

AQUATICA



THE ON~LINE JOURNAL OF THE BROOKLYN AQUARIUM SOCIETY
VOL XXVIII NOVEMBER ~ DECEMBER 2013 No. 2

Jellyfish at the New York Aquarium

Photo: Anna Todaro

**Happy Holiday's
from the Officers and Board
of the
Brooklyn Aquarium Society**



**HOLIDAY PARTY
SEE PAGE 4**



**The Officers and Board of the
Brooklyn Aquarium
Society wish all of
its members,
supporters and
friends a happy**



**Thanksgiving and happy holidays
to you and your family.**

**We wish you a happy,
healthy and
prosperous
2014.**



Happy New Year!!!!!!



102 YEARS OF EDUCATING AQUARISTS

AQUATICA

VOL XXVIII NOVEMBER - DECEMBER 2013 NO. 2

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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:

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

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BROOKLYN AQUARIUM SOCIETY

CALENDAR OF EVENTS ~ 2013 - 2014

NOV 8 John Coppolino ~ Modern Fish Keeping in Reef Aquaria ~ Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction.

DEC 13 Holiday Party ~ Members, their families and friends, all you can eat sit-down dinner

• Fish Bingo & Prizes • BAS Awards presentations.

2014

JAN 10 Pat Donston ~ Marine/Reef TBA ~ Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction.

FEB 14 Kathy Cardineau ~ Setting up a Pond ~ Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction.

MAR 13 Gene Ritter - Reef Diving in NYC ~ Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction.

APR 11 Rachel O'Leary ~ Freshwater topic TBA~ Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction.

MAY 9 Giant Spring Auction ~ Freshwater fish, plants, marine fish, aqua-cultured corals & dry goods, including a 55 gal. tank & stand.

JUN 13 Chuck Davis ~ Gizmos, gadgets and other good ideas ~ Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction. BAS elections.

July/August - No Meetings

SEPT 12 Greg Sullivan ~ Saltwater for the squeamish ~ Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction.

OCT 10 Giant Fall Auction ~ Freshwater fish, plants, marine fish, aqua-cultured corals & dry goods, including a 55 gallon tank & stand.

NOV 14 James Fatherree ~ Reef Basics ~ Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction.

DEC 12 Holiday Party ~ Members, their families and friends, all you can eat sit-down dinner

• Fish Bingo & Prizes • BAS Awards presentations.

Friday December 13

THE BAS HOLIDAY PARTY



The holidays are coming up fast and you should start thinking about setting aside December 13th to attend this year's party.

As usual, there will be tons of great food. The BAS supplies basics: a roast turkey and trimmings, baked ham, desserts, coffee and soda. Our talented BAS members bring their favorite dishes and desserts, delicious hot dishes ranging from pasta, chicken, sausage & peppers and salads, plus an array of fabulous ethnic foods.

It's a sit-down dinner with members, family, and significant others. The doors open at 7:30pm and the buffet dinner starts at 8pm. So please wait because we need time to set up arriving dishes on the buffet table; if you jump the line, you may miss some fantastic dishes!

We also play fish bingo with aquarium-related prizes. We honor members who have served the Society for the past year and members who have written articles for *Aquatica* with awards and a prize book. Plus, this year we have received nine awards from FAAS, the Federation of American Aquarium Societies among the awards is a first place award for our publication *Aquatica*.

It's all great food and fun...and acknowledgement of members who have served our Society in its one hundred and second year of Educating Aquarists.

Mark your calendar now -- December 13th, and start thinking of the dish you're going to donate to the party.

The party is held at the Education Hall of the NY Aquarium.
All food donations are always acknowledged in the *BAS Bulletin*.

PLEASE REMEMBER...

You must bring a dish or pay a cover charge of \$10 per person.



New Killifish Species from Cameroon



New Central African killifish described as *Aphyosemion pamaense*.
Image: © Rudolf Pohlmann, courtesy www.chromaphyosemion.be | Creative Commons

A strikingly handsome new species of killifish from the Pama River, a small tributary of the Nyong River flowing into the Gulf of Guinea in Central Africa's Republic of Cameroon has been described by a team of European researchers.

The authors, from France's Institut des Sciences de l'Evolution, Université Montpellier, describe the fish's distinctive orange and blue-grey pigmentation and report that DNA testing has found that the new species is "genetically differentiated from all the other *Chromaphyosemion* species." The official description appears in the journal ZOOTAXA, 3670 (4): 516-530. The fish was first collected in 2007 by **Jean-Francois Agnese** followed by additional field research in 2008 and 2010.

HISTORY:

Discovered in Cameroon by **Agnese Brummet** and **Kornobis** on 22 January 2007. The Pama is on the road leading to Bela Kribi (ABK station 07-163) in a stream across the track. ABK 07-163

population was distributed under the mistaken appellation "Bela ADK 07-163" because collectors thought the town was around Bela. The GPS data were used to locate the station just east of Pama and this strain should be renamed as "Pama ABK 07-163." The station discovered in 2007 was then visited by Agnese, Denning and Kayoum in 2010 (ADK 10-323) to collect specimens from the standard series and Aubin, Denning, Gimenez and Sheepish in 2011 (ADGP 11-18).

PREVIOUS NAMES: None

DESCRIPTION FIRST:

Agnese, Jean-francois, Olivier Legros, Benoit Cazaux & Guillain Estivals. *Aphyosemion pamaense* 2013, a new killifish species (Cyprinodontiformes: Nothobranchiidae) from Cameroon Zootaxa 3670 (4). 516-530.



New Killifish Species from Cameroon



TYPICAL LOCATION:

Cameroon, 1.6 km east of the village of Pama towards Bela. Small stream, a tributary of the Pama river system Nyong, 03 ° 16.420 N, 10 ° E 05235, 24 February 2010, collection code ADK-10-323 collectors **Jean-François Agnese, Cyril Dening, Gregory Kayoum.**

DATA meristic:

D: 10-13, A: 12-15, D / A: 0, 3, Scl: 25-28.

KARYOTYPE:

2n = 35 (males)

2n = 36 (females)

GEOGRAPHICAL BREAKDOWN:

Known only from the type locality 1.5 km east of the village of Pama, Cameroon.

CYPRINODONTIDÉS sympatric:

Aphyosemion edeanum

Epiplatys infrafasciatus

Procatopus similis

DESCRIPTION OF MALE:

Size: 4.5 cm total length.

DESCRIPTION OF THE FEMALE:

Size: 3.5-4 cm.

MAINTENANCE AND REPRODUCTION:

I received my first labeled as wild fish "species Bela ABK 07-163" (the name was wrong; see above). Unfortunately, there were five large females and one tiny male who was dominated. This strain has not been reproduced.

Congress AKFB 2010, **Jean-François Agnese** gave me a couple of wild fish from the type locality and collected in 2010 (Pama ADK 10-323). The couple just sexual, was placed in a 14 liter tank with mops and peat, not so much to

serve as spawning substrate, but also to prevent the female from receiving blows from the male.

The fish began to spawn three months later, but I have not been able to keep the female long as she died of stress when I wanted to get out the mops tray. This death "heart attack" is rare but sometimes happens when the fish are caught or when you arrive against the light to an aquarium. So I raised the fry from the first eggs without any problems. Young fish sex out at 3.5 months when you can see an orange color on the anal male. They start laying at about 5 months.

Chrom. pamaense rised easily and requires no special settings for laying. Natural reproduction is common when there is only one couple in the aquarium.

Adult males can be quite spectacular though they are easily damaged when you make water changes. Male may promote fights, fortunately the fights are not too violent.

It will nevertheless be important to provide sufficient hiding places for this beautiful species as it is quite shy.

Thanks to its ease of reproduction it is beginning to be bred by killiphiles. Nevertheless it is important not to lose their natural habitat; because it is the only known locality in Cameroon; on the edge of a road and in an area of land - not yet surveyed. This species and two other species (*Chrom. loennbergii* and *Chrom. koungeense*) are found there. 



HOBBY HAPPENINGS



I've always wanted to write an article or do a program on: "Collecting Tropical Fish in the North-eastern United States." Over the years at

many conventions, I've seen a lot of programs on collecting tropical fish in South America, Africa or Asia. I always explain in my programs that I've never collected tropical fish in any of these exotic places. Most of my collecting has been done in the fishrooms of fish friends in NJ, NY, PA, CT, and MA.

On my last trip to NJ in May I spoke Thursday night at the North Jersey Aquarium Society (my first club) and brought twenty five bags of fish for BAP points, donations to the club auction and trades with fish friends. I gathered five species of fish and didn't have any room to even look at the well-stocked monthly auction at NJAS.

I was staying with a friend for the following week and had to keep the fish alive in his basement (he's not a fish person, but has two German shepherds). I had brought five plastic containers with lids (5 gallon size) and my show box with pumps, airline, chemicals, nets, etc.

I set up the fish in his basement with air pumps and added some crushed coral to all (pH buffer) and cichlid lake salts to some. I did daily water changes (about 50%) using a water conditioner for chlorine and ammonia. The fish did very well in these conditions and made it back to NC eight days later.

The fish included *Cyprichromis leptosoma* "Mpimbwe Black Bee" (3 males, 2 females; six *Lamprologus cylindricus* (1 ½"); a bunch of young (1") *Pelmatochromis buettikoferi* (West African substrate spawner I've never worked with); five *Pachypanchax sakaramyi* (Madagascar killifish); and six *Xiphophorus clemenciae* from **Rusty Wessel's**

stock. Since getting them home, I've only lost one of the *Pelmatochromis* so far.

The Wednesday following the NJAS talk, I did my fishroom program at the Metropolitan Area Killifish Association meeting. I bid in their monthly auction and brought home some aquatic treasures. A pair of blue gularis, *Fundulopanchax sjostedti*; a pair of chocolate australe, *Aphyosemion australe*; a pair of *Epiplatys roloffi*; and two pairs of *Fundulopanchax gardneri innidere*. I transported the killies home the very next day in Glad containers with holes in the lids. They all survived the nine hour trip home and were transferred to 2 ½ gallon plastic tanks, but the next day I found the female *E. roloffi* dead and the next day the female blue gularis (that one hurt!).

We always talk about our successes, but not often of our defeats. I always have the attitude that I'm going to spawn all of the fish I obtain, but transport and acclimation sometimes are not successful. With all the travel I've done in the past three months (six talks in four states) my fishroom suffered a bit. The adults did fine, but I

lost a lot of fry. I've had *Archocentrus panamensis* spawn twice and lost the fry. A female is sitting on eggs again as I write this. I've only raised four ½" fry from the first two spawns.

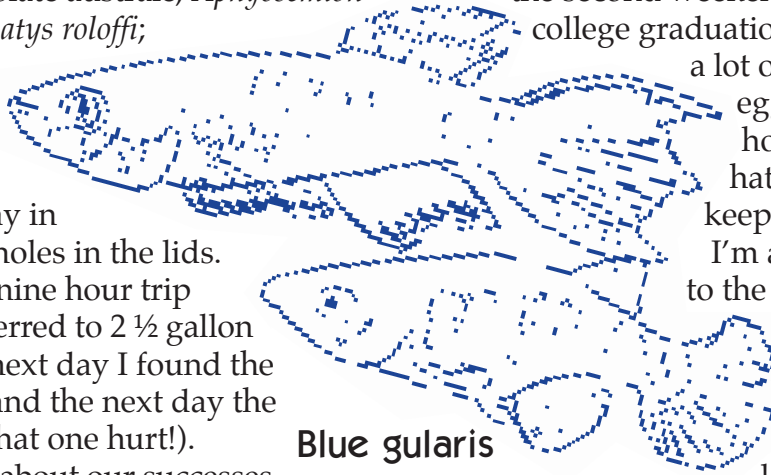
I lost fry from *Corydoras schwartzi* and *Corydoras panda* and also lost a bunch of rainbow fry and some killifish fry. I'll be traveling again the second weekend in June for a family college graduation party. I've been taking a lot of rainbow and killifish eggs, since I figure I'll be home by the time they hatch and I'll be able to keep them alive!

I'm already looking forward to the Atlanta fall auction in September, the NJAS 60th Anniversary in October, and the Raleigh AS fall auction later in October. In 2014

there's the Catfish convention and maybe the ACA and ALA as well. I'll keep busy.....



Blue gularis



Larry





ONE MAN'S APPROACH TO DOSAGES AND MEASUREMENTS



If you are a typical fish hobbyist, you have at one time or another been confused by the various descriptions of dosages for medications, salt, etc. For example, you may have seen such terms as 1 teaspoon (tsp) per gallon (gal), 1 pound per 100 gallons, 1 gram (gm) per liter (l), 1,000 milligrams (mg) per liter, 0.1% solution, 1 part per thousand (ppt), and 1,000 parts per million (ppm).

This article is an attempt to explain in a practical way the basic things hobbyists need to know about these measurements and how they relate to one another.

We can start by understanding that each of the above dosages is meant to provide the same percentage per unit of water. Is it any wonder that we sometimes become confused?

Those of us who were brought up with the English system of measurement may be uncomfortable using the metric system. But believe me, when you see the small portion of the metric system we actually need to use, you'll agree it is really the easiest for fish hobbyists.

So let us talk metric. The frequently seen 1-ppm is equivalent to one milligram per liter. This is expressed as 1 mgs/l. There are 1,000



milligrams in a gram and 1,000 milliliters in a liter. 1,000 times 1,000 equals 1,000,000. To arrive at 1 ppm in larger quantities of water, consider 1 gram in 1,000 liters or 10 grams in 10,000 liters or 100 grams in 100,000 liters, etc.. (The same multiples of 1,000).

The less frequently seen 1-ppt is important because it relates to larger doses used for salt. 1,000 ppm equals 1-ppt, and 1-ppt equals 0.1%.

If for example, you want to dose your aquarium or pond with 0.3% salt, first convert gallons to liters (gallons $\times$ 3.785 = liters) and then multiply liters by 3 to find the number of grams needed. Remember, 0.3% equals 3-ppt or 3 grams per liter.

As to the frequently prescribed 3 lbs of salt per one hundred gallons of water, at 0.36% it is 20% more than the intended 0.3%. To dose large aquariums or ponds with salt, you may want to skip the gram measurements and work with pounds. Twenty five lbs per 100 gallons makes a 0.3% solution.

Do the arithmetic once just to satisfy yourself the answer is right because you'll hear other figures. Multiply 379.5 (the number of liters in 100 gallons) by 3 (3-ppt or 0.3%) to get 1135.5, the dose in grams. Divide 1135.5 by 453.6 (grams per lb) to get 25 lbs.

There is a danger when we substitute volume for weight measures. What about the 1 teaspoon of salt per gallon to make a 0.1% solution? We have used this measure for many years with no problem because there is tremendous latitude in the use of low

dosages of salt. There could be problems, however, when we went to use dosages like 0.6% for therapeutic purposes.

First, teaspoons, whether for the dinner table, as cooking measures, or for laboratory use, all vary significantly. A tsp should hold 3.8 grams to make a 0.1% solution per gallon.

Second, coarse salt versus fine salt may vary by 100% in weight for a given volume. In a recent test I did comparing coarse Kosher salt with fine table salt, a kitchen measuring tsp varied from 2.7 grams for coarse to 5.6 grams for fine, a 5-ml lab tsp varied from 3.7 grams for coarse to 6.2 grams for fine, and a 25 ml lab graduate varied from 16.8 grams for coarse to 32.1 grams for fine.

Third, the way in which the salt is scooped,

...the way in which the salt is scooped, or struck to level it, or settled in the container affects the weight. This is truer with coarse than fine salt. There is no consistency here from teaspoons to milliliters or from coarse to fine. Further, the weights of other chemicals vary and these variations may be compounded, because many chemicals come in both powder and various size crystals. My point is that using volume measures may result in significant error and possible under or over dosing with salt, less than therapeutic levels may not produce the desired effect and too high levels for prolonged periods may damage the fish. With some other chemicals, similar inaccuracies could actually result in disaster.

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So measuring by weight is the answer, but what if a hobbyist does not have a gram scale? One alternative is to buy a very simple scale (about \$32) to weigh up to 4 grams or a relatively sophisticated battery powered scale (about \$125+) with a LCD display to weigh up to 150 grams. I have the latter. Edmund Scientific sells these pocket scales and many others. Call (609) 573-6450 or check them out at their web site

EdmundScientific.Com.

If you do not want to buy a gram scale, you can make a simple, relatively accurate one for pennies. You'll need two identical one ounce plastic medicine cups, a wooden tongue depressor (TD), a 1/8" thick round bamboo skewer and some glue. The first two items can be purchased in small quantities at most pharmacies. We use a hot glue gun to assemble the scale. First, carefully divide the TD by drawing a line across its middle. This is the balance point. Turn the TD over and glue a cup upright to each end. Try to use the

same amount of glue and position the cups identically on each end. Next, cut three 1" lengths from the bamboo skewer. Turn the TD back over and glue one piece of skewer to each side of the centerline. The pieces should actually touch at the line. Glue the

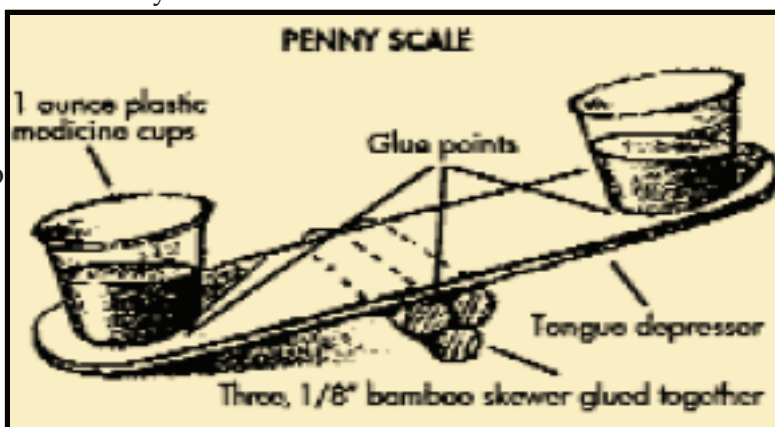
third piece of skewer on top of and between the first two skewers. This will form a triangular fulcrum for the scale. (See line drawing.)

Even if you have been very careful constructing it, the scale will not balance on a level line because it's just too unstable.

For the way we use it, the more unstable the better. The point of the triangle is meant to rest on a hard, flat surface. Gently, tip the scale back and forth to see how much difference there is in the weight required to go each way. If there is a difference, add drops of glue one or two at a time to the light end until the tiniest touch will

tip the scale equally one way or the other. If a pinch of salt won't tip your scale, make further adjustments with drops of glue.

To make this work as a gram scale, find some shiny new pennies and nickels. Stick with the most recent year coins because older composition pennies weigh more. 1995 pennies test okay. Nickels weigh 5 grams and pennies weight 2 1/2 grams. This is the only time you'll find two pennies equal a nickel. If you want to measure 10 grams of dry chemical, put two nickels or four pennies into the center of one of the cups. Then gently add the chemical to the other cup slowly as you reach the required amount so that when the scale finally tips down just a few crystals do the job. Practice weighing the scale with salt. We found that if you very carefully center the coins in their cup and do as suggested here, you can narrow your margin of error to 2%. (That is 2% error for 10-grams; the percentage would increase for smaller amounts.)



In each of our tests, once we got the hang of it, the portion we measured with this scale was 2% more than 10-grams. In other words, 10.2-grams tipped the scale.

To measure smaller doses than can be weighed practically with whatever scale

you have, I recommend using graduates for 25-ml and 100-ml, and converting the dry chemicals to a solution. The method is very simple. Let us start with the most basic example and say you have a five-gallon hospital tank, but the medication is a capsule to treat 10 gallons of water. Simply mix the medication into 100-ml of water and add 50-ml of that solution to your five-gallon tank. I pour from the 100-ml graduate into the 25-ml graduate for quick, easy, and accurate measuring.

I like the 100 ml graduate because I can do the figuring in my head and the same procedure works with any size aquarium or pond. If your



pond held 4,200 gallons and the dose in the 100 ml working solution was for 10,000 gallons, then you would use 42-ml. With some chemicals, if you do not use all of the solution within a certain period of time, you'll have to throw the unused portion away. This may seem wasteful, but it is better than treating your fish with an incorrect dose.

For small doses that would require scales far too expensive for most hobbyists' needs, the 100-ml working solution method is the only way to go. Let us take the example of dosing a 50-gallon tank with 1 ppm of a chemical.

First, multiply 50 gallons by 3.785 (the number of liters to a gallon) to learn the tank holds 189.25 liters. Round out the figure to 190 liters. You'll need 190-mg of the chemical for the 1-mg/1 or 1 ppm dose.

Second, make a working solution by adding 1 gram of the chemical to a 100-ml graduate of water. This working solution now has 10-mg to each 1-ml ($1,000 \div 100 = 10$), and it is expressed as 10 mg/ml.

Third, divide the 190 mg required dose by 10 (the number of mg per ml in the working solution) to determine that you need 10-ml of the working solution for your 50-gallon tank. It follows that for a 2-ppm dose you would add 38-ml and for 3-ppm you would add 57-ml.

Try the example of a 3-ppm dose in a 20-gallon tank. $20 \times 3.785 = 75.7$ liters. Use the same 1-gram to 100 ml to make the 10- mg/ml working solution as above. For 3 ppm you'll need 3 times 75.5 or 227, 1-mg, 22.7 divided by 10 equals 22.7-ml of working solution. 23-ml will work

just fine.

For those situations where chemical measurements are critical, you should attempt to calculate the actual liquid volume of your aquarium or pond. Aquariums rarely, if ever, contain the stated volume. Measure the inside dimensions (in inches) and multiply length by width, by water depth (above the gravel) for the volume in cubic inches. Divide the resulting figure by 231 to determine the number of gallons.

Multiply gallons by 3.785 to find liters. I mention this method because many of us still use it as a matter of habit and because most aquariums are still sold in gallon sizes. If you want to be metric and modern, do the LxWxD measurements and multiplication in centimeters (cm-3) by 1,000 to find liters. You can do this because 1,000 cm-3 equal 1,000-ml or 1-liter.

If you use the penny scale, remember that while you cannot weigh 1-gram with it, it is relatively accurate at 10 grams. I suggest, therefore, that if

the chemicals you are using are not prohibitively expensive, you measure 10-grams into 1 liter of water and then use 100-ml of this solution as indicated above in the paragraph concerning small doses. Potassium Permanganate (KMnO_4) is a good example because it is quite inexpensive. The same method can be used to reduce a 1-gram measure to produce a 0.1-ppm dose such as you might use with Malachite Green. 

The following is a basic list of the conversion factors needed to deal with most dosage and measurement problems you will encounter as a fish hobbyist.:

- 1 ppm = 1 mg/1 = 3.8 mg/gal
- 1 ppt = 1,000 ppm = 0.1% - 3.8 mg/gal
- 1 liter = 1,000 ml = 1,000cm³ = .2642 gal
- 1 gal = 3.785 liters = 231 cubic inches

The following are some additional conversions factors you might find helpful on occasion:

- 1 oz = 28.35 grams
- 1 lb = 453.6 grams
- 100 grams = 1 kilogram = 2.2 lbs
- 1 ml = 20 drops
- 5 ml = 1 tsp
- 30 ml = 1 fluid ounce
- 1 grain/gal = 19.12 ppm
- 1 grain = 64.8 mg
- 1 gram = 15.432 grains



Tilapia mariae, The Tiger Tilapia: Not Your Average African Cichlid.



This beautiful yellow and green cichlid from Africa would be a great addition to any aquarium. The *Tilapia mariae*, also known as Tiger Tilapia and Tilapia Marie, is not your average African cichlid. It is not well known or a publicized aquarium fish, and that is why it's not easy to acquire, but more about this later.

Allow me to describe this strikingly beautiful fish:

The male is larger than the female by approximately one to two inches (male 5 - 1/2 to 6 inches, female 4 to 4 - 1/2 inches). Both genders have a yellow body with light green top and back. Along the lateral line are five black dots. The female has a red blotch behind the pectoral fins and above the stomach area (similar to *Salvini* cichlid), the pectoral fins are yellow, trimmed in black. The eyes have a red blotch with a black diagonal line running through them. The anal fin has red streaks in it, and the most beautiful part, the tail and dorsal fin, has a light florescent green dot pattern with a red, white and blue edging.

They are extremely protective of their fry and will attack any fish or even a human hand if it ventures close enough. It was interesting to

note that while I had large green severums and Trout cichlids, *Champsocromis caeruleus*, in the tank, the Tilapia showed no inclination to spawn. When these large fish were removed, the Tilapia seized the opportunity and laid approximately 80 eggs on a vertical side of a piece of wood. I then placed a tank divider between the Tilapia and the other fish in the 180 gallon tank (four Turquoise severums, a pair of *Aulonocara baenschi*, a pair of *Haplochromis rhoadesii*, a large clown loach and a large *Synodontis angelicus*).

Tilapia mariae are very tolerant of pH and water hardness, and will eat anything (except snails). They like their temperature in 70's°F and for breeding in the low 80's°F.

They make an excellent aquarium fish for

mild or medium tempered, African or Central/South American cichlids. The fry from the spawn they had are the most indestructible fry you will ever see. They will voraciously eat anything, but really love floating plants. The fry will put on a show for you when you feed them **Sera nips®**, 8 per pack, tablets that stick on the side of the glass. The fry go berserk, as the 80 of them hit this tablet at the same time and won't stop until it's all gone. I also believe that plant and vegetable matter is an important part of their diet.

The babies have a beige body with eight black bands around it, from the eye to the base of the tail, resembling *Tilapia buttekoferi*. I noticed that after two months there are red streaks in the dorsal fin.

After ten days with the parents, I separated the majority of the fry and placed them in a 15 gallon tank. I left 9 fry with the parents. I fed the same menu to all the siblings. To my surprise the fry that stayed with the parents more than doubled in size. The larger ones are 2 to 2-1/2 inches in length, whereas the ones moved to a 15 gallon tank were only 1 to 1-1/2 inches in length. Even though I did water changes to the smaller tank more than to the larger tank (3 to 1 ratio), the fry kept with their parents grew much faster. My conclusion is the larger volume of water in the original tank helped increased growth more than just water changes.

I then moved the 9 original fry into another 180-gallon tank shared with African and Central/South American cichlids, and they are doing fine. I placed their smaller brothers and sisters back into the tank with the parents, and another surprise to me... the parents took them back without a problem. It is now several weeks later and they are still with the parents and doing great.

The parents have not shown any inclination to spawn again, perhaps because the babies remain with them. However, they still continue to protect their fry.

I have been feeding them flake food, live black worms, frozen bloodworms, home made vegetable food and pellets -- they eat everything! And when I place duckweed, riccia or other floating plants in

the tank, they devour them in minutes.

I keep the pH slightly alkaline at 7.6, and the temperature at 80°F. I've never checked the water hardness.

I believe it would be of interest to you to note that I obtained this pair of fish from **Basil Holubis, President of the Norwalk, CT Aquarium Society**, by trading him a small colony of *Aulonocara baenschii*, Sunshine Peacocks.

One of the many benefits of joining an aquarium club is that you have an opportunity to meet members of other clubs.

Often these members have aquarium fish that, in many instances, your club members don't have. By exploring the possibilities of either trading or attending another club auctions or shows, you can open an avenue to obtain new and different

fish for your club and of course yourself.

In addition to swapping or buying fish, you can open a resource of knowledge for any and all information regarding tropical fish. When I visit aquarium clubs like, **North Jersey AS, South Jersey AS, Norwalk AS, Greater CITY AS, Nassau County AS, Long Island AS** and many others, I meet and interact with hobbyists and professionals in the aquarium business. These people can, and do, provide all kinds of information on tanks, equipment, transporting, fish food, insulation tips, etc. I've met and have had in-depth discussions with **Ginny Eckstein, Dr. Paul Loiselle, Chuck Davis, Ad Konings, Joe Ferdenzi, Lee Finley, Rosario LaCorte, Frank Policastro and Tom Miglio** to name a few of the experts in this hobby. These people are REAL, they're friendly and easily accessible, and by getting active in an aquarium club, you too can have access to a wealth of practical knowledge you'll never find in any set of books. 🐟

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BUMBLEBEE GOBIES

A HOBBYIST'S PERSPECTIVE



I had always thought that beekeeping would be an interesting undertaking. The activity of the hive, the honey, behaviors that you would not ordinarily notice, the honey, nature, the honey. I'll take the shortcut to the honey, and forget about the honeybees - for now.

However, I have discovered that there is more than one interesting bee out there -- Bumblebee gobies, as the name suggests, resemble bumblebees. less the sting, the fuzz, and most of the bumble. For those interested in taxonomy, the classification of plants and animals, gobies belong to the Family *Gobiidae*. This family of fishes have modified ventral fins, an adaptation in which the ventrals have fused together creating finnage that acts as a sucker, enabling the fish to "adhere" to surfaces in their environment.

In nature, bumblebee gobies are found living in Southeast Asian estuaries, a brackish water environment that is easily approximated in home aquaria.

BUMBLEBEE GOBIES

A HOBBYIST'S PERSPECTIVE

In my attempt to gather information on the fish that I had acquired, I found five different fish referred to as bumblebee gobies. The photograph that best represents my bees can be found in *Baensch's Aquarium Atlas*, volume I, pg.837, *Brachygobius Xanthozona*, the bumblebee fish. I am by no means an ichthyologist, but that pugnacious little face is readily identifiable, even to a novice. They are diminutive fish, characterized by four dark brown (possibly black) vertical bars starting with the head, alternating with goldfish-tan bars. I've noticed that some in my group have bars that are more distinctive than others and on some, the first "goldfish" bar is an intense, canary yellow. The various books that I referenced agreed that bees do best in brackish, alkaline, water, 77° - 86°F, with the addition of one to two tablespoons of salt per 2-1/2 gallons of water. The size of *B. xanthozona* is in the books as 1-3/4 inches. How long it takes a fish to reach that size I cannot say. I have my fish ten months and the largest female is less than an inch; the males are slightly smaller. Real bumblebees, the flying kind, could carry my bees away.

When I first acquired my bees, they were very small, being approximately the size of a three-week-old black molly. They are by far the smallest fish that I have ever purchased. Since they were so small, their first home was a nylon mesh baby saver that hangs within the tank. At that time, the tank was home to a large group of black sailfin mollies, which were displaced by green swords and young diamond tetras, which were in their turn ousted by guppies. The only permanent residents of the tank are the bees. The tank, a ten-gallon with Whisper filtration, has a crushed coral substrate with numerous clay flowerpots lying on their sides



pretending to be caves. The salt content has varied over time depending on who was in the tank. The lowest level, two tablespoons per 10 gallons was for the sword / diamond / bee combination. However, that was an "emergency," the diamond tetras having lost their home. (There are just never enough tanks!) The bees are currently sharing the tank with approximately two dozen adult guppies, all living happily in a briny solution of 8 tablespoons per 10-gallons. The bees have grown and thrived in all salinities, and I noticed no ill effects during the "emergency," even though it went on for months. I'm theorizing that this is an adaptation of estuary life, an estuarine adaptation (if I'm using the right derivative, maybe it's estuarial). The salt that I use is Tropic Marin. I'm sure that any synthetic sea salt would suffice, serving the purpose much better than table salt, which would only be sodium chloride, and not all the salts, and the 70+ trace elements contained in this synthetic sea salt preparation. The water quality is maintained by weekly water changes (Novaqua added) of approximately 75%, which may seem extreme, but the tank is overcrowded and overfed, so I compensate with massive water changes. The temperature is kept at 80°F.

The bees grew slowly, remaining in their baby basket for months, until I was comfortable that they wouldn't be eaten. They were fed a diet of newly hatched brine shrimp, eventually graduating to bits of frozen bloodworms (thawed of course). As they grew larger, they began to eat newborn guppies (one of the hobby's dichotomies), of which there is always a constant supply. This remains their diet, baby brine shrimp, bloodworms and baby guppies. All dry food preparations are ignored.

When first released from their mesh baby saver, they seemed to prefer to position themselves on the sides of the tank, resembling those little magnets on the fridge, or designer pushpins.

Periodically they would hop about, scooting around the tank, only to reposition themselves in some other seemingly awkward position. As time has passed, they've settled to the bottom



of the tank, perched on the numerous “caves,” ready to pounce upon any unsuspecting baby shrimp that may happen by. Bees are quite comical in their antics, and will readily capture your curiosity.

After about six months or so, I noticed that some fish were easily twice the size, in girth, of the others. These pudgier bees were also longer and darker, and some of these appeared as if covered in a fine layer of soot. They were the females, and they dwarfed their counterparts. Keep in mind that these fish are really small. As a point of reference, the males are about the size of a cold capsule - they make neons look big. It's their size in combination with their antics that make them seem so comical to me. If they were big, they would be downright ugly.

About the same time, some of them seemed to take up positions on or in the flowerpots. It's not that they wouldn't move around the tank, but if you managed to keep track of one, you would see it return to the same area. Some, both male and female, appeared to have staked out their territories. Other fish came and went through these territories unscathed. Shortly thereafter, it happened! A male, who had conveniently taken up residence under a shard of clay (an inch from the front of the tank - in full view), started an excavation project. This feat was performed in cichlid fashion, except that each bit of crushed coral he moved was nearly the size of his head! When he was done, he started to jump and twitch in front of his cave, rubbing the side of his head against the gravel. He seemed to be having a little fit. I actually thought that he had gill flukes or some other malady that he was trying to rid himself of. It wasn't long before his dark vertical bands faded, and he became more golden. I thought, “that's it, he's dying, he exhausted himself digging his grave.” Was I ever wrong! The next day, still in pale attire, he would lie in wait until a female passed. Then he would jump out at her, sometimes blocking her path with his dance. He would also butt into her head with his, and then scoot back to his cave. Kinda like - tag - you're it! No female was allowed to pass without noticing him, and all intruding males were chased



away. If no females came along, he would search them out, and put on his little show. Eventually, a female would be lured into his cave, stay a few seconds, and come back out. Before long she'd remain in the cave, suspending her elliptically shaped, stalked eggs, from the roof. The male having fertilized the eggs, would take up his post, defending the cave against all that ventured near. The eggs numbered over 150 (that's when I stopped counting). I estimate that there were between 150-200 eggs. They were “enormous” compared to the size that I thought they would be, maybe twice the size of severum eggs. Their shape was that of a stretched out oval, the center of which was a pale creamy white. Once the eggs were laid, the female would leave the area, and the male would return to his normal coloration.

Now the dilemma, leave them to their fate or separate - I didn't want to risk losing them, so

I created a make-shift hatchery within the tank. I took a plastic hang on shelf, the kind they advertise to hold an air pump on the back of the tank, and hung it in the tank - the shelf being about an inch under the surface of the water. Then, not knowing how small the babies would be, I took the finest mesh container that I had, and placed it on the shelf. This happened to be the insert of a worm keeper. The kind used for blackworms / tubifex which has solid sides and a fine plastic mesh bottom. I then arranged this contraption so that the water from the Whisper would just trickle into it. Then I placed the cave and the male, into my “hatchery.” The male remained long enough for me to pour a cup of coffee, and then he jumped back into the tank. That's where he stayed - since I have fourteen of these buggers, and they all look alike. (How is it that fish always manage to jump higher than you thought they could?) The eggs were fine, bathed in a constant flow of water. This was on Sunday; on Wednesday, I saw eyes; on Friday the eyes were moving; the following Sunday they started hatching. A whole week at 80°, and it still took an additional 24 hours before they all hatched. The fry were immediately mobile, swimming all over their

nursery! This surprised me. I had expected them to behave like other wrigglers, hanging about, but they swam around like regular fish for the next 3 weeks. It was at this time they started to periodically rest on the sidewalls of their enclosure.

The babies were the size of tetras, so after they absorbed their yolk sacs (approximately one day), I fed them a highly nutritious food preparation, manufactured by Sanders, called Docosa Gold.* This preparation contains the essential fatty acids that are required by fish for optimum health. It can be fed directly to fish, mixed with water for fry, or it can be used as an enrichment for rotifers and brine shrimp. I occasionally (when I remember), add it to my microworm culture. It has the consistency of a fine powder, and is readily accepted by the smallest of fry. After two days, microworms were introduced to their diet, although I couldn't tell if they were being eaten until I looked with a magnifying glass. Finally, newly hatched baby brine shrimp (Sanders eggs), were introduced to the menu. At hatching, the fry are clear, with one tiny dark spot on the back. At three weeks, there are two spots on the tail, and a peppering of black on their heads. The following week, the four black bands were discernable, and on some, the tiny black dorsals could be seen. At six weeks, the fish were 3/8" long, and miniature versions of the adults. At seven weeks, they manage to choke down bits of bloodworms, and at this writing are growing rapidly.

The adults were now breeding regularly, and are quite prolific in their endeavors. At first, it was just one male dancing about, but as the weeks passed, more and more pairs began to spawn. I don't know how old my fish were when I bought them, but I am estimating by the size of the young that I have now, that they were maybe three months old. So, I'm guessing that the fish reach maturity at approximately ten months. I noticed that once the breeding started, more females were plumping up with eggs, and more males were going pale, so I'm thinking that they were all, one by one, gradually coming of age. Since I somehow managed to have acquired an equal amount of males/females, and I can't tell who's who, I don't know how often the females spawn. At times, there are two and three spawns in the tank.

After five spawns, I stopped segregating the eggs (we all have our limits, not to mention limited space), and I now leave them in the tank. There are 14 bees, 22 BIG female guppies, two tired male guppies, and nine caves in the tank. In the midst of all this activity, a pair of gobies spawns, the male remaining to care for and defend the eggs against all comers. Fan the eggs, launch frontal assault, check the eggs, and torpedo an intruder. These fish are relentless in the defense of their spawn, literally going head to head with one fish after another. Keep in mind that he's the size of one of the attackers fins, these guppies are big - some over 2-3/4 inches in length - and he does this for over a week! Courage like that has to be admired, unfortunately, as soon as the young hatch - it's over. He will remain and defend an empty cave - I'm assuming until he realizes that he's alone. Since I haven't witnessed his misfortunes, I imagine that the young just swim off to meet their fates; or that it's just too much to keep them all together while fighting off predators. (If you can accept a guppy as a predator.) The males are valiant combatants, but they aren't the "killer bees" that we've heard so much about. Nevertheless, the relentlessness of nature prevails, and the male remains perched on his cave overseeing his territory - until it's time to start the process again. First, he chases the males, and then he lures a female...

Anybody wanna buy a Bee? 

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LIVE BEARING FISHES.

C. J. HEEDE.

ONE of the most interesting studies on private fish culture can be enjoyed by keeping Live-Bearing fishes. This species of fish includes quite a variety, and beginning in this number we will take up their general characteristics, and in the following bulletin will describe the different varieties in turn.

The Live-Bearing fishes have all, or nearly all, the same habits, are easily kept and cared for, and can do without artificial heat. An ordinary living room in winter time will be warm enough for an Aquarium of Live-Bearing fishes. The most interesting feature concerning the Live-Bearing fishes is the way in which they produce their young. Fishes generally, as we know, spawn or lay eggs, but not so these fish. The young are actually born alive! The fertilized eggs which are held within the mother fish are also hatched within her and emitted alive. Female fishes of this kind are able to produce young at different intervals, although only having mated once; what is still more phenomenal, the female will carry the fertilizing product stored up from season to season, although living alone, and bear young at various times. Still when all milt of the males is exhausted, the females can naturally not produce further young before again being mated. Female fishes are able to produce from 25 to 100 young ones each time and breed every four to six weeks, if the water in the Aquarium has the right temperature. When the water is kept cold, the breeding periods may be separated three or four months, although continuing the year round.

All Live-Bearing fishes, more or less, try to catch and eat their young after birth. It is therefore advisable to guard against this cannibalism by having the Aquarium well supplied with plants, so that the newly born fishes may find ample protection. By

keeping the mother fish imprisoned in a breeding box, the young ones have a chance to slip through and get away from her. Removing the parent fish to another Aquarium until the young ones are a few weeks old, when they are better able to take care of themselves, is another method of protection.

A breeding box is easily made, by taking an extra pane of glass similar in size to the end glass of the Aquarium, set in loosely in such a manner that it forms a "V" shape against the end glass, leaving an opening on the bottom edge wide enough that a match stick may pass through. This extra glass can be fastened with wire or cord at its four corners to the top of the Aquarium, and must not be too far toward the bottom, so that the young fishes, when born, sliding down a slanted surface, go through the opening, and are safe. Ready-made boxes partially of metal, are dangerous, being injurious both to the fishes and to the water. In an Aquarium of this kind, snails will do no harm, as they eat up the food not consumed by the fishes, thereby preventing the water becoming foul. They are of absolute necessity for keeping a live-bearing Aquarium self-sustaining and clear.

Concerning the food, I will say that these fish are easily fed. Finely scraped meat, either raw or boiled, fish, dried or fresh chopped clams, lobsters, shrimp or mussels are welcome food. In the line of artificial material for feeding fish, Gustave Haerle's food (Hamberg) is considered first-class among fish fanciers, and can be bought either pulverized or coarse. Young fish can be fed with the same kind of food as mentioned, but naturally of a finer grade. The yolk of eggs makes an excellent food when used sparingly. All live food, as small Daphnia or Cyclops, are the very best, but hard to procure during winter time.

In our next number we will take up *Xyphophorus Helleri*.



Dave's Top Ten list Of “tips for beginner killifish keepers”

Killifish are an interesting group of fish, one that hobbyists either seem to stay away from, or go completely over the top for. I tend to be somewhere in the middle, which seems a little unusual. So I thought I would give my perspective on keeping killies and give some tips for those that have not yet come over to what some call the “dark side” of the hobby!



Fundulopanchax (Fundulopanchax) sjostedti

I. Tank sizes

The first aspect of keeping killies that makes them very attractive is that most stay small and can be kept in small tanks. There have been many very dedicated killifish hobbyists that do all of their work using a bookcase, or even a closet. Many species only require a 1 to 2 gallon

tank (or any container almost) to be spawned successfully. So for those that get completely taken with the idea of keeping killifish, it is easy to keep so many species since there is not a huge space requirement. I tend to use 2.5 and 5 gallon tanks for pairs, but will use larger tanks to grow out fry.



Aphyosemion australe

2. Get easy species

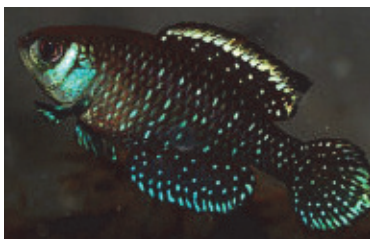
It is good to start off getting a species of killifish that is easy to keep and many of these are also easy to breed. These can also be the ones that are most available. A wise killi keeper once told me that it is important for advanced hobbyists to have these species available to get new hobbyists involved.



Pseudepiplatys annulatus

3. Natural habitat

One fallacy is that killifish are hard to keep and only live a short time. Killifish are actually some of the hardiest fish that are kept by aquarium hobbyists. Of course, there are those that are easier to keep and those that do require very specific conditions. While there is a group called annuals which do tend to live less than a year, there are others that will live for many years.

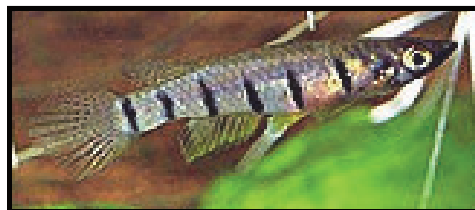


Austrolebias nigripinnis

4. Annuals vs. non annuals

So why are most killifish so hardy? Let's take a quick look at their habitat. Some come from

no more than mud holes that can dry up during the dry season, so their natural life is short, but they do grow and mature very quickly as long as they have a good food source. Others are found in swamps and leaf litter in the forest. While not all killifish come from such harsh environments, those that do are able to survive much worse conditions than hobbyists typically give their fish.



Epiplatys dageti dageti

5. Filtration

A typical aquarium has some sort of filtration and I would recommend this for killifish too; however, I have kept killis for many months at a time in small tanks and jars without any filtration. I do typically put in a small live plant and still do partial water changes regularly, but there has been no other filter added. The killis will survive, and even thrive and breed in these setups, but overall I would still recommend have some type of filtration. A small sponge filter is great for these setups



Epiplatys multitasctus

6. Spawning methods

There are two main spawning techniques used by killifish, plant or mops spawners and peat spawners. There are other methods used too, but most of the killifish we see in the hobby use one of these two methods.



Aphyosemion (Chromaphyosemion) malumbresi

7. Two week spawners vs. longer incubation times

Plant spawners will lay eggs in a plant and typically the eggs hatch in about 2 weeks. A nylon spawning mop may also be used. The mops or plant can be moved to another tank to hatch out the eggs, or you can pick thru the mop for eggs and incubate them separately. You could also remove the parents to another tank and allow the eggs to develop and hatch in the spawning tank. Peat spawners on the other hand tend to require a little more effort. Many of the annuals are peat spawners and will lay their eggs in the mud in nature. Many of these live in areas that dry up during the dry season, but the eggs stay moist in the mud. When the first rains come, the eggs hatch out. In our aquarium, we can reproduce that by “drying” the peat and storing it for a period of time, then add to water and watch the fry appear. This is a very cool thing to see if you have never seen it before.

8. Eggs/fry

I already touched on collecting eggs, but just a few more points. The mop spawners have very hard shelled eggs, you can pick them out of the mops and hold them between your fingers and see how hard they are. Same is true for the peat spawners, but it is really hard to see and find eggs in peat moss. Once the eggs hatch, fry of many species are large enough to eat newly hatched baby brine shrimp. The fry can grow very quickly if fed well and some species can reach adult hood in less than 2 months.

9. Feeding

Another fallacy is that killifish require live food and thus are too much work to keep. While some do require live food, others do not and can be fed with flake food. Some will even spawn feeding only flake food; however, most will need either live food or at least frozen food to successfully spawn. All fish do better with live foods added to their diet. That is what most fish eat in nature; there is no flake food found in lakes and rivers around the world!

10. Killis in a community tank

Lastly, I would like to include killifish as a potential inhabitant for a community tank. Killifish are not “killer” fish and typically are not aggressive. An individual male of many species makes a great addition to a community tank. They add color, interesting behavior and feeding, and can be that unusual fish that many are looking for in a community setting. Since many will do quite well eating the same foods that are typically offered a community tank, they should fare well. Of course, you always need to consider tankmates as with any setup. Temperature, water parameters, and feeding habits always need to be considered, as well as size and overall compatibility of species.

Because of their wonderful colors and all of the other points outlined above, I almost always include killifish in my tanks. It may be just a single male in a community tank, a single species kept in that extra 2 gallon tank or several small tanks full of killis, but I have had killifish now for more than 20 years, and really am just a beginner in the eyes of those that have dedicated their hobby to killifish. Killifish offer a great specialty of the aquarium hobby, but I like so many types of fish which will always include killifish as a part of my overall hobby. Give them a try if you have not yet; see if you can keep just one or two species, or if you turn your entire hobby over to the “dark side!” 



SPECIES PROFILE

Corydoras aeneus, albino



Family: *Callichthyidae*

Common Name: Albino Cory.

Species: *Corydoras aeneus*

Range: Farm raised - USA, Indonesia, Singapore

Habits: Bottom dwelling. Peaceful.

Size: Up to 2 inches.

Water Conditions: pH range 5.8 to 7.0.

Water hardness: KH 2-12

Temperature: 72° - 82°F.

Diet: Omnivore. Considered scavengers, these fishes are often neglected when it comes to feeding. They must be fed in the morning and just after the lights are extinguished at night to ensure optimum health and prepare them for spawning. Will accept a wide variety of meaty and herbivore aquarium fare, including flakes and pellets, especially those specifically designed for corys

Breeding: Breeding the Aeneus Cory Cat is relatively easy if kept in a large enough school to allow the cats to pair off. The water needs to be slightly acidic, and within the ideal temperature range. Sudden decrease in temperature has been shown to spark the Aeneus to spawn. This can be induced by a 20% water change with the added water being a few degrees cooler than the aquarium water. Remove all fry after they have become waterborne and feed with baby brine shrimp.

Remarks: The albino variety is an albino variety of the bronze corydoras that has been developed for the aquarium trade, with a pale pink or orange body and red eyes. It is physically similar to normally-colored individuals, although some breeders report that the fry are a little slower to develop.

The Aeneus Cory Cat requires a well planted aquarium with plenty of hiding places that provide relief from the light. A smooth sand or gravel substrate is needed because of the easily damaged barbels. They enjoy being in numbers, so a small school of six or more is ideal for these cats. 



John Todaro, BAS

From the Brooklyn Aquarium Society's publication

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



Frozen Beef Heart "Supreme"

Here is a simple recipe picked up at a South Jersey Guppy Group Auction. It's designed to help guppy breeders put weight and size on their guppy fry, but is also excellent for any fish or fry that needs a high protein diet.

Depending on how much you blend it, you can produce a chunkier version to feed more mature or bigger fish like Cichlids.

Other than uneaten residue, there should not be any problem with feeding Frozen Beef Heart Supreme to your fish once a week.

Coupled with newly-hatched baby brine shrimp, it's an excellent food that should put size on your guppy fry or any other fish. 

R E C I P E

INGREDIENTS:

- 6 to 7 lbs. of beef heart
- 2 jars strained carrots
- 2 hard-boiled egg yolks
- Enough water to blend

OPTIONAL:

Any other ingredients or supplements you wish to add.

PREPARATION:

1. Remove all fat and sinew from the beef heart.
2. Cut the cleaned beef heart into 1/2" inch cubes.
3. Blend 1 cup of cubed beef heart with 1 1/2 cups of water until syrup consistency. Continue above until all beef heart is blended.
(At this point, you can blend some of the beef heart less for a "chunkier" consistency for larger fish.) Keep this

mixture separate for feeding larger fish.)

4. Strain mixture through a colander, disposing of all remaining fat and sinew.
5. Mix in other ingredients after thinning with water. (You can add any other supplements or ingredients at this time.)
6. Freeze in freezer bags, removing all air in bags and pressing the mixture to about 1/4 inch thick. Lay them on cookie sheets as they freeze to keep them flat.

FEEDING:

To feed, break off enough Beef Heart Supreme to be eaten in 5 to 10 minutes. Before feeding, allow to melt slightly to facilitate breakup. Or you can use a grater to grate the frozen beef heart mixture directly into the tank. This method probably will not work well with "chunkier mixtures."



TheShrimp Farm.com is the place to go for freshwater shrimp. The owner, **Brad Kemp**, has a new address: The Shrimp Farm USA, 11936 West 119th St., #197, Overland Park, KS 66213, U S A 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 Aquarium Shrimp.

Dwarf Shrimp



Red Cherry Shrimp



Crystal Red Shrimp



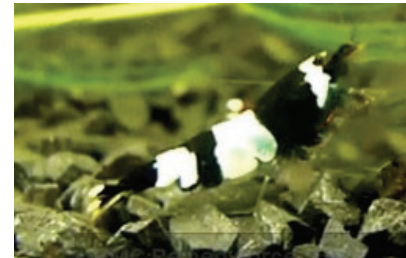
Blue Velvet Shrimp



Orange Sakura Shrimp



Snowball Shrimp



Black King Kong Shrimp

WHY DO STORE BOUGHT DWARF SHRIMP DIE?

I CANNOT COUNT HOW MANY TIMES I HAVE BEEN ASKED A SIMPLE, YET VERY DIFFICULT TO ANSWER QUESTION:

WHY DID MY SHRIMP DIE?

The reason this is a difficult question to answer is that there are many reasons a Dwarf Shrimp may die, but after discussing with the owners of the dead shrimp, there is often a common occurrence. The shrimp were bought at a local fish store or a large chain pet store.

WHY DOES THIS MATTER?

Just looking at the fact that the shrimp were store

bought shouldn't lead to a higher mortality rate, but when looking into it closer, it does make sense. Three of the main reasons that store bought shrimp have a higher mortality rate are many of the shrimp are wild caught, poor holding / shipping conditions and age.

WILD CAUGHT

Many of the shrimp that are sold in stores are wild caught and imported. Every bit of this



Amano Shrimp



Yellow Shrimp



Ghost Shrimp

process is stressful to the shrimp and this alone leads to a higher mortality rate. Wild caught shrimp also have a more difficult time acclimating to captive life and changing water conditions.

POOR HOLDING/SHIPPING CONDITIONS

Many shrimp that are shipped to fish stores are shipped in deplorable conditions with far too many shrimp in a bag and poor water conditions in that bag. Then when the shrimp arrives at the store, more times than not, they are put into water that is not ideal (and sometimes harmful to them) that often contains predators that only add to their stress level.

AGE

It is next to impossible to tell the age of an adult shrimp. Since most shrimp being sold in stores are wild caught adults, there is a good chance

that some of these shrimp are already at the top end of their life expectancy. Older shrimp also have a much harder time adapting to new conditions.

WHAT'S THE SOLUTION?

The best solution is to find a reputable breeder online and order from them. There are a few people that produce very high quality stock at a very reasonable price! 

Brad



Blue Tiger Shrimp



Blue Pearl Shrimp



EDITOR'S NOTE: Dominique Isla was a member of BAS back in the 1990's; unfortunately for the hobby, he passed away in 2008. He was an avid livebearer aquarist and wrote for *Aquatica*.

Reprinted from the June 1991 *Aquatica*.

Dom's Livebearer Corner

Gambusia Species of the U.S.

PART 2

The Genus *Gambusia* was first described by Dr. Felipe Poey in 1854-5. He was a world-famous scientist and naturalist who lived and worked in Cuba; many of his discoveries still stand. The name's origin intent is a Cuban provincial



Gambusia affinis



Mangrove Gambusia
Gambusia rhizophorae

word, gambusino, which means "nothing" with the idea of a joke. Such as "to fish for gambusinos, when you do not catch anything."

To concern ourselves with the present, the two *Gambusias* commonly found in a hobbyist's aquarium are *G. affinis* and *G. holbrooki*. They are both extremely hardy fish that will adopt to almost any water conditions,

will eat anything, but must have plenty of plant cover or the fry will be a snack. Now remember not all livebearers are like that. Many of my tanks are filled with 2 and 3 generations of fish. But these guys are a different story.

The Mangrove Gambusia, *G. rhizophorae* from Mangrove swamps in Dade County, FL., and the Blotched Gambusia, *G. senilis* from two river systems in south Texas are two species that can be collected, or obtained sometimes from A.L.S. (American Livebearer Society) members. These two fish are at extremes in habitat. The first lives



Gambusia holbrooki



Gambusia senilis
Blotched *Gambusia*



G. georgei,
San Marcos *Gambusia*
Extinct: Last seen in 1983



G. amistadensis,
Goodenough *Gambusia*
Extinct: Last seen in the
late 1970's

in brackish water; the second lives in rivers, but both can be treated the same with a quiet 20 gallon long tank with floating water sprite. Feed them bloodworms, glassworms and brine shrimp. They should not bother their fry if well fed and not disturbed.

As for the rest of our *Gambusia* species, only time will tell. Two are extinct: the Goodenough, *Gambusia amistadensis*, and the San Marco Gambusia, *Gambusia georgei*. The other species are being monitored and in some cases being bred and reintroduced into the wild. I have seen color slides of the fish and hope that one day we can see them in our tanks.

Special thanks to everyone at **Dexter National Fish Hatchery**, and also thank you **Dr. Carl Ferraris.** 



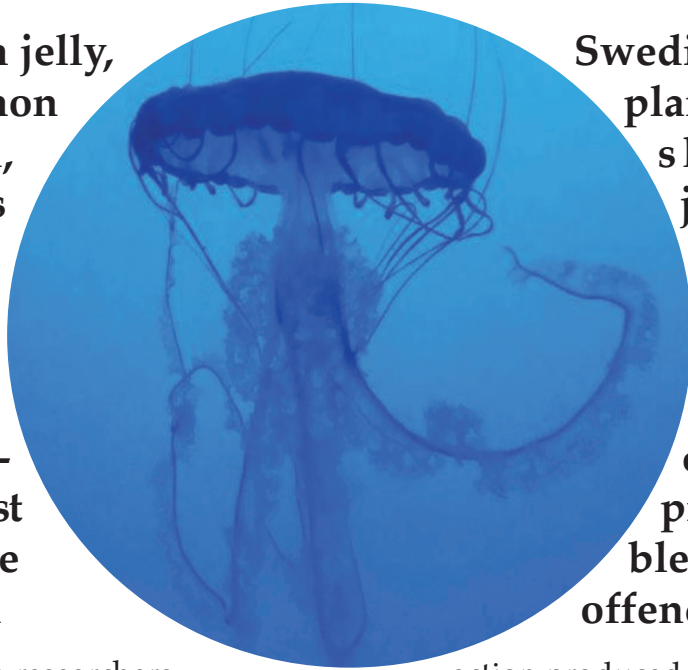
James Gorman

Photo: Ann Todaro

Published: NYT October 7, 2013

Energy-Saving Secret of Jellyfish

The moon jelly, or common jellyfish, is often viewed as a problem, an ecological invader, a nuisance to swimmers, or worse. A moon jelly population explosion last month clogged the water intakes of a



Swedish nuclear power plant, forcing it to shut down. The jellyfish, which can be 2 to 15 inches in diameter, is such a concern that engineers in South Korea designed seagoing, prowling robotic blenders to liquefy the offenders.

But a group of American researchers were interested in another aspect of these highly successful blobs: They may be the most efficient swimmers on the planet. **Brad J. Gemmell** at the Marine Biological Laboratory at Woods Hole in Massachusetts, and several other scientists, analyzed the movement of the jellies as part of a project funded by the Navy to look at what Dr. Gemmell called “nontraditional propulsion.”

The scientists used a new way of calculating energy called “cost of transport” that took account of what was happening throughout the two-phase swimming motion of the jellyfish. In the first phase, the jelly contracts its open bell and pushes water behind it, propelling itself forward. Then, the bell returns to its original shape and fills with water again.

Earlier studies had shown that the jelly got a second thrust during the rest and refill phase, but they had not calculated the jelly’s energy expenditure during that time. It turned out that the jelly was not actually doing any work in that phase. Instead the elastic tissue in the bell acted like a rubber band, re-forming the bell. That

action produced water movement under the jelly, called a vortex, that pushed it forward.

The study found that the secondary push was responsible for about 30 percent of the distance traveled by the jellyfish. And it worked even with anesthetized jellies that were pushed through the water. The recovery phase and its kick were purely mechanical. “That’s what makes them so energy-efficient,” Dr. Gemmell said.

The finding offers some ideas about propulsion that could be useful to the Navy. This kind of low-energy, high efficiency thrust would not power any kind of fast-moving, quick-turning ocean craft, but it might be useful for monitoring devices that need to maintain a position or move at a slower pace.

It also could be one reason, Dr. Gemmell said, why the jelly has so much energy to spend on reproduction, producing those problematic population explosions. 



Exchange Editor's Report



The Exchange Editor's job is reading publications from different clubs and suggesting items of interest to our members.

New Hampshire Aquarium Society, *The Granite-Fisher*, Volume 19, Number 9, November 2010. **Tom Neal** writes a cute piece titled "*My Child's First Aquarium.*" He goes into detail, but the bottom line is how much time Mom and Dad want to spend helping their budding new aquarist. On another note, President **Norman Brandt** mentions that at a recent auction a 125 gallon tank went for \$65. Sound familiar?

North Jersey Aquarium Society, *The Reporter*, October, November, December 2010. **Jim Martini** has a story titled "*The Old Days Remembered*," where he contacted **Chuck Davis** in Florida and they reminisced. Chuck Davis pens another one of his articles in October, "*OK! Let's Show That Fish*" (preparation is the key). In November, he writes "*Tiger Loach*" (he goes into detail about the tiger loach); "*The World's Most Popular Cichlid*" (Oscars in a poll of three major wholesalers of tropical fish), and in December "*Community Aquariums Revisited*." Chuck Davis has another interestingly informative article on *Puntius rhomboocelatus* which was mistaken

for a "rosy barb with different markings." He purchased the fish (3 of them) at a dollar fish sale and brought them to the experts, **Dr. Paul Loiselle, Marc Weiss and Larry Jinks**. All agreed Chuck was correct and the rest is history. Of course, you'll have to read it. Chuck also did his own product test of a Pro-Dechlorinator by Kent Marine of Franklin, Wisconsin. Since he moved to Florida, he has had some problems with water that is added to tanks. He always uses a dechlorinator, but some don't do what he wants them to do. So he did his own product test and was very satisfied with this one.

Diamond State Aquarium Society, *The Gravel Gossip*, Volume 47, No.8, 9 and 10, Sept, Oct, and Nov. 2010, have several articles worth reading. One is by **Bob Berdoulay**, "*The Amateur Hour*," where he goes into detail about a Head and Tail Light Tetra, *Hemigrammus Ocellifer*, a tetra that is native to the southern region of the Amazon basin of South America which he purchased to breed last winter when he decided not to "snowbird" it to Florida. Another tale is by **Walt Wisowaty** titled



"*White Clouds or How Two plus Two Makes Millions*," another breeding story for his outside tank for white clouds. The third is actually a series, one each month called "*Mystery Fish*." Each month someone writes a little mystery about a certain type of fish and in the next issue of the Gossip the mystery is revealed. Very cute.

Missouri Aquarium Society, Inc., *The Darter*, Volume 36, No. 5 Sept/Oct and No. 6 Nov/Dec 2010, **Mike Hellweg** pens a piece on "*Fish-o-nomics 101, How Much is That Guppy in the Window?*" He talks of the price of fish in the hobby, but reminds us all that fish keeping should be just that, a hobby and not a get rich quick thing. He goes into detail, talking about selling at auctions, the web and Craig's List too. Vice President **Kathy Deutsch** writes "*The Kale Trick*," a type of cabbage that she flash-fries and feeds to fish and humans too. Mike also writes "*Fish (and Frogs) do the Strangest Things!!*" This one needs no explanation; just read it. **Ed Millinger** writes his "*From The Fish Room*" and he reminds everyone in the hobby to have fun above all else when fish keeping.

Greater City Aquarium Society-New York, *Modern Aquarium*, Volume XVII, Number 6,7, 8 and 9 , August, September, October and November 2010, has several articles that are worth reading, one of which is "*Live Foods: My Perpetual Daphnia Tank*" by **Joseph Ferdenzi**. He discovered daphnia by

accident. Daphnia are minute freshwater invertebrates and make an excellent live food for aquarium fish. The only problem is that pet shops don't sell them anymore. So if you want it, you'll have to keep it going and going and going. You get the picture. Joe also has an article "*How Not to Breed Corydoras sterbai*." Very nicely done.

Alexander A. Priest also writes "*The Cave Secret or Spawning Mouthbrooding Bettas*." He also writes "*When Three's Not a Crowd*," on introducing an additional fish to induce spawning behavior in Betta species. An "erotic" sounding tale nonetheless. Alex's wife **Susan** has a funny column titled "*You Know You're an Extreme Aquarist When...*" "*Breeding a Little Mistake*" by **Jules Birnbaum** is a story of when he was a winning bidder on Aquabid for 6 *Scleromystax kronei* catfish. He was sent 12 by mistake and after a year of growth they were actually *Aspidoras albater*. These are a different type of catfish that come from the lower Amazon in Brazil. Maybe a mistake, but Jules is ecstatic about it. It's always nice to read **Steve Sica's** "*Fish Bytes*" column, especially when he thanks me for mentioning the articles from his publication. What a nice guy to deal with and talk about. I look forward to more of the same in the future.

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

Stu

NOTE:

Any of these articles can be ordered hard copies from Stu at a cost of 25 cents per page and the cost of postage, or you can contact Stu at:

stublu36@yahoo.com

and arrange to get copies of articles emailed to you at no cost, or see him at one of our meeting to discuss what you're interested in reading.



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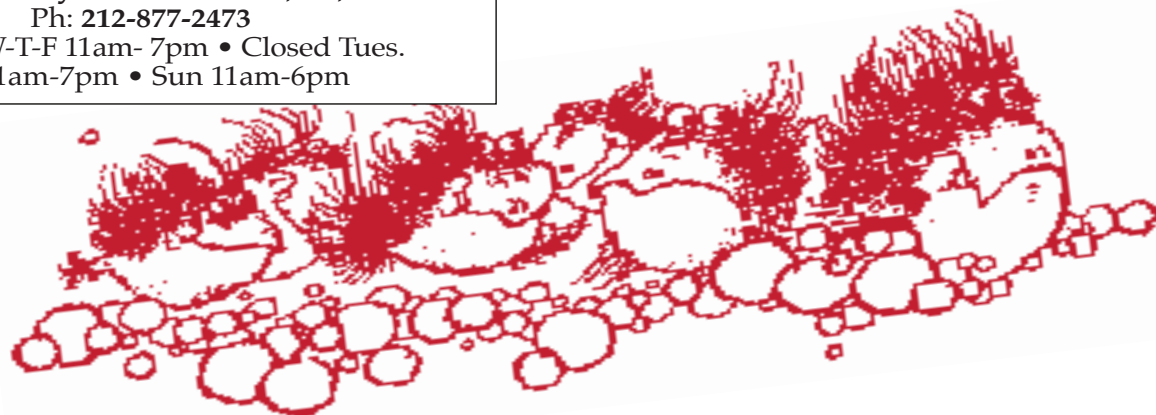
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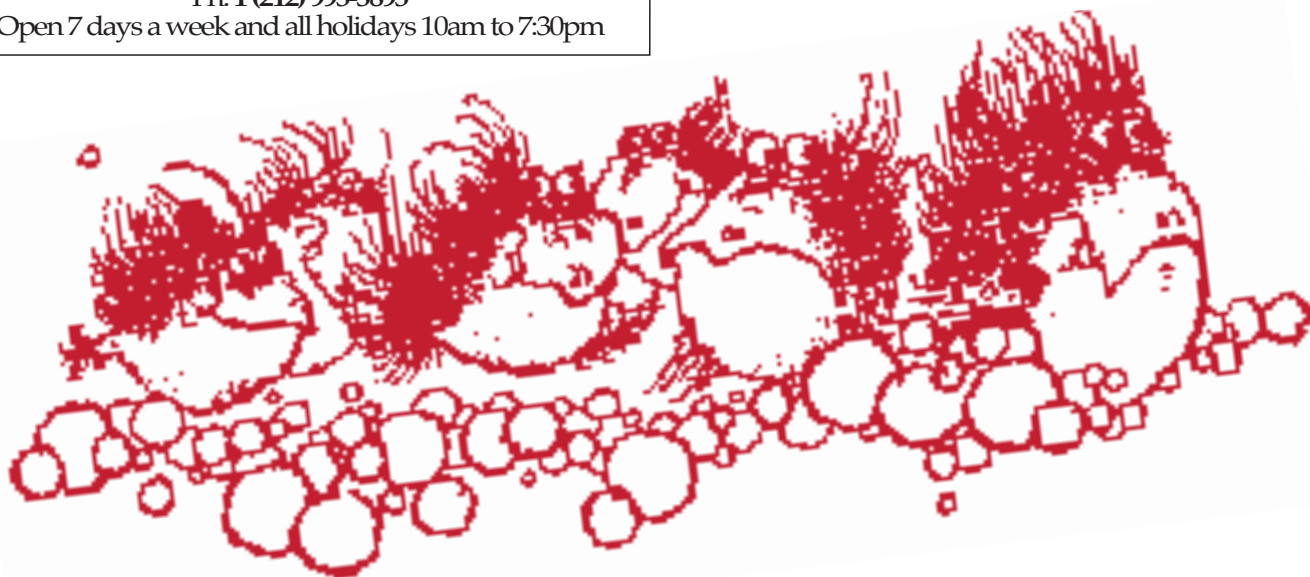
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4 _____ 5 _____ 6 _____

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