



# THE FILTER



*Betta splendens*  
Halfmoon  
Plakat "Nemo Koi"

July 2019  
Volume 28 Issue 12



# TAMPA BAY AQUARIUM SOCIETY

## “THE FILTER”

Tampa/St. Pete, Florida

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Ok folks . . . I decided to do another “oldie” month!! So, here we go . . . but let’s start with some photos . . . ☺ ☺!!! All articles are at least 12-15 years old - maybe more.



*Fundulopanchax amieti* - Amiet's Lyretail Killifish



*Tetraodon lineatus*

**Fahaka Puffers**

Photo by Mike Jacobs 2019

*Mike*

Mike Jacobs, Editor TBAS Filter

by  
Missina  
Burcaw

# Raising Betta Fry



Betta fry are among the hardest fry to raise. Many people are fooled by how easily the male and female spawn and then think that all you have to do with the fry is feed them BBS (baby brine shrimp) and that's all. In truth, keeping Betta fry alive long enough to get them past the first two weeks of life is very hard. There are many ways to keep the fry alive. However, I am going to tell you about what I do to keep them alive.

The male Betta makes his nest under half of a styrofoam cup that is taped at the six-inch water line. There are plastic or live plants in the tank and a sponge filter that has not yet been turned on. After the pair has spawned you will need to take the female Betta out of the tank, or the male might kill her. The male will stay in the fry tank, which should be between five and ten gallons in size. The top of the fry tank should be tightly covered. I use Saran wrap and plastic taped to the top of the tank, but not taped at the front. I like to use java moss in the fry tank because it allows them to hide. Depending upon the temperature of the water (it is best at 78-86 degrees F) the eggs will hatch between 24 and 48 hours after being laid. When the fry first hatch they will hang their tails down out of the bubble nest and tend to fall out of the nest all the time. The male will put any of the eggs or fry that fall out of the nest back into it. The male can not eat during this time. By the 2nd or 3rd day, the fry will begin to free swim and the male will need to be taken out of the tank. The fry seem to get smaller at this stage because their yolk sacks are being absorbed. Now you can begin to feed infusoria. You can culture infusoria by taking old tank water and putting it into a jar with soft lettuce. If you begin the infusoria before the pair spawn it should be ready by the time the fry are fry swimming. To harvest the infusoria, take a light and shine it to one spot of the jar for about 3 minutes, then take an eye dropper and suck up the water were the light was. Some breeders like to put liquid fry into the tank for the infusoria to eat. When the fry are about 4 days old they can begin to feed on microworms and newly hatched brine shrimp. It is best to feed them 2 or more times a day. Usually some of the fry won't make it past this stage, but the hardier ones will continue to eat and grow.

When the fry are about one month old, they will stop dying off and will begin to show colors like red, blue and black. Other colors like yellow and marble

do not show till the fry are older. The fry should be around  $\frac{1}{4}$  - inch long or larger. There will also be smaller fry but they may just be late bloomers and they often turn out to be the best. However; the larger fry may begin to kill them off. The fry also begin to "play" fight, but this is not a problem and they should be left together. At two months, you know how many fry you will get from the spawn. Most of the time, if there were 50 eggs you will get 25 fry, and if there were 100 eggs then you end up with about 50 fry, so about half of the original number of eggs will become full-grown Bettas. The fry should be eating and growing fast now, but it is still hard to tell males from females. Sometimes the males anal fin will be longer and come to a sharp point. Now is the best time to take newly dropped guppy fry and put them in with the Betta fry. This way the guppy fry can teach the Bettas how to eat dried foods like blood worms and tubifex worms.

By the time the fry are 3 months old you can begin to tell who is going to be male or female. The males will be larger and have longer fins while the females have shorter fins and, in light colored females, you can begin to see eggs form in the middle of their bodies. Jarring will also begin now. It is best to use 2-liter to 1-gallon size jars for the males and to just let the females stay in the tank together. They should also be fed freeze-dried blood worms in the morning and live foods in the evening.

As the fry turn 4 months old, a large amount of fin growth begins. The females are now larger and full of eggs, and the males are making large bubble nests and flaring. It is best to do water changes in 2-liter jars every 2-3 days and every 3-4 days in the 1-gallon jars. It is a good idea to put cards between the males' jars and for 2 hours every day, remove the cards and let them flare/display to each other. Also, if you have not done this by now, it is time to cull the runts, the deformed or any Betta that just does not look right. You need to check for missing pelvic fins and curves in the spine, and also look for bends in the fin rays. Now that the fry are old enough to spawn, you will need to go through it all over again. But now you know what to do and hopefully you will get better and better at raising fry.

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The logo for Aqua Research Center features the text "Aqua Research Center" in a stylized, glowing cyan font with a white outline, set against a black background. The word "Aqua" is larger and more prominent than "Research Center".

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by Joe Gargas

Ph: (813)645-1717

“ I t a u t I t a w
by  
Jim  
a p u d d y t a t ! ! ”
Greenwald

I brought home an unusual catfish from the store the other day and put him into my quarantine tank. Since this was the first catfish that I had acquired in some time I decided to set up the quarantine tank with numerous caves so that the catfish would feel at home and also so that I could observe him by putting the caves all facing out.

The fish I got was *Platydoras costatus*, the Striped Raphael Catfish. He was around three inches long and about an inch and a half wide. Striped Raphael catfish have been in the hobby for a long time and this was not the first time I had one.

*Platydoras costatus* comes from South America and is widespread in rivers from Peru to Brazil. It is in the catfish family *Doradidae*, the Talking Catfish. When I first got the talking catfish I discovered that they do indeed make a squeaking sound when removed from the water. This seemed to go along with the movement of the pectoral fins. It was only later on that that I found out that the sound was coming from the movement of the pectoral fins. I also found out that the amount of strength in those pectoral fins was enough to hold on to a finger for an extremely painful time. I demonstrated that trait to friends with a pencil after that.

Feeding the Rafael is easy as it will eat anything. It prefers snails, insect larvae and definitely tubifex worms. If you have a snail problem, this is definitely the fish to take care of it



This black talking catfish has a white stripe across its lateral line, down its back and on a line from the mouth to the outer edges of the pectoral fins. This distinctive and striking pattern makes it popular among fishkeepers seeking an oddity for the community aquarium. Like most catfishes, *Platydoras costatus* is extremely nocturnal.

The females are larger than males, but since you generally will only have one of these cats that is not important to the general fishkeeper. What is important is that the Rafael Catfish can be extremely territorial towards its own kind and is likely to dispute ownership of caves, nooks and crannies with other nocturnal catfishes. However, it is not over aggressive and will do little more than outspread its pectoral and dorsal fin spines and this is only dangerous when directed at scaleless fishes disputing territory. I might add that the spines can be hazardous to your hands, so be careful.

So after the mandatory three weeks in the quarantine tank where I fed and fattened up this little armored catfish for entrance into the cold hard world of many more cats and many big cichlids, he made his grand entrance. He promptly headed into the rock grottos that make up my 240 gallon aquarium and I didn't see him again.

About three months ago while I was up late at night, raiding the refrigerator, I happened to spot Rafael foraging around the tank. It had been so long that I forgot that I even had him. So out of the corner of my eye "I taut I saw a taw a puddy tat". That drew me to the aquarium and I spent about an hour just watching the tank in the dark.



The cichlids were all drifting mid water fast asleep and the catfish were out. It was an exciting night to be alive.



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# Breeding Angelfish is Easy

by  
Joe  
Mason

Angel fish are among the most beautiful and graceful of all aquarium fish. A lot of hoopla surrounds the breeding of these fish. Most are old wives tales that don't apply to today's commercially available angels. There are countless color combinations, fin forms, and of course pearl scale.

I belong to the KISS school of breeding. Simply put "Keep It Simple Stupid." These methods will work with most substrate spawners with slight variations. This is meant to work for commercially available angels. Wild or wild cross angels will require more precision with water and other parameters.

I plan to take you through all the steps from selecting breeders to spawning and raising the fry. My way is not the only way just the way that has served me well for too many years to mention. Suffice to say my first spawn of angels occurred when I was a kid. I am now called grandpa.

Generally there are three approaches to selecting your brood stock. The first is buying 6 to 12 nickel to quarter size fish and pampering them in a 29 to 55 gallon tank for the next 6 to 9 months. Make as many water changes as you are able to make. Daily is great but weekly will work also. A varied diet of high protein dry foods; a variety of frozen brine shrimp, beef heart, mosquito larvae. As many live foods as possible.

The second way is to pick medium angels 50 cent to silver dollar size and condition them in the same manner as the smalls. The time frame will be shorter more like 3 to 6 months. With these sizes they will have enough time to adjust to your water conditions and with properly conditioned water you will not be able to stop them from spawning.

The last way is the most expensive and risky. When buying a pair of angels the first thing you must agree on is price. Depending on color, finnage and genetics you may pay as much as \$300 for a pair. These are usually Koi, Albinos, Blush, or new color forms. The more popular and more available colors generally sell for \$50 to \$150 a pair.

If you are buying a pair you first must know whether they are proven (do they produce viable fry). They may spawn (lay) 100's of eggs but none hatch. If this is the problem you may have two females or the male is sterile. Sterility is a

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common problem with albino and golden forms.

Once you have a proven pair, they now must adjust to you're your water and conditions. Some never do. This is especially true if you purchase a pair from a Hi-Tech hatchery that will brag to you about how sterile and disease free their hatchery is. That is precisely the problem. They are raised in such a sterile environment they are unable to withstand a normal bacterial load in our home tanks.

Be especially careful of wild crosses. They are very difficult compared to normal commercial angels. Buy your angels from a friend, fellow club member, or a pet store that you trust. Be very careful about purchasing sight unseen. On the internet you have little control over what you will get unless you know who you, are buying from. In choosing future broodstock they must be healthy, feed aggressively, be vibrant colored, and free from genetic problems such as incomplete gill covers, bent or misshapen fins. They must have round bodies not oval shaped and watch for high bodies.

Bent or misshapen fins can be attributed to ammonia and overcrowding during the grow-out period. The fish will not pass these problems on but they do not look good. Let someone else show them in their tank. The body must be round. This is hard to explain but when you see it you will know it. Elongated, oval shaped bodies usually means that the fish were not raised properly. Watch for "Hi-Body" angels. It seems the Asian breeders failed with Hi-Body discus that could not sell here so they are now attempting to sell us Hi-Body angels and they are ugly.

The conditioning tank for breeders should be well filtered especially biologically. I use an under gravel filter on half the bottom and a sponge filter rated for 20 to 30 gallon tanks. The sponge filter is then used later for fry.

Your potential breeder will begin to lower their tubes long before the first spawn. When you first see this you have plenty of time. Place a spawning medium against each end of the tank. The medium can be slate 2.5 to 3 inches wide and 12 to 18 inches long; PVC pipe is OK, gray is better than white; tile cut in 3 inch width 12 inches long the darker the better, black or dark gray is best. Place the medium against the side of the tank at a slight angle.

It is now time to lessen the amount of flake food and increase beef heart, adult brine shrimp and live tubifex or black worms. I know you are not supposed to feed tubifex because they are bad but they also happen to be one of the absolute best conditioning food I know of. If your fish are as healthy as they should be they will handle the tubifex. You can do without the worms, but the worms will speed things up and increase the size of the spawn. Rinse them well and you will be OK.

You will now see the aggression levels rise dramatically with chasing, lip

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locking, and just general hell raising. Soon a pair will begin to focus on one of the slates you will want to section off the pair or remove the other fish from the tank. I prefer to section off the pair so that they learn how to defend the eggs from someone. Don't remove the pair from the tank. This will disrupt their rhythm and they may take forever to get it back and maybe never get it back.

A day or so or sometimes only hours before the pair will begin to clean the slate in preparation for the spawning. If they begin to clean the silicone seam in the corner, they have not read the book on spawning angels and you can't tell them where to have sex anyway. Either way it is not important. You want them to do it their way the first time. They have a lot to learn. Never interrupt or stop the first spawn. Sometimes if you pull the first spawn it may be weeks or even months before they even try again. Let them have fun.

About 2 to 3 days after they have completed the first spawn it is time to give your new pair their own tank. A 10, 15, or 20 gallon high will provide good height and enough room for angels to spawn. 10 gallon is minimum. Their new tank should be bare except for a sponge filter rated for the next larger tank size. For example as 10 gallon tank should have a 20 gallon filter. A slate for spawning should be placed on an angle against the side. The only other thing I might suggest is floating plants such as water sprite. It will help sweeten the water and also give the pair a sense of security. Raise the temperature of the water to 82 to 84 degrees. The pair should be fed twice a day with a mix of dry food with Vitamin C added, live and frozen food. Water changes should be made twice a week at 25% to 30%. More often is better but if you go to daily water changes try to stay closer to 10% changes. I personally do the once a week sometimes twice a week at about 30%. Your new pair should spawn in 7 to 21 days from their first spawning date and will usually stay on a similar cycle from then on.

We are ready for the second spawn and now we are going to get rich. HA!  
HA!

When you see your new pair cleaning the spawning slate don't do anything but observe. It may still be a day or so before they will actually spawn and they will usually spawn in. mid to late afternoon.

Prepare a round gallon jug or 2 1/2 or 5 gallon tank filled with the same water as the pairs tank. Aerate with a tube weighted with lead plant weights. NO AIR STONE. A round jug is better as there are no dead spots. All the water keeps moving. Once the eggs are laid give the pair about an hour to continue caring for the eggs to make sure that they are finished. At this point you can remove the slate to your hatching tank. Place the slate with the eggs facing down and near the air supply not allowing the air to touch the eggs. Add Copper Sulphate to the water 1 drop per gallon of water. This will help slow down the fungusing of

the eggs. Methylene Blue is usually recommended, but I find it stains everything (including fingers, the new golf shirt she got me for my birthday) and you have to use so much that it is no good for the fry. It tends to kill them without substantial water changes. It is rare to have no fungused eggs so don't worry if you see some. When the eggs turn white remove them. A toothpick does well for this process. When you and your new pair of angels get good at this you will be down to a dozen or less fungused eggs per spawn. Don't give up, the team will get better.

The eggs will hatch in about 60 hours depending on temperature. They will begin to quiver just shortly before the hatch. White eggs do not hatch give it up. Once all the eggs hatch you will have a choice to make. The experts disagree on this next step. I feel it is a judgment call based on circumstances. If you have a large amount of white and fungused eggs you need to shake the slate so the good eggs will fall off.. Don't hit the slate on the side or bottom off your glass tank or you'll have your new spawn with the water all over the floor. If there are very few or no fungused eggs leave them on the upside down slate. They will fall off naturally. Once all the good eggs are off the slate remove it and clean it "NO SOAP" Your fry will hang out or rest on the bottom for the next five days absorbing their yolk sac. Remember that extra mature sponge filter in the breeder grow out tank? Go get it. You now want to place it attached to the air tube in your fry tank. They will eat from it.

On the morning of the fifth day from hatching you need to start your brine shrimp hatchery. Near the end of the fifth day your new angels should all begin to swim in a small tight swarm. Once they are all up they are ready to eat. I prefer to wait until the next morning to begin feeding. Besides, they have that mature sponge to nibble on. The next morning you will begin feeding your baby brine to the young fry 5 or 6 times a day, maybe 4, 3 is OK, no less than 2. Baby brine is a terrific food but you must not over feed as it is deadly on angel fry. It will cause velvet outbreaks and ammonia spikes. Feed carefully. You must do daily water changes. Drain from the bottom of the tank to remove dead brine and feces.

Brine shrimp only have nutritional value to your fry from the time they hatch, which usually starts at 18 hours to about 30 hours, so you must have a fresh daily supply. You will continue feeding live baby brine until your fish are nickel to dime size at which time you can begin to wean them to other foods.

At about 10 to 14 days your fry need to be moved to larger quarters. I prefer 30 Low but 20 Long are fine. The tank should have a bare bottom with two mature sponge filters rated for 20 gal each. When it comes to biological filtration more is always better. When you determine you are ready to call the Mayflower fish mover your fish need to fast for at least 12 hrs. Full stomachs on the move will kill some of your fish. A 20 Long can handle 150 to 200 fry. A 30 Low can

handle 250 to 300. It is always good to err on the low side of these numbers never more. Once the move is made you must continue your feeding program 5 or 6 times a day right? Daily water changes must continue still about 20 to 30% is right. Remember drain the water from the bottom. In my fish room 1 use a 60 watt light bulb over my brine shrimp hatchets for better hatching percentage. My fry tanks are nearby this light and it has an unexpected benefit. It tends to keep the fry from resting on the dirty bottom of the grow-out tanks at night.

At about 4 weeks old the fry will begin to look like angel fish and begin to be crowded. It is now time for yet another move. Now is the time you need to understand what you plan to do with our fish because you are going to need a lot of tank space to continue putting size on the little buggers. Oversized filtration is still the order of the day. You are not looking for violent water movement but good biological filtration. Oversized sponge filter partial underground filtration with 2 inches of gravel on top of the UG plate is good.

Depending on your plans for your fish you now need to begin culling of your fry in conjunction with this move. An ideal size tank for culling is the little 1 to 3 gal plastic tanks. What you will do now is remove about 1/2 dozen fish from their current home and place them in the small plastic tank. Any fish that is deformed in anyway goes in the garbage pail. Deformities can range from bent fins, bent spinal, incomplete gill plates, missing plates, fish that are much smaller than the rest, not a little smaller because these tend to be females but drastically smaller. You will be placing your fry in 20 L, 30 L, 40 L or 55 gal tanks for their continued grow out. This is also a good time to separate colors and fin types for example standard vs. veil vs. super veil. The larger the fins the slower the growth because it is harder for the veils to fight for the food. Slower growth is seen in black angels of the older strains. Some of the more modern strains do not have this problem.....cull accordingly.

The fry should be but in their tanks in amounts of 3 to 4 fish per gallon: 4 for standards, 3 for veils. . At nickel or dime size you should begin to feed flake and frozen food. By eight weeks all should be large enough to sell. Daily water changes are nice but they are no longer necessary. If you have chosen to sell your fish to shops, don't give them away. Charge a fair price, usually 1/3 of retail prices. Silvers are least expensive with Koi, Black and Albino more expensive.

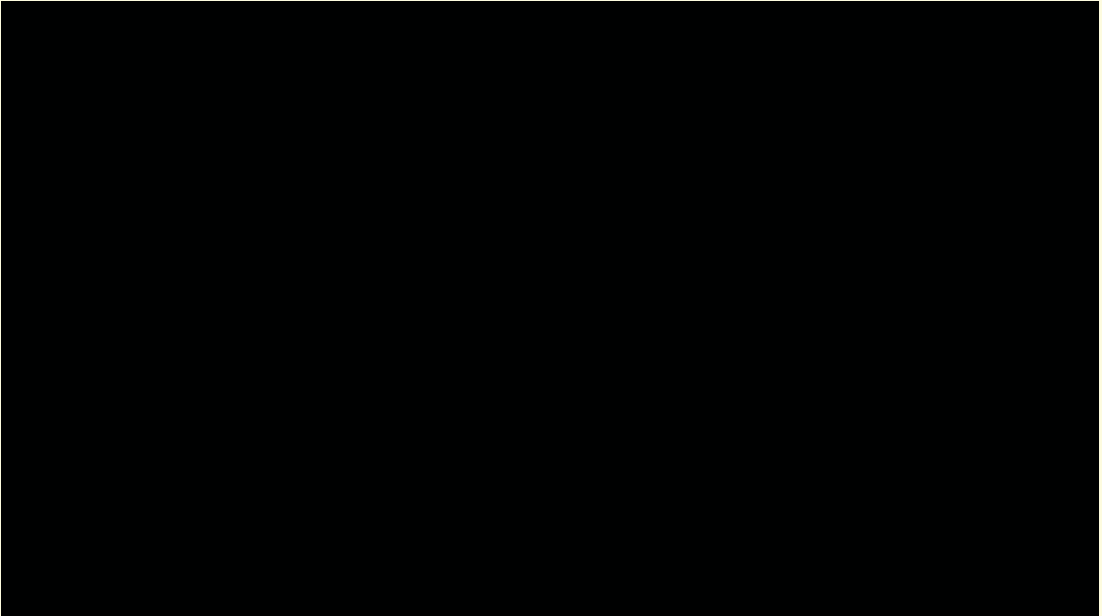
Good luck, enjoy your angels and when you buy your first corporate jet I want a ride because it all started here.

# MEMBERSHIP DUES!!!!

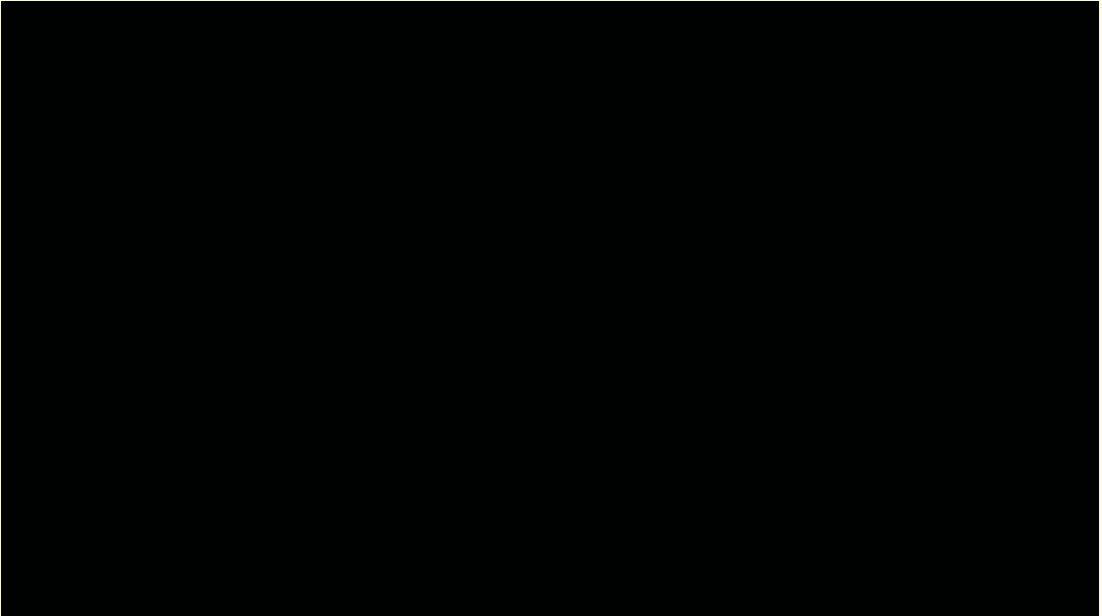


**Membership Dues for TBAS are due on the anniversary of your sign-up date every year. Please make sure you check the “sign-in” list on the table at every meeting to check your “Dues-Date” . . . Thanks!!!**

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to See Video



# THE BEST KOI ANGELFISH IN THE UNIVERSE

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As I sit at my computer trying to think of something to write about I think back on the last several weeks at work. Everything seems to go wrong at the same time. Two tanks sprang leaks. One was a cracked input pipe, the other was a bad seal. Another tank dumped 40 gallons of saltwater on the floor in the

middle of the night because the floating thermometer got stuck in the overflow pipe and caused backup. Still another tank refused to clear and had animals dying in it. This was a case of over cleaning. The bacterial bed was never allowed to grow. However, the worst tank was the one that sat for 5 months unplugged with water in it. I was called out because the canister was stripped and had to be replaced so they could restart the tank. They drained the tank before I got there, but neglected to drain the canister. What an odor! I suggested they run bleach through the system for 24 hours before restarting the tank. In case you haven't guessed I do on-call work for commercial tanks, everything from training personnel to complete re-plumbing. Troubleshooting a tank is usually 50% equipment and 50% personnel.

Sometimes even the best of us will have a problem that we can't seem to solve, so never give up. Talk to others who have experience with tanks. Sometimes it is something you didn't think of. For example, when dealing with tanks in offices there are problems that don't usually happen at home like excess heat due to turning off the air-conditioning on the weekends, especially with computer controlled units in large office buildings. In one case the cleaning crew that came in on Saturday was throwing handful of food into the tank thinking the poor fish were not eating the whole weekend. Every Monday the tank was cloudy and sometimes there were dead fish. This can be expensive in a saltwater tank. Of course the number one problem is that people who know nothing about tanks are usually given charge of feeding them. Just when I get them trained they go on vacation or leave and I have to start all over again.

When trouble happens in a home there can be other problems. There was the case of a 20 gallon tank that was not overstocked and wasn't overfed and had dual filter systems on the tank, yet we could not seem to solve an ammonia problem. I finally went to the lady's house and looked in the tank. Everything seemed in order. I asked her about spraying air freshener or bug spray and found that she sprayed air freshener into the intake of her central air-conditioner. There

was an output vent directly above the tank. As soon as she stopped spraying in the intake, the problem was solved. In another case a ten gallon hex tank had an ammonia problem that wouldn't go away even after four months. I asked about the filter system and it seemed to be adequate. I finally stopped by to take a look at it and discovered that there were 4 inches of gravel in the under gravel filter and there was a large carbon cartridge attached to the top of the lift tube which was blocking the flow of air coming out. The water was not circulating. We solved the problem by putting on a bigger pump and adding an air stone to the tank.

The next time you have problems unrelated to fish disease, you should consider other things that might affect your tank indirectly. I am sure glad that this month is almost over. Until next month keep your fish happy and healthy.

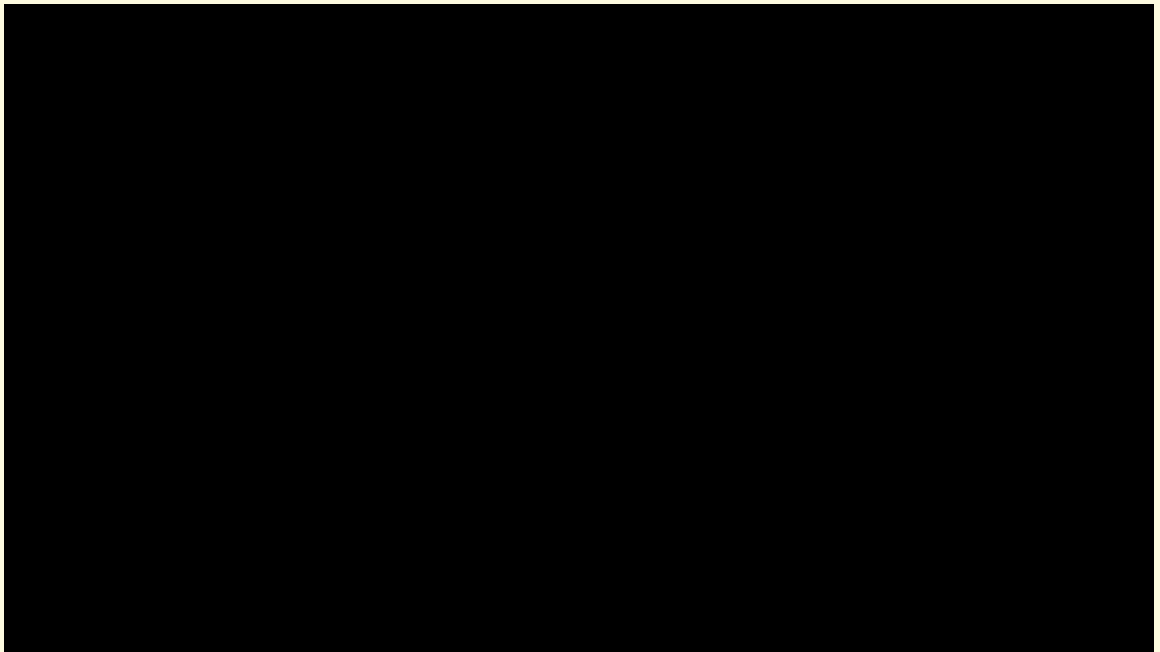
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# Albino Corys Spawning Video

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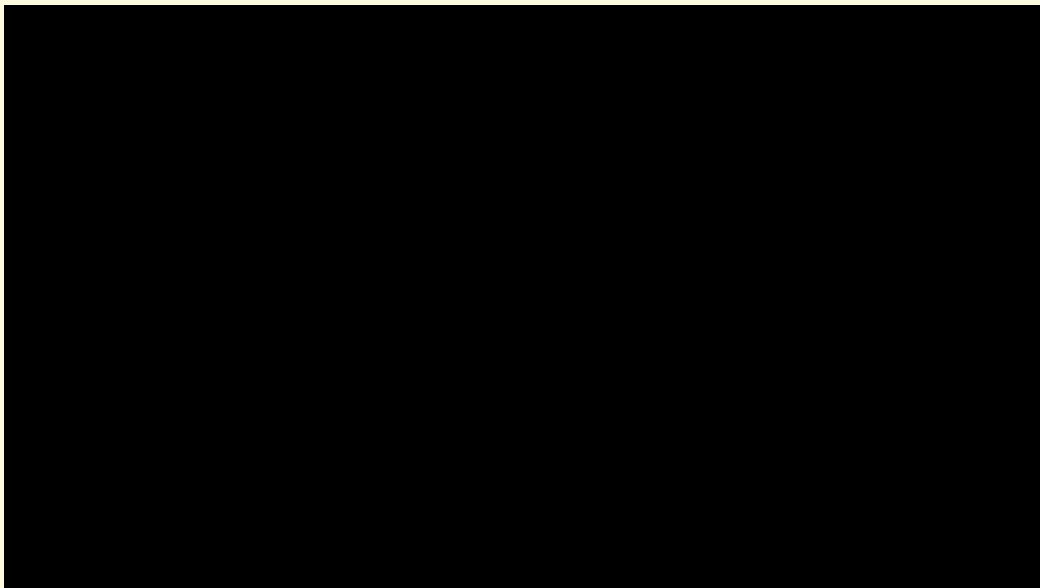




# Angelfish & Eggs



Angelfish & Eggs Video [Click on the](#)  [to See Video](#)





***Danio tinwini* . . . Gold Ring Danio**

photo: Mike Jacobs 2019

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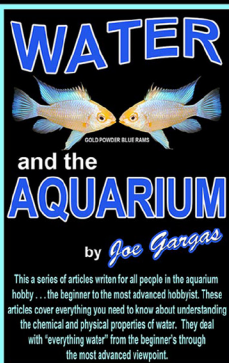


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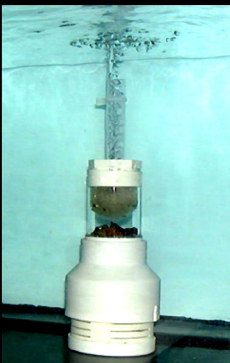


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