

FOTAS



Federation of Texas Aquarium Societies

Fish Tales

Volume 11 Issue 1

**Adventures in Pond
Keeping Part 2**

Jan - Jun 2021

**Adventures in
Shrimp Keeping**

**The Betta Photography
of Kenny Seaw**



**Why doesn't
that plant grow
in my tank?**

***Harpogochromis* Pfeffer,
1896: A Genus Review**

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In this issue:

3 Presidents Message **Clay Trachtman**

4 Why doesn't that plant grow in my tank? **Alex Brown**

5 Editor's Message **Gerald Griffin**

6 Adventures in Pond Keeping Part 2 **William "Clay" Trachtman**

11 *Harpogochromis* Pfeffer, 1896: A Genus Review **Greg Steeves**

18 Adventures in Shrimp Keeping **Jay Marshal and Eric Martens**

21 The Betta Photography of Kenny Seaw **Fish Tales Interview**

On the Cover:

Dumbo or Elephant Ear Betta
Photo by Kenny Seaw

Design and Layout
Gerald Griffin

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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. 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.....
June 30th 2021

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President's Message



Clay Trachtman
FOTAS President

Hello all,

It has been quite some time since the last publication of FOTAS Fish Tales, but good things come to those who wait. There were a few things that I wanted to mention since the last issue.

First was the whole COVID thing. As an aquarium club, one of the things that we like to do is get together and talk about various aspects of keeping fish and aquariums. Well, with the whole social distancing aspects of COVID, this was extremely difficult. However, one thing that I really enjoyed were the online presentations, especially those of the Minnesota Aquarium Society. It was extremely enjoyable to sit in on talks about live bearer genetics as well as bettas. This really helped me to “get my fix” of talking about fish with others. Plus, it was nice for me to be able to joke with them saying that I was in shorts while it was extremely cold up there.

That leads me to my next point. Our region was also hit with some unprecedented cold weather. Yes, many people lost fish and that was very sad, but what got me was the compassion that I saw from other people that survived the cold unscathed who were more than happy to donate fish and supplies to others who lost their entire collection. This was really heart warming for me, and just shows the compassion that most of us have in the hobby.

Until next time, happy fish keeping!

William “Clay” Trachtman

Why doesn't that plant grow in my tank?

Article by
Alex Brown

It's Christmas time in Texas. That means it's time to decorate your cactus! I was recently the winner of an online trivia contest and I won free plants! *Pogostemon helferi* aka 'Downoi' to be exact. To me it looks like little cactus plants. I think they're awesome. But this is a notoriously fickle plant. In fact, the last time I got some (which I paid for), every single plant-let I put in my tanks melted and died within a week. I even split my purchase across two separate tanks with differing water conditions to try and hedge my bet a little, thinking that I should be successful in at least one of the tanks right? NOPE. So here I am trying again (successfully I think, as I knock on wood). And that's the inspiration for this edition of Brain Ferts. Why some plants will grow in some tanks but not others.

Now, I'm not talking about those poor souls (I've been one of these) that can't get any plants to grow in their tank. That is due to some missing basic needs of the plants in general. I'm talking about how specific plants just won't seem to grow in your tank, no matter how well ALL the other plants in your tank are growing. It's REALLY frustrating. So we're probably on a more advanced aquatic plant subject, but it pertains to even novice aquascapers because you shouldn't feel like a failure if some plants die in your tank, if you can get others to grow just fine. Case in point, I've failed MANY times at getting regular old *Ludwigia repens* to grow in my tanks on multiple occasions. Yep. The "EASY" or "BEGINNER" or "LOW MAINTENANCE" plant often appearing on a list of plants that first time live plant users are told to look for. The same plant that

easily grows wild and rampant in ditches all across the southern United States. It hates me. I've killed that plant in more ways than you can imagine. Don't give up!

Then why is it that some plants can be the bane of our aquascaping existence, while the same plant can be grown so easily by mister "Duuuude. That plant is SO easy. I haven't done water changes in 4 years and it grows great for me!" (hate that guy by the way). Variables and personality. "Alex, you done gone and lost yo damn mind! Plants don't have personalities!" OK, hear me out. Something I think a lot of aspiring aquascapers fail to realize is that plants are a lot like the fish we keep. It's easy to say as long as you have light, ferts, and enough CO₂, plants will grow. Would you say the same about fish? Try putting a \$300 pair of soft water *Betta macrostoma* in a tank with hard water parameters set up for Rift Lake Cichlids. I hope you like setting money on fire and watching it burn. Well the same is true for plants!! Just like fish, plants have their own desired parameters. Some like softer water, some like harder water, some do well in warmer temps while others will thrive in cold mountain streams but melt if the water temp gets to tropical standards. They like different things and act differently – they have personalities (see whut I did thar?).

I'm not going to waste your Christmas vacation days laying out all the different types of plants, where they come from and what they like (although I have proven without a doubt that Christmas moss likes listening to Metallica). But the point I really want to get across

is that you NEED to pay attention to what your plants like. If you plan on keeping a cold water stream tank with darters and white clouds, don't try to plant it with sensitive tropical plants that do well in 80 degree water. Conversely, if you're keeping a nice big soft water discuss tank with 84 degree water, don't bother trying to keep Anacharis growing in there since it typically likes colder, harder water. Water flow can even be a consideration. Some plants (most *Cryptocoryne* species for example) do really well in low flow situations, while

others do better with high flow and constant water turnover sending fresh nutrients to their leaves all the time. Do your research. Many online plant sellers list the parameters for plants just like they usually do for fish. Pay attention to that. Matching the plants with your water will be one less mistake you have fighting you for that awesome plant growth.

Happy Holidays Ya'll!

Editor's Message

So why is Fish Tales Important? Personally to me it helps the members of FOTAS learn information in an easy to read format. I understand that the younger generation prefer to obtain their information via videos. However daily I am confronted by people who are "acclaimed experts" because of the number of subscribers they have on YouTube, TikTok or whatever platform. Unfortunately many are full of shit. Yeah I said it! I find very few that I would actually trust with any useful knowledge. I find myself personally deciding to take my original Betta Time Podcasts and reformatting them for my new Betta Time YouTube channel. Yes I have taken that plunge.

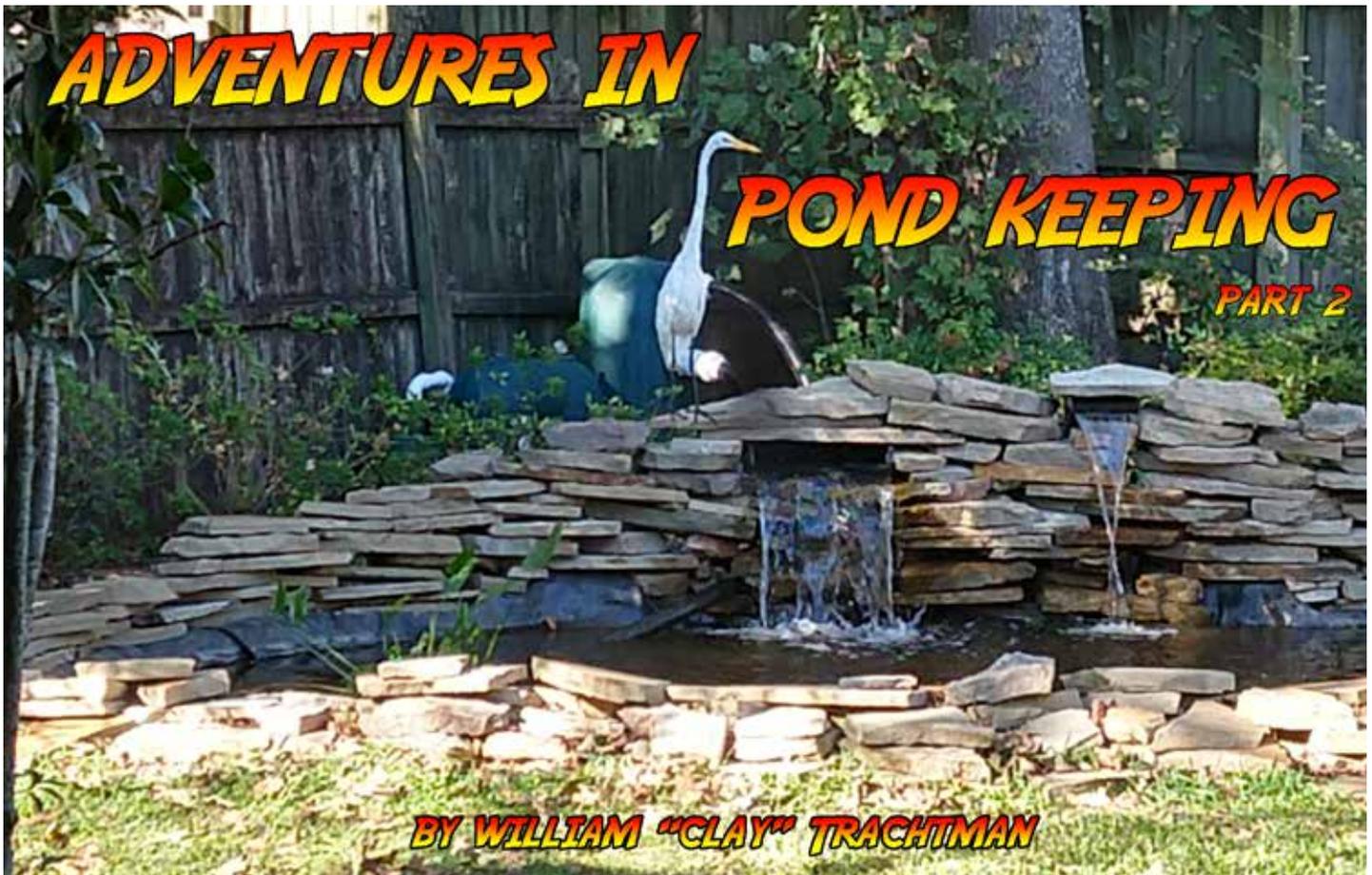
So why Fish Tales? Everyone should be able to read and printed media is never going away. The delivery platform may change i.e. PDF instead of Printed Form however it is still print. Print gives us a permanent record of information that will always be available somewhere. We still also have many members who still rely on printed material and with printed material it is much easier to back up a claim or question material printed. Even though it is in printed form does not mean it is correct. Understandings change all of the time and this hobby of ours is always changing with it. Treatments for Diseases and Pathogens change as our understanding of problem changes. Fish Taxonomy and in fact all Taxonomy is always changing.

If you were to look at your local Fish Clubs you are probably going to find some very knowledgeable people. Some might even be experts in their fields. FOTAS has many such experts in the Aquarium Hobby. We also have yearly Conventions where these speakers share their knowledge. (Although Covid did cause us to cancel two of those years). In 2022 there will be a major Convention in the Dallas Area and you can be assured, there will be experts talking about the fish they love.

Another important aspect of this hobby and one I hammer home in the talks that I do is that you might discover something totally new the hobby! This actually happens more frequently than you might think. What better way to preserve that knowledge than to write an article about it and publish it in our Fish Tales Magazine.

So why is Fish Tales important to you?

Gerald Griffin



Welcome back! To recap last month's article, I had a bunch of setbacks but I at least had what most people would call a pond. However, it had no filter, no fish, and no plants (ok the trained eye might see some plants in the final picture of last month's article). Just like last time, I will bold important items and use a **red bold** font where I made mistakes. With that, let's get back to business!

Electricity

In order to run the pumps and filtration, I needed electricity run out to the pond. This was a relatively easy step as it basically just involved me getting a few quotes and then letting them do the manual labor. A trench was dug from the house to behind the rock wall. The conduit piping and wiring was put in the trench and then buried as to be out of site. An electrical outlet was installed behind the rock wall.

20/20 Hindsight: Make sure the outlet is at least 6 inches off the ground. When first installed, mine was right at ground level and would get wet, causing it to short out. The electricians came back out and raised it for free.

Plants

For plants, I knew I wanted a combination of Louisiana Irises and water lilies. The colors of the irises did not matter to me, but for the water lilies I wanted a yellow one and a purple one. Two friends of mine were happy to provide me with pond plants, the exact kinds that I wanted. By no means am I a plant expert, but **I thought that all of the pond plants would be fine on the shallow end of the pond (approx. 1.5' of water),** but I was wrong.

It turns out that the irises only do well in much shallower water, like 6 inches of water). So now I had to somehow increase the elevation of the irises. After doing some research online, I decided to go with milk crates. The milk crates came in different sizes, and after having been in the pond itself where the water almost went up to my knee, **I decided to ball park it and order the 15" inch high crates instead of the 12" high crates.**

After waiting a week for the milk crates to arrive, I put them in the pond and put the irises on top of them...

well, the 15” was too much, the pots were sticking out of the water. Now I had to go back, order the smaller crates and then wait again. After another week of waiting, the smaller crates arrived and they fit perfectly.

20/20 Hindsight: Don't be a dumb ass and approximate your measurements based on how high you thought that the water went up your leg...go ahead and measure. Luckily, I was able to use the initial batch of milk crates in my fish room, but that is another story.

Here is where it gets interesting (to me anyway). All of the plants that I received had never been kept with fantail goldfish. The irises had come from a pond with native fish, and the lilies came from a pond with no fish. However, without me adding any fish to the pond, I thought I saw some goldfish after a month or so. A few weeks later it became more apparent that there were fantail goldfish in my pond, and they were growing fast. In total, I pulled out 9 fantail goldfish, and to this day, I have no idea of where they came from!

Unfortunately, the first batch of irises did not survive. They were destroyed by what I now believe were army worms. I replaced the irises from the same friends as before. However, now if I see an army worm, I kill it. Hopefully, by next spring, I will have fish that will eat the army worms.

Filters

In Baton Rouge, we have a company that makes pond filters. It was recommended to me, so I decided to check them out. The name of the company is Aquaculture Systems Technologies, LLC. or AST for short. They specialize in bead filters that are used for fish hatcheries and zoos. I went over there with 2 of my friends to get a tour of the place and to see how the filters work. The owner of the business explained to me that water is forced through the beads where the detritus is caught. What makes their filter unique is that the filter will automatically clean itself using an automatic backwashing process. I was thoroughly impressed and decided to go with one of their filters: the AST Endurance 4000. I also installed a 40 watt UV filter. However, I have realized that I don't need it, so I have it turned off for the time being.

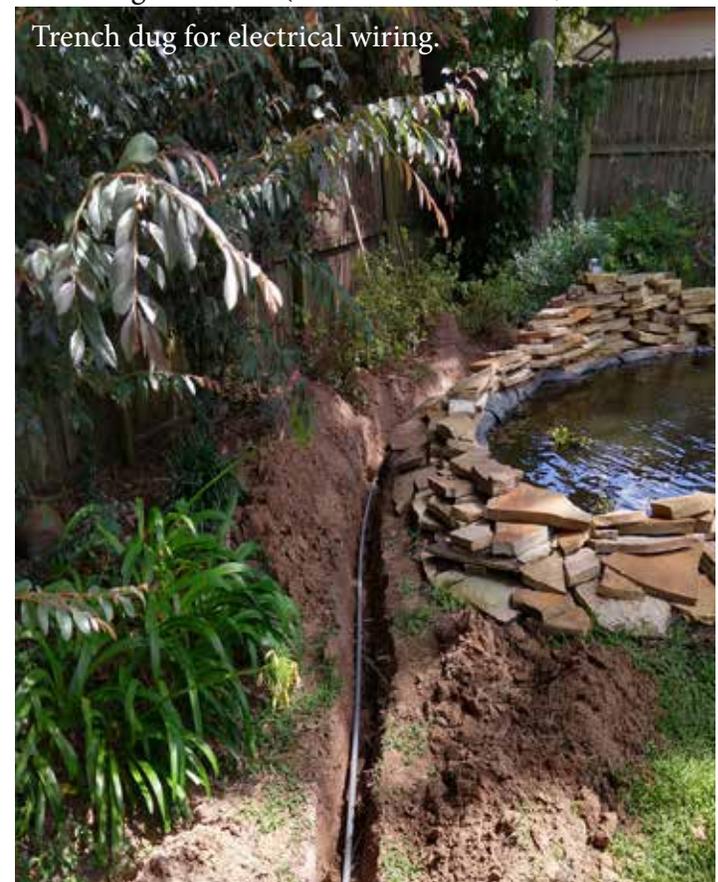
Fish

My plan has always been to keep at least 1 albino gibbon pleco (*Pterygoplichthys gibbiceps*) in the pond during the warmer months (April – early October). I had been keeping one in an aquarium and it was the first fish that I released into the pond (even before the filters were installed). After the filters were installed, I purchased several small koi from 2 local koi farms just outside of Baton Rouge: Purdin Koi Farm and Ornamental Pond Fish. I also have a silver arowana (*Osteoglossum bicirrhosum*) and a mated pair of large albino oscars (*Astronotus ocellatus*) that will go in the pond during the warmer months. My dream is to see the albino oscars swimming in the pond while they protect their fry.

20/20 Hindsight: Normally I always recommend going to a local fish store to get fish; however, in the case of koi, I recommend going to a koi farm to buy your fish. You will see a much larger selection of koi.

Leak

So that's it...or so I thought. After about a month of everything working perfectly, I noticed that my pond was losing water fast (fast is a relative term, about 6



Trench dug for electrical wiring.

inches in one day). After a little bit of investigation, I discovered that one of my waterfalls was allowing water to go outside of the liner. This was something that I had not planned on. In order to remedy the situation, I had to take the rock wall down and essentially extend the liner out so that it sloped into the pond (I had to buy a small separate liner to do this). I also made the sides of this new feature higher than the surrounding area so that any water that leaked from the water falls would flow back into the pond. Once this slope was installed, I rebuilt the rock wall.

20/20 Hindsight: That ramp feature should have been installed in the beginning. If you build a pond, include it, it makes things much easier.

Future

As far as I am concerned, the pond is pretty much finished. There are a few relatively minor things that I will improve on, but that will not be done until the spring. The first thing that needs to be done is that the pond needs a good vacuuming. In part one of the article, I mentioned how the pond flooded with mud-

dy water twice. Unfortunately, a lot of that dirt is still in there, and when the koi swim around, they tend to kick it all up. I hope that the vacuuming will clean it all up and allow the filter to maintain the clarity more easily.

Additionally, I think I will increase the amount of water flow out of the smaller water fall. The current set up uses a 950 gallon / hour pump. At one time, I had an 1800 gallon / hour pump hooked up to it, but there was no difference in flow. The reason for this is because the tubing I was using was standard hose tubing, about 1 inch in diameter. I have some extra 2.5-inch tubing, so I am going to try to reconnect the larger pump with the thicker tubing and see if it makes a difference (it should).

Finally, I want to try to plant some ferns on the side of the waterfall. I have discovered that a fern called Northern Maiden Hair Fern (*Adiantum pedatum*) attaches to rocks and generally grows near waterfalls in the US.

Once I do all of that, I think that the pond will be com-

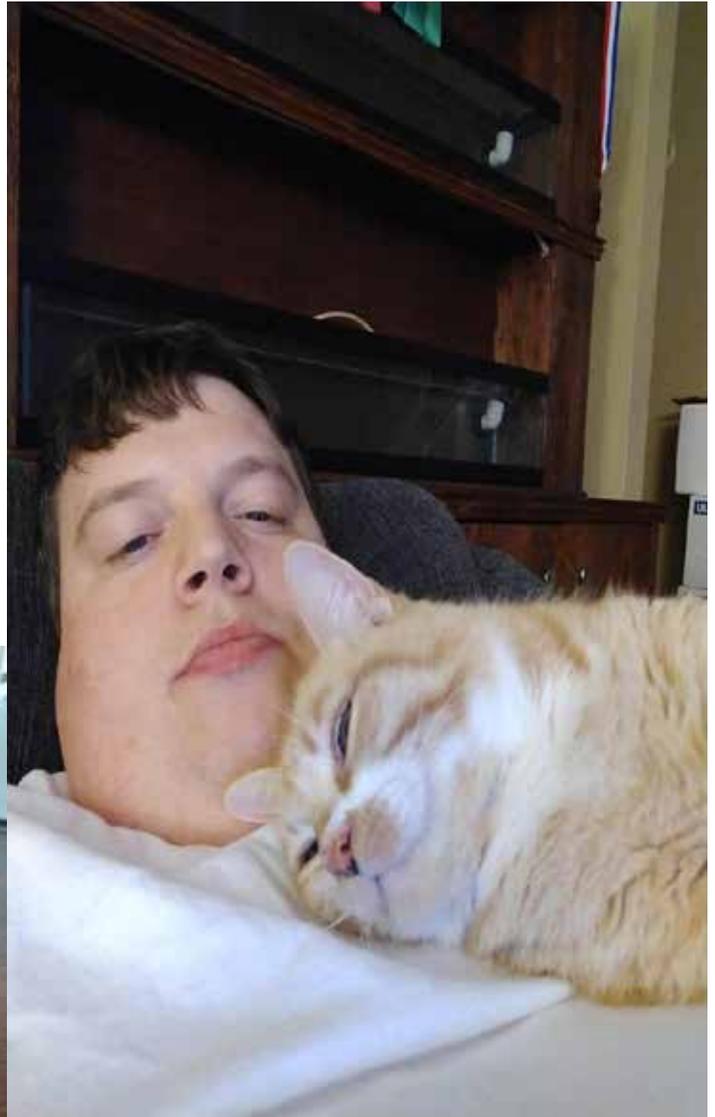


The milk crates are too high, now the plant containers are seen above the water which looks ugly!

plete...until I find something else that needs improvement!

Dedication

Finally, I would like to dedicate this article to my cat Kano. Kano lived for about 12 years in an apartment. He could go outside, but there was not much grass around, just concrete. When I moved to the new house, he finally got a yard and even a koi pond. He only got to live at the new house for about 9 months before I had to put him down due to kidney failure, but he enjoyed walking around the pond for those few, short months.



Some of the mystery fantail goldfish.

Ron Malone of AST Filters explains how the larger filters work to John Standiford and Fabian Leyva of Louisiana Fish Store.





Award winning koi at Purdin Koi Farm.
Each koi is nearly 3' long!



A sloping feature had to be built because the water falls were leaking. The liner was extended, and sloped toward the pond (see insert) so any leaking water from the water fall would go back into the pond.



Kano the cat supervising the draining of the pond.

Harpagochromis Pfeffer, 1896: A Genus Review

Article by Greg Steeves
Reprinted from the Lateral Line
Volume 3 Issue 4

Harpagochromis sp. “orange rock hunter”,
a recent addition to the American hobby.

The genus *Harpagochromis* was erected in 1896 by G. J. Pfeffer. The *Harpagochromis* name is rooted in Greek. “Harpagē” means robber while “chromis” denotes color. The basic cues which differentiate *Harpagochromis* from other cichlids of haplochromine lineage include body shape, dentition, and feeding strategies.

The *Harpagochromis* contains a number of species and all are piscivores. Many of these cichlids are now listed as extinct in their native waters while captive *Harpagochromis* stocks are not at all abundant. Members of the *Harpagochromis* group can be found in Lake Victoria, Lake Edward, Lake George, The Victorian Nile, Lake Kyoga and Lake Nawampassa.

These are deep bodied cichlids and can attain a length in excess of 20cm which is substantially larger than most other haplochromines from the Victorian basin. A deceptively large mouth is angled upward. The lower jaw extends past the upper. The outer teeth are bicuspid and sometimes unicuspid in larger members of the genus. Between one and five inner rows of unicuspid and/or tricuspid teeth line both jaws (Greenwood, 1962).

Harpagochromis is closely related to the *Prognathochromis* lineage. The majority of described species from

both genera are endangered or feared extinct exist (Loiselle, 2004). Species in these assemblages were a primary target for Lates niloticus (Fermon, 2005) and although it is hopeful that pockets of breeding populations may still exist. The present and future of many species in the *Harpagochromis* genus is bleak at best.

The species:

altigenis (Regan, 1922) Bunjako, Uganda

Harpagochromis altigenis was last seen at Anchor Island, Mwanza Gulf in 1989. Traditionally found in open water, this piscivore reaches over 20cm in length and feeds mainly on haplochromine type cichlids.

The cranial profile of *Harpagochromis altigenis* is elongated and curved. Thick lips edge a large extending mouth. The lower jaw protrudes beyond the upper (especially in larger specimens). Outer row teeth are unicuspid while the inner 2-4 rows are weakly tricuspid or unicuspid (Greenwood, 1967).

Body coloration is light silver becoming darker towards the dorsal. There are seven vertical bars and a faint mid lateral stripe. It is very likely that with dominance, male body coloration will turn much darker as with *Harpagochromis* sp. “golden duck”. The dorsal fin



Harpagochromis sp. "golden duck" from Lake Nawampassa, Uganda.
Photo by Dave Hansen.

is light brown-green with black edging. This same coloration is found in the anal fin with 3-5 white egg spots in 2-3 rows. The pelvic fins are tan brown as is the caudal fin at the base extending to clear.

artaxerxes (Greenwood, 1962) Near Jinja Uganda, Lake Victoria **extinct**

The species description of *Harpagochromis artaxerxes* is based on a single specimen taken from Napoleon Gulf Uganda. The name is derived from Artaxerxes, King of Persia.

The distinctive characteristic of this species was the extremely long pectoral fins. The third and fourth rays of the pelvic fins extend well beyond the others giving this species not only the longest pectorals of all Victorian species, but also a distinctive shape (Greenwood, 1967).

boops (Greenwood, 1967) Buvuma Island, Uganda. Lake Victoria. **extinct**

Species description is based on three specimens taken in deep (36m) water. Coloration or specifics on habitat are unknown. Gut examinations show a piscivorous diet consisting of haplochromine type cichlids (Greenwood, 1969). *Harpagochromis boops* has not been seen since 1966.

cavifrons (Hilgendorf 1888) Lake Victoria. **critically endangered**

Harpagochromis cavifrons, before the *Lates niloticus* upsurge, had a wide distribution in Lake Victoria. It was thought to have been a victim of the Nile perch until, in 1995, a specimen was caught at the Vesi Archipelago (Seehausen, 1996).

At a length of near 20cm, *Harpagochromis cavifrons* is a formidable predator. This species incorporated more insect matter into its diet than most other members of the genus. It has a distinctive brown blotched pattern over a dull olive green body. Yellow ocelli spot a pink red anal fin. The dorsal and caudal fin is clear with tanned colored spotting throughout. The pectoral fins are yellow with brown streaks on the two first spines. Two faint horizontal bars cross the flanks.

Stout unicuspid teeth line the outer row of the jaws while mostly unicuspid teeth (some tricuspid in smaller individuals) line 1-4 inner rows. It has mostly been found off shore over a hard bottom (Greenwood, 1966).

diplotaenia (Regan & Trewavas, 1928) Lake Victoria **extinct**

This small piscivore (11cm) is described from incomplete specimens. Available cranial samplings conform to a *Harpagochromis* lineage however without more complete analysis; species description is tentative and may never be confirmed.

guiarti (Pellegrin, 1904) Mwanza Gulf, Lake Victoria.

Before 1980 *Harpagochromis guiarti* was abundant in Lake Victoria. It had a wide distribution throughout the lake over a variety of substrates. The diet consisted of young cichlids as well as insect larvae.

Harpagochromis guiarti is a small representative of the genus and was an intermediate species bridging the span between piscivores and some of the *Astatotilapia* insectivores.

Dominant males display a green tinted dark merging to a silver under belly. As many as ten vertical bars cross the body dissecting a thin mid lateral black band. The pectoral fins are black. The caudal fin is clear with a dark tinge and a black trim. The dorsal and anal fins are translucent. The dorsal is lined with a black band. Two or three yellow egg spots dot the anal fin as well (Greenwood, 1980).

howesi (Van Oijen, 1992) Mwanza Gulf, Lake Victoria. **critically endangered.**

Harpagochromis howesi is a complex of cichlids described by M.J.P. Van Oijen (Leiden) as *Haplochromis howesi*. This species is also commonly referenced as *Prognathochromis*. Seehausen tentatively classifies *howesi* as *Harpagochromis* to which this species accurately conforms.

Argument could be made for the *Harpagochromis* classification as *howesi* is not so much a piscivore as a specialized crab eater. It hunts in the crevices between rocky shelves and was last seen at Anchor Island in 1989. In 1996 Yves Fermon and Ole Seehausen found *Harpagochromis howesi*-like species at Gana Island in Speke Gulf. Juveniles remain nearer to shore than adults whose preferred habitat is deeper waters (Seehausen, 1996).

The lower jaw of *Harpagochromis howesi* extends well beyond the upper jaw. Dominant male body coloration is black with seven subdued vertical bars. The dorsal fin is translucent and tinged in light blue. The anal fin is red protruding from the base fading to clear with 2-3 ocelli. The pelvic fins are black as is the base of the caudal fin. The caudal fin is clear towards the outside edge. Small embedded scales can be found between the rays of the dorsal and anal fins. Females are olive green or grey with dark gray or greenish yellow fins. Adult size can reach 30cm with females slightly smaller than males.

At a time before *Lates niloticus* decimated many of the Lake Victorian piscivores, *Harpagochromis howesi* may have contained numerous variants with a wide range especially in the Mwanza Gulf area. Although never found in great abundance, the present population density of *Harpagochromis howesi* is unknown. Hope is that this unique species still exists in isolated pockets yet to be discovered.

maculipinna (Pellegrin, 1913) Lake Victoria **extinct**

Harpagochromis maculipinna is distinctive from other members of the genus in that it has a large eye size. It grows to 16.5cm and feeds on fish and insects. Adult specimens have a unicuspid outer row of teeth. The inner teeth are lined in rows numbering 1-4 and are a mixture of unicuspid and tricuspid (Greenwood, 1967). Live coloration is unknown as *Harpagochromis maculipinna* is considered extinct.

mentatus (Regan, 1921) Lake Edward

Trewavas considered *Harpagochromis mentatus* to be very closely related to the Lake George species *Harpagochromis squamipinnis*. Greenwood examined the *Harpagochromis mentatus* holotype at Harvard University and considered the lone *Harpagochromis mentatus* specimen to be a juvenile form of *Harpagochromis squamipinnis*. It is found in shallow water over a mud bottom and grows to 15 cm (Greenwood, 1973).

michaeli (Trewavas, 1928) Rusinga Island, Lake Victoria **extinct**

Harpagochromis michaeli grows to 14.5 cm (based on largest preserved specimen). The upper jaw contains 3-5 rows of teeth with the outer row slightly curved and unicuspid. The inner rows are unicuspid or weakly tricuspid. The lower jaw contains the same dentition pattern as the upper but lined with 1-4 rows. *Harpagochromis michaeli* is found near shore frequenting bays or inlets over a mud bottom in relatively shallow (3-35 m) water. Gut samplings confirmed a diet of fish along with incidental plant material which was not digested (Greenwood, 1973).

nyanzae (Greenwood, 1962) Jinja Uganda, Lake Victoria. **extinct**

Harpagochromis nyanzae conforms closely to other haplochromine lineages in body shape. The "arrow" shaping that is found in the majority of members of this genus is not conformed to this species. The cranial shape is slightly rounded with a higher slope than other *Harpagochromis* species. It is a large predator growing to 17 cm. Outer tooth rows are unicuspid while the inner are unicuspid and weakly tricuspid in 2-4 rows. *Harpagochromis nyanzae* is found within the confines of Napoleon Gulf over a hard bottom in shallow water (>6 m). This species feeds on other haplochromines as well as insect matter (Greenwood, 1966). *Harpagochromis nyanzae* is closely related to *Harpagochromis victorianus* and to the *Harpagochromis serranus* complex.

pachycephalus (Greenwood, 1967) Kazima Island Uganda, Lake Victoria. **extinct**

Harpagochromis pachycephalus is a large hunter reaching a length of 23.2cm. There are 2-5 rows of unicuspid teeth in the upper jaw and 2-4 in the lower. *Harpagochromis pachycephalus* is found over soft bottoms in deep water (30-35 m) off shore of the mainland but close to islands. Stomach contents consisted of cichlids and, in one case, remains of a cyprinid (Greenwood, 1967).

paraplagiostoma (Greenwood and Gee, 1969) Bulago Island, Lake Victoria. **extinct**

Harpagochromis paraplagiostoma is among the smallest representatives of the genus at 9.8 cm. Outer rows in both jaws contain bicuspid with a few interspaced unicuspid teeth. Inner teeth are tricuspid lined in 1-2 rows.

Harpagochromis paraplagiostoma samplings were all (8 specimens) taken in 24 m of water over a mud bottom. There are subtle differences between *Harpagochromis paraplagiostoma* and *Harpagochromis plagiostoma* including dentition, coloration and possibly size (Greenwood & Barel, 1978).

pectoralis (Boulenger, 1911) Jinja Uganda, Lake Victoria. **extinct**

Harpagochromis pectoralis is an earlier description of *Harpagochromis squamulatus* (as *Paratilapia pectoralis*). This species is often, but should not be confused with *Ctenochromis pectoralis* (Pfeffer, 1893), a riverine haplochromine.

plagiostoma (Regan, 1922) Bunjako, Uganda, Lake Victoria. **critically endangered**

Harpagochromis plagiostoma has a unique caudal fin shape shared with only *Prognathochromis flavipinnis*. The caudal fin spines in the upper portion of the caudal fin are longer than those on the bottom giving the fin a noticeable diagonal slope. In sexually dominant males the caudal fin is dark grey black with a red margin. The anal fin is crimson red with bright yellow eggs spots in a single row. Pelvic fins are black. The dorsal fin is dark grey with red spotting towards the back portion as well as at the base. Body coloration is grey with bright speckling on the gill plate. Females sport a silver coloration with two laterally running bars. One bar splits the body while the other is shorter and

not as pronounced running along the dorsal portion.

Harpagochromis plagiostoma has no particular preference in regards to substrate. It is found in relatively shallow waters (less than 10m) in sheltered bays and inlets. *Haplochromis plagiostoma* is a strict piscivore feeding on haplochromines and *Rastrineobola argentea*, a minnow native to Lake Victoria (Greenwood, 1966). At 15 cm, *Harpagochromis plagiostoma* is a moderately sized representative of the genus.

serranus (Pfeffer, 1896) Lake Victoria.

Harpagochromis serranus is another Lake Victorian piscivore with a wide distribution. At 20.5 cm, *Harpagochromis serranus* is a formidable hunter on haplochromine cichlids. It can be found close to shore usually over, but not restricted to, a mud bottom.

Harpagochromis serranus has a long pointed head with thick lips and a lower jaw protruding past the upper. Cranial slope is straight or very slightly curved. Teeth in the outer row are mostly unicuspid with smaller individuals containing a few bicuspid as well. Two or three inner rows of teeth are curved as is the front, with unicuspid and sometimes tricuspid (especially in smaller individuals) dentition.

Dominant male coloration consists of a light brown head and back, with bluish green flanks. The dorsal fin is blue grey with red fin rays. The caudal fin is tanned but translucent trimmed in red. The anal fin is also grey with splashes of red and two or three yellow ocelli. A broken bar extends across the back following the upper lateral line while a thicker solid horizontal bar dissects the body from the base of the caudal peduncle to the gill plate.

A number of species including *Harpagochromis maculipinna*, *victorianus*, *nyanzae*, *acidens*, *spekii*, *pachycephalus*, *boops*, and *thuragnathus* share distinctive characteristics providing ligament argument supporting a *Harpagochromis serranus* species complex (Greenwood, 1966).

Harpagochromis serranus populations have survived the Nile perch influx and stable pockets remain throughout Lake Victoria.

spekii (Boulenger, 1906) Lake Victoria and the Victori-

an Nile. **extinct**

Humphry Greenwood considered *Harpagochromis spekii* and *Haplochromis serranoides* (Regan, 1922) to be conspecific. At 22 cm, *Harpagochromis spekii* is one of the larger representatives of the genus.

The cranial slope is straight and arrow shaped ending at a tip in the lower jaw. The lower jaw extends beyond the upper. This is the same cranial shaping as seen in *Harpagochromis serranus* and common in the *Harpagochromis guarti* complex as well. Unicuspid teeth are arranged in 2-6 rows.

Harpagochromis spekii is found in shallow water over a variety of substrate. Haplochromine fish make the vast majority of the diet with the occasional cyprinid or insect taken (Greenwood & Gee, 1969).

squamipinnis (Regan 1921) Lake George, Lake Edward, Kazinga Channel

It is probable that *Harpagochromis squamipinnis* is the same fish as *Harpagochromis mentatus*, a Lake Edward counterpart. A large piscivore at 20cm, *Harpagochromis squamipinnis* exhibits much variation within the species as well as anatomical differences in between juvenile and adult (Greenwood, 1973).

The cranial profile is straight interrupted by a premaxillary hump. The lower jaw extends beyond the upper in larger fish, while the separation is closer to equal in smaller specimens. Small embedded scales extend into the dorsal and anal fins. The dorsal fin is clear at the anterior becoming darker as it progresses towards the caudal region. The pelvic fins are black with a pink hue between rays. The caudal fin is dark and transparent with a red or pink flush. The anal fin is pink with yellow egg spots. Body coloration is dark with a greenish sheen.

In larger specimens (over 13 cm) dentition consists of strong, thin unicuspid teeth, while smaller fish (under 5 cm) have largely tricuspid crowns. Intermediate individuals contain a mixture of both unicuspid and tricuspid teeth.

Harpagochromis squamipinnis is found over an assortment of differing substrates off shore in open water. Larger individuals are strictly piscivores while younger

fish incorporate a large portion of insect matter into their diet. Females may attain a larger adult size than males (Greenwood, 1973).



squamulatus (Regan, 1922) Jinja, Uganda, Lake Victoria. **extinct**

Harpagochromis squamulatus is a species complex containing many variants. It is a large predator reaching 20 cm. In larger members of this species (over 10.5 cm) teeth in the outer row of both jaws are unicuspid. Smaller individuals have mostly bicuspid and tricuspid teeth. Inner teeth are arranged in 2-6 rows, mostly tricuspid. The dorsal slope is straight or moderately curved with little if any premaxillary protuberance. The lower jaw extends slightly past the upper.

The body coloration is a silver yellow with individual variation. Two horizontal back bands run the length of the body. One black bar splits the torso midway running from the base (and into) of the caudal fin, straight across to the eye socket. Another thin black band runs just below the dorsal fin. The anal fin is translucent and dotted with two or three yellow egg spots. The pelvic and caudal fins are translucent tinged yellow. The dorsal is clear with a light blue tinge.

Harpagochromis squamulatus is found in a wide variety of situations seemingly never far from land. It is an opportunistic predator patrolling differing substrates with little preference to particular strata. The basic diet of *Harpagochromis squamulatus* is fish with an affinity to haplochromine type cichlids. Other gut samplings included crustaceans, and insects (Greenwood, 1969).

thuragnathus (Greenwood, 1967) Ramafuta Island, Uganda, Lake Victoria. **extinct**

Species description of *Harpagochromis thuragnathus* based on three specimens. Largest individual was 20 cm. Three or four rows of unicuspid teeth line the jaws. Species samplings were netted over a mud bottom in 38 m of water. The species descriptor considered *Harpagochromis thuragnathus* to be very closely related to *Harpagochromis boops*. No clear consensus was made whether the two piscivores were distinct enough to be clearly specific or conspecific. The lower jaw extends upwards further in the Ramafuta Island collected *Harpagochromis thuragnathus* than in *Harpagochromis boops* (Greenwood, 1967).

victorianus (Pellegrin, 1904) Kavirondo Bay Kenya, Lake Victoria. **extinct**

Harpagochromis victorianus is found over a rich mud bottom in sheltered inlets. Specimen samplings were taken in relatively shallow (8-16 m) water where it feeds on small haplochromines. *Harpagochromis victorianus* reach 16.6 cm (Greenwood, 1967). *Harpagochromis victorianus* resembles *Harpagochromis nyanzae* and *Harpagochromis serranus* in having a deep body shape (akin to *Astatotilapia* sp. and others).

worthingtoni (Regan, 1929) Lake Kyoga drainage, Uganda. **critically endangered.**

Harpagochromis worthingtoni forms a species complex endemic to the Kyoga lakes. This predator reaches 20 cm (Greenwood, 1980). A probable representative of this assemblage is known as *Harpagochromis* sp. "torpedo kribensis" from Lake Nawampassa, Uganda. This species is an ambush predator whose red flush on the cheeks and gill plates lend to another common name, "big red".

Undescribed species

sp. "big blue hunter" Vesi Archipelago, Speke Gulf, Lake Victoria

Harpagochromis sp "big blue hunter" closely resembles *Harpagochromis serranus* in anatomical appearance. It has a more convex cranial profile than the former as well as a shorter, wider lower jaw. *Harpagochromis* sp. "blue rock hunter" contains more inner tooth rows than *Harpagochromis serranus*. Conditioned males sport a light blue body and much more red in the caudal fin than *Harpagochromis serranus*. *Harpagochromis* sp.



"blue rock hunter" patrols steep rocky slopes in search of smaller cichlids that account for the vast majority of its diet. It grows to 20 cm and there is no size difference between the sexes. This species is not at all common at the Vesi Archipelago and Seehausen (1996) considers *Harpagochromis* sp. "big blue hunter" critically endangered.

sp. "golden duck" Lake Nawampassa *Harpagochromis* sp. "golden duck" is native to Lake Nawampassa, Uganda. It was first introduced to the aquarium hobby by a Laif DeMason of Old World Exotic Fish (Kaufman, 2005). *Harpagochromis* sp. "golden duck" is one of the smaller members of the genus attaining a length of 15 cm. Female and immature or subdominant males display a creamy-colored underbelly that joins the mid-lateral horizontal black band and runs the length of the body from the caudal peduncle to the gill plate. Another black horizontal line runs along the upper lateral line. Base coloration of the body is a dull gold color. Dominant male coloration is completely jet black. Varying stages of coloration exist from the subdominant to the dominant bloom. Two or three bright orange ocelli spot the anal fin. The anal, dorsal and caudal fins range from translucent to jet black, varying with body coloration.

Harpagochromis sp. "golden duck" is deceptively peaceful in a community tank. It can safely be housed with docile cichlids of similar size. It will however, as a piscivore, engulf any fish it can fit into its large mouth. Catfish of the *Synodontis* genus make suitable tank mates.

sp. "orange rock hunter" Gabalema Islands

First collected by Yves Fermon and Ole Seehausen, *Harpagochromis* sp "orange rock hunter" is a large piscivore at 25-30 cm. It is not aggressive when housed

with larger tank mates that cannot be easily swallowed. Smaller fish will eventually disappear in the company of *Harpagochromis* sp. “orange rock hunter”. *Harpagochromis* sp. “orange rock hunter” is closely related to the *Harpagochromis howesi* complex however there is enough differentiation (shorter lower jaw, larger eyes, larger egg spots) at adulthood to clearly be a distinct species (Seehausen, 1998).

The body is elongated and laterally compressed. The male head coloration is steel gray with two stripes crossing the snout. An other stripe begins below the corner of the mouth and continues to the out edge of the large eye. A black bar crosses the middle of the eye and the vertical stripe continues onto the forehead. The back is greenish yellow with a broken spotted line running roughly along the upper lateral organ. A solid black bar runs horizontally along mid body. The belly is bright orange with the coloring running in between the soft rays of the pelvic and solid on the anal fin. The two hard rays of the pelvic fin are elongated and black. The dorsal fin is bright blue fading to translucent with traces of red towards the caudal region. The caudal fin is mostly clear with slight splashes of red. One or two large ocelli decorate the anal fin.



Harpagochromis sp. “golden duck” in the aquarium.

wild caught male. It's unclear if captive bred males demonstrate this advanced brood care behavior. Brood sizes are notoriously small.

Additional notes

A number of recently discovered piscivores lack scientific classification but adhere to the genus *Harpagochromis*. They are listed here with colorfully descriptive names that have no bearing on lineage or classifications. These include sp. “frogmouth” collected near Jinja Uganda and from Lake Edward sp. “bronze”, sp. yellow snout”, sp. “red fin predator”.

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Harpagochromis sp. “orange rock hunter male.”

Harpagochromis sp. “orange rock hunter” is found only at Gabalema Island at the entrance to Mwanza Gulf (Fermon, 2005). It inhabits the crevices between boulders where it lays in wait for unsuspecting prey. Not common in the aquarium hobby, *Harpagochromis* sp. “orange rock hunter” is rare in its native waters as well.

Harpagochromis sp. “orange rock hunter” is a maternal mouth brooder with a twist. The female gestates her larvae for three weeks. At release, the male will tend the fry for another three weeks. This has only been witnessed once in captivity and brood care was by a

Adventures in Shrimp Keeping

Reprinted from Fish Tales
Volume 4 Issue 2

By Jay Marshal and Eric Martens
Photo by Matthew Besch

Shrimp keeping is a new frontier in the hobby of aquariums and growing fast in popularity in the USA. Whether you're a seasoned pro with a hi-tech planted tank setup with CO2, dosing fertilizers using the E.I. method with reverse osmosis water or a beginner that has kept traditional fish like Neon Tetras, Mystery Snails, and the beloved pleco... venturing into this corner of the hobby is a challenge for some, but can be achieved by anyone. This article will give you an idea of what to expect should you decide to take on shrimp keeping. Everything you would need for a basic setup, maintenance, the different types of shrimp and how to care for them.

The Shrimp Only Tank

You can keep shrimp in an existing community aquarium with fish, how long they will survive is another story. While it is possible to keep shrimp with fish or other aquatic life, it is best to keep shrimp in their own tanks so they

The first step is to decide what kind of shrimp you want to get. From here you can move forward in setting up the tank. A great starter size tank is 10G, smaller is an option but requires close attention to water parameters.

There are two kinds of shrimp that are most popular, Neocaridina "Neos" and Caridina species. Of the two, Neos are the easiest to keep and are a good starter shrimp. There are a variety of colors and designs to choose from, here are some beautiful examples.

Neos are easy to care for and once the tank has been setup and fully cycled (water parameters are stable and biofilm established). Much of your time will be spent gazing at these beauties. They are so interesting to watch walking around or maybe the males are "dancing" around the tank in search of a female. Which means you may have a "berried" female soon and shrimplets soon to come. Just like Caridina species, they require good filtration, appropriate substrate, hiding spots (cholla wood, moss,



Feeding time! Pic by Amber Martinez

clay caves), routine maintenance and water testing. A big difference that makes keeping Neos easier than Caridinas is that Neos can be kept in tap water, unlike cards, where a low pH is ideal and ro/di water is highly recommended with active substrates like ADA Amazonia, Fluval Shrimp Stratum, or other available premium shrimp substrates.

Its important to note their sensitivity to water. Metals, chlorine, and contaminants in the water column can wipe out your entire colony. It is very important to supply your tank with the cleanest water you can by using a water conditioner like Prime by SeaChem.

Filtration

Filtration is very important. The most preferred and popular method is the air powered sponge filter, you can even supplement this with a hang on the back or under the gravel filter.

Sponge filters are the preferred method because they provide an amazing place for the shrimp to graze upon. Powered simply by an air pump, these are very affordable and many shrimpers are successful using this as their only way of filtration!

When using anything other than an air powered sponge filter, or adding to your sponge filtration, it is important to cover the water intake area in order to prevent any shrimp from getting sucked up and into the filter. There are multiple options, a sponge over the intake is a favorite choice, and there are also stainless steel mesh guards. Each has its pros/cons and is essential for this



Species only tank. Photo by Eric Martens.

type of filtration.

Substrate

Neos do well and thrive in a pH around 7.6 or lower. Because of their ability to live in harder water, you can use tap water in a neo tank and the substrates normally used in these tanks are gravel, or sand. Depending on the plants you may or may not want to furnish the tank with, there are pros and cons to both and even more alternatives to choose from.

Caridinas, on the other hand, require a lower pH and many shrimpers have great success using active substrates to achieve this. An active substrate modifies the water chemistry to lower the pH level. These substrates also provide a stable pH which is extremely important. This is ideal for Caridina shrimp as they do best in soft water and there are a few types of active soils/substrates to choose from. Fluval Shrimp Stratum and ADA Amazonia are some examples that are the most widely used amongst the shrimp keeping community today because it's most available. I have tried both and would recommend them equally.

Tank Décor

Hiding spots are a shrimps best friend. Shrimpers use cholla wood, moss, heavy planting, caves created from strategically placing driftwood or clay structures to give their shrimp hiding spots. Natural choices are always better. These help to do things like provide berried females a place where they can feel safe and hold on to their eggs until they hatch. It also gives you more surface area for biofilm and algae to grow and that is a staple food to a shrimps diet and supplemented to.

Maintenance

Its really not as bad as you might imagine. Once you have the tank setup there are a few items you need to have in order to check the water parameters. The important parameters to keep an eye on are pH, GH, KH, and TDS(total dissolved salts/solids). Shrimpers use TDS pens to measure the conductivity of the water and gives you an idea of where your pH, GH, and KH levels are at. Not so important

for keeping neos, but a must have for keeping Caridinas.

Besides the testing and coming up with your own schedule of when to test and what to test for, its important to keep the water temperature at a cool 70-76 degrees. While they can survive at higher temps, this is the ideal range to keep them in.

Water changes are recommended weekly and at a maximum of 10% of the tank volume. Another method is to use distilled or RO water to top off the tank. This is done by replacing the water that has evaporated out of the tank already over the past week or so, and dripping in water(always drip, this slowly changes the water chemistry so it doesn't shock them). Distilled or RO water has a TDS reading of 000ppm, its pure water, so your just putting back in the tank what came out as evaporation beforehand.

Feeding schedules vary from shrimper to shrimper and there are many products to choose from. I have also tried many different brands and I do have my personal favorites. A staple to every shrimp diet is definitely something that adds bacteria to the tank, like Shrimp King or EbiKen Ei.

Anything else that is added to as food must be done with precaution. These kinds of shrimp are sensitive and any foods you include into the water column may foul the water, so many of the directions recommend taking out what's not eaten in 2 hours. Feeding dishes are popular amongst shrimp keepers to ease this process.

A good rule to follow is "less is more". It's better to feed less

because too much will foul your water. Remember most of the shrimps diet is being satisfied by the biofilm in your healthy tank, hard foods are just a supplement.

This is just a crash course to give you an idea of what it takes to successfully keep shrimp. While just grazing the surface, there are many more things to learn about shrimp.

The hobby is full of knowledgeable and helpful fellow shrimpers who are willing to help and that's one thing I really love about the hobby, so many good natured people who all share the same passion for aquatic nature.

With these basics in mind you will be an official shrimp keeper and breeder in no time.



Awesome close up pic by James He.



Orange Shrimp, photo by Travis Parkening.

The Betta Photography of Kenny Seaw



Fish Tales: How long have you been working with Bettas?

Kenny: I started breeding bettas since I was 13 years old. Over 30 years now.

Fish Tales: What is your favorite type of Betta to work with?

Kenny: I always more into long fin.

Fish Tales: What is the hardest type of Betta to work with?

Kenny: I feel longfin, the most difficult form to maintain

Fish Tales: Are there any strains you refuse to work with?

Kenny: Always open to different type if I have the time.

Fish Tales: What are the strains that you are currently working on?

Kenny: Mainly Solid colour.

Fish Tales: What trends do you see coming in the Betta hobby?



Kenny: I have no ideas. In fact I only create what I like.

Fish Tales: How many different strains have you worked on in the Betta hobby?

Kenny: I have done DTHM, HM, HMPK, CT and just into dumbo ear.



Fish Tales: How long have you been photographing Bettas?

Kenny: I started photographing 3 years ago.

Fish Tales: What is your favorite picture of a Betta you have taken?

Kenny: A Super Black Plakat.



Fish Tales: What type of setup do you use to photograph Bettas?

Kenny: A commercially available light box used for photography.

Fish Tales: How has your photography of Bettas changed over the years?

Kenny: I am using puluz photo box with DSLR camera.





Fish Tales: What other things do you like to photograph?

Kenny: Everyday is a learning day. Keep trying and trying for improvement. I think people like my photos







Thank You Kenny Seaw for answering our questions and for your Fantastic Photographs, many of which are in the new IBC Standards.

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 10 Issue 3

July - September 2020

Adventures in Pond Keeping Part 1

Let's talk about salt!

Triangle Cichlid

Thoracochromis brauschi

***Pundamilia* sp. "Redhead"**

Tips for keeping Planted Tanks