

THE FILTER

October 2020
Volume 30 Issue 2



Gold Marble Angels
Pterophyllum scalare



TBAS . . . Since 1992

Photo Mike Jacobs . . . 2016



TAMPA BAY AQUARIUM SOCIETY

“THE FILTER”

Tampa/St. Pete, Florida

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Well . . . we are into October and still our meeting place is Locked-Down by the county. Maybe November will loosen up the doors . . . maybe December and we can have a REAL PARTY . . . big time food and everyting!!!

We now have a NEW BOD elected by you folks!!! The only really new one is Joe Naldony!! Welcome Joe!! **The NEW TBAS President is Dharmesh Patel** . . . thanks for taking over again, Dharmesh!!!

This month we thank Seve Rybicki (AngelsPlus.com) for volunteering a GREAT angelfish article!!! And, of course, Joe Gargas does it again with one of his famous articles!!!

OK, folks . . . take care of yourself and your family!!! This **COVID-19** stuff is **REALLY** beginning to STINK!!!!

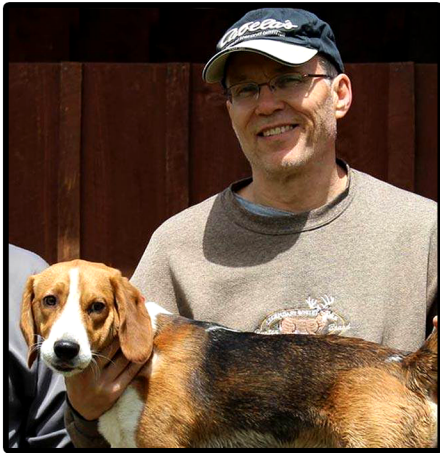


Mike

Mike Jacobs, Editor TBAS Filter

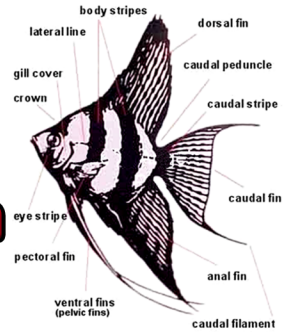
Piaractus Brachypomus
Ped Belly Pacu

Photo by Mike Jacobs 2014



General Care of Angelfish

by Steve Rybicki
<https://angelsplus.com>



Aquarium Size: The actual aquarium size is relatively unimportant. However, the number of angelfish per gallon is critical. This figure varies depending on several factors. Size has a lot to do with carrying capacity. Other variables that affect this include, pH, temperature, feeding practices, water changing volume, water changing frequency, strain of angelfish being kept and the overall quality of angelfish you desire to raise or maintain. Keep in mind, the number of angelfish per gallon a tank can handle, will vary immensely from one situation to another.

The following would be a very general guideline.

- Nickel size bodies 1 angelfish per gallon
- Quarter size bodies 1 angelfish per 2 gallons
- Silver dollar size bodies 1 angelfish per 3 gallons
- Stock ready to be paired 1 angelfish per 5 gallons
- Full grown breeding pair 20 gallon tall

Aquarium Filter: Good biological filtration can be easily obtained several ways. Angelfish body shapes are not designed for efficient swimming, therefore gentle aquarium filtration is preferred. Lots of water movement will stress them somewhat and cause slower growth due to the increased energy expended to swim against a current. Angels Plus Sponge filters are ideal for fish hatchery situations, where expense is a concern. In show tanks, undergravel filters works well. In a densely populated tank, a whole-tank filter is a very effective option. A very effective secondary filter that will not clog is a fluidized bed filter. In general, the limiting factor for angelfish carrying capacity is not biological filtration. It is dissolved organics and high bacterial loads that develop from keeping too many fish in a tank, overfeeding or changing too little water. Large, frequent water changes are the easiest way to lower these dissolved organic and bacterial levels. Sophisticated systems will sometimes incorporate the use of ozone, foam fractionation and U.V. filters to accomplish the lowering of these organic and bacterial loads, but most

of us will rely upon water changes to accomplish this important facet of angelfish care.

Aquarium Temperature: Angelfish have a tolerance to a wide range of aquarium temperatures, but immune system response is best at higher temperatures. Therefore, if your fish husbandry is less than ideal, you will have more problems at lower temperatures. 80° F is a good start for a hatchery situation. Mid to upper seventies is fine for show tanks. As a cold blooded animal, angelfish will live longer at lower temps. Higher temperatures will promote faster growth, more frequent breeding, better immune system response and shorter life spans.

Feeding Angelfish: Feeding is more of an art, than a science. No one can tell you exactly how much food to put in an aquarium. The ideal amount will change everyday as the angelfish grow, and will be different with varying temperature, pH, maintenance schedules and frequency of feedings. Good observation is the key. Overfeeding angelfish is worse than underfeeding. Feed a variety of high quality foods and observe the aquarium and the angelfish closely when feeding. Angelfish Fry - For the first 3 weeks of their life you will find it difficult to raise any number of high quality angelfish with anything other than live foods such as live baby brine shrimp. We feed these exclusively for the first 4-5 weeks. Check this link for more details on hatching brine shrimp eggs. Introduction of a new fish food usually requires that it be introduced gradually. Angelfish should be voracious eaters when they are healthy and properly fed.

Culling Angelfish: Angelfish are an ornamental fish that have acquired many problems from improper breeding over the years. It is important to cull any juvenile angelfish that are not ideal. Degradation of your angelfish strains will happen very quickly without a vigorous program of eliminating flawed angelfish. It is equally important to not keep any spawns from imperfect adults. As exciting as raising young angelfish can be, it is a great disservice to the species and the hobby to perpetuate the genes of lower quality angelfish.

Angelfish Quarantine: Angelfish are affected by viruses, bacteria and parasites, that sometimes have little or no effect on fish other than a few South American cichlids. However, with angelfish some of these can cause death within a day or two. Others will simply cause nagging problems that never cease. The only good way to prevent the introduction of these problems is to properly quarantine every fish, plant or other aquatic animal that was obtained from any other source. A single micro-droplet of water from an aquarium containing a disease, can infect a healthy aquarium, so the quarantine tank should be in a separate room and preferably in a different building, with its own net, siphon, water bucket, etc. When the quarantined fish look healthy after a few weeks, you will then have to test for hidden diseases that the quarantined fish may be resistant to. The best way to test for this is with a microscope. If you don't have access to one, then next best is to introduce one dispensable fish from a healthy tank into the quarantine tank and

wait a couple weeks to see if the introduced fish gets sick. If it doesn't, then there is a fairly good chance that the quarantined fish are safe for introduction to your regular tanks.

Angelfish Disease

The following are the diseases that most commonly infect angelfish.

Angelfish Virus: A Potentially deadly disease. It is highly infectious. All exposed angelfish that are not immune will come down with symptoms within 2-3 days of exposure, usually quicker. If you suspect that a quarantined fish has this, you should destroy the fish. The risk is too great to keep such a fish around. There is no medication for this virus. The fish's immune system must be relied upon for the cure. Symptoms: Clamped fins, excess slime, listless with nose pointed up slightly, usually towards the back of the aquarium. It has an approximately 3 week infectious period. This disease is so undesirable, because if an angelfish survives the virus, it will likely become a carrier for up to six months. This can put an angelfish breeding operation out of business very quickly. These symptoms can also be caused by other infectious diseases which may be secondary or tertiary infections, that are unrelated to the virus. The object is to keep the angelfish comfortable while giving the immune system time to kick in. Remove any bright lights from the aquarium and treat with an antibiotic to prevent secondary infections.

Flagellates: Protozoans such as these cause persistent trouble in situations where angelfish are stressed. Hexamita is a very prevalent one. It is thought to be present in all angelfish, at least in small numbers, and an outbreak is what you're trying to prevent. It appears to explode in numbers if the fish are too crowded, overfed or being overly stressed by some other situation in the aquarium. Stressing your angelfish, is what you need to avoid. Symptoms: If the angelfish is still eating, they will pass a white, chalky feces. Appetite will decrease. No external symptoms will appear on the angelfish. They are prone to secondary infections of bacteria and other parasites when in this weakened condition. To cure, relieve stress and then raise the tank temperature to 95° F for 7-10 days and medicate with metronidazole, or a medicated food that contains it.

Angelfish Parasites: The ones that cause the biggest problems with angelfish are a nematode known as Capillaria, and gill flukes. Many others can be present, but these two are the most common. The only way to positively identify a parasite, is to have a microscope and the know-how to examine gill samples, skin scraping, and fecal samples. This is beyond the average aquarist, so I generally recommend a heat treatment to help the angelfish fend off the parasitic infestation. Try 95° F. for 7-10 days if you suspect a parasite. If there is no response within that time, then it is likely something else, or a combination of pathogens.

Capillaria symptoms: The infected angelfish will have no appetite. They will commonly mouth their fish food and spit it out. The angelfish get progressively

thinner until they die. Capillaria is a round worm that is hair-like, and up to an inch long. It is diagnosed by worm eggs in the feces. The worm egg is oval with a cork-like plug in each end. Severe capillaria infections are almost always accompanied with outbreaks of hexamita in the infected angelfish. This makes diagnosis and treatment even more difficult. For gill flukes, capillaria, or nematodes, treat with a medicated flake designed to deworm.

Angelfish Medicine Cabinet: If you need to order medications after your angelfish have a problem, it may be too late. It's a good idea to have the basic medications on hand. Keep them stored cool, dry and dark and they will last long past the normal expiration dates. This is what we recommend that you have in your angelfish care arsenal.

- Disease Dip - Disinfectant for wounds, scrapes & abrasions.
- Broad spectrum Antibiotic - A couple to cover a wider range
- Internal parasite eliminator - Metronidazole, Praziquantel and Fenbendazole are the main medications.
- Metronidazole - To combat hexamita and spironucleus, two protozoans that are common problems.
- Ich Control - use No-Para-Ich.
- Medicated Foods designed to treat bacteria, worms and flagellates.
- Although there are many other valuable medications, these will cover most of the more common angelfish problems. The medicated foods are especially important.

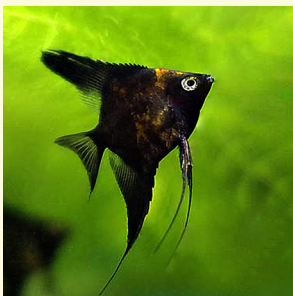
Aquarium Temperature for Fish Disease Treatment: As stated above, high temperatures are useful when treating parasite problems. Be careful, for there are many people who recommend heat for bacterial or viral infections. Their poor advice will most likely kill your angelfish. Bacteria and viruses thrive at higher temperatures and multiply at much faster rates. If you suspect an external bacterial problem, treatment is the application of the proper antibiotic. This can only be determined by culturing the bacteria in an incubator, identifying it, and then testing to see what antibiotic will kill it. If you can't do that, then start with broad spectrum antibiotics such as Kanamycin Sulfate or Bifuran. Sometimes, combinations of antibiotics are good choices to broaden the treatment even further. If it's an internal bacteria, identification of the bacteria will require an angelfish to be sacrificed to get a fresh sample of the internal bacteria. Treatment for internal bacteria must be by intramuscular injection or by feeding a medicated fish food with the proper antibiotic in it. In some cases a skin-adsorbing antibiotic such as Kanamycin will work, but it is no going to be as effective as getting the antibiotic into the fish's body. Of course, the angelfish must be eating well for a medicated fish food to work.

Angelfish Diseases References: A few of the better books for learning more about tropical fish care are The Manual of Fish Health and Aquariology,

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both put out by Tetra. Also a TFH book, Discus Health, is a very good reference. These books are out of print at this time, but worth looking for.



Black Splash



Albino



Classic Koi



Streaked-Black

Rybicki Angelfish!!!

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Advances in Freshwater Filtration by Joe Gargas

www.aquaresearchcenter.com

One of the most challenging and enjoyable aspects of fishkeeping is keeping abreast of the constant technological advances that are revolutionizing the field of aquarium filtration and water treatment.

Retailers who have been in business for 40 years or more can attest to how many changes this industry has seen, as companies revise old products and make new discoveries about what works in keeping fish healthy and thriving.

But as much as some things change, they also stay the same. Products that were good 40 years ago can still be found on retailers' shelves.



And although researchers have uncovered important new details about water quality and its effects on fish health, the basics remain the same. All fishkeepers need to learn and understand about the fundamental principles governing mechanical, chemical and biological filtration.

What follows is a look at the most common forms of filtration that have been the backbone of "modern" fishkeeping. Some of these technologies were in use for longer than anybody can probably remember, while others attained their place only in the last decade or so.

I will also give some advice on various techniques and methods that can enhance the benefits already offered by today's top-notch filtration products.

In the end, though, the most important thing is not simply to "recognize" these filtration technologies and techniques, but to make sure you become completely familiar with how and why they work to provide optimum water quality.

Subgravel Filters

When I was only seven years old I received my first aquarium, and the filter I used way back then was a subgravel filter. And soon, when my son receives his first Christmas Aquarium setup, it will include a subgravel filter. The subgravel (or

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undergravel) filter is just as popular today as it was 30 years ago when I was a child. I'm still using subgravel filters in my tanks.

Subgravel filters offer a number of benefits: aeration, circulation, water clarity (as turbidity is pulled through the gravel), and (if used in conjunction with carbon cartridges on the air lift tubes) improved water quality.

Remember that the actual biological filtration takes place in the gravel layers above the filter plate. This means you have a large surface area for bacterial growth, stretching from one end of the tank to the other-wherever there is gravel.

The biggest drawback plaguing subgravel filters is a widespread lack to learn and of understanding about how this filtration method works, and the ensuing confusion over what gravel size should be used.

Most stores I have visited use a gravel size that is way too large for use with subgravel filters. I recommend size No. 30 gravel.

When setting up your in-store display tanks, place a piece of fiberglass screen over the filter plate, and pile about three to four inches of gravel on top of this.

With this type of setup you get the best of all three worlds: The subgravel filter acts as both a mechanical and biological filter, and with the addition of a carbon cartridge in the lift tube it becomes a chemical filter as well.

Power Filters

A wide array of power filters are on the market, and all are capable of filtering many gallons of water per hour.

The benefits of power filters include: water aeration, circulation, and improved water quality (when used in conjunction with a chemical media such as carbon resin).

Usually the aquarium water is first filtered through a foam block, floss or other filter media to remove particles in suspension. This provides the major caseload of biological filtration, as well as mechanical filtration.

Next in line is an activated carbon cartridge compartment or resin compartment, where water is treated and dissolved organic compounds are removed. This is the chemical filtration on stage.

As water is then returned to the aquarium it breaks the surface, thereby permitting oxygen to enter and other gasses to escape.

Visit any well-stocked distributor's warehouse, and you will discover a veritable smorgasbord of power filters waiting to take temporary residence on your store shelves.

The selections include hanging filters and canister filters. I personally like the canister filters whenever I use water treatment applications involving resins or

peat moss.

But I don't use them on a continuous basis, opting rather to utilize them intermittently. That's because I've experienced drops in dissolved oxygen in the water leaving canister filters.

This phenomenon may depend on the organic load in the aquarium: The higher the organic load, the sooner your filter will need servicing.

I strongly recommend using canister filters with diatomaceous earth (DE) capabilities on a weekly basis. You can add to this some powdered carbon.

Powdered activated carbon, also known as PAC, is a granular activated carbon that has been ground down to a very fine powder with a consistency akin to baby powder. Treating aquarium water with a canister filter that can use diatomaceous earth and adding a teaspoon of PAC to the DE powder (try a ratio & robbing bubbles: A foam fractionator. of one tablespoon to every cup of DE powder) will give you the best water quality you could possibly achieve short of doing a full water change.

This process will also remove freeswimming parasites, which will become trapped in the filter.

Submerged Filters

The submerged filter has played an important role in the aquarium business for a very long time. Also known as box filters, they are quite efficient and can move a good deal of water.

These filters are submerged in the aquarium and use air to push water out through the central stem. Water flows through the filtration media inside the box before it is expelled.

There are numerous types of filter media that can be used in a box filter, thus allowing for versatility. Also, all three filtration operations (biological, mechanical and chemical) can take place within the box filter.

I have discovered a way to use the filter for mechanical filtration so that it will polish your water while also providing biological filtration.

Place a very fine layer of filter floss on the bottom perforated plate in the box filter, and then place about one cup of No. 32 sand on top of that. Finally place a fine layer of No. 30 gravel on top of the sand before replacing the cover.

The sand provides the water polishing, and if the floss is tightly packed down on top of it and the cover replaced, there should be no fear of young fry getting sucked in. But if you leave the cover off, this filter can still be used in aquariums with very small fry without any danger to them.

By lengthening the airlift tube, you can get a stronger draw through the filter.

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Sometimes it seems like every other month a new type of box filter comes out. My suggestion is to try them all in your store before recommending them to your customers. Then you can accurately determine which filter exactly fits each customer's needs.

Sponge Filters

There are many types. The only complication is that there are so many to choose from!

When using or selling a sponge filter, pay attention to the sponge material.

Reticulation is a manufacturing process in which the "windows" are pressurized and blown out. This gives the sponge a porosity of as much as 90 to 100 percent.

Be on the lookout for "windows" on the sponge, which appear as shiny spots within the sponge. If a sponge has windows, it is typically referred to as a non-reticulated sponge.

Most sponges that are available in the hobby today are non-reticulated.

A non-reticulated sponge has the windows still inside, greatly reducing porosity to possibly around 35 percent, but dramatically increasing the channeling of water flow.

Contact the manufacturer, and find out whether or not their various sponges are reticulated. My recommendation is to go for the reticulated.

Central Systems

More emphasis has been placed on central filtration systems in recent years than on any other type of filtration, with the possible exception of foam fractionation.

Central filtration systems allow any number of aquariums to use the same water. The aquariums are connected by a series of piping to a main filter source.

This source can be either a series of canisters (discussed above), or a trickle filtration system (also called, incorrectly, wet/ dry filtration).

Many retailers point to trickle filters as the "new technology" that made central filtration a popular practice.

But really, the trickle filter is not new to the hobby. This process has been used for decades in municipal water treatment plants.

As a vital technology in fishkeeping, the trickle filter deserves a close examination.

Advantages. In the trickle filter, gas exchange is completed in the area above the media where the water (from a spray bar or drip tray) first makes contact. This process allows the water to become saturated with oxygen.

Nitrifying bacteria require oxygen for the oxidation of ammonia and nitrite. Since the trickle bed filter actually operates in the air, there is never a shortage of

Therefore, this filter responds very quickly to an increase in ammonia loading. When more fish are added to the system, the ammonia load naturally goes up. To compensate, simply increase the flow rate of the main water circulating pump to push water through the system more rapidly.

This increased flow rate will increase the efficiency of nitrification when the ammonia load increases.

Original design dilemmas The first types of trickle filters offered to the fishkeeping market used a stationary perforated pipe that water flowed through and dripped from.

While this design was simple and reliable, it suffered from uneven distribution of the incoming water. This uneven distribution repeated itself throughout, meaning that the full potential of the filter went underutilized.

There were also problem backups at the drip holes within the stationary perforated pipe caused by particulate matter.

Another design for increased air flow meant open-sided trays, but this increased evaporation and led to cooled circulating water and higher levels of dissolved salts.

An alternative to drip tray designs was the rotating spray bar. These are gear-driven rotating bars similar to those used in water treatment plants.

Since the exiting water jet produces a very low torque on the spray bar, the bearing used must be as frictionless as possible. Early metallic bearings were unreliable, as salt deposits got in the way and caused friction.

Today, however, manufacturers have discovered high-quality teflon bearings which do not corrode and are slick to marine water salt and even more reliable in fresh water.

To cut back on evaporation, filter makers have enclosed the rotating spray bar's area of operation. For enhanced oxygen, an air stone is placed below the filter media.

Foam Fractionation

Probably the biggest breakthrough in water treatment and filtration these past few years has been the process known as foam fractionation.

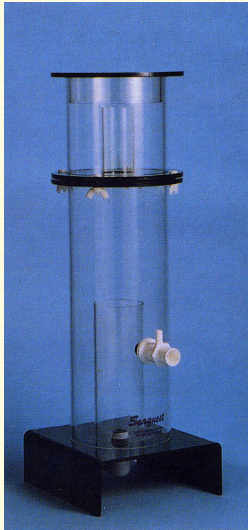
This process has been incorrectly referred to as protein skimming. I say incorrect because actual protein skimming takes place at the surface of an aquarium, where the water is removed at the surface by an overflow.

Foam fractionation not only removes proteins, but also removes particulate organic carbon by entrapment in the foam. Thus, it is an auxiliary mechanical filtration technique which includes removal of microorganisms in suspension.

The biggest "new" thrust in foam fractionation has been the addition

of a venturi inlet.

A venturi is a constricted section of pipe through which fluid velocity increases, thereby decreasing static pressure below atmospheric. This creates a suction of air from the room which is mixed with the flow of water, and is controlled by the force of the pump pushing the water into the venturi.



Scrubbing bubbles:
A foam fractionator.

More water means more air, which means more turbulence is needed especially in fresh water. It was always thought that foam fractionation could not be achieved in fresh water, but I discovered this is far from the truth.

For the past seven years I have employed this process in my discus hatchery with exceptional results. I am now using a foam fractionator that is approximately five feet tall with four half-inch venturi's.

Because I feed my fish heavily, I can pull out up to five gallons of waste weekly from my foam fractionator. My aquarium have been sparkling since I started using this technology.

I also have a higher dissolved oxygen content, thanks to foam fractionation. My total gallonage being treated is approximately 1,500, and my hundreds of discus and black veil angels are extremely healthy.

Needed: Total Awareness

As you can see, the keeping of tropical fish also demands a good knowledge of filtration, and an awareness of how it applies to water quality.

The more knowledge, the more success you will have in selling equipment to fishkeepers. And remember the hobbyist's creed: **"He who dies with the most equipment wins."**

GARGAS ANSWERS!!!



We all have a WOUNDEFUL opportunity!!! Joe Gargas has volunteered to take and answer all of your "WATER" and "DISCUS" questions!

You folks all know my opinion of Joe's "WATER" & "DISCUS" knowledge . . . so take advantage of this opportunity and have at it!!

Here's Joe's Email:

joegar@tampabay.rr.com - Ask him anything you want and let him answer. We will then publish the questions in the monthly TBAS bulletin, "THE FILTER" ... **DON'T BE SHY!!**



Hurricane Preparedness For Aquariums

Imagine this, there is a hurricane in the gulf and it is headed this way, what can you do to help your fish tanks survive? What if you have to evacuate? First thing you should do is water changes and not just 10 to 15%, but

50%! Trim plants and remove excess debris. Clean all your filters and check all equipment. Now stock up on hydrogen peroxide, fresh sealed stuff. Use a capful per 50 gallons and it will boost the oxygen levels during power failures. This can be repeated every hour.

Don't feed during a hurricane even if you have power because you never know when the power will go off again and we want to keep organic waste at a minimum until the storm is over. It would be best to keep the lights off to keep the fish in a resting state during the storm, lights suddenly going on and off in a power failure can put a lot of stress on your fish. If you have to evacuate you should reduce the water level in the tanks, because oxygen is only at the surface of the water and the fish have to use a lot of energy and oxygen going to the surface to breath. A small battery operated air pump will help the oxygenation level, check local pet stores [also check anywhere fishing supplies are sold]. The lower water level will cut down the likely hood of a fish jumping out. Turn all lights off and hope for the best.

After the storm, be careful when you are refilling the tanks, the water supply could be contaminated. You can add 10 drops of bleach per gallon and then dechlorinate and aerate the water to make it safe before you use it. If you think ahead you could have some buckets filled with water, be sure to keep them covered tightly to keep out unwanted mosquitoes.

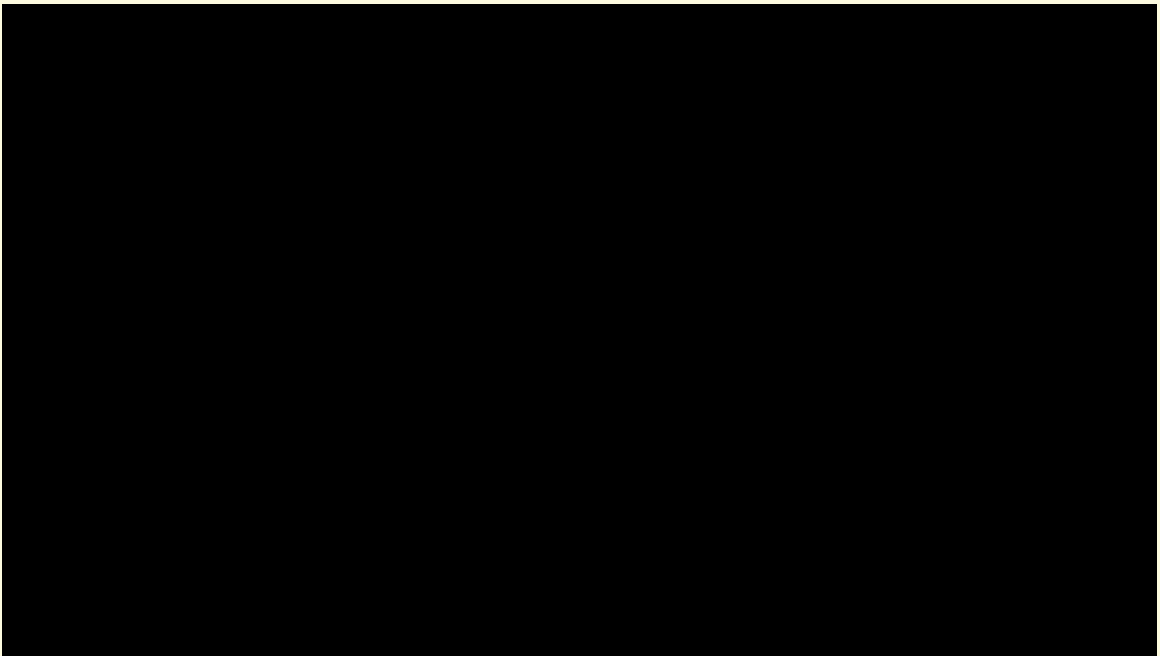
If you have a special tank like a saltwater reef or a tall tank that must have continuous water circulation I found that you could get a little 12-volt water pump used for baitfish at any fishing supply store for less the \$20. I put this pump to the test and it ran a wet-dry on my 100 gall tall tank for three days off a car battery and it was still going strong when I shut it down. Of course you could get a generator to run the whole house during the storm. Back-up power systems used for computers only give you a short time, just enough time to shut down your computer. I hope all this information will help your aquariums survive a hurricane. Until next month, keep your fish healthy and happy.

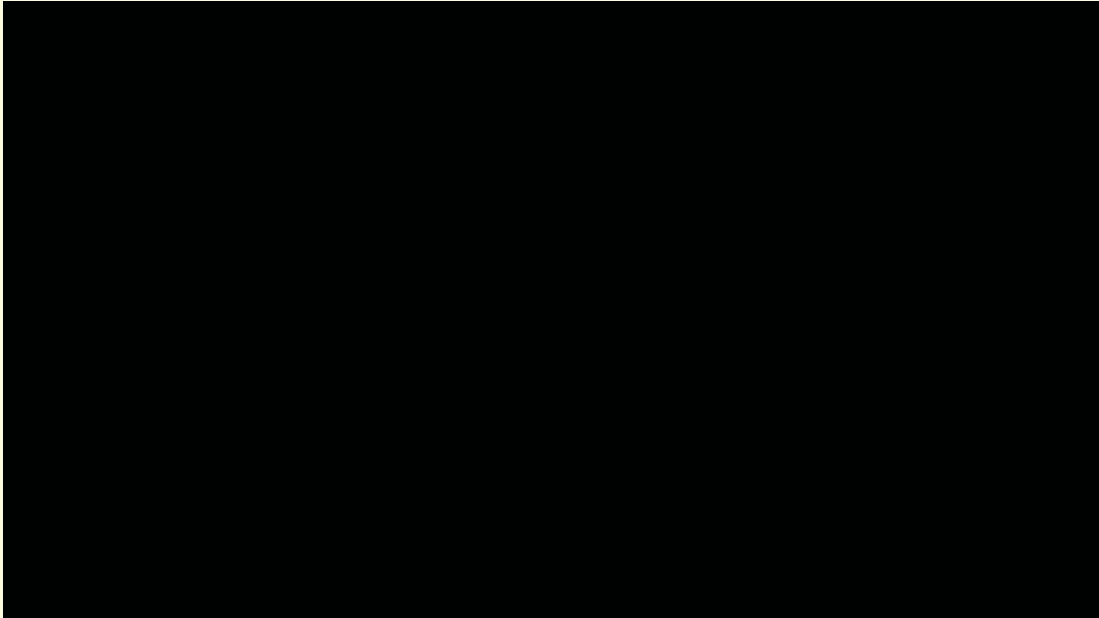


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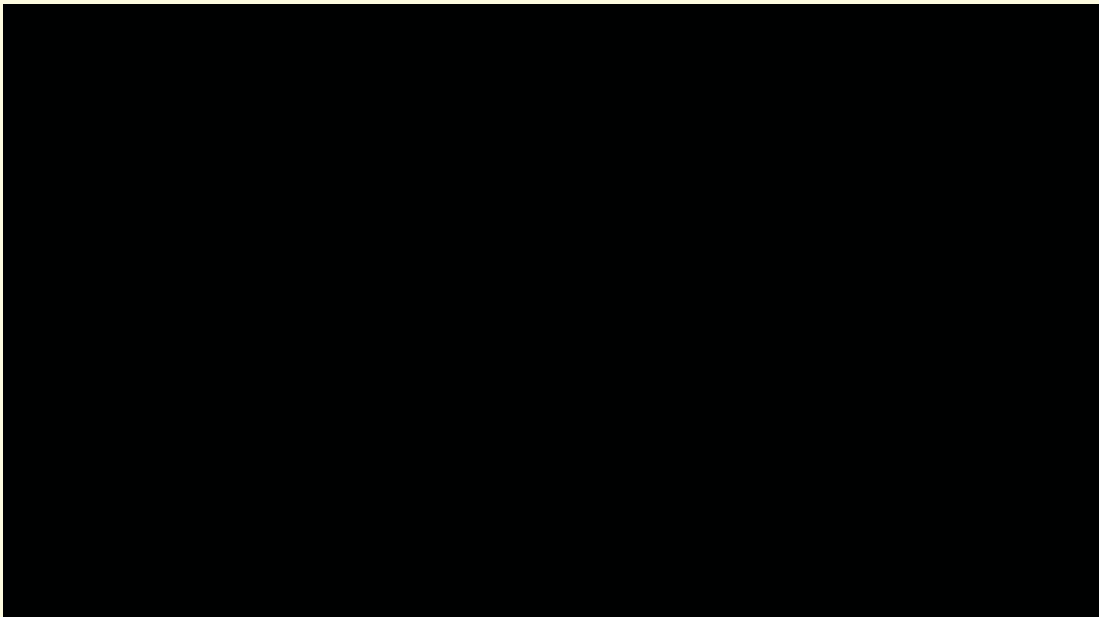
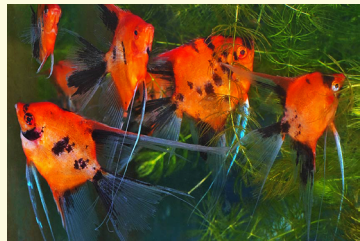




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 The logo for PYTHON PRODUCTS, INC. features a green snake coiled around the word 'PYTHON' in a bold, black font. Below the logo is a coiled clear plastic tube with green fittings and a white filter component.

www.pythonproducts.com

 The word 'FLUVAL' is written in large, bold, cyan letters at the top. Below it is a product box for a Fluval filter, showing the filter unit and the box's packaging.

www.FluvalAquatics.com

KOLLER CRAFT



 The logo for JBJ U.S.A. features the letters 'JBJ' in a large, white, bold font inside a blue oval with a white border. Below the oval, it says 'U.S.A.' and 'Website: www.jbjlighting.com'.

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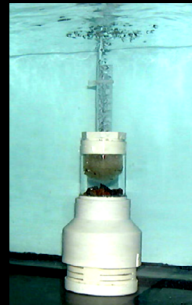
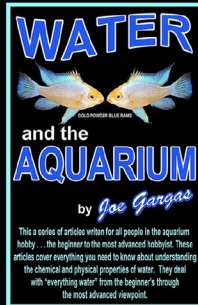
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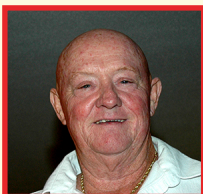
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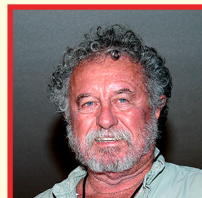
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