

# FOTAS



Federation of Texas Aquarium Societies

# Fish Tales

**Volume 12 Issue 3**

**Will my Plants Grow  
in Clown Puke?**

**Jul - Sep 2022**

**My Time at the ACA...**



**Making your own Fish Food**

**Guide to the Healthy Betta Part Two:  
Managing External Parasites!**

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***Aulonocara* sp. "Lwanda"**

**Photo by William "Clay" Trachtman**

**Design and Layout**  
**Gerald Griffin**

Volume 12 Issue 3

The FOTAS Fish Tales is a quarterly publication of the Federation of Texas Aquarium Societies, a non-profit organization. The views and opinions contained within are not necessarily those of the editors and/or the officers and members of the Federation of Texas Aquarium Societies.

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### Fish Tales Submission Guidelines

#### Articles and Art Submissions:

Please submit all articles, photos and art in electronic form. We can accept most popular software formats and fonts. Email to [herpchat@yahoo.com](mailto:herpchat@yahoo.com). Photos and graphics are encouraged with your articles! Please remember to include the photo/graphic credits. Graphics and photo files may be submitted in any format, however uncompressed TIFF, JPEG or vector format is preferred, at the highest resolution/file size possible. If you need help with graphics files or your file is too large to email, please contact me for alternative submission info.

Next deadline.....  
September 30th 2022

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# President's Message



Clay Trachtman  
FOTAS President

*Hello all,*

*What a month July was for fish keepers that like to travel to conventions. First, the Oklahoma Aquarium Association (OKAA) and the Oklahoma Betta Breeders Association (OBBA) stepped up at the last minute to host the annual Federation of Texas Aquarium Societies (FOTAS) Convention in Tulsa, Oklahoma. The FOTAS convention was held in conjunction with the annual convention of the International Betta Congress (IBC). A great time was had by all that attended.*

*The Federation gave out three awards at the conference. First, as thanks for all his help with a banking issue, Keith Arnold was awarded a Certificate of Appreciation. Second, as a thank you for his years of service as President of FOTAS, Greg Steeves was awarded a decorative clock. Finally, Gerald Griffin was awarded Raymond Head and Ernest May Altruism Award for his contributions to both FOTAS and his home clubs, the OKAA and the OBBA. The Altruism Award is currently the highest honor that is awarded by FOTAS.*

*Additionally, it was decided that FOTAS would begin offering up the Braz Walker award to a student whose studies have implications in aquatics. Dave Schumacher is currently in charge of gathering prospective awardees. \$1500 was set aside for the award. The winner(s) of the award will have to write an article for FOTAS Fish Tales on the work that they have done.*

*Also in July, quite possibly the largest freshwater convention in history was held in Louisville, KY. For the first time, the American Cichlid Association (ACA), the American Killifish Association (AKA), the American Livebearer Association (ALA) and the North American chapter of the Australian New Guinea Fishes Association (NA ANGFA) all joined forces to host one giant convention. The convention was outstanding. I am sure that there will be an article summarizing it in either this issue or a future issue of FOTAS Fish Tales.*

*Until next time, happy fish keeping!!!*

*William "Clay" Trachtman*



# Guide to the Healthy Betta

## Part Two: Managing external parasites!

Scanning Electron Micrograph of *Ichthyophthirius multifiliis* (Ich) courtesy of Ole S. Moller, University of Copenhagen.

Article By Gerald Griffin

Many years ago I wrote an article titled A-Salt-ing Your Fish in which I discussed the virtues of salt in the Aquarium Hobby. Since that time nothing has changed as to the science or to change my views on the therapeutic use of salt on fish. If you have raised any types of fish for any period of time then you may have dealt with external parasites. The vast majority can be prevented with adequate use of salt. However newer generations of these parasites are coming on to the scene and the standard cures are becoming ineffective at treating them. Now are the days of Super-Ich, Super-Velvet and I have recently seen Costia in the US at Betta Shows. So, what are these parasites and what can we do about them?

**Oodinium** for fresh water and **Amyloodinium** for salt water is what we call velvet. It is a dinoflagellate that used to be common in pH below 7. Now the fresh water version is just at home in tanks where the pH is above 7.

### Life Cycle:

This parasite has three phases. The first is called a to-mont which attaches to the substrate floor or on plants and undergoes binary fission. This produces between 64 to 256 copies. The second stage is the Tomite (also known as a dinospore) where the parasite is free swimming and is also photosynthetic which can fuel the parasite as it searches for a host. It is at this stage the copper compounds are typically used to kill the parasite. Note that copper is very toxic to invertebrates!

One of the biggest issues with this parasite is that it will also attach to the gills and may not be visible. Once the Tomite attaches to the fish it can reach full size in as little as 3 days where it will detach and sink to the substrate to start the process again.

### Identification:

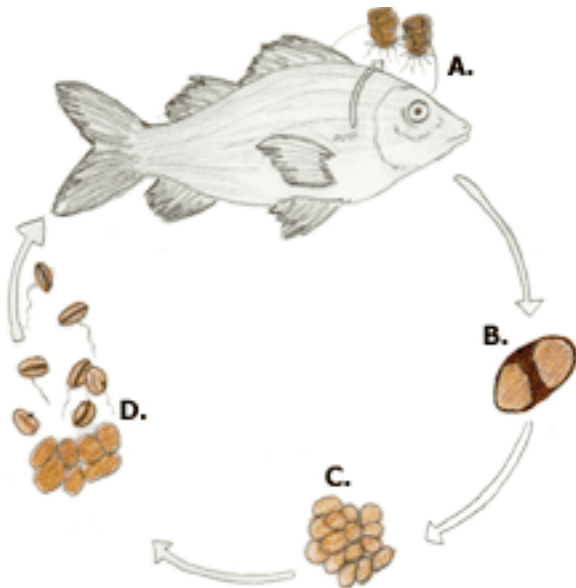
Noticing this parasite might be problematic if they are in the gills. Most Aquarists first warning sign might be the fish flashing (scraping its body on objects) followed by a yellowish dust appearing on the fish's body. They may also clamp their fins and become lethargic. It is thought that the lethargy is caused by damage to the gill tissues. The affected fish will eventually stop eating and will die from this parasite.

### Treatment:

Once the parasite is identified treatment must be quick or fish are going to die. Remember that treatment is only effective on the free swimming parasite. There are a number of treatments available and most commonly use copper sulfate, methylene blue, formalin, malachite green and acriflavin. Salt is typically added to help prevent the free swimming parasite from attaching to other fish. Because this free swimming parasite can also photosynthesize it is recommended to black out the aquarium (which is what methylene blue and malachite green can also accomplish). Raising the temperature also speeds up the parasites life cycle which can make treatment quicker. This parasite is highly contagious and proves fatal quickly.

## Prevention:

Using salt has been shown to prevent outbreaks of Oodinium. Oodinium is hard to contain as it can also be transferred by shared tank tools such as nets and has even been found frozen fish foods. There is also some beliefs that velvet can go airborne and travel from tank to tank on air currents. It is quite possible that this is anecdotal due to the speed at which it can spread in a fish room. Some investigations have shown this is questionable and that the biggest factor is how close the tanks are to each other with no transmission past 9 feet. This does not actually disprove the aerosol transmission however.



Velvet life cycle, diagram courtesy of AR Exotics.

Ichthyophthirius commonly referred to as “Ich” is relatively common to people who begin to keep fish. However, once it is in your tanks it does spread very quickly and can be problematic to treat. It is also called “white spot” due to the characteristic white cysts imbedded in the skin of the fish.

## Life Cycle

Ich is a ciliated parasite which the free-living larva (Theront) penetrates the skin and begins feeding off of the fish in a life cycle similar to Oodinium. Once inside the host the Theront turns into a Trophont which then grows into the tomont stage and then into a Tomite where the ich parasite can produce about a thousand theronts which then penetrate the fish’s skin to continue the cycle. This parasite like velvet is problematic because it also penetrates the gills and when the parasite leaves the host it can cause ulcer-

ations to the tissues it was attached to. This can lead to secondary infections. This cycle takes between 4 to 7 days normally and can be sped up by increasing the temperature.

## Identification

Typically identified by characteristic white nodules which are raised from the body surface. The fish may flash, show abnormal breathing, resting on the bottom, discoloration, loss of appetite and their balance may be off. Note that this parasite can also infect the gills and show no signs on the body.

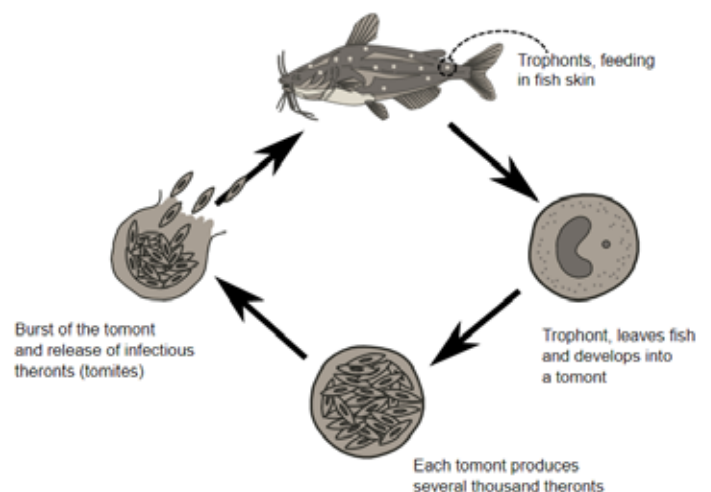
## Treatment

Typical treatment includes adding salt to the tank along with a number of “ich” cures. Copper compounds are the typical drug of choice. Other choices are methylene blue and potassium permanganate. Other choices include metronidazole and quinine hydrochloride. Other treatments include hydrogen peroxide. Remember that these treatments only kill the free-living parasite and not any other stage.

## Prevention:

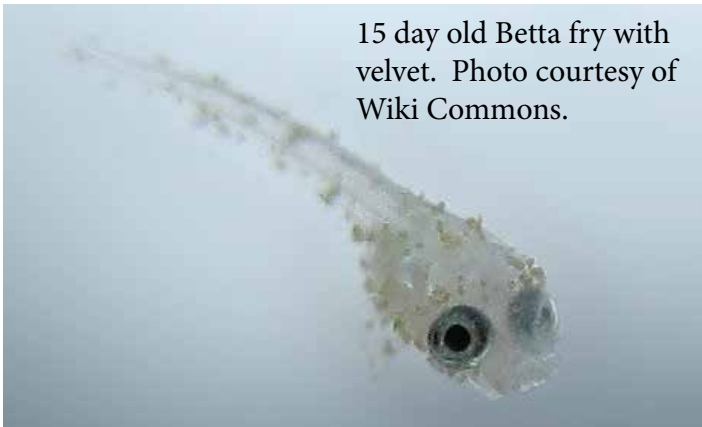
Using salt has been shown to prevent outbreaks of Ichthyophthirius. Ich is hard to contain as it can also be transferred by shared tank tools such as nets and has even been found frozen fish foods and in local water systems. The best defense is salt in the water and avoid stressing your fish. Ich typically shows up when fish get stressed typically after a new introduction. In a typical tank if there are no new contacts then ich should not be present.

## Life Cycle of Ichthyophthirius multifiliis



Ichthyophthirius life cycle, diagram courtesy of Wiki Commons.





15 day old Betta fry with velvet. Photo courtesy of Wiki Commons.

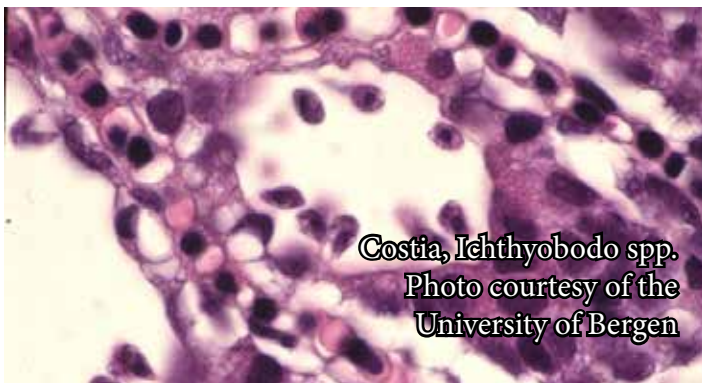
**Costia** also known as *Ichthyobodo*, A protozoan parasite that spreads very quickly and is often time difficult to detect. My first experience was an import from Indonesia of *Betta coccina*. I have recently seen it show up at the Betta show in Houston. In every case where I have seen *Costia* was on Asian imports. However, in North America *Costia* is typically seen on Koi and Goldfish. *Costia* is typically a colder water parasite however once in the fish tank it can be difficult to remove.

### Life Cycle

*Costia* is a relatively small protozoan parasite between 15 to 20 micrometers in size. For comparison a human hair is 50 micrometers in diameter. *Costia* can multiply very quickly and will attach to the skin and the gills which makes this parasite dangerous. *Costia* reproduces rapidly at temperatures from 100 C (500 F) to 250 C (770 F) and does not survive with temperatures above 300 C (860F). At 250 C the entire life cycle can be completed in 10-12 hours. *Costia* without a host die in 24 hours.

### Identification

Typically, a blueish gray or milky slime forms in patches and can cover the entire body. Positive identification requires microscopic identification due to the small size of the parasite.



*Costia, Ichthyobodo* spp.  
Photo courtesy of the University of Bergen

### Treatment

Salt is recommended as well as formalin. Hydrogen peroxide has also shown some effectiveness at treating for *Costia*. Due to possible secondary infections, anti-biotics are often used. Some *Costia* has show some resistance to salt.

### Prevention

The key is to quarantine new introductions and to avoid stressing your fish. Again, a little salt in the water works quite well to prevent the majority of parasites.

**Hexamita** is the dreaded Hole in Head Disease which is a death sentence in Bettas. They are parasitic diplomonads which have a number of species which are parasitic in a large number of species including humans.

### Life Cycle

The flagellated protozoan is known to inhabit the intestinal tracts of the affected organisms. In fish they can migrate to head starting with a pimple which then erupts and then the skin around the head begins to erode.

### Identification

Unfortunately, in Bettas this hits quickly and often one ends up with a major die off of their stock before signs can even be seen. In Cichlids the characteristic erosion of the skin around the head are the first sign noticed.

### Treatment

Fortunately, this parasite responds very well to salt and Flagyl (Metronidazole). Poor water conditions contribute to this parasites damage to fish and can also cause secondary conditions. Clean water and additional salt are a must when treating for this parasite. Unfortunately there are a lot of ectoparasites that can affect your Bettas however by acting proactively there is a lot that can be done to prevent them getting a foothold on your fish. The most important I have found through experience is keeping one half to one teaspoon of salt per gallon prevents the vast majority from getting a foothold on your fish. When it comes to salt there is a lot of misinformation out there and so-called experts are just regurgitating information that they picked up somewhere. Most of the information on salt tolerant fish comes back from the days of the Innes Tropical Fish where to generate the list they took

various fish and added salt until they died. (Personal Communication with one of the original researchers) This is not by any means scientifically accurate. Back in those days much of the information was anecdotal. Today some of the myths that persists is somewhat also anecdotal however more and more aquarists are proving actual research and the field of the Aquarium Hobby is undergoing a renaissance where much more information is coming available with actual research backing these discoveries. When I managed the Ichthyology Lab at Northeastern State University I started playing with salt and the first thing I noticed was tanks with salt had very low incidents of parasitism where as those without salt had parasites. In my keeping of Bettas I also noticed when I kept salt in the water I never saw velvet or ich or even costia in my tanks. When I did not use salt, those parasites would visit my fish. So personally I believe that salt is highly beneficial to the vast majority of pet fish. However despite my view there are plenty of people who are adamant against salt use. My view has always been that your mileage may vary so do what works for you. However, every time I am asked I state use salt. It works for me!

Next time on Guide to the Healthy Betta, I will examine parasitic worms and flukes.

Until Next Time!

References:

[https://en.wikipedia.org/wiki/Velvet\\_\(fish\\_disease\)](https://en.wikipedia.org/wiki/Velvet_(fish_disease))

<https://arexotics.com/2021/05/20/marine-velvet-disease/>

<https://www.reef2reef.com/threads/aerosol-transmission-of-marine-velvet-might-be-overblown-an-interpretation-of-results.890173/>

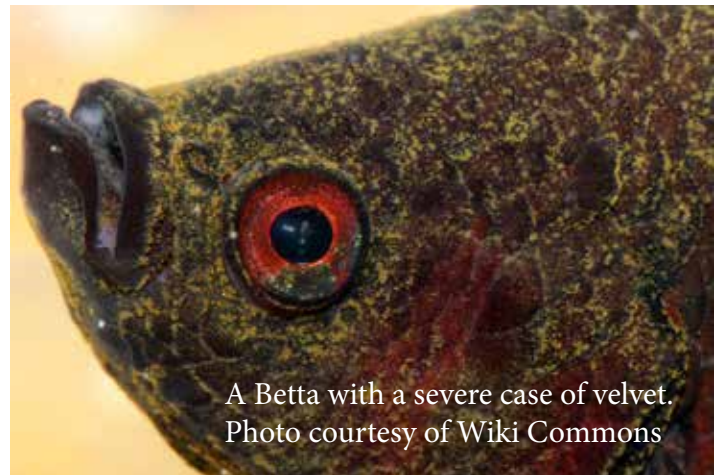
<https://drjohnson.com/symptoms-and-treatment-of-costia-ichthyobodo-necatrix/>

[https://en.wikipedia.org/wiki/Ichthyophthirius\\_multifiliis](https://en.wikipedia.org/wiki/Ichthyophthirius_multifiliis)

<https://www.velda.com/pond-fish/diseases/costia-ichthyobodo/#:~:text=Ichthyobodo%20or%20Costia%20parasites%20are,parasites%20involved%20are%20tiny%20organisms.>

[https://www.researchgate.net/figure/Life-cycle-of-Ich-Infective-theronts-bore-through-the-surface-mucus-and-take-up\\_fig1\\_51720908](https://www.researchgate.net/figure/Life-cycle-of-Ich-Infective-theronts-bore-through-the-surface-mucus-and-take-up_fig1_51720908)

<https://www.about-goldfish.com/costia-disease.html>



A Betta with a severe case of velvet.  
Photo courtesy of Wiki Commons

## Next time on the Guide to the Healthy Betta Part Three: Parasitic Worms and Flukes

### Types of Fish Flukes



Fig: Different Types of Fish Flukes



# A-Salting your Fish

**Article by Gerald Griffin**  
**Revised**

Adding salt to a fresh water fish always brings controversy when you talk to aquarists. Normally you have people on both sides of the fence, some diehards that dig in their heels saying salt should never be added to the opposite extreme where they have always used salt on their freshwater fish. Now to note it is said that there are some fish species that do poorly with salt added like Tetras and Corydoras catfish. In my experience most Tetras do not really mind the salt unless they are breeding and the same can be said for the cory cats. It might also be worthy of note here that the information came from putting fish in salt baths and recording which ones died. Not quite the therapeutic doses we are considering in the aquarium or with Bettas. With that however most fish are quite tolerant of salt in their water and a number of freshwater fish like livebearers are actually able to tolerate full salt water. Some Ichthyologist believe that a number of the Poeciliids were actually saltwater fish to begin with and adapted to freshwater so they retain their ability to survive in full saltwater.

First off we need to explain that not all salt is the same. You will find some websites proclaiming when using salt it needs to be Sodium Chloride and not marine salt. Marine salts contain other buffers that may cause damage to some freshwater fish. Other websites will proclaim that Marine salt is better because of the trace minerals and other salts and buffers. When it comes to the salt there is even controversy over iodized verses

non iodized salt. The level of iodine is low and actually would not hurt Bettas. The controversy over table salt verses rock salt is also an issue. The truth is that the anti-caking agents in common table salt can cause damage but those are normally at such low doses that most fish do not even notice them. One disclaimer though, salt used to use Yellow Prussiate of Soda which is Sodium ferrocyanide. I don't know about you but I don't want to put cyanide into my tank or with my Bettas. So check the ingredients. Most salts have switched to Sodium aluminosilicate. If you look you may find articles on Aluminum toxicity. I admit in a pinch using table salt instead of my standby Morton's Ice Cream salt and have noticed absolutely no difference in the reactions to the fish. I have also used Marine salt in place of regular sodium chloride and have not noticed any perceivable difference. The place you would see the difference most is your wallet. Marine salts are much more expensive than the typical sodium chloride salt.

Benefits of adding Sodium Chloride to the water is that it adds electrolytes which reduce osmotic stress to the gills. Salt also aids in the production of slime coat which actually makes it harder for protozoan parasites from getting a foothold on the fish. Especially sensitive to this would be Ich, Velvet and Costia. Velvet and Costia can wreak havoc on breeders and this alone should be enough reason to use salt. Salt also aids in the healing of wounds on a fish if it was wounded. The



old time standard has always been adding salt to water of a wounded fish to aid in healing. The chloride ion in salt also helps in nitrite poisoning which can also get out of hand in the small containers that Bettas are kept in.

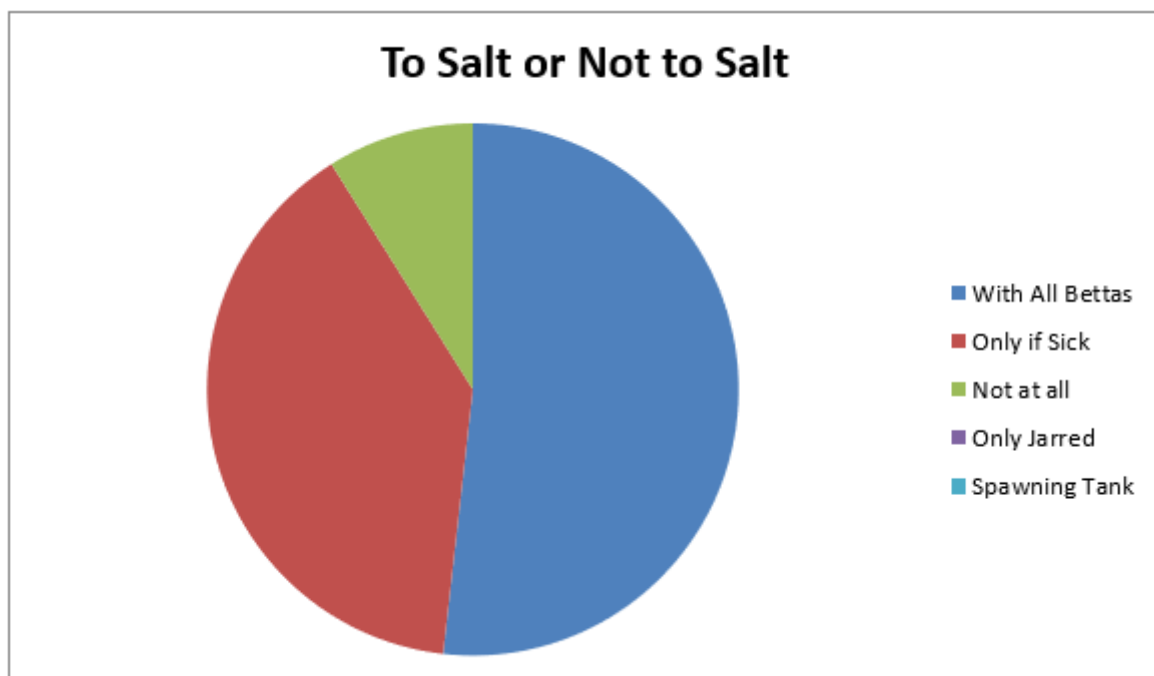
Now as to the water chemistry created by the addition of the salt. First off salt will have more effect in soft water than it does in hard water due to the mineral salts already present. Salt based water softeners actual are somewhat questionable here. The salt based softeners are actually ion exchange systems replacing sodium ions for magnesium and calcium ions. This works great for your plumbing systems but can mess up your fish depending on the type. For soft water fish these water softeners do not really have any effect.

So when it comes to dosing the most cited dosage is one tablespoon per five gallons. This is the dose I use for all Bettas. At this dose the salinity doesn't even measure on a refractometer. To get a bump on the refractometer you have to use one teaspoon per gallon, then you get a salinity of 1.001. So you see that at therapeutic doses of one tablespoon per five gallons doesn't cause any stress on the electrolyte balance of the Betta. Remember that salt water has a salinity of 1.035 which equates to 35 parts per thousand salt which is 35 grams per liter.

Tsp/Gallon	Salinity	PPT
1	1.001	1
2	1.002	3
3	1.003	5
4	1.005	7
5	1.006	8

There is a wide variation of salinity in the betta natural environment in Thailand even by season. Some wilds are found in waters that are technically brackish.”

In conclusion Bettas thrive in therapeutic levels of salt. The low levels of salt are a good preventative against protozoan parasites like velvet, ich and costia. A number of new breeders I encounter give me reasons why they should not use salt and when they start to encounter problems try salt and then switch to using salt all the time with Bettas. I have seen what not using salt can do to your stocks, so in the end is it really worth it to risk the health of your Bettas?



# My Time at the ACA...

**Article and Photos by  
William "Clay" Trachtman**

**T**he 50th national convention of the American Cichlid Association (ACA) was one to be remembered. For the first time, the convention was combined with the conventions of the American Killifish Association (AKA), the American Livebearer Association (ALA), and the North American Australian New Guinea Fishes Association (NA ANGFA) to create one giant freshwater fish convention!

I arrived on Wednesday evening, too late for the Tour of Rusty Wessel's house, so instead I wasted away the evening in the Hospitality Suite. The Hospitality Suite had free beer from Akasha brewing company, so this was not really a waste of time.

The next day was the first day of talks. First up was Richard Stratton who spoke about Old Time Cichlids. He was followed by Daniel Konn Vetterlein who spoke about collecting cichlids in Bolivia. Michi Tobler was the third speaker of the day who talked about his adventures in fish keeping.

Later that day, I had my chance to go to Rusty Wessel's house. Five busses of people went to see Rusty's World Famous Fish House on Thursday night (8 total busses if you count Wednesday night). Unfortunately for me,

I did not get to actually see the fish room. I went in for a second, but it was extremely hot, so I decided to wait. Little did I know that it would start raining and the tour would end early. From what I did see, he has some awesome koi ponds and the barbeque was fantastic. I ended up heading back to the Hospitality Suite for several hours.

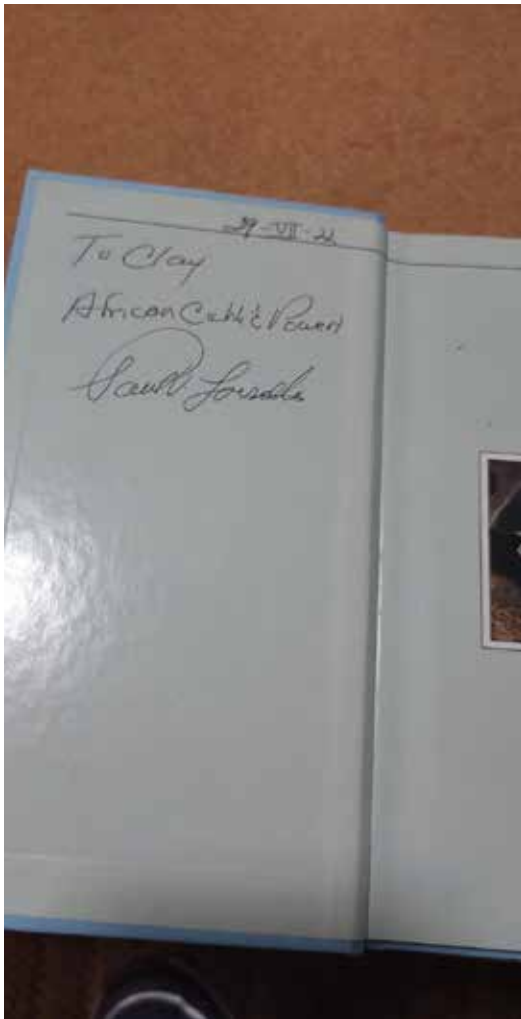
Friday started with Dr. Paul Loiselle who was kind enough to sign one of his books for me. Then several people from FOTAS clubs went to lunch together. This was a lot of fun!

The afternoon featured Dr. Tim Hovanec speaking on water filtration and Sandy Moore, the President of Segrest Inc. speaking on the status of the industry. Later that afternoon, I went to my first ALA talk. It was about swordtails and was presented by Juan Miguel Artigas Azas. Later that night, the Babes in the Cichlid Hobby auction took place.

I overslept on Saturday, so I missed the morning talks. I did go to the awards luncheon. One person won all of the awards for the fish show, including Best in Show. That afternoon I went to another ALA talk, this time by Michi Tobler. For me, the event concluded with

the Combined Banquet and a talk by Spence Jack on Fish Keeping Gone Wild.

The next morning was back to the real world for me. It was a lot of fun. It was by far the largest fresh water fish convention that I have ever been to.









# Will my plants grow in Clown Puke?

Article by Alex Brown

I know it has been a while since my last Brain Ferts article. OK. It has been ages. Sorry! I was working on an article that was just absolutely daunting in scope. After spending more hours on it today, I decided it was a bad idea. So now I've split it up into many consumable sized chunks so I'll have many Brain Ferts ready to go for the next few months.

Let's talk substrate. There are many types of substrates that you can use for planted tanks, but we can categorize them into three main categories – Aquasoil, Inert, and Dirt.

## Aquasoil

Manufactured soil and/or clay based substrate (commonly referred to as "Aquasoil") is generally considered the best substrate for growing live plants in an aquarium. Essentially, it is real soil, compacted into small clean(er) granules. There are many brands on the market which come in different colors, sizes, shapes, and containing different amounts of nutrients. I will not go into debates about which ones are better than others. But I will discuss the upsides and downsides of using aquasoils in general.

**Aquasoil Positives:** All the growing power of real dirt, without the mess! (mostly) Many plants, especially those with finer, or shorter roots (hello, carpet plants) grow much better in dirt. But dirt is messy. Aquasoils are compacted dirt which is much easier to plant in, and doesn't require anything to keep them from

clouding the water. They can be planted in before or after flooding the tank with water. And most brands generally contain tons of nutrients inside, that your plants will love. Another positive, especially for people like those of us in Houston that have liquid rock for water, is that aquasoils will help lower the pH of your water. In fact, if you want to keep *Caridina* shrimp, or some low pH fish like some *Apistogramma*, you will need to start with RO water and an aquasoil to get that pH down well below 7.0.

**Aquasoil Negatives:** It is still dirt. While compacted, it doesn't stay that way forever. Over time, the pellets will start to break down and leave you with a bit of a muddy substrate. When left undisturbed, this isn't really an issue. In fact, the plants enjoy it. But tank maintenance will likely end up stirring it up and clouding the water for a time. While it does contain nutrients, it will eventually "expire". Meaning at some point (well over a year or two depending on the brand) the nutrients contained within the aquasoil will be expended and it will no longer be feeding the plants. This can be combatted with adding extra fertilizers like root tabs. However, most people are ready for a new scape by that point anyway and choose to replace it when resetting their tank. But beware of buying old, used aquasoil. Depending on its age, you might just be buying expensive mud. Great if you want a spa day for your significant other! Maybe not as great for a new aquascape. (Also, if you try to use that advice and get in trouble, you'd better tell me about it) One thing I'm not a fan of is



the look of aquasoils. Typically, they are compacted into small brown balls. To me this looks very unnatural and reminds me of a tank full of rabbit turds. There are some on the market that are less uniform though. The last and biggest downside I will discuss is price. Aquasoils are not cheap! They're great for smaller tanks, but if you're planting a big tank, you'd better have a deep wallet. One way to combat this is to use lava stones, gravel or inert substrate that's less expensive as a base when building up deep backgrounds, and only use the aquasoil for the top 2-3 inches. Also, if you intend to leave part of the tank unplanted, there is no need to use aquasoil there. Lastly, I'd like to be sure to point out that most aquasoils will leech a lot of ammonia into the water when they are first set up. This ammonia production can last weeks. So don't count on putting fish and inverts into the tank right away.

### **Inert Substrate**

This can mean anything from brightly colored aquarium gravel (let's call it what it really is, it's clown puke :p ), to natural sand. And tons of things in between. Inert simply means that there are NO inherent nutrients included in the substrate. It will provide nothing beneficial to the plants on its own. But any of it can be made to work. You're only limited by your knowledge and ambition. Because inert substrate has no nutrients, it is important to use additives in them for good plant growth. More on that later.

Gravel, especially larger grain sizes, makes it hard for plants to root properly, so usually isn't the best choice. However, it will certainly work and most plants will grow in it given time and proper husbandry. No matter what your color preference is. I'm sure me saying that gravel isn't great for plants will get some of those comments showing me how wrong I am and that your tank has been growing amazing plants for years with nothing but gravel. That's excellent. Good for you. The next time I want to throw some plants in my tank and have it look good three to 10 years later, I'll take your advice. Hehehe. Shots fired. But for those of us that want quicker results and more vibrant plant health, there are better options.

Sand is my preferred inert substrate. It more naturally replicates what plants are used to in nature, without being actual dirt or mud. It can come in many sizes, shapes and colors. One thing you want to avoid with



sand is getting TOO fine of a grain size. Very fine sand (like play sand) will compact over time and make it hard for roots to travel through the substrate. My favorite sand substrate is Quickrete brand All-Purpose sand. It's cheap (about \$5 for 60 pounds) and looks very natural as it has small to large grain size and natural varied coloration. Pool filter sand is another popular option. It is much more uniform in grain size, and comes in varying shades of light brown/tan depending on the brand. Another very popular option is Black Diamond brand blasting sand (BDBS). It is completely black (although looks silvery dark grey under high lighting), also cheap and makes for a very clean contemporary look. However, BDBS comes in many sizes, with the smaller size being too fine. The medium grain (20/40) size is a good choice. Please note that if you're using budget sands like these, they WILL need to be rinsed THOROUGHLY before use in your tank. I can rinse a full 60lb bag of sand in about 20 minutes with a 5 gallon bucket and a water hose. The object of the rinsing is to get out the finest light particles, and in the case of the BDBS, the "oily" film that can come on it. Of course, any sand that you find at your local fish store is also just fine. You'll pay more for it, but it is usually ready to go, guaranteed fish safe, and comes in more uniform colors if you're looking for something specific.

### **Dirt**

Dirt don't hurt! (but it sure can be aggravating!) Dirt is natural. Plants love dirt! But not all dirt is created equal. Yes, you can go outside and dig up a bunch of dirt from your yard. Generally, it is a good idea to



bake it in the oven on a cookie sheet before using it though. This kills any dirt-borne bacteria or critters that could harm your tank. Most people prefer to purchase organic soil (with NO additives) in a bag from a big-box store. Removing large chunks of wood and rocks is a good idea. Dirt will definitely grow plants. It can be a good choice if you will be setting up your tank and then never messing with it again, except for trimming plants. This is one of the large downsides of using actual dirt. It's REALLY messy. In order to stop it from making your tank a cloudy muddy mess, you must "cap" it. This means putting down the dirt first, then covering it with a couple of inches of some inert substrate, usually sand. This keeps the dirt down, apart from the water column. But if you ever want to move a plant, that dirt is coming out with the roots! You can try removing plants slowly, wiggling them back and forth as you pull up. This help the sand cap push most of the dirt off the roots, keeping it under the substrate. But you'll find that plants that are growing well, also have really good roots, and no matter what you do, some of that dirt is coming out. Then you can vacuum it up or try to push it back under. It should also be noted that dirt will also leech quite a bit of ammonia when first flooded. So, check your parameters often in the beginning and don't add livestock right away. Your plants will eat it up though.

### **SUBSTRATE ADDITIVES – aka Dirt Roids**

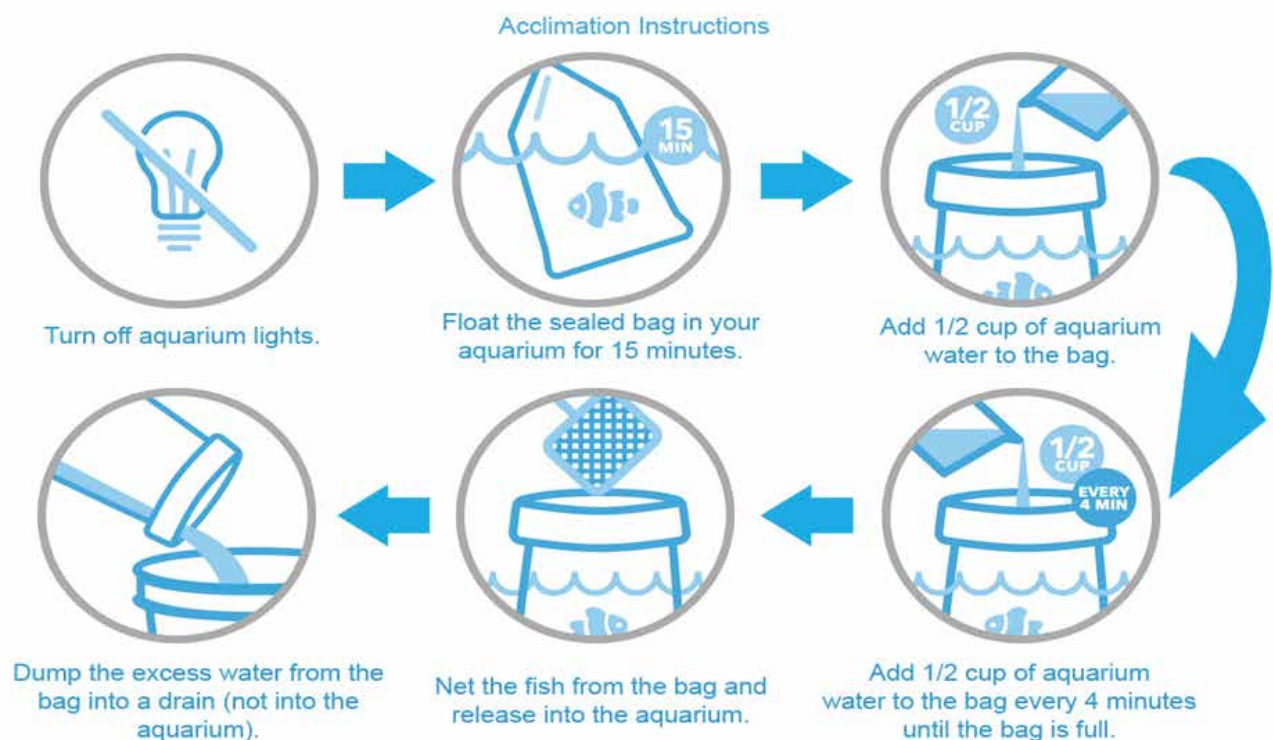
One thing that can be done (especially important with inert substrates) is using additives under, or mixed in

with, the substrate when setting up the tank. These additives can give the tank a kick start with beneficial bacteria, add additional minerals that the substrate doesn't contain, and even add functionality to the existing substrate beyond simply holding down the plants. While not 100% necessary, I find that it is an easy thing to do once and then never had to worry about it again. There are some high-end substrate additives that professional aquascapers use, such as ADA Power Sand, Bacter 100, Tourmaline, Clear Super, Penac, etc. Most of these contain beneficial bacteria that aid in setting up a growth bed for the plants that is already a healthy ecosystem. Other additives that are more generic can be used as well, even in tanks using aquasoils, dirt, and especially inert substrates. These would be things like Dolomite powder, Muriate of Potash (yeah it's a real thing), and some type of clay. Mexican red clay is a good choice. Simply roll it up into small balls and place a few of them around the base of the tank where plants will go. Or you can mix a clay-based mix like Flourite or even untreated basic clay based kitty litter. Another item that is VITAL for inert substrates is some type of nutrients. Osmocote+ is a great choice for this. When starting a new tank, sprinkling some of this under the substrate will really give your root feeding plants a leg up on life. That initial Osmocote+ will last about 3-4 months depending on how heavily planted the tank is. After that, you can replenish it by using DIY root tabs. Essentially, they are Osmocote+ in gel caps. Easy to make root fertilizer. You can also use commercially made root tabs as well, if you prefer.





You've got lots of options on what type of substrate you'd like to use in your planted tank. Think about your budget and goals, and hopefully this incredibly dry article about wet soil will help you determine which one is right for your tank!



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# Making your own Fish Food

**Article by Carla Johnson**

The old saying goes that you are what you eat, and the same can be said for your fish. They are what they eat, too. Well, actually, they are what we feed them.

When Mike and I started keeping discus, we had never prepared homemade fish food; we really had never even thought about it. However, after several trips to pet stores, and after buying commercial frozen discus food (big bucks!), we thought we needed to ask some questions of fellow fish club member John Nicholson, whom we knew as “the Discus Man”. After considering his suggestions and what we found on the internet, we decided that we could come up with our own version of “Discus Delight”, if a human would call it that. If you have a weak stomach, this may not be for you.

Homemade fish food is a lot like some recipes or, as Mike would call them, “Carla Surprise” recipes. It seems that no two times of making fish food ever turn out the same. Believe me, your fish will let you know how well you did or didn’t do. They will either eat with joy or will refuse to eat even one bite. That is when you realize your success or failure.

It has taken many batches of fish food to come to some type of perfection (ha!). One of our discoveries after the first batch was that it was a very easy matter to slap the final product into ziplock bags, lay them flat in the freezer and wait for them to freeze. It was quite another matter entirely to break the frozen product into pieces in order to feed your fish. Even a strong man like Mike had a problem with this. So I told Mike, “I have an idea.”

When I have an idea, he is not quite sure what to expect, so he looked quite nervous until I told him my idea. I told him that when I was a kid, my mom had ice trays with tiny holes like the trays that frozen commercial fish food comes in, that I called gumdrop trays. We decided it was worth a try to find some to use with our fish food.

I searched local dollar stores (my favorite places!), to no avail. Then, one day during a trip to the local

grocery store, I noticed buggies of stuff by the door outside and I just had to stop to see what was in them. Oh my gosh! I could not believe it! You would have thought I had found something SUPER SPECIAL. You have never seen a lady so excited to find ice cube trays, but there they were – just what I had been searching for.

I started counting - 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 . . . . I quit counting and just bought them all! When I got home I excitedly told Mike about my latest (not eat-able) Carla Surprise. He was almost as excited as I was when he saw the ice trays. Our next batch of fish food turned out much better, as we had part of what we needed for it to be successful.

If you have a large food processor, a small food chopper, a very large bowl, a rubber spatula and a “Seal-A-Meal”, you can properly make and store your fish food creation. By the way, you can go to [www.arrowplastic.com](http://www.arrowplastic.com) to purchase your Sport Cube Trays. The label says “perfect size for sport bottles and blenders”. They should also add “fish food” to the list.

Until next time, create your own “Carla Surprise” for your fish – they may just spawn over it!

## Carla’s Basic Meateaters Fish Food

All measurements are approximate:

2.5 to 3 lbs. of raw, trimmed, deveined ground beef heart  
1.5 lbs. raw liver (calf or beef)  
1 lb. raw gulf coast shrimp (I take the shells off )  
1 lb. raw white fish or other raw fish  
2 packages frozen chopped spinach  
1 package frozen green beans  
1 package frozen green peas (I prefer beans due to the shells on the peas)  
3 overripe bananas (for potassium)  
3 large grated carrots  
5 to 6 lightly pureed zucchini  
5 to 6 cloves of peeled, crushed garlic (very important



for immunity)

Flake food - pellets - algae wafers - shrimp pellets (act as a binder)

1 package bloodworms

1 package frozen brine shrimp

15 to 20 vitamins

Combine all in the large food processor and process well. Freeze for a few days in the ice cube trays, then package enough for a one- to two-week supply per Seal-A-Meal package. Enjoy watching your fish eat up!

HINTS: I use Centrum or multipurpose vitamins. I put them in a cup of water to melt the coating, chop them with the small chopper, and throw them into the mixture. Some people use bird vitamins, but I prefer tablets as they can be crushed to a powder and act as a binder. You could use either or both. We have used oatmeal, but have found that oatmeal clouds the water.

### Carla's Green Surprise by Accident Vegetarian Fish Food

2 lbs. raw gulf coast shrimp (no shells)

English peas

Green beans

Zucchini

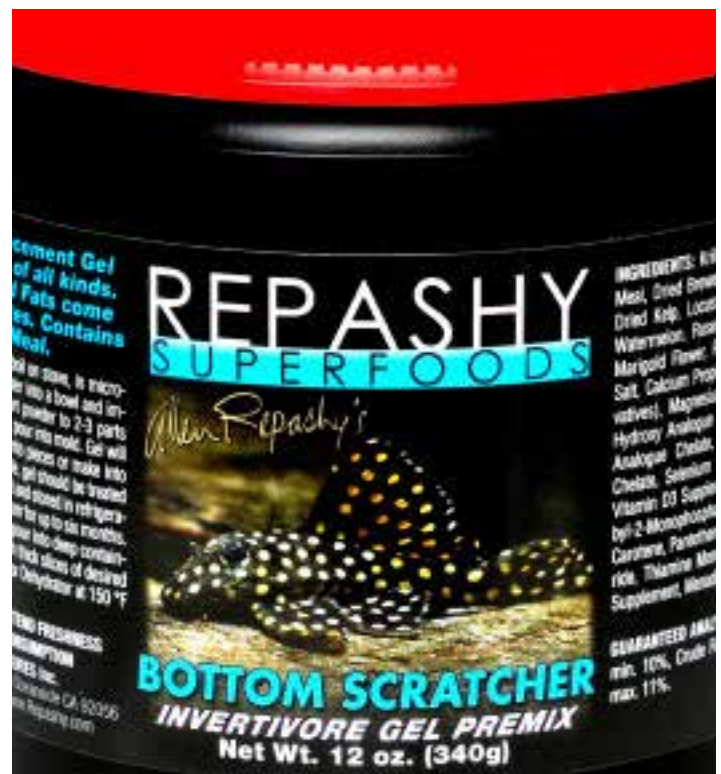
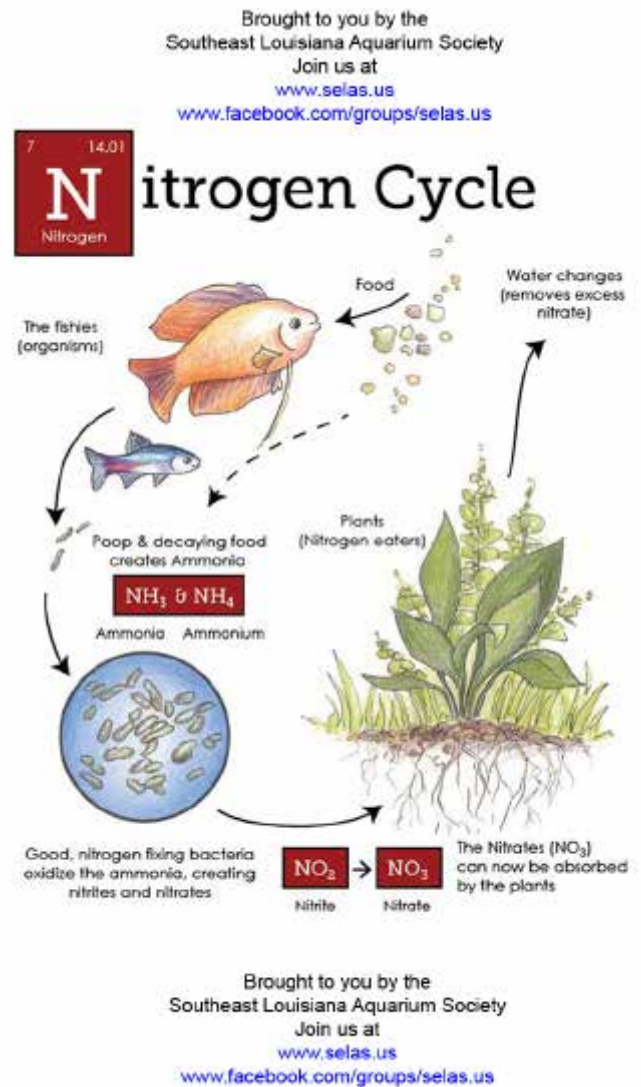
Carrots

Garlic

Veggie flake (from [www.yourfishstuff.com](http://www.yourfishstuff.com) - they sell HBH bulk)

1 small package floating pellets

Stir all together and process as per the previous recipe.



## **OKAA & OBBA Calendar of Events**

**August 27th**

**OKAA-OBBA**

**August Meeting**

**Bixby Library**

**September 10th**

**OKAA-OBBA**

**Swap Meet**

**Hilton Garden Inn Midtown Tulsa**

**September 24th**

**OKAA-OBBA**

**September Meeting**

**Bixby Library**

**October 21st - 23rd**

**OKAA-OBBA**

**International Betta Show**

**Hilton Garden Inn Midtown Tulsa**

**October Meeting will be at the show.**

**October 23rd**

**OKAA-OBBA All Species Auction**

**Hilton Garden Inn Midtown Tulsa**

**If your FOTAS club is having events and would like them published in Fish Tales then let your FOTAS Representative know and submit them to the Fish Tales Editor!**

# OBBA - OKAA All Species Auction

## 23 October 2022

Tulsa Midtown Hilton Garden Inn

4518 E Skelly Dr

Tulsa, OK 74135

### Sunday Auction Rules

OKAA/OBBA will not accept responsibility for any item's safe keeping nor its condition before or after the sale.

### SALES

- Cash only! 75%/25% Seller/Host Club
- IBC Auction Items will be the first to be Auctioned then the All Species

### ITEMS

- Only fish or aquarium related products are allowed in the auction.
- All items must be properly bagged if needed.
  - Proper fish bags must be used.
  - Zip-locks and baggies are unacceptable.
  - Live animals must be properly bagged with air and water. Please double bag.
  - Larger fish may be kept in buckets or other suitable containers, but the bucket becomes property of the buyer.
- Items such as driftwood or decorations do not need to be bagged; however, they must be labeled appropriately.
- Items not properly bagged will be rebagged by OKAA/OBBA volunteers. There will be a \$2 fee for items that need to be rebagged. This is NON-NEGOTIABLE.

### LABELS / SELLER SHEETS

- All Sellers must fill out a seller sheet.
- Your Seller ID are your initials. For example, if your name is Homer Jay Simpson, your Seller ID would be HJS.
- All items that you are selling must be listed on your seller sheet.
- All items must be labeled with your Seller ID and Item Number.
- Your labels should match the numbers on your seller sheet.
- You may put a reserve price on your item.
- Below are examples of acceptable labels:

#### EXAMPLES OF SELLER TAGS

### TIMES

- 9:00 am - 11:00 am Registration
- 11:00 am - 6:00 pm Auction

HJS 007 (Sellers 3 Abr Code and Item number)

Pygmy Chain Sword (Item description)

(*Echinodorus tenellus*) (Species-helpful but not needed)

Reserve \$5 (Not needed)



Notes: Species names can be vitally important and help your sales of particular species as well as location data if known. All IBC Items have a minimum of \$5 unless waived.



# **OKAA – OBBA Fall Swap Meet**

**September 10<sup>th</sup>, 2022  
10:00 am to 4:00 pm**

**Hilton Garden Inn, Tulsa Midtown  
4518 E Skelly Dr.  
Tulsa, OK 74135**

**\$20\* per Table, set up at 9:00 am  
For questions contact  
[herpchat@yahoo.com](mailto:herpchat@yahoo.com)**

**\*Cash or PayPal accepted**

# Oklahoma Betta Breeders Association Fall Show

October 21-23, 2022

Hilton Garden Inn, Tulsa Midtown

4518 E Skelly Dr.

Tulsa, OK 74135

Show Chairs: Gerald Griffin  
Email: [herpchat@yahoo.com](mailto:herpchat@yahoo.com)  
Phone: 918-581-4663

Mail Entries to:  
Valaree Brown  
29321 E 36th St S  
Broken Arrow OK 74014



**Special Note: Do NOT label your shipping boxes "Live Fish."** We have had issues in the past with certain shipping companies holding boxes marked in this manner. Please send your fish through the United States postal service if at all possible. Sending through UPS or FedEx can result in mishandling and/or delay.

**Show Fish:** Mail-in entries need to arrive no later than **5 PM Friday, October 21<sup>st</sup>, 2022**. OBBA will need to receive your entry form, fees and return postage (if necessary) with your fish. Return postage and entry fees cannot and will not be deducted from auction proceeds. Please provide a return mailing label, empty bags and heat packs (if desired) with your fish.

## **Please pre-register all your show fish!**

Email your entry form to the show chair by

**Thursday October 20<sup>th</sup>, 2022.**

**Walk Ins:** All walk-in entries must arrive by **5:00 PM Friday, October 21<sup>st</sup>, 2022.**

Please notify the show chair when you will be arriving with your fish. You **must** tell the show chair if you are bringing walk-in entries!

## **Entry Fees**

\$3.00 per single entry

\$5.00 per pair

Make checks payable to: Gerald Griffin

PayPal is accepted. Send PayPal payments [herpchat@yahoo.com](mailto:herpchat@yahoo.com)

## **Auction Fish:**

Unless marked on the entry form, auction fish have a minimum bid of \$5.00.

You may also send fish to be sold in the Stock shop

**Money Split:** Seller split is 75% to seller and 25% to OBBA on "Show Fish". There will be a 50/50 split on all stock shop items.

**Unsold Items:** Please include information about what you would like done with unsold items. Options are:

- 1) Have them returned to you (providing you have included return shipping money) (default option)
- 2) Reduce the price until they are sold (reduction at auctioneer's discretion)
- 3) Club donation

**IBC 2023 Spring Betta Shows hosted by  
Oklahoma Betta Breeders Association  
April 01 & 29, 2023**

**Two Dates! Two Shows!**

**Hilton Garden Inn, Tulsa Midtown  
4518 E Skelly Dr.  
Tulsa, OK 74135**



Show Chair: Valaree Brown  
Email: Valaree.bobbitt@yahoo.com  
Phone: 918-859-9970

Mail Entries to:  
Valaree Brown  
29321 E 36th St S  
Broken Arrow OK 74014

**Special Note: Do NOT label your shipping boxes "Live Fish."** We have had issues in the past with certain shipping companies holding boxes marked in this manner. Please send your fish through the United States postal service if at all possible. Sending through UPS or FedEx can result in mishandling and/or delay.

**Show Fish:** Mail-in entries need to arrive no later than **5 PM Friday March 31<sup>st</sup> and April 28<sup>th</sup>, 2023**. OBBA will need to receive your entry form, fees and return postage (if necessary) with your fish. Return postage and entry fees cannot and will not be deducted from auction proceeds. Please provide a return mailing label, empty bags and heat packs (if desired) with your fish. **Please pre-register all your show fish!** Email your entry form to the show chair by **Thursday March 30<sup>th</sup> and April 27<sup>th</sup>, 2023**.

**Walk Ins:** All walk-in entries must arrive by **10:00 AM Saturday, April 1<sup>st</sup> and/or April 29<sup>th</sup>, 2023**. Please notify the show chair when you will be arriving with your fish. You **must** tell the show chair if you are bringing walk-in entries!

**Entry Fees**  
\$3.00 per single entry  
\$5.00 per pair  
Make checks payable to: Gerald Griffin  
PayPal is accepted. Send PayPal payments herpchat@yahoo.com

**No Auctions!**

**These shows are one day events with no  
auction!**



**Previous Issue of Fish Tales**

**What would you like to see in the next Fish Tales Magazine?**

**Contact the Editor if you have story ideas or would like to contribute to Fish Tales!**

**FOTAS**



Federation of Texas Aquarium Societies

# **Fish Tales**

**Volume 12 Issue 2**

**Apr - Jun 2022**

**Convention 2022 Recap**

**Fish have Good Memories  
and can be Quite Cunning**

**My Experience with Red Devils**



**Guide to the Healthy Betta Part One: Overview of a  
Healthy Betta and Maintaining a Sterile Fish Room!**