyptian

Mouth-brooder.

Distribution: Egypt, Rwanda, Uganda, Sudan, Tanzania and Kenya.

Habitat: Streams, ponds and lake tributaries.

The water is usually slow-moving or completely still, and the fish are commonly found around the stems of aquatic plants or under cover of floating vegetation.

pH Range: 6.5 - 7.2.

Temperature Range: 68 - 79°F.

Water Hardness: 5 - 15° dGH.

Life Span: 4 - 6 years.

Size: 3.2" inches.

Temperament: Can be aggressive towards other species inhabiting the lower reaches of the aquarium.

Sexing: Males tend to be larger than females and more colourful, especially when breeding.

Diet: Accepts most foods. Good quality cichlid pellets, but ensure the diet is varied with regular feedings of live and frozen foods.

Breeding: The male will dig a shallow pit in the substrate. He will display to females, to

entice them to spawn. A willing female will follow the male to his pit, where spawning occurs. As the eggs are laid, the female immediately picks them up with her mouth and then mouths the vent of the male, who releases some milt directly into the mouth of the female. Sometimes fertilisation occurs before the female picks up the eggs as the fish circle circle each other. The female will hold the brood for around 10 days, at which point the free swimming fry are released. They can be fed brine shrimp nauplii, microworm and powdered dried foods.

Remarks: This fish was one of the first cichlid species to be spawned in captivity and has been in the hobby for over a century. It's less popular than it once was, but remains a good choice for the beginner as it is tolerant of a wide range of water conditions and is easily bred.

Reference: seriouslyfish.com

• *Baensch Aquarium Atlas* Vol. 3, Pg 850, Tetra Press, 1996





JOE'S NEW FISH ROOM

My wife decided that it was time to move from our empty nest to a smaller home. We wanted to remain in the neighborhood to stay close to family and friends. I sort of agreed to move, with the assumption that it would take her years to find a place we both would like. However, after too short a time she found a nice, one family directly around the corner from us.

She came home all excited and said, "Ok, pack your stuff."

I gave her a questionable look and replied, "Hold on, before we go anywhere, I need to extract three things from this new home. I want a garage, a pond in the back yard and last I want a fish room." Surprisingly, she agreed!

I must admit the new place was very nice and comfortable. The garage could easily fit my car and it had a remote door opener. Alongside the garage was a cemented area that was approximately 12 feet in length and 8 feet wide. Around this area was a 2-3 foot dirt area with a brick and stone enclosure for plants and flowers. In the rear of the property was a dogwood tree. A perfect spot for a pond, but that would be the subject for another article.

The fish room? Where would it go and how large could it be? Obviously the basement is the only location, but the wife said that it must be shared

as a general room where the grandchildren can play and have a "pull out" couch for sleep over guests. I don't like to share!

I discovered a crawl space for storage under the front room of the house, called a porch, that was 9 feet wide, 14 feet long and after excavation would be 6 feet 4 inches in height. I started looking into the cost of excavation. Not only would it be labor intensive, but I would need to hire an architect to develop blueprints and then submit the plans to the Department of Buildings for a permit. The permit may not be approved because the excavation could undermine the home's foundation. I received approximate costs totaling \$30,000.

TIME FOR PLAN B!

Between this storage area and the rest of the open area of the basement was a small section approximately 4 feet deep that

had shelves for storing cans or supplies. The water pipe and electrical cabinet was also in this area. It had a partial wall in the center and sliding doors to the left. The wife wanted to remove the basement's indoor / outdoor carpet and replace it with a tile floor. Friends gave me the idea to build a separate room for my fish tanks. I could use the same amount of space it would have taken in the storage area.

THE PLANNING STAGE

I had a basement area in my home around the corner, but it was an unfinished basement and it was shared with my in-laws. I had 36 aquariums spread out in different rooms. There was no plan and no organization to its layout. Wherever I could fit a tank, that was where it went. I had these rooms of fish tanks for over 35 years. The only upgrade I ever did to the fish room was when Python™ created



its water changing system. Then I went from using buckets of water over 12-15 hours to complete water changes to less than 4 hours using the Python.™ The new fish room would be very different.

I had a basic idea of what I wanted the new fish room to look like. I created drawings of the room layout, what I wanted and what I needed. I visited friends' fish rooms, saw internet photos and remembered various aquarium society presentations on fish rooms.



The original basement space where I created my state-of-the-art fish room.

After the carpet was removed, I had the pipe for a floor drain installed. This was needed in the event a tank would break or overflow from water changes. When the concrete was poured, I verified that the room's floor would have a very slight tilt towards the drain in the center of the floor. The floor tiles installed were the same as in the rest of the basement, in the event I died and the wife wanted to repurpose the fish room to match the rest of the area.

The electric system for this room is GFCI outlets (NYC law requires them when electric outlets are close to water). I had 2 circuit breakers to divide the room, because in the event of a "tripped" circuit breaker, only half of the room would be out

of electric power.

The wall separating the different sections of the basement was next. I used Durocrete™ boards on the base of the wall that would prevent water from spreading beyond the wall. On the family side of the wall went sheetrock and a new door (28" wide), with a lock to prevent entry into my inner sanctum.



Plywood strips to hang PVC and insulation to prevent sound of water to go into rest of the basement.

Above that, green boards were installed to prevent moisture problems. I had insulation installed to prevent the sounds of water movement and pumps working so people on the family side of the wall would not be disturbed.



GreenBoard with plywood behind it on upper part and Durocrete (concrete fibers) at the bottom.

NEXT WAS LIGHTING

I decided to go with LED ceiling lights, since I didn't want strip lights over every tank except for those with plants. Not only



The LED lighting for the room.

would this be more economical, but fish don't need much light, however plants do.

I had two 2' by 2' ceiling LED lights and a 1' by 2' LED ceiling light on the opposite side of the heat pipe, 30 inches from the outer wall. The 3 panel LED lighting for this room cost \$500.00.



Plastic sink.

In the area behind the inside wall, where the shelving was located, I had a single plastic sink installed. The use of a plastic sink is extremely important for cleaning aquarium equipment, water changes via buckets or Python system. I decided to have two wet/dry sumps for ease of



water maintenance. The major disadvantage to wet/dry sumps is that all the tanks on the system have to have the same water parameters.



Building the first tank rack.



The plumbing system behind the rack.

I had an African cichlid rack and wet/dry installed as the first system. This consisted of four 20-gallon long tanks and two 5-gallon tanks, equally divided on two wooden, 2 x 4 racks, a total of 8 feet in length. The 20-gallon tanks are for breeding, while the 5-gallon tanks are for holding baby fish. The sump contained coral to make the water hard, ammonia pellets to prevent pH crashes and heaters (two 150 watt Ebo-jagers™) to maintain the water at 80°F, water hardness at 8 GH, and a pH of 7.6.

The second rack went against the longest wall of 11 feet. This would be for regular water parameter fish, such as South/Central American cichlids, barbs, rainbows, etc. This rack has a mixture of six 15-gallon tanks, one 20-long and one 5-gallon tank. The

sump contained a large bag of charcoal, ammonia chips and two 200 watt heaters (Ebo-jagers™). I use MAG 1 pumps for both wet/dry systems.

The water temperature stays at 80°F, water hardness of 3-4 GH, and a pH range of 6.8 - 7.1.



Rack for three 5-gallon tanks and one 2 ½-gallon tank.

There was a space of approximately 1 foot so I decided to install a rack for three 5-gallon tanks and one 2 ½-gallon tank. I would use these tanks, which were not on a wet/dry system, as fry tanks or for breeding killifish, micro-fish species, tetras or shrimps.

On the opposite wall, in front of the sink area, I put a third rack. This was not on a wet/dry system because I wanted to have each tank's parameter available for change depending on the species

I wanted to raise or attempt to breed. This was a two level rack, but I was also able to place tanks under the rack.

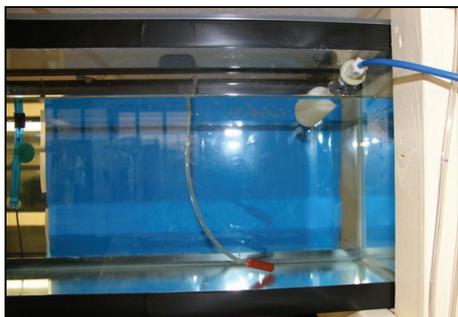
On the top row of this rack were four 10-gallon tanks and a 15-gallon tank.



The third rack not on the wet/dry system.

The middle section had one 40-gallon breeder and two 10-gallon tanks. Under the rack had one 50-gallon breeder and two 10-gallon tanks. These tanks contain South American cichlids, African cichlids, discus and different types of *Corydoras* catfish, along with gold barbs and various livebearers. The 15-gallon tank is used as a reservoir for reverse osmosis water required for soft, acidic water fish, such as discus and wild killifish and bettas.





The 15-gallon tank is used as a reservoir for reverse osmosis water.

The reverse osmosis tank has an automatic water filler, which operates by a float and if the float malfunctions, the overflow hole empties into a PVC tube strapped to the front leg of the rack with its spout directed towards the floor drain.



Reverse osmosis system.



The back wall of the fish room.

On the back wall where you enter the room, I have a

metal stand that has a 65-gallon breeder on top and a 30-gallon tank on the bottom. To the right of that rack, there is a 10-gallon wide Metaframe™ tank that I use for rearing fry, on wooden stools.

To the left of the rack is a de-humidifier which keeps the enclosed room between 30-35 percent humidity.



The de-humidifier keeps the room at 30 to 35 percent humidity.

Above the de-humidifier is a window, where in the summer I have a fan to remove the warm air. Other than the discus tanks, I don't use heaters in the tanks because the heat pipe for the radiator system keeps the room at a comfortable 80°F. I normally unplug the heaters in the sump because they are not needed except in the coldest of the winter months.

Always needing more tanks, I found places under the racks to install a few extra. Currently the fish room has 34 aquariums functioning.



Helpful items that every fish room should have.

In order to assist in the well being of the various species I maintain, I have helpful items that I find I can't live without.

One such item is a digital thermometer, same as used to verify the internal temperature of cooked meat.



The digital thermometer.

This will provide an accurate temperature, either Celsius or Fahrenheit, instantly. Another item is the digital pH meter. I found that it was faster for me to use the pH solution and test tube method, due to the slow speed of water calibration on the digital monitor. I previously mentioned the reverse osmosis system.





Ultraviolet sterilizer.

Another device is the ultraviolet sterilizer I have in the regular water wet/dry system. Another must have tool is a large magnifying glass for obvious reasons, which becomes more important as you age. I have multiple size pipettes and turkey basters for water changes and feeding fry within small to tiny holding tanks. I also use multiple width clear plastic hoses for performing water changes in different size aquariums so the fry won't get sucked up into a large hose and flushed down the drain; smaller diameter hoses take less water from aquariums which may also be a concern. All the hoses are 5 – 6



Front wall rack.

feet in length because this would cover the length from the aquarium to a waste bucket. I also employ a label maker, flashlight, various fry food cultures such as vinegar eels, micro worms, and brine shrimp hatchery.



Duroplast plastic with corrugated middle. Great as an insulated cover and permits very little water evaporation.

I use Duroplast covers for tanks and wet/dry sumps to prevent water evaporation. Duroplast is available in Home Depot or Lowe's in 2' W x 3' L sheets and can be cut with scissors.



My air system connections labeled.

In addition to the water filtration in the wet/dry system, for the majority of my aquariums I have an air system with corner filters in every tank and also air lines in the bio-balls of the sumps. In the event the water pump stops, the bacteria will continue to flourish because of a working air line in the sump.



The air system is split for different room areas.

The air pump I use is the Hagen "The Pump"™ which can operate up to 90 outlets. Hagen stopped making this pump in 1988. The only air pump maintenance is to clean the small coarse air filter and use silicone grease* every 6 months.



Hagen's "The Pump" supplies all the air.



Silicone lubricant by Lifegard.

In the event a fish is sick, the aquarium can be isolated from the rest of the sump system by turning off the water input valve. When the water drops below the outtake valve for the sump the plastic corner filter is the sole maintenance for that aquarium. I use marbles, ceramic noodles and bio-balls in the corner filters, never charcoal. In addition, the air system can be split using gang valves to filter additional tanks such as quarantine aquariums.



Gang valves to filter additional tanks.

I have found that this type of fish room system is functional, flexible and can handle any fish, plant or invertebrate species with minimal effort. The total cost to build the fish room, including that area of tile floor, was approximately \$7,000.00.

The time frame from start to completion was approximately 18 months. 🐟

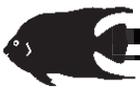
MY BRAND NEW FISH ROOM UP AND RUNNING.



* Silicone grease can be purchased at Lowe's; it's sold under the following brand names:
Aqua EZ O-Ring Lubricant, 1oz sells for \$3.64 a tube.
 You can find it in the hot tube & pool maintenance section.
 Other companies that also sell silicone grease are;
Oatey Silicone Grease 1/2 oz sells for about \$3.40, or
Danco Silicone Grease sells for about \$4.00.

Joe

Special thanks to the many people who helped me create my State-of-the-Art Fish Room: Bob Strazzulla, Jerry Lombardo, Steve Seigel, Jim Goleszeski, and Larry Jinks.
 Special appreciation and gratitude goes to Steve Matassa who engineered and built the racks, air and water systems.



The fabulous Bluenose Shiner *Pteronotropis welaka*



Ararely available but stunningly beautiful fish, the Bluenose Shiner is well worth looking for and acquiring.

The Bluenose is native to river drainages from the St. Johns and Apalachicola rivers in Florida to the Pearl river in Mississippi and Louisiana.

This is a small, slender fish growing to about 2" inches and shaped similar to a *Copeina arnoldi* or pencilfish.



Copeina arnoldi

The color and finnage of the males are stunning. A breeding male has a large black flag-like dorsal fin and a brilliant neon blue snout.

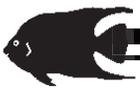
The body is chocolate brown with a broad black stripe running snout to tail, the stripe

expanding into a black swath (a la. Emperor Tetra) across the caudal in. All scales are edged in the deepest black and metallic silver spangles to form a stripe down the lateral line and are further randomly distributed over the whole body. The anal and pelvic fins are greatly enlarged and are orange crush orange with black stripes. Fins fade when not breeding, but are always colorful and larger than the female's, who is rather plain.

This fish lives in heavily vegetated pools in nature. Hornwort is native to its environment and this is the plant I keep with it. They display best in heavily planted tanks.

A 30-gallon aquarium is fine for a school of about 10 Bluenose Shiners.

I use sponge filters and airstones to provide a gentle current. The Bluenose eats all suitable sized



live foods (ex. brine shrimp, blackworms). It will take frozen foods, flakes and pellet foods, once accustomed to them. They love daphnia.

Change 25% of their water weekly. They like neutral water of moderate hardness.

To breed the Bluenose, separate the sexes and feed well on live and frozen foods. You must cool them down for at least 30 days or the females do not ripen eggs. I normally keep mine at 68° - 72°F and cool them to 64° - 65°F. An unheated aquarium is fine. All I do to cool mine is to unplug the heater.

For a breeding tank, I use a 20- gallon long with an airstone, hornwort and large sized gravel. I use 2 females per male; these fish will group spawn.

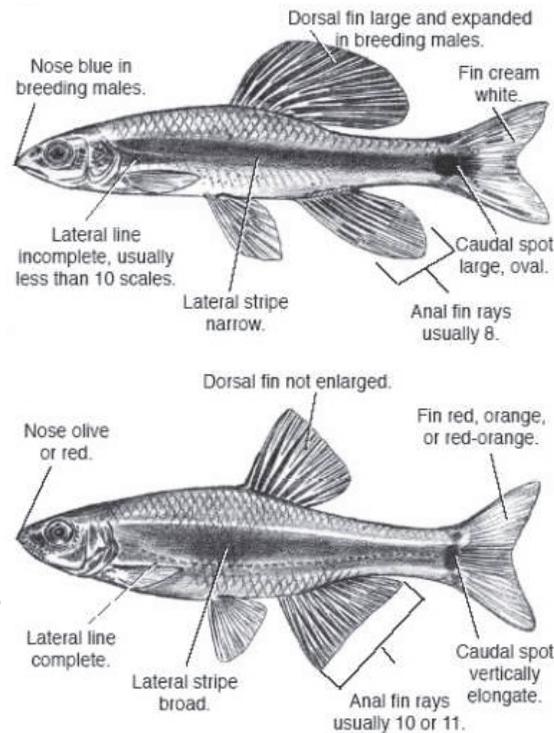
Spawning normally occurs within 2 days of introducing both sexes to the breeding tank. During this time, raise the temperature in the breeding tank from 64° - 65°F to 68° - 72°F. Males spread their fins and vigorously display to the females.

The fish generally spawn in or near the hornwort in the aquarium.

In the wild, close relatives of this fish spawn cuckoo style in the nests of other fish. I have heard this species is opportunistic and will do so also, but I have never seen it in my specimens. I personally believe the fish to be very opportunistic in its choice of spawning sites; in nature, this fish's relatives, and perhaps this species also, spawn in sunfish nests on occasion. Sunfish are closely related to cichlids, so as an experiment I took tank water from a tank in which Texas cichlids had recently spawned and added it to a *P. welake* breeding tank. The males immediately colored up. I need to experiment with this more as time allows, as there certainly seems to be a hormonal trigger (related to other fish spawning)

Bluenose Shiners

Male (top) Female (bottom)



with the Bluenose Shiner. The male and female sidle up together, the male's dorsal overlapping the female. Non-adhesive eggs are scattered everywhere and drift onto plants and gravel. Remove the adults after spawning. They will eat the eggs.

Eggs hatch in 48 - 72 hours at 75°F. The very small fry eat rotifers, infusoria and green water. Try microworms after about 2 weeks. Fry grow at a moderated pace.

The fry do not seem to recognize brine shrimp *nauplii* as food and usually refuse to eat them.

Do not use heavy current with the fry. They will refuse to eat and starve to death if the current is too strong. In

place of hornworts and gravel, spawning mops made of green yarn and glass marbles can be used.

***Important Note:** Before obtaining any native fish, be sure to check with your local department of wildlife to be sure it is legal for you to have them. Regulations vary widely between states. In New York, contact the Department of Environmental Conservation, Division of Fish and Wildlife.

Bluenose Shiners are stunning fish. They are challenging to breed and rarely seen in fish stores. This fish is definitely a worthy subject for any fish keeper/breeder.

So get the wet thumb going and work with some Bluenose Shiners. They definitely are a notable native. 

Until next time, happy fishkeeping.

TONY

John Todaro – BAS

From the Brooklyn Aquarium Society's publication

SCRUMPTIOUS MEALS & LIVE FOOD TREATS Compiled, Edited & Written by John Todaro

Classic Beef Heart Recipe

This version of the all time classic beef heart recipe comes from **Gene Baudier**, of the **East Coast Guppy Association**.

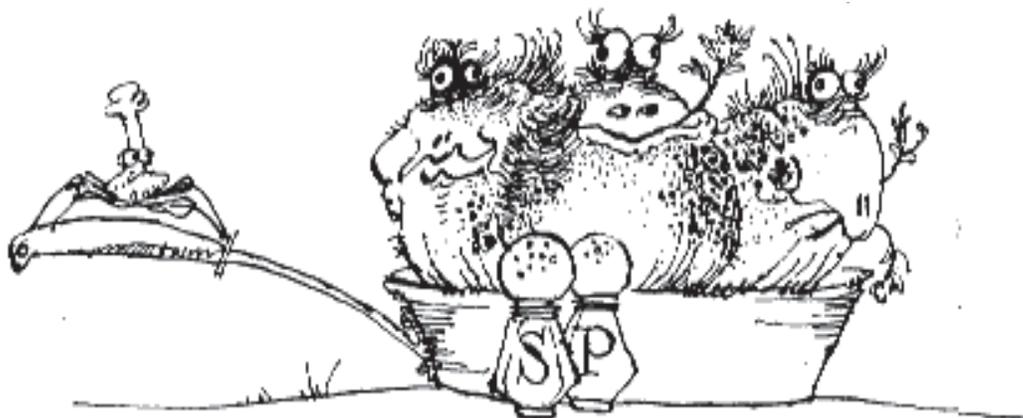
This is one of the staple foods he feeds his guppies, who eat it with gusto.

A great paste food for any fish that thrives on or needs a diet high in protein.

This is one of the most flexible recipes around. You can add veggies or baby cereal, extra vitamins, fish, shrimp, or commercially prepared fish foods to enhance the basic recipe and make it your own.

Check out the list of food at the beginning of this cook book and also check to see what your fish enjoy eating, then create your own recipe.

Experiment. 



R E C I P E

INGREDIENTS

- 1 to 2 lbs. beef heart, uncooked.
- Spirulina Powder
- 1 tbsp. per pound of meat
- Liquid vitamins
- 1 ml. per pound of meat
- (1 ml. = 20 drops)

PREPARATION:

1. Trim beef heart of all fat, veins and tough outer skin.
2. Cut into 1 inch cubes.
3. Combine ingredients in food processor, processing for about 1 minute. Check after 30 seconds. Adjust to bring particles down to

1/16" to 1/8" inch. Be careful not to liquefy mixture.

4. Spoon ingredients into ice cube trays, and freeze.

FEEDING:

Grate frozen cubes into a cup. A revolving-drum type grater like a Mouli, works great. Feed by spooning small portions into the tank. Just about anything could be added to this recipe, but keep in mind that the more you add, the less beef heart by proportion in the final mixture.

Never feed more than fish will eat in ten minutes.

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, Bloomington, 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.



Red Rili Shrimp

Scientific Name: *Neocaridina heteropoda. var. Rili*

Common Name: Red Rili Shrimp, Rili Shrimp.

Origin: India, Taiwan.

Found in the wild: No.

pH Range: 6.2 - 8.0.

Ideal pH: 7.2.

Temperature Range: 68° - 76°F.

Ideal Temperature: 75°F.

Hardness Range: 3 - 15 dkh.

Ideal Hardness: 8 dkh.

Life Span: 1 - 2 Years.

Size: (juveniles) 0.25" - .5".

Gestation Period: 30 Days.

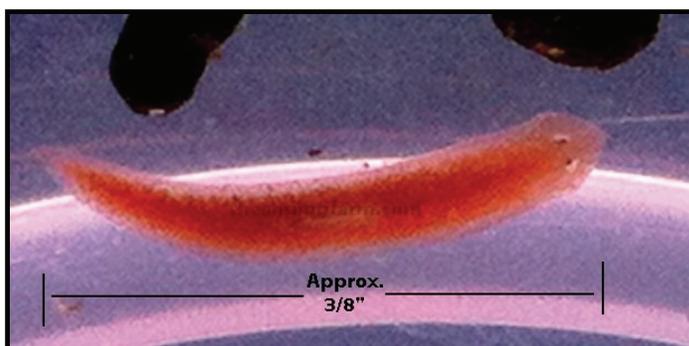
Diet: Omnivore.

Ryan

HOW I GOT RID OF PLANARIA IN MY SHRIMP TANK

Planaria in aquariums can be quite shocking at first discovery. I will discuss, below, one of our experiences with this worm and how we eradicated it from one of our Red Cherry Tanks.

But first, why did we have them? Most often, planaria are a direct result of overfeeding. Our experience should have been predicted since I had been doing an experiment for several



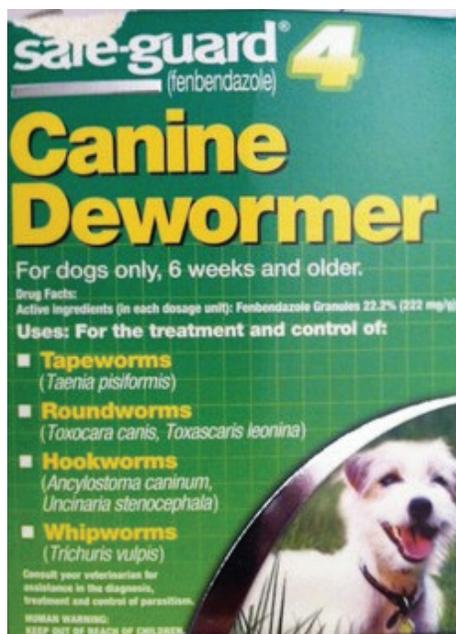
Luckily for us, it will kill these planaria flatworms. After some testing, we ended up adding approx. 1 gram of the fenbendazole to our 100-gallon shrimp tank. So if you have a 50-gallon tank, you could be safe in using 1/2 gram, etc.

weeks on the frequency of feeding on this specific tank. I'm sure the amount of uneaten food / debris in this particular tank was much more than normal. Hence the onset of planaria.

Before we get started, please remember, our chemical dose is going into a shrimp only tank. No Fish, No Snails....!!!!

The tank size is a 100-gallon tank. The amount of planaria in the tank was quite large, so picking them out or sucking them out 1 by 1 was out of the question. So after reading about others on the web, and their experiences, we decided upon a product called **Safe-Guard Canine DeWormer w/ Fenbendazole**.

It contains fenbendazole. It is designed, of course, for dogs and to rid the canine of tapeworms, roundworms, hookworms, and whipworms.



The dosage was added on July 13th at 12:00PM.

After checking the tank that same night around 10PM (10 hours later), I noticed that only 1 planaria was visible and showing signs of distress. The many that were seen beforehand were nowhere to be seen. After checking the following morning, no planaria were seen at all. We did a 50% water change at that time.

Approximately 2 days later, many dead planaria were seen on the substrate. They had turned an off-white color. We followed that occurrence with another 50% water change.

I hope this article helps in some way for anyone who is dealing with a planaria outbreak! 🐞

Ryan

THE DWARF BARB

Barbus phutunio

The phutunio barb is another barb which used to be much more popular. Now it is only occasionally seen.

Native to India, *B. phutunio* grows to 2" inches.

This small barb is covered with large reflective scales. The body is golden honey with a white belly. Each scale has a black edging making a net-like pattern. A large irregular shaped black dot covers the shoulder area and a second in the middle of the body above the anal fins trailing edge. Directly in front of each of the spots is a set of highly reflective canary yellow scales. All fins are a transparent yellow except for the ventrals which are tinted orange, eyes are black with silver irises. This is a pretty little fish.



Good stores still carry the dwarf barb and online vendors offer it too.

This is a very peaceful community fish. It is a bit timid and shy, so house it with quiet fish. Most rasboras and cherry barbs are excellent companions. This fish does not do well with extremely active fish; zebra danios make it nervous. Always keep them in a group of 4 to 6 fish.

Dwarf barbs are not active like tiger barbs so a 10-gallon tank is fine for this little school of between 4 to 6 fish. A sponge filter, some plants for cover and a top to keep them from jumping out are all they need.

This fish eats any food offered. But be sure to give it algae and spirulina; dwarf barbs need their veggies.

I keep mine in medium hardness, slightly alkaline water, a pH of 7.0 to 7.4 and a water temperature between 76 to 80°F. I change 25% of their water twice a week.

They breed in typical barb fashion. Males are slimmer and more colorful. Condition them separately on high protein foods for about 10 days.

Put a pair in a 5-gallon tank with a spawning mop, medium hard water, neutral 7.0 pH, and a temperature of 80°F. Remove the adults immediately after spawning. they are avid egg eaters.

Eggs hatch in about 36 hours. Keep the light over the fry moderate. Feed them baby brine shrimp initially, then crushed flakes.

The fry are sensitive to water quality; otherwise they are easy to raise.

One final tip: this fish is a deliberate feeder. Be sure it gets its share of the food. Many times healthy fish will waste away because they do not get enough to eat.

This is a great little barb! Try some! 

TONY

SPECIES PROFILE

Scientific Name: *Barbus phutunio*.

Common Name: Dwarf Barb.

Family: *Cypinidae*.

Origin: India, endemic to the lower Ganges and Brahmaputra river basins in Bangladesh plus the Indian states of Bihar, West Bengal, Orissa, Assam, and Tripura.

Distribution: Inhabits sluggish rivers, streams, ponds and swamps which are often choked with algae or aquatic plants.

pH Range: 6.0 - 7.0.

Temperature Range: 69° - 79°F.

Hardness: 54 -215 ppm.

Size: Up to 2" inches.

Temperament: Very peaceful, but does not make an ideal community fish due to its small size and rather timid nature. A schooling species by nature, they should be kept in schools of at least 8-10 fish.

Diet: In the aquarium it will accept dried foods of a suitable size; also feed frozen foods.

Sexing: Adult males are noticeably slimmer than females and possess more intense color pattern. The ventral fins are reddish in males, yellow in females.

Breeding: Feeding of live and frozen foods

will result in the best color and bring the fish into breeding condition. Like most small cyprinids, these fish are egg-scattering free spawners exhibiting no parental care. The breeding tank should be very dimly lit and the base covered with some kind of mesh of a large enough grade so the eggs can fall through but small enough so the adults cannot reach them. Plastic "grass" type matting can also be used and works well, as does a layer of glass marbles. The fry should hatch in 24 - 36 hours and be free swimming after 3 - 4 days.

They should be fed infusoria-grade food for the first few days until large enough to accept microworm and *Artemia nauplii*.

Remarks: Dwarf barbs have 4 dark markings on each flank with humeral and caudal peduncle blotches plus a small dark blotch at the anterior dorsal-fin base and a lighter-coloured bar extending from the posterior dorsal-fin base to around midbody.

Reference:

- www.seriouslyfish.com



The Practical Plant

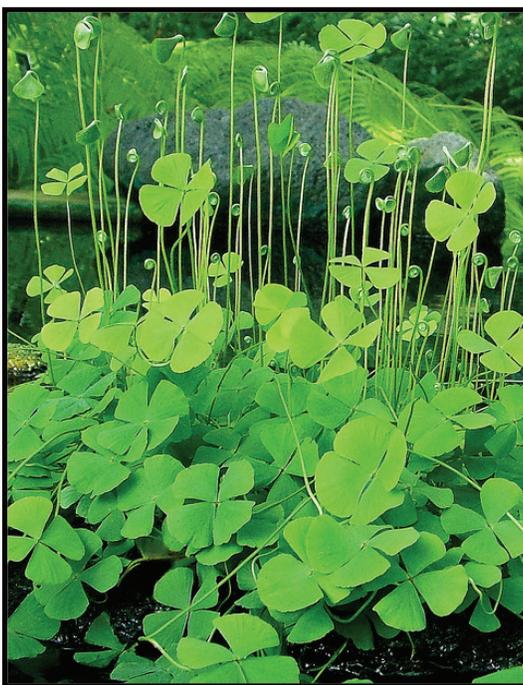
PROPAGATING

Marsilea quadrifolia

A great all round candidate for almost any aquarium would be *Marsilea quadrifolia*. The common name is

Four Leaf Clover, but when the plant is grown submersed it usually only has a single leaf. It is technically a fern and shares that creeping rhizome and fiddlehead structure seen in Java fern and *Bolbitis*. This however is a much smaller plant, which I have never seen grown anchored to wood the way those are. This plant is typically grown in the substrate. It will spread in a short dense green carpet about 1" high. Because of its short compact growth and slow growth habits, it is ideal for smaller tanks.

I have seen this plant repeatedly recommended for systems with moderate lighting or in shaded areas. I have grown it this way myself in the past. Truthfully, the plant should be fine there, but it will grow very slowly. I have mine currently growing under very intense light. The setup is a 10-gallon tank with a 54 watt compact fluorescent fixture. This of course is 5.4 watts/gallon on a tank only 12" deep. The plant is doing fine and growing faster than ever, but it's still pretty slow. The water conditions in this tank are pH 6.5 and fairly soft. The GH is 4°, the KH is about 60. The temperature is kept at 78°F. I enrich available carbon by both CO₂ injection and Seachems Excel. The substrate is Carib Seas Eco-Complete. I follow the Estimated Index



(EI) method of fertilization. This basically means I make a massive water change (50-75%) every week. The rest of the weekday supplementations

alternate between Seachems Flourish (the macronutrients) and Seachems Trace Elements (the micronutrients). The filtration is provided by a mini canister filter made by TOM Aquarium Products with the output directed thru a submerged spray bar. *Marsilea* is usually sold potted in glass wool. What I do is take some rhizome cuttings from this for immediate planting and I keep the rest of the plant in its potted form. It will continue to grow and you can harvest more cuttings later. Keep your water quality high because its slow growth makes it a little susceptible

to algae. To propagate, just divide the rhizome.

The tank I grow this plant in is home to a small school of Bloodfin Tetras (*Aphyocharax*). I have seen these Tetras take bites out of some of the other plants in this tank, but they will not touch the *Marsilea*.

Overall, *Marsilea* is a really nice plant. It looks great in the foreground, and is fairly tolerant of water conditions. If you would prefer something a little less intense than my "high tech" system, this plant will still thrive without the CF lighting and CO₂ injection. 🐟

Izzy



LESSER KNOWN LIVEBEARERS



Photo: H. J Chen

The Butterfly Goodeid *Ameca splendens*

When one thinks of livebearers attention automatically turns to the big four: Guppies, Swordtails, Platys, Mollies.

But there are many other species of livebearers which occasionally grace our aquariums and are well worth our attention This column will focus on some of them.

We begin with one of my favorites: The Butterfly Goodeid. Native to Mexico, the male of this species grows to 3 3/4" inches and the female to 4 1/2."

A deep bodied fish, its back is olive green, the sides are a metallic silver-overlaid with black dots in the females and reflective metallic green in the males. The belly is white, the eyes black with silver irises. Female's caudal fin is black polka dotted. The male's caudal fin is black with a wide bright yellow trailing edge. All other fins are a smokey black, the male's anal fin is notched. The notch being the andropodium fin.

You can find this fish offered for sale in better aquarium shops, online or thru specialty groups such as the American Livebearer Assoc. (ALA); it's usually reasonably priced.

Butterflies are hardy fish and very easy to keep and interesting and fun to breed.

A 20-gallon long easily accommodate a group of 6 fish. They like company. Males display to each other, but I have never had them do damage to each other.

I use sponge filters, box filters or power filters for Butterflies. I add fine gravel, lots of hornwort and water sprite and that's it! They like lots of light; make sure you cover their tank they jump.

Water must be hard and alkaline with a pH of 7.2 and a temperature between 70° and 78°F. They breed better in warmer water. Butterflies also like larger partial water changes. I change 50% of their tank water twice a week.

This omnivorous fish eats mainly vegetarian foods; algae, spirulina, crushed peas, boiled zucchini and summer squash are good for it. It readily eats flake and frozen foods also.

They are asy to breed in typical livebearer fashion with the exception that the fry are born with an umbilical cord still attached. This was startling the first time I saw it. I thought my fry had "worms." The cord falls off in a few days.

The fry are very large and eat the same food as adult Butterfly Goodeids. The adults do not eat or bother the fry. Their broods are small, usually between 5 and 25 fry and this happens about every 60 days or so.

One note: Never pack 2 Butterflies together in the same fish bag, one will end up dead. This fish must always be packed singly. They're peaceful when they can get away if need be, but in a small bag they'll kill each other.

This awesome livebearer is lots of fun to keep, if you can find it.

Try some, you won't be sorry! 

Tony

John Todaro - BAS

SPECIES PROFILE

Scientific Name: *Ameca splendens*.

Common Name: Butterfly Goodeid.

Family: Goodeidae.

Origin: Central-Western Mexico.

Distribution: Clear springs with lots of aquatic plants.

pH Range: 7.0 - 8.0.

Temperature Range: 75° - 78°F.

Hardness: 179 - 357 ppm.

Size: 3 3/4" to 4 1/2" inches.

Diet: Omnivorous, greedy feeder. Will accept most foods offered. Will consume large amounts of algae, so some greenstuffs should be in the diet. Blanched spinach, dried seaweed and spirulina flake.

Sex: Males; smaller and more colourful than females, possessing reflective scales along the flanks and a black and yellow edged caudal fin. They possess a notched anal fin used for reproduction called andropodium, which is similar to the gonopodium in other livebearers.

Mature males sometimes develop very broad backs.

Temperament: Not a good community fish. It can be quite aggressive, particularly males. It's very competitive

at feeding. It is better kept in a species setup.

Breeding: Easily-bred using a single pair or a group. The breeding tank should be heavily planted. Females don't store sperm and must be fertilised separately for each brood. They also display no gravid spot. Females initiate mating by swimming with quivering movements in front of the male. Gestation takes between 55 - 60 days after which 5 - 30 huge fry are produced. Sometimes they may have what appears to be an umbilical cord attached; it will disappear in 2 - 3 days. The fry are large and will accept the same foods as adults. Parents rarely eat the fry.

Remarks: In the aquarium, males develop a pecking order amongst themselves with a great deal of displaying and some nipping, but no lasting physical damage. The alpha male in any given group can be identified by brighter coloration and more vigorous nature.

Reference:

- www.seriouslyfish.com



Andy Gordon of England, & Michelle Stuart of Ontario Canada
 Reprinted, with permission, from their web site Fishtanksandponds.net Aquarticles

THE AMAZON BIOTOPE AQUARIUM



INTRODUCTION

A biotope aquarium simply means one that only uses flora and fauna from a single region. These aquaria tend to look very natural and are worth the effort.

The water in the Amazon is soft and acidic and usually highly colored because of all the humic acid. Much of the light is cut off by overhanging trees, but where the light does penetrate through there is a rich density of aquatic plants. Those are the wild conditions, but the fish that come from there have also become domesticated over

many generations, and because of this they are more accustomed to living in harder and less acidic water than their wild relatives. Quite a high proportion of all the common community fish originally come from this vast region.

CARE

Basic care is exactly the same as any other community aquaria in most regards. Allow the bogwood

to color the water slightly - this will give the tank a far more authentic look and will also alter the light spectrum to one that suits the higher plants more than algae.

A careful eye must be kept on the pH, since bogwood has a tendency to cause the pH to drop to dangerous levels. It may be necessary to add something to buffer the water from time to

QUITE A HIGH PROPORTION OF ALL THE COMMON COMMUNITY FISH ORIGINALLY COME FROM THIS VAST REGION.

time (Kent pH Stable is ideal). Regular partial water changes of about 20% weekly should be carried out, and the new water should have some trace elements added to it.

YOU WILL NEED

The tank can be of any size but big is best. Because of using a large amount of real plants, two lighting tubes should be used with reflectors. A power-filter will create good localised water movement. Several large pieces of bogwood are used for the main hard landscaping. Set up the tank with all the equipment and then arrange the bogwood - try to aim for a tangled effect as though the wood had collected there after drifting down stream. Once you are happy with the arrangements, put the plants in place.

FILTRATION

External power filter, used mainly for biological and mechanical filtration. No chemical filtration, as this would remove vital trace elements needed for plant growth. Because of the large number of plants, reduce the normal level of filtration and aim to filter the tank's volume of water once every 4 hours.

LIGHTING

Use two or three tubes with spectrums for plant growth. The tubes must be the entire length

of the aquarium and they must have properly made reflectors. This seems like a lot of light but without it the plants will fail regardless of what else you do.

WATER CONDITIONS

Temp. - 74°F to 78°F.

pH - 6.0 to 7.0

GH - 3 to 7

KH - 2 to 4 | Ammonia/Nitrite - no trace

Nitrate - 10ppm

FEEDING

All the fish will thrive on a diet of flake and live or frozen food. The bristle-nose catfish will also keep any algae at bay.

The herbivores will generally leave the plants alone if they are fed with

- Lettuce
- Cooked peas without their skin
- Algae pellets/wafers
- Sliced cucumber

Omnivores will require flake food and some live or frozen food two or three times per week.

ALL THE FOLLOWING PLANTS WILL DO WELL

- *Echinodorus amazonicus*
- Dwarf sword plant - *Echinodorus tenellus*
- Hair grass - *Eleocharis acicularis*
- Amazon sword

Echinodorus paniculatus

- Cabomba
- Myriophyllum

Once planted up, the plants should be allowed to settle in for at least one week before the fish are introduced, but longer would be better. There must also be LOTS of plants if they are to out-compete the ever present algae.

THE FISH

There are lots of suitable fish for this tank. Stocking level should be kept reasonably low for the best and most natural effect - try to keep to just one third of the normal stocking density.

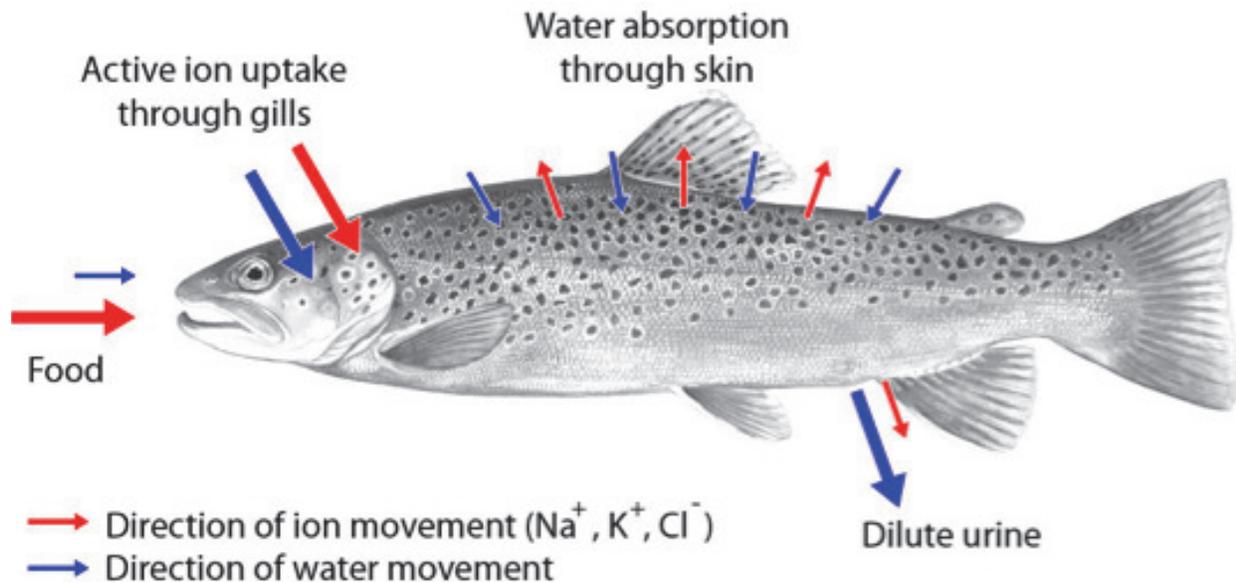
- Almost all of the **small tetras**
- Hatchetfish
- Pencilfish
- Larger characins such as **silver dollars which are plant eaters**
- Bristle-nose catfish.
- Whiptail catfish
- Angelfish- but not with **small tetras**
- Discus (need a high temp. and the plants may not thrive)
- *Corydoras* catfish
- Dwarf cichlids 



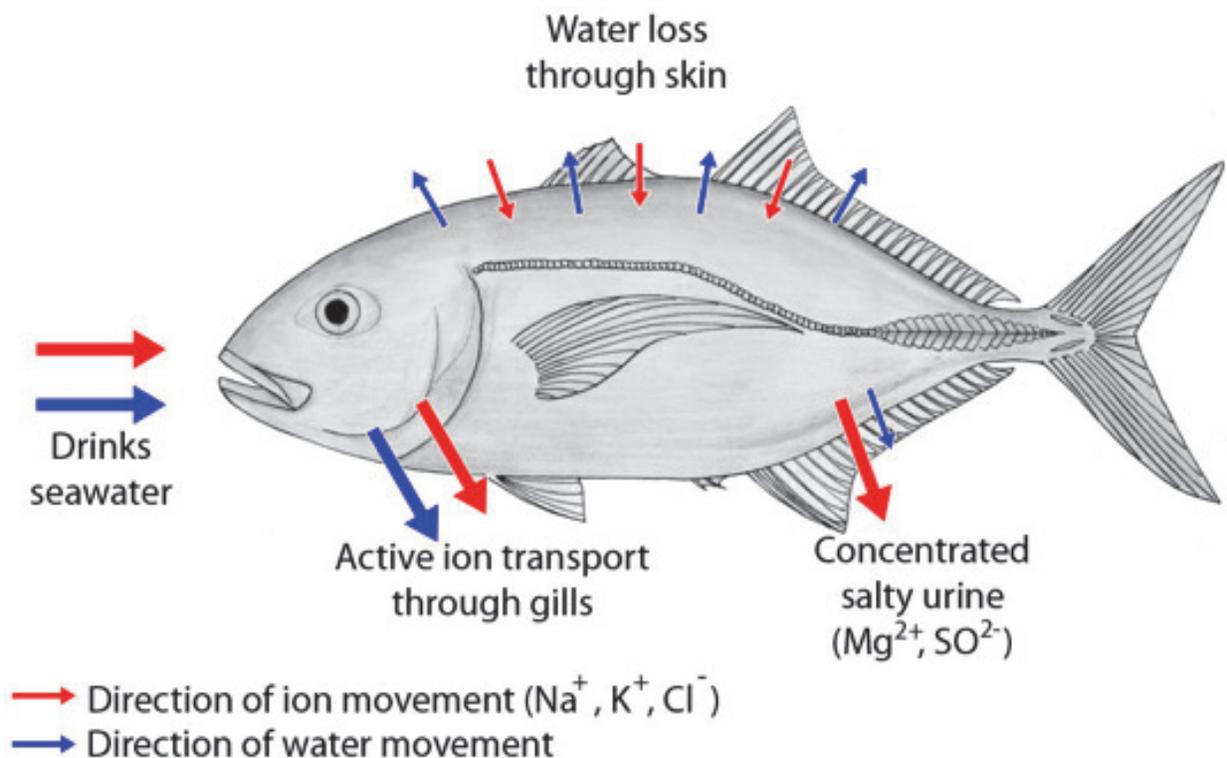
DO FISH DRINK?

THE ANSWER IS YES & NO!

NO - FRESHWATER FISH DO NOT DRINK

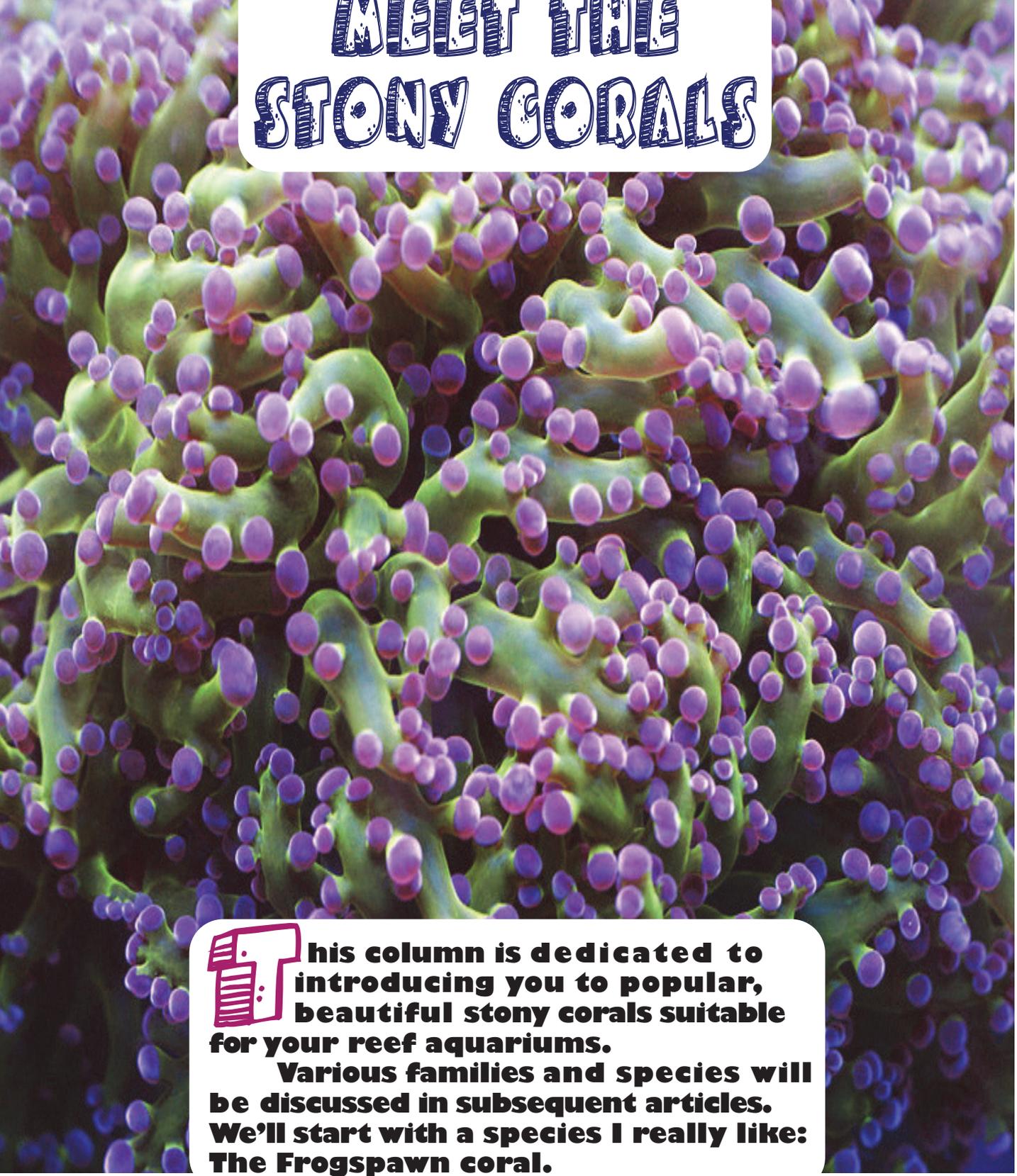


YES - SALTWATER FISH DO DRINK



ANTHONY P. KROEGER - BAS

MEET THE STONY CORALS



This column is dedicated to introducing you to popular, beautiful stony corals suitable for your reef aquariums. Various families and species will be discussed in subsequent articles. We'll start with a species I really like: The Frogspawn coral.



Frogspawn coral

Euphyllia divisa

Family: *Euphyllia* (pronounced you file ee uh)

Frogspawn has large bubble tipped polyps/tentacles, the tips of which are usually lighter in color, thus looking like frog eggs or small grapes.

This coral usually is brown or a very pleasing medium green. However, I have seen specimens which were brown with green tips and very rarely a yellow specimen with yellow tips is sometimes available.

Frogspawn is the hardest *Euphyllia*. *Euphyllia* are Indo-Pacific corals. The family ranges from the Red Sea thru Indonesia as far east as Fiji and from the Australian Great Barrier Reef, north thru the Philippines and sometimes even to Japan.

There are 8 species in this family. They usually live in low to medium currents 20 - 60 feet deep. If the current is too strong in your aquarium, Frogspawn will not open. Just enough current to "jostle" the tentacles around is about right.

All *Euphyllia* are powerful corals and need room. They have very strong sweeping stinger tentacles which extend

out well beyond their regular tentacles. Always leave at least a 6" inch diameter that is a coral free space around any/all Frogspawn or *Euphyllia* family corals. Frogspawn can sting and seriously injure or even kill any coral too close to it.



Frogspawn grows quickly, so give them at least a 55-gallon aquarium. They like moderate light and standard water quality is fine, but be sure to give these stony corals calcium, strontium and other corals additives regularly.

Feeding this coral is easy. Any chunky, meaty food is greedily accepted. Mysis shrimp, flake foods, minced peel and eat shrimp are all accepted. I feed

mine once or twice a week, but make sure when you fed them that your fish do not steal all their food.

Reproduction of *Euphyllia* is fairly straight forward. Although sexual reproduction is possible, fragging or "satellite base polyp" separation is easier, branching and attaching them to the substrate. Same for the "satellite polyps" found around the colony's base.

Frogspawn are hardy corals. If the tissue peels away from the skeleton, your calcium level is too low usually.

Frogspawn coral is readily available at reasonable mid-range prices.

Frogspawn coral is a winner! If you have not had one in your reef tank... give it a try, I'm sure you'll like it. 

Tony

Jennifer Wilkinson - CAS

Originally published in *The Calquarium* Vo. 41, No. 9, May 1999

GOLDFISH



Part I The Varieties

This is the start of a several part series in which goldfish types, maintenance, breeding, collecting eggs, and even shipping eggs and fry, will be discussed. I hope to share facts as well as my own experience with these beautiful, but challenging fish. Who knows, maybe even a few surprises along the way.

Goldfish come in many shapes, sizes, and colours. All types of goldfish originated from the common single-tailed fish, *Carassius auratus*. Therefore all breeds of goldfish are of the species *Carassius auratus*. It took breeders many years of

careful selective breeding and lots of patience to produce the different varieties that we see today.

All double-tailed breeds have all their fins, with the exception of the dorsal, paired. An example of this pairing is the anal fins. In double-tailed types, there are two anal fins. Quite often a very nice looking double-tailed goldfish has only a single anal fin. This means the fish is of lesser quality. Single-tailed breeds have single dorsal and anal fins, although I have seen single-tailed fish with some pairing. Some of these lesser quality fish are very beautiful fish and still deserve a place in our ponds or aquariums. With goldfish, beauty is really in the eye of the beholder.

Goldfish come in a large variety of colors that include greenish brown, orange, red, blue, black, bronze, olive green, dark brown, reddish brown, light brown, calico, red and white, and white. I'm sure someone is saying what about black and white? In my experience, the only black and white goldfish I have seen are fish in the process of changing colours. It is the same



with orange and black. Have you ever had the wonderful experience of your beautiful black moor turning orange? Colour changes in goldfish can HAPPEN!

How big will my goldfish get? Well, this brings to mind, a couple of years back, when an older (and I might add educated) man asked me this question (seriously): "If I put a goldfish in the ocean, will it grow as big as the ocean?" Well, I really had a hard time answering this question. Not because I did not know the answer, but because I didn't want to embarrass this gentleman. It was really hard not to laugh. Can you see what's wrong with this question? For starters, goldfish are freshwater fish, and no they will not grow as big as the ocean.

Most – and I stress most – fancy goldfish will get between 4" and 6" in length, not including fins. I have seen a couple 8" black moors though, so that is why I stressed most. Single-tailed goldfish can grow to a length of 16" or more. I would also like to point out here that if goldfish don't have proper nutrition and housing, they may become stunted. Stunted goldfish are not a pretty sight.

Did you know that most goldfish varieties are intended to be viewed from above? To get the full effect of most of the unusual characteristics you would have to look down at them. But they can be very beautiful when viewed from the side (as in an aquarium) as well.

HEAD GROWTH TYPES

The head growths on these fish come in a variety of shapes and sizes. Some cover just the top of the head, some cover the tops and cheeks and some cover the whole head. The head growths get larger as the fish gets older.

ORANDA

The oranda is a double-tailed fish. It has a short, round body with a dorsal fin. The head growths on the oranda can cover the whole head. Some orandas have growths only on the top of their

head. This type is better known as the high head. The red-cap oranda is one that falls into this category. Some orandas (with whole head growth) get so large it eventually smothers the fish. I personally prefer the high head types.

LIONHEAD

The lionhead is a double-tailed breed with no dorsal fin. It has a short rectangular body with a small double-tail. The back has a gentle, even curve, which is carried right to the peduncle. Good lionheads can have head growth nearly as large as the body is long. But good lionheads are hard to find. Most found in pet stores have bumpy, lumpy backs. I personally do not find bumpy lumpy goldfish appealing.

RANCHU

The ranchu is another double-tailed breed without a dorsal fin. It has an egg shaped body. The curve of the back is slightly more pronounced than that of the lionhead, and has a sharp downward turn of the peduncle. Ranchus have much less head growth than lionheads. The edonoshiki is a calico ranchu with some metallic scales.

In recent years lionhead and ranchu characteristics have been combined to the point where it is difficult to tell one from the other. Once again lumpy, bumpy-backed fish are found, some even with dorsal spikes.

EYE TYPES

These mutations just add to the beauty of the individual fish. The various eye types range from gazing upward, to protruding and even to sacs filled with water under the eyes.

BUBBLE-EYE

The most obvious characteristic of the bubble-eye is the large water filled sacks under the eyes that jiggle as they swim. The bubbles can be as wide as the fish is long. The bubbles should be even or of equal size on both sides. The body is cigar shaped with double fins in proportion to the



body. This type is most often seen is without a dorsal, but some dorsal varieties do exist. The bubbles come in two different types. The first is the "boxer glove" shaped bubbles. These bubbles are shaped like a boxer's glove because the eyes of the fish are attached to the head. The second shape is nearly round with the eyes actually gazing upward almost floating on the bubble. Very poor quality bubble-eyes are seen frequently. Either with broken bubbles from poor handling or uneven bubbles. This is another one of the types that can have bumpy, lumpy backs. A good quality bubble eye is a sight to behold.

CELESTIAL

The celestial is another double-tailed type without a dorsal fin. Its body is like the bubble-eye with the fins in proportion. The eyes protrude from the head and gaze upward. The protruding eyes should be the same size and point in the same direction.

TELESCOPE

The telescope has eyes that protrude similar to the celestial, except the eyes do not gaze upward. The shape of the eyes can vary with each fish but the extension of the eyes should be balanced. The telescope is also a double-tailed fish whose body shape is short and round, similar to the ryukin. One well known telescope is the black moor, but they do come in other colours as well. I have found it very difficult to find a black moor that keeps its black colour. They usually turn red. When purchasing young fish, don't be too disappointed if the end result is an orange or white telescope. Enjoy these fish for the beauties that they are.

PEARLSCALE

The pearlscale's body is shaped like a ball, very round. This is also a double-tailed type. Each scale is white in colour and looks like a pearl. In good quality fish the pearl scales will go right up over the dorsal line (top of the body). Normally this fish does not have any head growths. This

double-tailed fish with head growth is called a hamanishiki.

CHINESE POM POM

The Chinese pom pom is a dorsal-less type with a lionhead type body with no head growth. The pom pom's are found over the fish's nostrils and grow to about the size of a pea. These fish are not commonly found; however, the characteristics of the pom pom have been bred into many types of goldfish. So, therefore, goldfish with the pom pom characteristic are seen on occasion in pet stores.

VEILTAIL

The veiltail has an egg shaped body and long graceful finnage. It has a pointed head with no head growth. This double-tailed type has a very square cut tail and very high dorsal fin.

There is some controversy over whether the veiltail is a true breed, and whether or not it actually originated in the US. Some circles believe that there is no such breed, but that it is nothing but a characteristic bred into many types of goldfish. The problem with this argument is that many characteristics of the different types have been bred into and combined with different types of goldfish. Other people believe that the proper veiltail only comes in one colour: orange. A few years ago, I was lucky enough to have some of these beautiful fish shipped to me from the breeder's circle of The Goldfish Society. These fish were blue and calico. These particular fish came from (if I understood correctly) a cross made between two goldfish strains found within the Society. I don't want to go into too much detail for it is not needed for the scope of this column. No matter what the controversy, these were very beautiful fish!

FANTAIL

The fantail is a very popular double-tailed type found in most fish stores. The head comes to a point and has no head growth. The finnage is in



proportion to the body. This is a good fish for the beginning aquarist, as it is one of the easier fancy goldfish to keep and breed.

RYUKIN

The Japanese ryukin has a rounded body with a highly developed, humped back. The Chinese ryukin does not have the hump as highly developed. It is also another good double-tailed type for the beginning aquarist. It is also a good fish for the beginning goldfish breeder to start with. Older ryukins can have some head growth. The hump and the head growths are stored fat. This is my favorite of all the different types of goldfish.

SINGLE TAIL VARIETIES

The single tail varieties are the oldest goldfish types. They get much larger than the fancier types, reaching up to 40cm or larger. They are a good choice for the outdoor pond because they are competitive and fast enough to avoid predators most of the time.

COMMON GOLDFISH

The common goldfish has a shape usually associated with fish. The finnage is relatively short. Typical colours are orange, red and white, white, green, and brownish green. Orange is the most common.

COMET

The comet's main characteristic is the long finnage. The tail fin should be at least as long as the body with the lobes of the tail ending in a point. The body shape is a little more slender than the common, and they come in the same colours as the common goldfish.

SHUBUNKIN

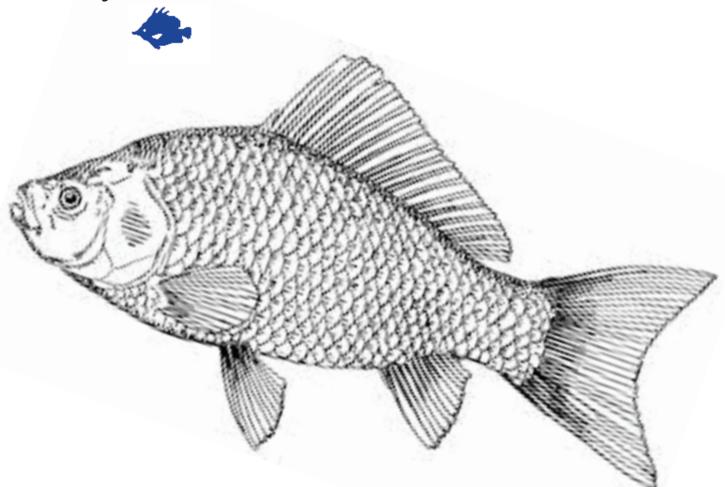
The shubunkin is a calico breed that comes in both the shape of the comet and common goldfish. The calico colours should have areas of blue,

patches of red, pure white, and random black spots covering the body. It is believed that the more blue colour the higher the quality of the fish.

There are a variety of different characteristics that have been selectively bred to produce various other types. Just about any combination of characteristics can and have been bred and combined, to produce some very interesting looking fish. This had best be left to the more experienced goldfish breeder.

CONCLUSION

As can be seen from the many descriptions, goldfish are beautiful and graceful aquarium fish. Each type of goldfish maintains the personality that probably made goldfish popular in the first place. These fish will follow you from one end of the pond or aquarium to the other begging for food. Each and every one can eat from your hand, if you are willing to take the time. So kick back and relax after a hard days work and feed those goldfish. What a way to lose the stress of the day.



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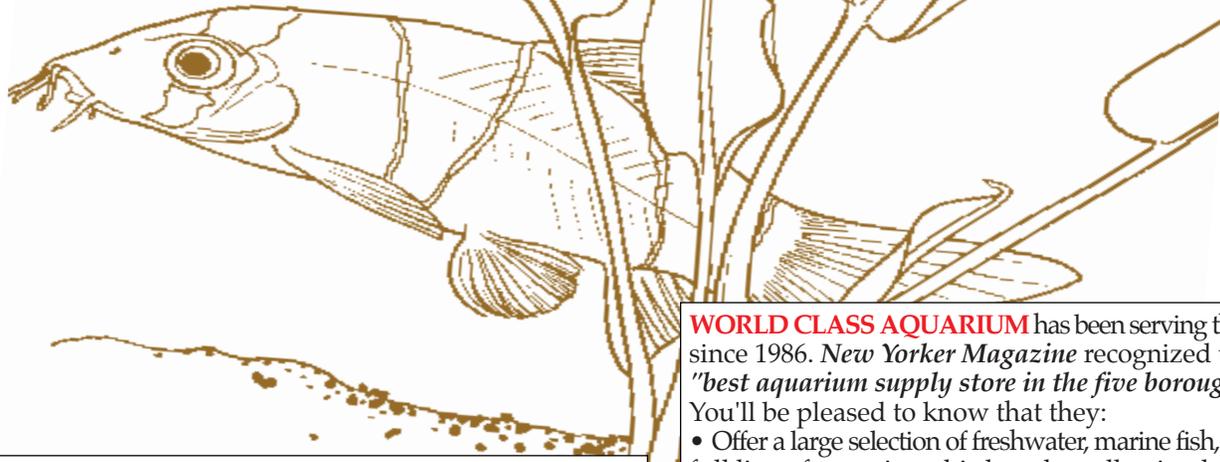
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