

FinTASTic

The Angelfish Society Newsletter

SEPTEMBER 2013 ISSUE 30

BOD Moves to Accept the Blue Gene

**The Jaws of
*Pterophyllum scalare***

Introducing the Blue Gene

ACCEPTED STANDARDS

SPECIAL PHOTO SECTION

Understanding Albinism

Learn to Count Eggs

**Fertilizers in the
Planted Aquarium**

**Getting Social with
The Angelfish Society**



It's All About Community.

One of the great benefits of The Angelfish Society is its knowledgeable community of breeders and hobbyist. With each issue of FinTAS-tic our contributors remind us of their wealth of experience and willingness to share it.



Thanks to everyone that invested time writing stories and taking photographs for this issue. The sharing doesn't stop between newsletters. Check out [page 4](#) to see the many ways you can engage, ask questions, and share ideas from Facebook to our forum.

Recent online chatter includes excitement about the acceptance of the Philippine Blue Gene. Read about the approved standards and naming conventions on [page 3](#). The December issue will include a detailed report of the confirmation process. Staying on genetics, gain valuable insight about caring for fish influenced by albinism. Frank offers ideas starting on [page 5](#).

Fernandez Roca returns with more research work from Spain. This time he shares fascinating details about the jaws of *Pterophyllum scalare* on [page 10](#). No matter how well you think you know this fish, Fernandez's dissection photos and detailed illustrations are sure to offer some fresh perspective.

Hope you enjoy another great issue, courtesy of our community members that donated their time. In that spirit, here's your personal invitation to join the newsletter committee. We are looking for writers, reporters, DIY specialists, designers and more to help produce FinTAS-tic. If you'd like to learn more, please contact us at newslettercommittee@theangelfishsociety.org.

Shawn Vann (shawnleon on TAF-II)
Newsletter Committee Chairman

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We are a collection of Angelfish enthusiasts, hobbyists and breeders who are interested in the advancement of our hobby through improvements in the quality of the fish we keep and breed. The Angelfish Society was founded in 2000.

To learn more or join, visit <http://theangelfishsociety.org>

Navigation Tips



This interactive PDF makes it easy to move between pages. The bottom left of each page has previous, next and home buttons. Follow multi-page stories using similar icons. Web addresses and [highlighted links](#) are active and will open pages in your web browser.



Board of Directors Accept the Philippine Blue Gene

Leslie James
Standards Committee Chair

We are pleased to announce that we have accepted the Philippine Blue gene into the Society. Mr. Ken Kennedy originally discovered the gene around the year of 2005 and it has since become the most popular of genetic breeding out there.

Blue Marble



List of Accepted Standards:

- Philippine Blue - pb/pb with or without other hidden (recessive) genes and prefixed the name
 - Silver, Smokey, Half black, Zebra, Ghost, Streaked, Pearlscale, Marble, Silver Gold Marble (Gm/+ only), and Albino
 - As well as any combination of the listed known compatible genes. Including all fin types.
- Paraiba for Blushing (S/S) with pb/pb, as well as prefixed to the name when combined with other listed compatible genes
- Pinoy for D/+, D/D, D/g with pb/pb and prefixed to the name when combined with other listed compatible genes, with or without Stripeless (S/+ only)
- Pinoy Paraiba for D/+, D/D, D/g, with Blushing(S/S) and pb/pb, as well as prefixed to the name when combined with other listed compatible genes, with or without Albino
- Platinum for g/g with pb/pb, and prefixed to the name when combined with other listed compatible genes, with or without Stripeless (S/+ only)
- Platinum Paraiba for g/g, with pb/pb combined with Blushing(S/S), as well as prefixed to the name when combined with other listed compatible genes
- Platinum Marble for Gm/g, or Gm/Gm with pb/pb, and prefixed to the name when combined with other listed compatible genes, with or without Stripeless (S/+ only)
- Paraiba Koi for Gm/g, or Gm/Gm with pb/pb combined with Blushing (S/S), as well as prefixed to the name when combined with other listed compatible genes



Blue Zebra

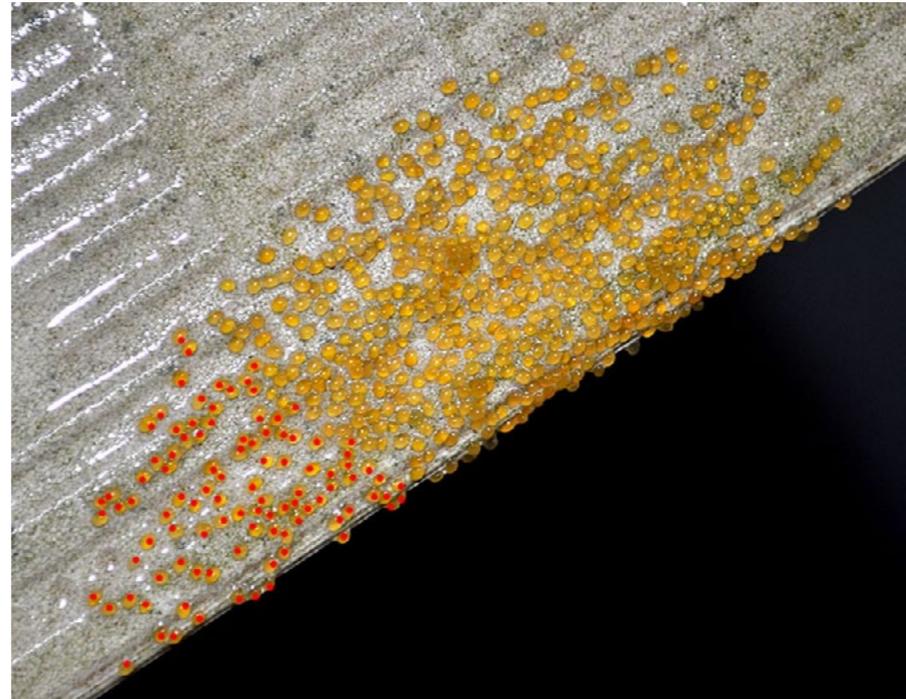
We have tried to stay as close to Mr. Kennedy's names as possible as he was the one who brought this wonderful gene to our attention. While the library is updated with pictures, this will be the standing naming convention. All members of TAS must strictly adhere to the naming convention set up by the Standards Committee.

As Mr. Cartmell was the one to confirm Mr. Kennedy's findings, look for his detailed article in the next edition of the newsletter. If there are any questions please email the Standards Committee at standardscommittee@theangelfishsociety.org ✦

Count Fish Eggs Using Software

By Matt Pedersen
Photos by Author

Matt joins us again to show how he counts eggs. This excerpt is courtesy of Reef To Rainforest Media LLC, publishers of AMAZONAS and CORAL Magazines, and Reef2Rainforest.com.



Left: Each “color group” represents 100 eggs. Above: 100 eggs in...many more to go...

dividual item you’re counting. From there, you simply need to count in such a way that you don’t lose track.

See photo documented process and read the full article by visiting Reef2Rainforest.com. ▶

Back in 2006, I found myself facing an interesting question – how many eggs were my Onxy Percs (*Amphiprion percula* “Onyx”) laying? It’s impossible to hedge anything more than a guess just by looking...definitely more than 10...probably more than 100. Maybe 300? How can you really know? If you really want good data, you have to count.

I guarantee I’m not the first to come up with this method for counting, and I’ve seen it duplicated many times since I first put it forward some years back. I’ll give you an easy, step-by-step method you can leverage to do your own precise egg counts (and I’m pretty sure this would be helpful for any other counting of something that is small and or moves).

The key lies simply in starting with a clear photograph of the item you want to count. So long as the photo is of sufficient quality and resolution, you should be able to discern each in-

Meet Matt Pedersen



Matt is a Sr. Editor and Associate Publisher with Reef2Rainforest Media, LLC, including AMAZONAS & CORAL Magazines. Matt has 31 years as an aquarist, has worked in most facets of the aquarium trade, is an active hobbyist and fish breeder (both marine and freshwater), and was recognized as the 2009 MASNA Aquarist of the Year.

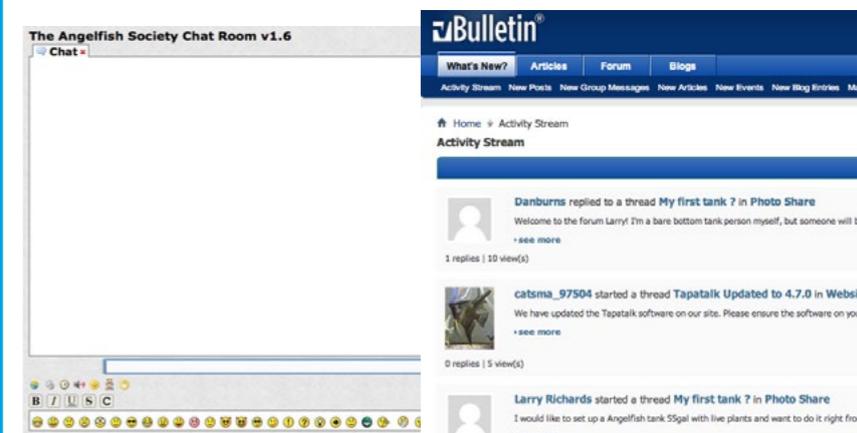
Do you know the many ways you can interact with The Angelfish Society and fellow angel lovers online? This issue we’re sharing them all in one place!



A new Facebook group launched this August and has quickly grown to 138 members. It’s open to all angelfish enthusiasts and is a great way to converse informally. Visit the group. You can also like our Facebook page to get the latest news, updates and reminders here.



Like live chat? Our chatroom has you covered! If you’re more of a forum junkie, discover yet another way to engage here.



Understanding Albinism: Albino survival is all in the eye

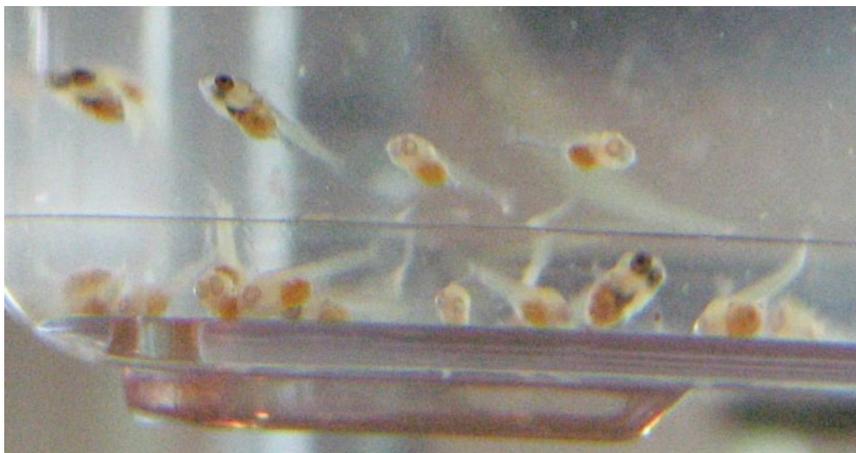
By Frank O' Niel

(Frank The Plumber of Indianwoods Angels on TAF-II)

Looking at the development of the egg with a magnifying device we see that as early as 8 hours after fertilization the spinal configuration begins to assemble and the spinal cord develop. The most prominent organ of the young embryo will be the eye, developing even more rapidly than the heart or the brain. From its very first stages the eye is developing the ability to transfer information to the brain of the young fish, because every chance of survival depends upon this larval fish being able to sight, target and capture prey items.

By 24 to 48 hours after fertilization the eye is already prominent as one of the first organs visible within the egg. At this point the complex development of the sensory abilities is being influenced by environmental factors such as chemistry and lighting. The eye of an albinid has very distinct disadvantages in comparison to a normal eye. Light emissions are able to enter the eye more easily and are unrestricted, unlike a larval fish that has proper melanin characteristics. This unrestricted entry into the eye damages the back of the eye and debilitates the retina and receptors at the rear of the eye. This causes blindness that becomes permanent.

Albino fry: Silver and blue silver types that have some snakeskin glitters wild cross in them. The non-albino siblings have dark markings and eyes. Credit: Rob Pelsor (hOMbrE on TAF-II)



Free-swimming albino fry. Credit: Rob Wilden, The Aquatic Habitat, UK (BigBen on TAF-II)

A young albinid (influenced by albinism) can become sight damaged pre hatch and shortly after fertilization. This damage renders the larval fish permanently damaged. The fish can not see, it can not target, it will not be able to properly orient itself within it's surroundings. Most quiver at the tank bottom in a secure cluster causing ventral damage awaiting either easy target prey or starvation. Those that do survive are either lucky to have not had severe damage or cope, although most coping fish are not robust and tend to be recognizably weak, small fish.

As a solution to this situation the amount of light emission towards the tank should be controlled. The total amount of light allowed to shine upon the fertilized eggs should be minimum, about what you would struggle to read by – a twilight amount of lighting. The critical items within the eye will still be prone to light radiation influence until about two weeks after fertilization. After this point most of the stem cells will have set into their proper cellular configurations within the eye and the plasticity of these cells will be minimally influenced by light factors.

This methodology should increase your total capacity to rear albinid larval forms from only several survivors to several hundred survivors. This greater survivability factor allows for the development of some of the more delicate and more easily damaged phenotypes such as Pb/Pb blush pearl, albino koi, albino ghost pearl, etc.

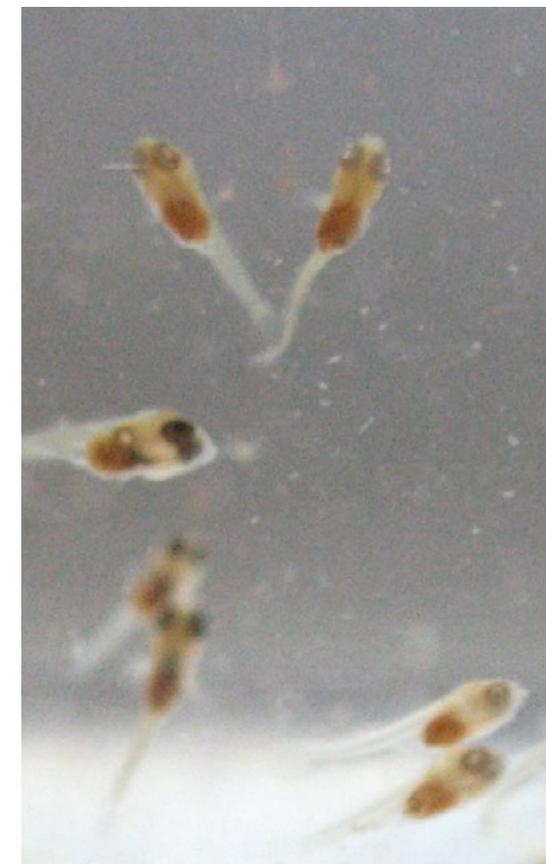
It is very difficult to rear damaged fry of delicate forms due to another factor. As sight damaged, those fry that survive use the coping method of just targeting and hitting any item seen. This target item will most often be the delicate fin structures of their fellow fish. Within a raise out situation these coping fish destroy the fins of each other rendering them damaged.

I mention albinid because an albinid is a fish that is influenced by albinism, this fish need not be expressing albinism but may have some of the effects present. Some forms of expression are developed using the albinid effect. This effect includes sight suppression. On albinid forms we apply the same coping affect. This would be the factor causing albinid forms to target and damage the sibling's fins. We apply the same solution using light therapy to the developing eye.

You will see this affect on very bright blue forms of Pb/Pb types which use either a gold or albino gene as a modifier, most of these fish types will also have large numbers of expressing albino siblings in the hatch out. Within the complex of a spawn of albinistics there may be for example; 25% expressing albino, 25% affected albinid, 25% non-affected albinid, 25% non-albino. This 25% affected albinid is the item we seek to address. These fish may be using a modified albinistic gene to render a unique color.

The information is based upon my 2 mostly very painful
Continued on page 12 ▶

Albino and non-albino siblings. Credit: Rob Pelsor (hOMbrE on TAF-II)



A Guide to Using Fertilizers in a Planted Aquarium

By Dena Edwards
Photos by Author

There are many things to consider as planted tanks can become either your easiest tank or the one that will make you want to pull your hair out! The key to a successful planted tank is finding the balance between lighting, fertilization and CO2 supplementation. If there is a limiting factor or an imbalance, then algae will quickly follow.

There are many fertilizer options on the market today. Liquids, substrate tablets or capsules, dry fertilizers or even homemade options. It is enough to make you change your mind on setting up a planted tank.

There are a wide variety of liquid options. One such product is the Seachem Flourish line. This product line has a base component, Flourish Comprehensive, as well as many singular focused options that include Trace, Potassium, Nitrogen, Phosphate and Iron. So many options, how do you choose? It is impossible to give a straight answer because it honestly depends on the needs of your specific tank.

And, if that wasn't confusing enough, there are the substrate supplements as well as dry fertilizers. I use substrate fertilizers with my heavy root feeding plants, such as Amazon Swords, all my Cryptocorynes and Dwarf Sag. And I use dry fertilizers as a year's supply costs about the same as a month's supply in liquids!

What are the most common dry fertilizer dosing plans used by aquarists?

PMDD (Poor Man's Daily Dosing) is the very low nutrient dosing plan that is comparable to using Flourish Comprehensive. This plan was designed for a low light tank where there is not a high demand on fertilizer balance. When used in a high light tank this system tends to fail as it does not provide enough nutrients for plant health and growth so algae can get started.



Smokey Angel planted community tank

Target Range for PMDD

NO3 5-10 PPM
K+ 10-20 PPM
PO4 0.5-1 PPM
Micros - Trace amounts

EI (Estimative Index) strives to slightly overdose the fertilizers in an aquarium. The principle behind EI is to ensure that nothing is ever in shortage. For this reason, it has become very popular, as it is suited for a moderate light or a high light tank. Because of this flooding of nutrients water changes are critical to "reset" the tank. Failure to keep up on the water changes can lead to an overdose of nutrients and could lead to death of the inhabitants.

Target Range for EI

CO2 range 25-30 ppm
NO3 range 5-30 ppm
K+ range 10-30 ppm
PO4 range 1.0-2.0 ppm
Fe 0.2-0.5ppm or higher
GH range 3-5 degrees ~ 50ppm or higher
KH range 3-5



PPS (Perpetual Preservation System) operates off the concept that an aquarium can be self-sustaining and does not need water changes. While the concept does attract many due to the low maintenance factor, there are so many things that are not measured or possibly unknown that fresh water is needed in my opinion. With no maintenance, over time a tank can become toxic as unmeasured compounds build up or as electrolytes become non-existent and livestock can become unhealthy. This system works best in a plant only environment as the focus is only on plant health.

Target Range for PPS-Pro

CO2 10-20 PPM
Ca 10-20 PPM
Mg 2-5 PPM
NO3 5-10 PPM
PO4 0.1-1.0 PPM
K+ 5-20 PPM
Fe 0.05-0.1 PPM

How to decide on what dosing plan works for your tank?

This is the million-dollar question!! There are so many variables that I do not believe a single dosing plan is appropriate for every tank or for every aquarist. You have to find what fits your budget and schedule as well as will work for your tank.

In a low light tank you may only need to deal with water changes on a weekly or bi-weekly basis. The fish waste and nutrients found in source water along with respiration of both fish and plants to create carbon dioxide can be sufficient for slow growing plants under low light.

Once you step into a moderate or high light tank the rules greatly change. At this level of light there is a greater demand on supplements. With the small volume of water plants are unable to get all their nutrition naturally, they are after all trapped in a small box. And if they do not have the nutrients available, they cannot consume them. This is when algae can quickly get started.

Another thing that is very confusing is with the concepts behind the different dosing plans. If you review the target ranges for the three plans above, you will see that they are very similar and

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offer an overlapping target. Yes, they claim to have different principles. How in the world can one plan be focused on minimal nutrients and another on flooding the tank with extra nutrients both have a similar target range?

How to begin working with dry fertilizers

I use a hybrid dosing plan that works for me. And those who I have shared this with have great success with their own planted tanks. Let me explain my reasoning and the concept I use.

Foremost, let the tank be your guide by monitoring the tank. The target range that I use in all my tanks, low light or high tech, is:

CO2 25-30 PPM

NO3 5-20 PPM

PO4 2-5 PPM

GH 4+ degrees

KH 4+ degrees

Fe 0.01-0.02 PPM

Why are my personal target ranges different?

Carbon dioxide goal is 30 PPM. When compared to the water's true pH a 1.0 drop in pH will be exactly 30 PPM. There is no need to purchase Drop Checkers, which monitor CO2 levels. The downside of drop checkers is that they are not providing a true measurement of the current levels. Read the instructions on drop checkers

Duckweed and Amazon Sword flower stalk



and they tell you to wait at least 3 hours. By the time a drop checker alerts you to a problem inhabitants will be gasping for air.

Nitrate must be maintained above 5 PPM. Sure it is possible to have no measurable nitrate in a healthy tank, but that takes experience to fine tune the balance! If the nitrate is allowed to be depleted plants can slow their growth, consume fewer nutrients and lead to algae or cyanobacteria.

When going over 20 PPM sensitive fish can become sluggish or decline in health. I know there are many who believe that levels as high as 100 PPM NO3 is acceptable. I do not follow the thought process that claims living in an unhealthy environment is fine simply because you can survive in it. I equate this to living in downtown Los Angeles, where I grew up. The smog is so thick that humans often experience health issues or have a reduced quality of life. It is my goal to live an optimal life and I am a proponent for optimal health of my aquatic friends as well.

Phosphate is one area where you often hear that any measurable level is evil; and others who believe you cannot have too much. If the phosphate level drops too low Green Spot Algae will quickly get started. And as every phosphate test kit needs calibration and is inaccurate unless using lab quality test kits, there is a misconception that too much is fine.

I have used a few different phosphate kits. No two kits provided the same result. After calibrating them I quickly learned that the kits are exponentially off the higher the phosphate level. I have dealt with very high phosphate levels in my source water. And, no I do not have an RO unit. What I have learned is the key is to balance the high phosphate levels, as much as 10 PPM, with higher lighting and extra fertilizers.

General Hardness is the measurement of calcium and magnesium. When one or both of these minerals are depleted the plants will either develop deformities in the leaves or the leaves will become transparent. If your water is soft, then there are additional supplements to help maintain these levels.

Carbonate Hardness is important as it helps to buffer pH. With an unstable pH level things can go afoul quickly. One critical reason to monitor KH levels is to know if your plants have enough carbon available for their growth. If there is too little CO2 they will



90 Gallon high tech tank

break down the carbonate molecule to obtain carbon. Which in turn causes the KH levels to drop and potential pH crash.

Iron plays a key role in photosynthesis and is needed to keep plants healthy and green.

How much should be dosed?

As I am a firm believer in one size does not fit all when it comes to fertilizer dosing, I use the following as a starting point. Then adjust based on test results to strive to hit the target range and keep algae under control.

The chart below shows very low doses. By adjusting based on parameters you are taking every precaution to not overdose the aquarium or cause the inhabitants to suffer. If you are working with a plant only tank, being overly cautious is not necessary. This plan is to allow for livestock in the planted tank.

The first 2 weeks, plan to test before each daily dose. Then compare these results with the target ranges, and adjust as needed. If adjustments are necessary take it slow. If the test result returns a value higher than the top of the target range, then skip that component's next dose. After a couple of weeks have passed you will be fine-tuning the dosages and can reduce to weekly testing. Once you have found that sweet spot for dosing, then switch to monthly testing.

Over time you will become a plant expert and can simply look at the algae and plant growth and will know what needs adjusting.

Happy Planting!!! 🌱

Tank Size	<40G / 75L	40-60G / 151-227L	60-80G / 227-303L	80-100G / 303-379L
KNO3	1/16 tsp	1/8 tsp	1/4 tsp	1/2 tsp
KH2PO4	Pinch	1/16 tsp	1/8 tsp	1/4 tsp
K2S04	Pinch	1/16 tsp	1/8 tsp	1/4 tsp
CSM+B	Pinch	1/16 tsp	1/8 tsp	1/4 tsp
CaCO3	1/16 tsp**	1/8 tsp**	1/4 tsp**	1/2 tsp**
MgSO4	1/16 tsp**	1/8 tsp**	1/4 tsp**	1/2 tsp**

**Only dose CaCO3 if the KH drops below 4 degrees; only dose MgSO4 if GH drops below 4 degrees



1: Selected As Cover Photo! Blue Marbles (foreground) from Lee Gordon (Angelmania), with some F2 Koi X Wild Cross progeny in the far left background from Mike Whiteaker's breeding **Matt Pedersen (mpedersen on TAF-II)**

Photos featured in Damon Cartmell's Philippine Blue Gene Presentation

2: Left: Silver heterozygous for blue gene or isn't a carrier. Right: Blue Silver homozygous for blue gene

3: Blue Smokey

4: Blue Zebra (Z/+ - pb/pb)

5: Pinoy Clown



Visit Us on [Facebook](#) to find out about our monthly photo contests. We're focusing on the Blue Gene. **September's prize: \$100 Gift Certificate to AngelfishUSA or 6 Dantum Angels with free shipping.**



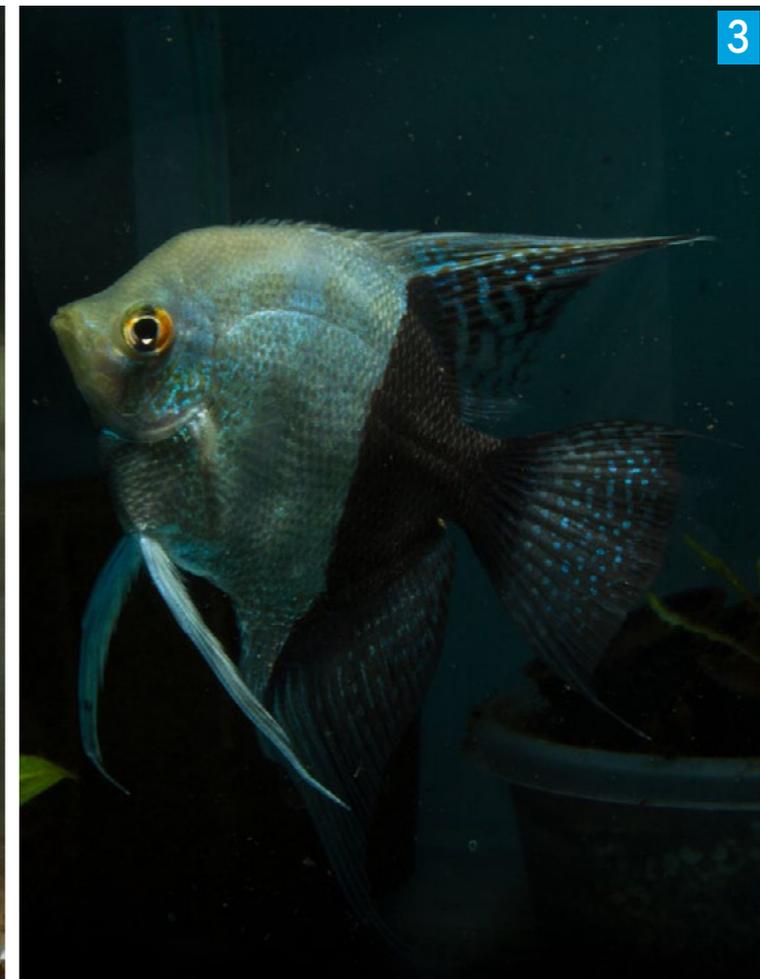
1

1: Smokey zebra ghost veiltail male **Elizabeth Hentges**



2

2: Male Albino Blue Ghost (left), female Albino Silver, het blue (right). Both fish out of Yue Hu's breeding **Matt Pedersen** ([mpedersen on TAF-II](#))



3

3: Half Black with a single dose of Philippine Blue **Wayne DesLauriers** ([WaynesWorld on TAF-II](#))



4

4: Albino Danziger Dantums from Angelfish USA **Pauline Michels**



Check Out the 2014 Calendar!

Want even more photos? Get a year's worth of beautiful photos and support The Angelfish Society at the same time.

Calendar features great photos captured by SNAPSHOTS contributors and winners of our monthly photo contests. Available for \$16.95 each, \$5 from every sale is donated to TAS.

[Grab your copy now at MemoryCabinet.com!](http://MemoryCabinet.com/)

The jaws of *Pterophyllum scalare*

By Juan Fco. Fernández Roca
(Atreyu on The Angelfish Society Forum)

Summary: Analyzing the characteristics of Scalare pterophyllum jaws, teeth types, functions, pharyngeal jaws location.

Introduction: When we analyze the jaws of the fish and especially as your teeth are made, we provide a fairly accurate figure of feeding habits. Our Angelfish have also a second pair of jaws, cichlids show us their pharyngeal jaws.

The Mouth

The mouth of our fish is a "Terminal," located on the front of the head and the size of the mouth is related to prey capture, typically small minnows and other varied live food.

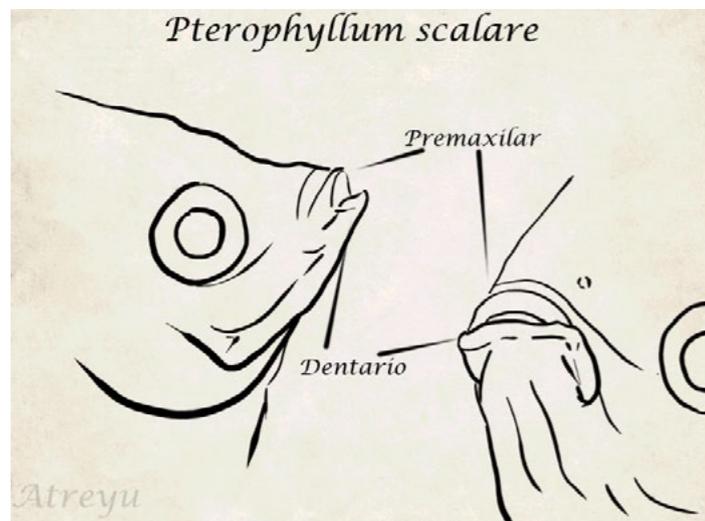


Figure 1

The Jaws

The jaws of the Angelfish are exceptional, formed by the premaxilla (top) and alveolar (bottom). They are equipped with tiny monocusp teeth, ending in a single point and are cuneiform. This gives us an idea that nature has set this mouth for a predatory diet. Despite having numerous small teeth, the primary function of the upper jaw is suction. The function of food shredding is reserved for the pharyngeal jaws.

The premaxilla, also called the upper jawbone, is composed of a pair and both bones are closely united by the maxilla symphysis.



Figure 2



Figure 3

A left- right- pair forms the dentary lower jawbone and both are joined through the mandibular symphysis.



Figure 4



Figure 5

A rather curious feature is its ability to project forward enlarging it and thereby allowing greater suction, this peculiarity of projecting the mouth is what we call "protractile" and is produced by a joint bone set in the middle the maxilla.

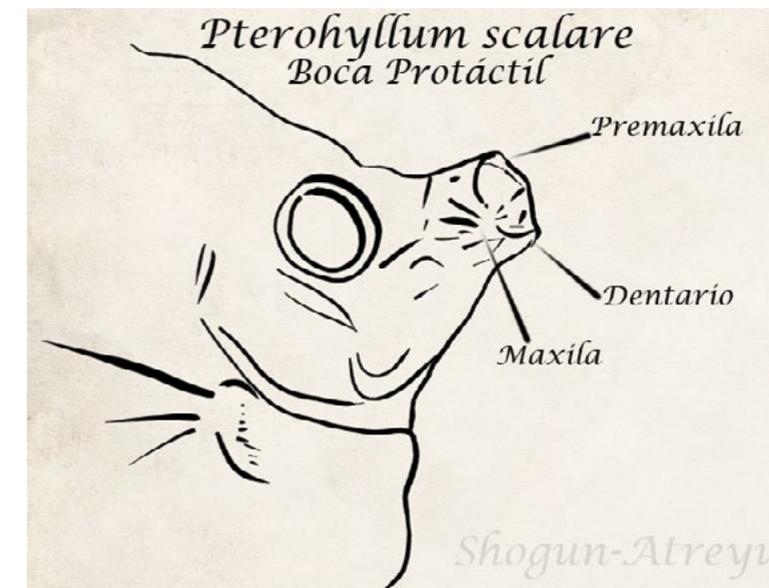


Figure 6

A wide plate that is attached via connective fibers forms the dental base, known as the root of the teeth.

The teeth are conical shapes are composed of ortodentina or osteodentin. The pulp cavity is filled conjunctival cells, blood vessels and osteodentin. Enamel outer layer composed of vasodentina, vitrodentina, etc. The teeth do not last long; they deteriorate, fall out and are replaced by new ones.

So far we have presented the characteristics of the mouth and jaws, but there are other jaws cichlids possess. The pharynx connects

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the mouth to the gastrointestinal tract and houses the “pharyngeal jaws.” These jaws are very important to Angelfish because they are live prey predators.

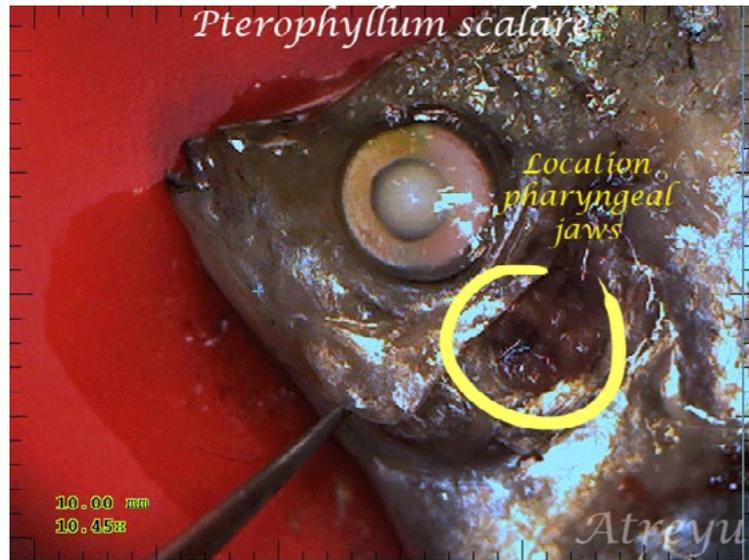


Figure 7

These are almost undoubtedly the first obtained photos of these “pharyngeal jaws.” In the section “The dissection fresh,” we will see integrated into their respective bodies “ceratobranchial.”

Both jaws, both the lower and upper pairs are formed bone containing the teeth.

The photographs are for an Angelfish with a standard length of around 5 cm.

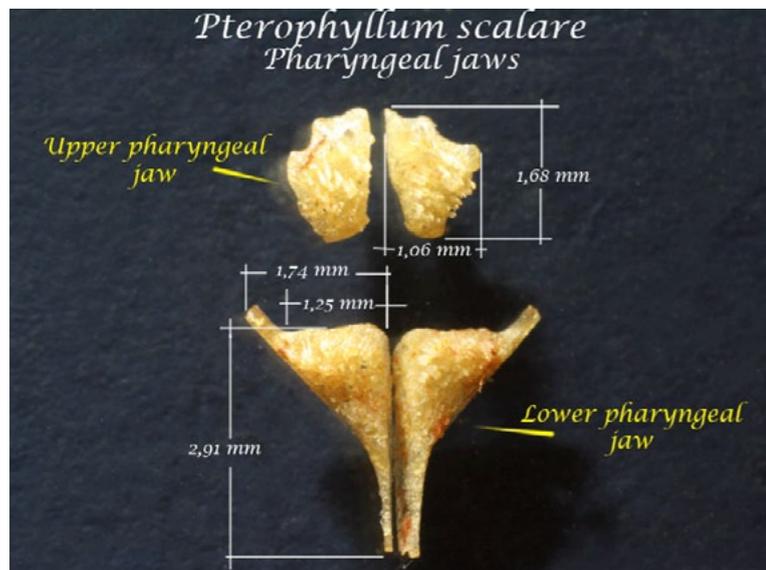


Figure 8

The teeth that make both jaws unlike the mouth are bicuspid, are numerous and cover the surface of the jaws, are more like those of a “cuneiform,” coinciding with our scalare predatory diet.

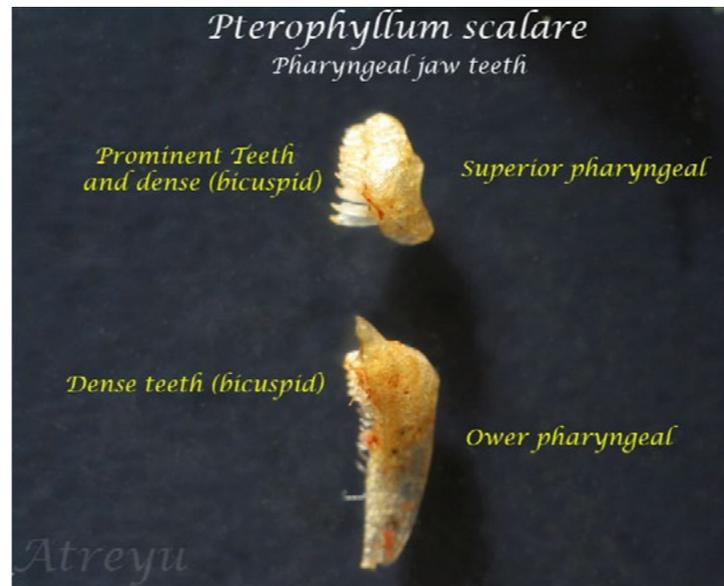


Figure 9



Figure 10



Figure 11

The pharyngeal jaw is attached to the two lower ceratobranchial, (see “fresh dissection”). Most bony fish have pharyngeal gill arches modified to process their prey (Liem 1986, Wainwright 1989), however our Angelfish Cichlidae family has new joints in the upper jaw throat, presenting a muscular sling and suture (junction point) in the past ceratobranchial.



Figure 12

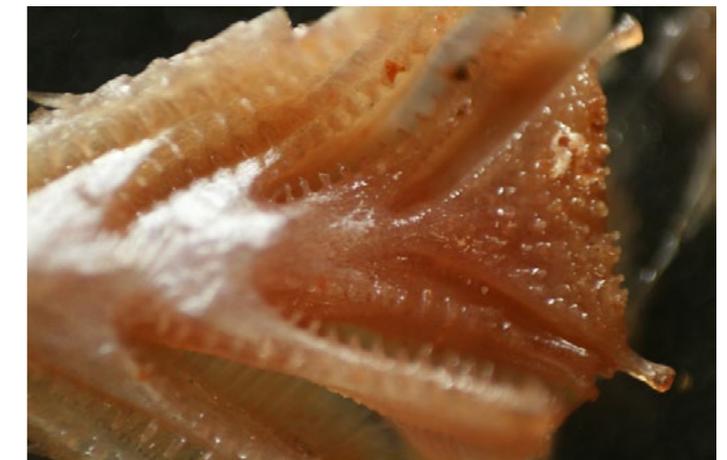


Figure 13

Discussion

Significant differences are established between the teeth of the jaws and pharyngeal jaws located on. Being monocusp type teeth in the jaws and bicuspid type in the pharyngeal jaws. The division of tasks is determined by the type of tooth.

Conclusions

Analyzed dietary habits under laboratory conditions, the teeth and jaws of the mouth are used especially to catch small prey, pharyngeal jaws being responsible for crushing the food and those doing the most important work in their food. ⚡

Acknowledgments

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I would like to thank the Newsletter Committee for the great efforts in adaptations and translations from texts trying to bridge differences between English and Spanish and the deference shown.

References Graphics

Fig. 1 - Jaws *Pterophyllum scalare*.

Fig. 2 - Premaxila - 1.

Fig. 3 - Premaxila - 2.

Fig. 4 - Dentario - 1.

Fig. 5 - Dentario - 2.

Fig. 6 - Mouch protactile.

Fig. 7 - Approximate location of the pharyngeal jaws.

Fig. 8 - Pharyngeal Jaws.

Fig. 9 - Side view of the Pharyngeal Jaws.

Fig. 10 - Detail - 1. Pharyngeal Jaw top.

Fig. 11 - Detail - 2. Pharyngeal Jaw top.

Fig. 12 - Pharyngeal Jaw bottom Detail.

Fig. 13 - Lower pharyngeal jaw attached to the lower pair ceratobranchial latter.

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Meet Fernandez Roca



Fernandez lives in Cartagena, Spain. He is a professor of electronic equipment. For the past 10 years he has been dedicated exclusively to the study of *Pterophyllum scalare* genetics, diseases, reproduction, anatomy, etc. He believes the *P. scalare* is "That great unknown." He was a contributor to the now defunct Foro Dr. Pez. Currently he is a moderator at the Foro Planetacuario in his field of "Scalar and Related Sciences." Current work focused on the anatomy and osteology of *Pterophyllum scalare*. He can be contacted at cartagena@fernandezroca.com

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years of trial, error and adjustment in rearing albinid forms of angels. I had been using lower light emissions on the fry after hatch and had noticed the mass die off phase, which occurs around yolk sac, to target based feed switch time. A 10% survival rate could be considered good on these. Then those that did survive had messed up ventral or anal fins.

I began trying to learn about albinism and eye development and how the eye develops in general. "Sherlock Holmsing" my way through albino eyes. You can piece together the things that are needed by associating the needs of eyes in general and then what albinism does to the eye.

Reading through some info on various other forms of albino expressing fish it was discovered that these fish had special care taken to protect the developing eye organ while the fish was still within the egg membrane. This made complete sense to me in that of course the eye is prone as it is already well into development while still within the egg. The radiation from the light emission kills cells within the developing eye organ. In the early stages of any organ's development those cells killed will be predominantly plasticene stem cells. Thus by damaging only several cells you are damaging many due to their ability to create groupings of specialty cells being lost.

Many animals are born with their eyes sealed because the eyes are still in the developmental phase. They are sealed primarily to protect them from light emissions. In the case of our angels they must have good vision early, right at that yolk sac to target food spot.

I have several hatch out tanks designed for albino projects. I use a UV blocking automotive peel and stick window tinting applied to a couple of thin pieces of acrylic sheet and attach them to the tank using a bit of carpet tape. This way I can have them in the room and not have to set up an area of low light.

How much light you have will dictate how much should be blocked. At about two weeks most of the eye is fully developed and the cells in the eye set as their cells specialize. I have not had very good ratios when parent rearing using these methods. The adults have little patience for the silly human. You have to pull the slate in the first few hours and put it in the low light environment. ♣

[URL to the entire TAF-II thread here](#)

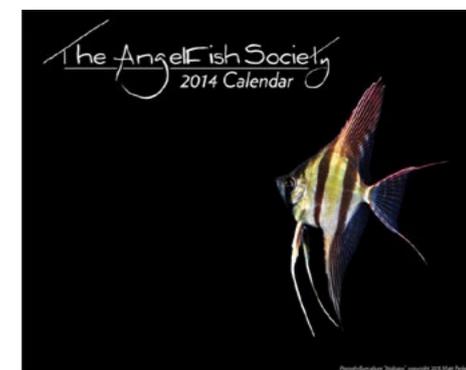


Credit: Rob Wilden, The Aquatic Habitat, UK (BigBen on TAF-II)

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Sunday, September 15, 2013 Sunday, October 20, 2013
Sunday, November 17, 2013 Sunday, December 15, 2013

General Membership meetings begin at 9 PM Eastern / 8 PM Central / 7 PM Mountain / 6 PM Pacific / 5 PM Alaskan / 4 PM Hawaiian.

[Guests are always welcome at our General Membership Meetings!](#)

Contribute to FinTASTic

We want to share your story! Articles on various aspects of fish keeping, including breeding, general health, collecting and more are welcome. Write us as newslettercommittee@theangelfishsociety.org

It's never too early to participate in the next issue, the longer you wait, the more life will get in the way. Send your story as a text file and attach the photos... **it's that easy to start!** We'll reach out with questions and guidance as needed.

[Additional submission tips & guidelines here](#)