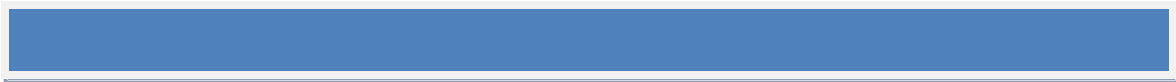


The Ultimate Discus Guide for Beginners or Experts



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Introduction to Discus Fish:

Discus Fish are large cichlids from the Amazon River, its tributaries and flood plains, in South America. First described in 1840 by Dr. Heckel as *Symphysodon discus*, this name is now in use for the Heckel discus variant. The three "original" color types got their own name, the green Discus *Symphysodon aequifasciata aequifasciata*, the brown discus *Symphysodon aequifasciata axelrodi*, and the blue variant *Symphysodon aequifasciata haraldi*. Discus are social fish and live in large groups in their native waters, and have a very advanced social behavior; they are one of the few real schooling cichlids. Remember always keep this in mind when starting care for discus; always purchase a group of animals. They need the social interaction to develop their character to its fullest.

Discus Fish have a large amount of intelligence and personality. They often rush to the aquarium surface and greet. When your Discus Fish are acclimated to you and their new home they will feed right from your hands, and over time they will come to recognize you and approach the aquarium front when there are owners or family members present... discus fish really can differentiate between people!

Currently, it is becoming increasingly difficult to find the original color variants in pet shops, only the Heckel is sometimes imported. Most of the discus fish you encounter today are captive bred color variants. At this time the list of described color

variants is nearly endless. Some of the discus color variants have lost their stripes and therefore their natural ability to communicate in the school. But as always these new variants are finding their way to the aquarium hobbyist quickly for extremely

high prices and this will stimulate the breeders to try to find a new one. One of the advantages of the captive bred discus is that they are now much easier to maintain as the imported ones. They are much more tolerant concerning water conditions.

It is getting increasingly easier to keep Discus Aquarium Fish with new technology that improves water quality and Discus Fish health which could be the cause of the rise in demand. New dealers and breeders are growing rapidly and even small aquatic shops are stocking a wide range of Discus.

They are beautiful but can be a challenge to keep and breed with the later being very rewarding and will even pay for the hobby. Most people that keep Discus will at some stage want to breed them as it is a great experience. Techniques are constantly evolving for raising these exotic fish, but this guide is the most up to date available.



The Tank



The very first question you should ask yourself is, “What size aquarium do I need?” This all depends on your budget and the room you have in your home.

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Size

If you are having a display tank I would recommend you keep them in a tank no smaller than 120cm X 40cm X 50cm.

Discus Aquarium Fish do better in deep tanks and the more water the tank holds the more stable the water conditions tend to be. For a breeding tank a 48cm X 30cm X 30cm tank may be used which is perfect for this purpose.

Position

Discus Fish are very shy fish and tend to hide when they are not confident so keep the tank away from noisy and busy areas especially near doorways and halls. Keep away from direct sunlight and radiators as sunlight will cause algae and excess heat. The only other factor to take into consideration is the height of the tank, the higher up the better as Discus are affected by movement above and this may cause them undue stress. They are also sensitive to vibration and other disturbances. Do not put in a high traffic area or in a child's bedroom. Rooms where lights are often turned on and off are not good either as it can startle the fish each time. (Even with the aquarium light on)

Substrate

This depends on whether you are breeding your Discus Fish or displaying them. If you only have a display tank I recommend

you use finer gravel. If you are breeding I recommend you have a bare bottom tank as it is easier to clean.

Plants

If you are going to have plants you can either use plastic plants or live plants. I do not like or use plastic plants but it is down to your personal preference. Lately, silk plants have become all the rage and they look much more realistic than plastic, which would add to the aesthetics of the aquarium.

In a display tank you can now get a good Discus Fish plant selections by mail order, these plants tend to be cheaper and better than those you find in aquatic shops. In a breeding tank you may either leave them out or just have one or two potted plants in the tank.

Décor:



You may wish to decorate the tank with rocks and driftwood. Driftwood is suitable for discus as their native waters often have roots and driftwood where they find shelter. Rocks should be checked for any metal ore and contaminants. Also try and keep rocks of a similar color and texture, preferably from the same source, though a different piece adds nice contrast.

Try and keep décor to a minimum, it will serve the tank both functionally and aesthetically.

It is a well known fact that Discus Fish require excellent water quality, and a good filter is at the heart of this. Now there is not one type of filter that suits a Discus Aquarium best as different filters do different jobs and it just depends on what you need it for.

Types of filtration

There are basically three types of filtration these are:

- 1) Mechanical
- 2) Biological
- 3) Chemical.

Mechanical

This is the first stage of any filtration; the water is drawn or pumped through layers of material that removes any free floating debris from the water. This is important, as sediment will block

the next stage of filtration rendering it useless. If the flow rate of your filter drops off then clean or replace the mechanical media immediately.

Biological

The heart of the filter, basically bacteria will live in this area of the filter, they convert the fishes waste, (ammonia) to nitrite and finally nitrate, thus creating a safe environment for your Discus. Porous materials such as ceramics feature in the form of noodles and chips. These have millions of pores in which beneficial bacteria crucial to the removal of ammonia and nitrite, reside and establish colonies. It is important to never clean the media in tap water. You should rinse the media in tank water from water changes, when it is required.

Chemical

The final stage of filtration is very much controlled by you, for various reasons you may wish to add carbon or peat to the filter, these filter media either absorb impurities, or alter the chemical balance of the water. This is usually topped off with a fine wool pad to polish the water as it returns to the aquarium.

Temperature

Discus Aquarium Fish generally require higher temperatures than other tropical fish and you should think about this when selecting plants and tank mates for them. To change temperature simply, adjust the heater's dial in your aquarium. Having two heaters in some tanks just encase one does not function may be a good thing, though do not use a cheap heater as a malfunction could cost you dearly. Keep an eye on the temperature at least twice daily as part of your routine. A conventional thermometer is not recommended as I've found they may vary slightly, and are not precise. A digital thermometer is recommended for precision and accuracy. One should always ensure that the incoming water during a water change is approximately equal to the water in the tank, a slight variance within 1.5 degrees, as the discus can suffer temperature shock and this would bring on undue stress which could eventually lead to an outbreak of disease.

Below are the recommended temperatures for Discus Aquarium Fish tanks:

Display – 27.5 to 29°C

Breeding – 30 to 33°C

Growing On – 29 to 31°C

Water Preparation

If after testing your water you are happy that it fits the water chemistry required to keep Discus Fish you can do a couple of things. You can simply add a treatment like Tetra Aqua Safe which will take out chlorine, chloride and some metals. You can also use a heavy metal filter which will take out all heavy metals and make the water perfect. Or you can mix the two like I do to save on time and money. If your water doesn't match and you have poor water to start with, you will need to filter it through a Reverse Osmosis unit. These can cost a packet, but are worth it if you need them. This filtration process will remove a very high percentage of heavy metals, chlorine, pesticides, silica, nitrates and most of the Total Dissolved Solids, it will also lower the pH of freshwater. The product water, as with distilled water, on its own is unsuitable for Discus. The reason for this is that there are no salts in this water which would buffer any drops or peaks in pH. What you do is add to it a supplement containing electrolytes and salts, or some de-chlorinated tap water. Better still mix RO water with a percentage of water prepared with a HMA filter. The exact percentages to mix really are determined by your geographical location, but as a rule 75% RO to 25% tap is usually about right.

If you wish to breed Discus Aquarium Fish and to care for the fry you need a supply of very soft water, in order to keep the water very soft, i.e. less than 50 ppm; you use less tap water in the mix. But a word of warning, soft water is very unstable and must be changed daily to avoid pH crash.

Water Changes

It is very important to change the water in your Discus Aquarium Fish tank on a regular basis, in a display tank I recommend around once or twice a week and with the later for breeding tanks and anything up to once a day for growing on tanks. I like to change in between 20-40% of the water in the tank but in the fish farms in the Far East they change 100% of the water once a day in the growing on tanks with great results. The reason for this is that discus like other fish; secrete a hormone into the water that inhibits their growth. This allows the fish to stay appropriately sized for the volume of water it is contained in. It is for this reason that wild specimens and those subjected to abundant water changes grow to such large sizes. When changing the water clean the bottom of the tank and suck up all of the debris on the tank floor but try and disturb the Discus Fish as least as possible. Once they feel more secure, you can clean aggressively, but do not cause them stress by being noisy about it, just remember that sounds are amplified in water as it is a much better conductor of sound and shock.

When you look at maintaining water that's best suited to your fish, you should avoid the sure-fire discus fish water that will kill your fry. These include nitrates, nitrites and ammonia, heavy metals and hardness. There are three states to contend with that, if left unattended, can cause your discus fish to suffer and more than likely die.

Check Ammonia Levels

Ammonia is the first stage of the nitrogen cycle in water and is a killer combination of waste products that can irreparably harm your discus. It is essential that you keep these levels at zero (0) at all times, and keep an eye on the variations in level quality when you add new fish to your aquarium. During this period, the filter capacity needs to have time to adjust to the increased load that the new discus cause.

Low Nitrite Levels Are Critical

Nitrites are the second stage of the nitrogen cycle, which is another element that can cause death if left unattended. It should be kept as low as possible, and you can accomplish this task by simply making a partial water change on a frequent basis which will encourage plant growth in your tank.

Nitrate Levels Should Be Kept Low As Well

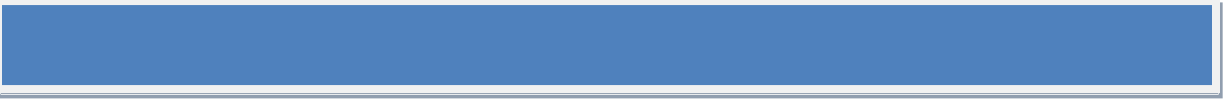
Nitrates are the third stage of the nitrogen cycle which should be kept ideally below 25ppm. While it is not as toxic as nitrite or ammonia, it will eventually kill your fish if the levels get above 100ppm.

Eliminate heavy metals

Using a filter to eliminate heavy metals which is sometimes referred to as metalex, will remove most of the compounds that will harm your discus; however, it won't remove the hardness from the water. A good filter consists of a pre-filter pod, a CBR2 pod and a carbon block.

Getting Rid of Hardness

If your tap water has a Gh or General Hardness level over 12 degrees, you'll need a Reverse Osmosis Water Treatment System that will provide pure water which you can adjust to desired levels. This is good if you're displaying or breeding your discus. Whether you decide to use a Reverse Osmosis unit or a Metalex unit, each will need periodic cartridge replacements depending on the contaminant levels being dealt with.



Selecting Discus Fish

Buying Discus Aquarium Fish shouldn't really be any different to buying any other fish but it seems to cause most people worry and sleepless nights. I suppose it's the money involved as not many other fish have the price tags Discus Fish carry.

Before buying Discus, you should have done your homework and know about the fish, water chemistry and how to care for it. This may seem like common sense but some people don't even know what water the Discus Fish prefer. Most Discus Aquarium Fish keepers have this knowledge and the experience with other fish as they tend to keep other types of tropical fish before progressing on to the Discus Aquarium Fish. It is possible to keep Discus Fish without any experience but it isn't really recommended. I know of many hobbyists who started out with discus simply because they were mystified by them. Needless to say, some have had bad experiences, their entire stocks wiped out within a week.

When it comes to choosing stock there are three sources of stock, these are firstly importers and dealers that only deal with Discus Fish, they tend to know a lot about the fish and have a good selection of different strains. Then there are pet shops which will normally only have a little selection of Discus Aquarium Fish and sometimes aren't very good quality.

Lastly there are home breeders which are hobbyist who breed Discus Aquarium Fish, you can normally pick them up very cheap from home breeders but they tend to be small fish. I would recommend you get your Discus Aquarium Fish from an importer but look around and make your own decision.

What to look out for?

Some people will tell you to look for perfectly round bodies with small bright eyes and even though this is true there is simple more to it than that.

First you have to decide what colors you want, don't worry too much about the names of these as they vary from source to source. Wherever you buy your fish from spend time watching them, and never buy on impulse. Only select Discus Aquarium Fish that are alert, bold and come to the front of the tank. Avoid fish that hang at the back and hide. Also avoid those that breathe heavily or out of one gill. Check for twisted mouths short gill covers, poorly shaped tails, odd or big eyes and any other genetic defects that might be down to poor breeding.

Talk to the dealer and ask him questions, ask if you can see the fish feed, most will let you. Healthy Discus will respond quickly to food. If the dealer declines, walk away. If he wants to sell the fish he will do this for you. Ask the dealer how long he's had the fish, if less than 2 weeks be careful as they haven't been quarantined

long enough. Did he breed the fish or did he import them, if the later where from? Does he know if they have been subjected to any medications or de-wormed? These are all common questions which he should know the answer to and it will provide you with a good background as to the fish's history and the dealer's competence.

Take a look at the bottom of the tank, healthy Discus Fish pass feces regularly and their waste should be black. If you see signs of white or clear feces it is reasonable to consider that some of the fish have an internal problem such as intestinal worms, and so should best be left alone. Always ask what sort of water conditions the fish are in and if possible write it down. If they aren't the same as yours go home and get them right. If you want the fish put a deposit down so the dealer will keep the fish for you and this also give you the opportunity to keep an eye on them for another week just to make sure they are healthy.

Try to get fish that are medium sized, adolescent so to speak. These are easier to adapt to new water conditions than larger fish, and don't require frequent feeds as with young discus growing on.

Strains of Discus Aquarium Fish

There are plenty of strains of Discus Aquarium Fish available on the market now but all originate from the same species *Symphysodon aequifasciatus*. In the 80's the Germans were the first to develop the blue varieties and other colors and varieties, but now east Asia develops some fascinating

New strains.



Snow Whites (pictured above), White Dragons, Pandas, as well as the Snakeskin, Thunder Flashes, Checkerboards etc.

New strains are been developed all the time and there is now getting a vast variety. However I would recommend the beginner stick's to the classic strains like Red Turquoise (pictured below) and Blue turquoise, as these fish tend to be hardier and a little bit less fussy.



If you are buying young fish ask to see the parents or adult fish of that strain to make sure you know what you are getting. Most breeders or importers will be able to let you do this as they tend to stock the same strains of young and adults.

If you want a solid blue color I recommend you go with the Blue Diamond (pictured below) or Cobalt Blue, and if you want a solid red then go with a Red Melon or Marlboro Red. If you want striped or patterned fish then go with snakeskin or pigeon bloods. There are also Tefe Greens which are recommended for advanced hobbyists, as well as Heckels and wild specimens, which should really be attempted by those individuals who have their hobby down to a science. Though keeping discus should not be a scientific pursuit. Don't forget to enjoy your hobby!



Tank Mates

So what should you keep with your Discus Fish? Different keepers have totally different opinions on this subject but here is my opinion.

In a breeding tank you should only keep Discus Fish and I strongly recommend you keep nothing else in there with them. Some people like to keep plecs and other sucker-mouth catfish, but I've had problems with them latching on and sucking to the Discus Aquarium Fish's mucus covering. Algae eaters are also notorious for this.

However if you have a display tank then you want to make it look nice and have more than just Discus Aquarium Fish, I recommend you have a large shoal of small tetras like neon's, cardinals and rummy noses. You can keep any peaceful, slow moving fish with discus, so long as they don't dominate or out compete discus for food and space.

I believe that the Discus Aquarium should be geared toward keeping discus and other species generally do not require the dedication and water that discus need.

Some people have kept Discus Aquarium Fish together with angel fish, but other keepers would disagree with doing this for good reason. Angels can pass on disease to Discus Aquarium Fish

(Pictured Below) and angels can grow large and bully Discus so take this into consideration when you're planning your tank.



Rams are also a favorite to keep with Discus Aquarium Fish. I've had success with dwarf gouramis as well as pearls, though the blue and golden gouramis are bullies and should be avoided. When you get young Discus Aquarium Fish make sure you get a shoal as like other fish they need the security of a shoal around them.

I personally keep my discus in a community tank, and I have had success with many different species, these have adapted to the warmer water and do not offer any direct competition to the discus.

Types of Discus Fish:

Natural/ Wild Species

These four species are found in their natural habitat of the tributaries of the Amazon. These are the four beginner discus that breeders using genetic mutations have created hundreds of manmade strains of discus.

Heckel Discus



With a distinctive broad dark central bar, this discus is the easiest to recognize. The Heckel Discus, also called the Pompadour Fish, was the first discus discovered. The red form, 'Red Discus or Red Heckel', is considered to be one of the most beautiful of all naturally occurring discus. These fish have been known since the last century, described in 1840 by Dr. Johann Jacob Heckel. They are easily distinguished from other discus species by three bold vertical bars; one running through the eye, one through the caudal fin, and the most prominent one running down the center of the body.

The Heckel Discus is a peaceful, shy cichlid. They do best in pairs or groups of pairs and should not be kept singly. This species comes from slightly warmer water than the other discus, they prefer a lightly planted aquarium, subdued lighting, and a soft substrate with some roots or rocks. They are a more delicate species and are the least popular; those available are generally wild caught. They are also more difficult to breed. Males breed more easily than females however, so they have been bred with other species.

The most commonly available discus are the tank bred varieties of Green Discus *Symphysodon aequifasciatus*, which are much hardier than wild caught specimens so require a bit less care. Many experienced aquarists considered the Heckel Discus to be more difficult to care for than even wild caught *S. aequifasciatus*.

Brown Discus



The Brown Discus has the typical rounded discus shape. The coloration ranges, but for the most part the body is yellow-brown with nine vertical stripes. These stripes can be very distinct or can be faded or missing. The intensity of the stripes depends on the age and strain of the fish. Various iridescent spots and stripes

cover the body. The dorsal and anal fins are blue-green to red in color, while the caudal fin is clear. The pelvic fins are long and slender and the pectoral fins are transparent. The Brown Discus is a sub-species of the Green Discus. Many Brown Discus are imported from Southeast Asia, and have a redder hue than wild-caught specimen. The Brown discus is considered one of the easier discus species to care for.

Green Discus



The body has nine dark vertical bands which fade with age. The head and upper parts of the body are veined with turquoise to blue markings. The body color is yellowish-brown and the lower parts of the body are red spotted. The anal and dorsal fins are turquoise with red markings. The distinguishing of the male and female is difficult. Adult males may develop a small lump on their foreheads, but this difference is not always reliable. During the spawning season, the shape of the genital papillae serves as the best difference. It is round in female and pointed in males, although this difference is also difficult to detect. There are many different color variations of the Green Discus. "Royal Green" Discus have dark vertical bands, while the "Peruvian Green" variation has more red spots than other variants. A popular variation, "Tefè Green" has distinct green vertical stripes.

Blue Discus



Symphysodon Aequifasciatus Haraldi - can be found in near Manaus, the Purus River and Manacapuru in Brazil as well as Leticia, Peru. This fish has a wide variety of "blueness", some appear to be more colorful versions of the Brown Discus, while others, (designated "Royal Blue") have blue stripes/ striations on their bodies, head, and fins.

Man Made Discus

Blue Turquoise Discus



Usually entirely blue with red patterns/ striations on the body, dorsal and anal fins, and on the gill covers. Many of these were originally developed in the United States by Jack Wattley from several crossings of wild and tank raised blue and green discus. There are some "high bodied", "solid blue", "red striated", and "high finned" varieties.

Red Turquoise Discus



The Red Turquoise Discus, is so named because of its striking turquoise and red stripes, red eyes, and red highlights on the fins. The overall coloration of Discus will vary depending on mood and overall health of the fish. As a result, this Discus is a favorite and prized collection member among hobbyists.

The Red Turquoise Discus requires an advanced level of care due to its feeding habits and water filtration requirements. Territorial during spawning, this otherwise peaceful fish is among the schooling group, forming a well-defined nuclear family.

Becoming slightly territorial when breeding, it is best to breed an established pair, or maintain a group of young Discus and allow them to pair themselves. Warm, soft, slightly acidic water is required for spawning. The pair will clean a flat surface (usually a broad leaf or the side of the aquarium) prior to spawning. The parents must not be removed from the fry; the fry feed on their parents' mucus.

Pigeon Blood Discus



The body of the Pigeon Blood Discus is bright orange with black marbling. The fins are brown with a turquoise hue. The overall coloration of Discus will vary depending on mood and overall health of the fish. The Discus has surpassed the Angelfish as the most popular freshwater aquarium fish. Depending on sub-species, the natural range of the Discus extends from the Amazon to the Rio Negro Regions of South America. This strain was developed by Kitti Phanaitthi in 1991 from a mutation in Thailand. It's been said if you can grow these pigeon blood discus out in bright lights, the black spots, "peppering", will be less.

Blue Diamond Discus



In 1990, a few breeders from Malaysia (including Kheng Huat, Hock, Phang Teck Beng, and Lee Koon Yen) and Hong Kong (including Sunny Lo Wing Yat) had noticed that several of their blue turquoise discus fry were transparent in color and when these fry grew out, they became a solid blue color, lacking patterns on the gill covers, fins, and stress bars (the colbalts and blue turquoise will have patterns and stress bars). A good quality blue diamond discus will continue to have the solid blue color in addition to red eyes. Some blue diamond's will have a slight yellow coloring on the caudal (tail) fin and some will have finer sized scales.

Leopard Skin Discus



The leopard skin discus is a direct result of selective breeding from two types of wild red spotted green discus originating from different areas and not a genetic mutation. This was done by Hong Kong breeders, Sunny Lo Wing-Yat and Rocky Ng, over the course of eight years. They were available in the marketplace in 1993. Variations of the leopard skin discus are the size of the spots with some having rings as well as spots and "rings within."

Snake Skin Discus



The Snakeskin Discus has a mottled blue appearance against a red background. The overall coloration of Discus will vary depending on mood and overall health of the fish. The Discus has surpassed the Angelfish as the most popular freshwater aquarium fish. Depending on sub-species, the natural range of the Discus extends from the Amazon to the Rio Negro Regions of South America. In 1994, two breeders in Malaysia Ronnie Teoh and Ah Liang, as well as some other breeders in other parts of the world, discovered that they had discus which showed 14 stress bars (instead of the usual 9). Unlike the 9 bar discus, these would pass on the very fine striation pattern and the 14 bars. These fish were cross bred with other strains to produce the wide variety of snakeskin crosses that exist today: blue snakeskin, red snakeskin, pigeon snakeskin, solid snakeskin, red spotted, golden snakeskin, and recently, albino snakeskin.

Leopard Snake Skin Discus



The leopard snake skin discus fish has a blue base color and the body is covered with red spots. The best looking leopard snakeskin discus fish are covered with many fine red spots all over the body of the discus. Many breeders were crossing snakeskins with several other strains of discus. One of the Malaysian breeders, Teoh Beng Chye successfully crossed some leopard skins with snakeskins and introduced these in 1997. Leopard Snakeskins are among the top strains in popularity right now. Variations include sizes of spots, spots on the gill covers, web patterns on face, and some have a golden base coloring.

Snow White Discus



The Snow White Discus has been selectively bred for its brilliant white coloration. The body is mostly white in color, and the fins have a faint green and red coloration. The Snow White Discus may display small black spots on the body. The overall coloration of Discus will vary depending on mood and overall health of the fish. If the fish is stressed, the spots increase in number and darken, sometimes to the point of making the whole fish appear almost black in color. This darkening may be an indication that water condition requirements or tank mate compatibility will need to be adjusted. When breeding, the coloration within the fins will intensify. Robert Chin of Malaysia back in 1995, had purchased several wild brown discus for breeding and had noticed that the fry produced from one pair were transparent. When these fish grew up, they became colorless including their eyes. Contrary to belief, the origins of this strain are from the brown discus and not a ghost strain. Sometime later, the red white variety was created by crossing a snow white with a solid red discus.

Golden Discus Fish



The original gold discus was the result of a breeding of brown discus by Malaysian breeder, Kim Keng How. Interestingly, "Kim" is the Chinese character for "gold". The original fry grew up to become fish with a golden base, white stripes covering the front half of the body, and red eyes. Later refinements developed golden discus with less white markings. Golden discus are often cross bred with pigeon blood discus to eliminate the black 'peppering' on the bodies and the black fins of the pigeon blood - a true golden will have a transparent pectoral and caudal (tail) fins.

San Merah Discus

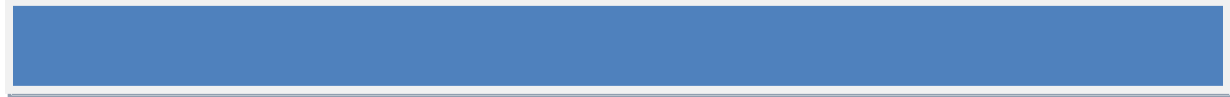


In 1992, Singaporean breeder, See Chow San (Ah San), began crossing wild Ica brown discus which was a reddish brown fish with a 5th bar (like the heckel discus). The word "Merah" means "red" in Malay. His goal was to create a strain of solid red discus without stripes or patterns on the body. Two years later, he was able to remove the blue striations on the forehead and about 5 generations later, he was able to have his fish produce fry which grew up lacking the stress bar. Later, he improved the intensity of the red coloration.

Albino Discus



First appearing in 2000, the albino originally was a mutation of a wild alenquer. Since then, breeders have created several albino strains, such as albino turquoise, albino blue diamonds, albino snakeskins, albino leopard snakeskins, etc...



Acclimating DISCUS FISH TO THE AQUARIUM

It is important to add fish to the aquarium shortly upon completion of the nitrogen cycle in the filter. The rule of thumb for stocking density is to allow at least 5 gallons per discus. If the filter is cycled and fish will not be added for awhile, it is important to feed the filter bacteria. The filter bacteria need oxygen and a food source. The mature filter can be kept alive by feeding ammonia every two days at a rate of .5 ppm. Many experienced hobbyists, as a precaution, quarantine any new fish before adding them to a fully setup aquarium full of discus fish. If a quarantine tank is used for new discus arrivals it should have a very strong biological filter. This is to ensure adequate filtration to prevent ammonia or nitrite spikes which will harm the discus. High levels of ammonia or nitrites can kill discus fish. Air driven sponge filters are good filters to use in a discus quarantine tank. The tank should not be too small. If an air driven sponge filter is kept in the main discus aquarium, a quarantine tank can be quickly set up using aged water from the main tank along with the established filter. The tank can be cleaned and taken down when not in use. Should a problem arise in the main discus aquarium it is best to treat the main tank. If you purchase discus fish from a pet shop to add to your discus aquarium, they should be placed in a quarantine tank for observation and possible treatment. Shops have a lot of fish coming and going which increases this need. Problems arise with discus health from introduction of fish carrying a pathogen or parasite and from the stress created due to aquarium maintenance neglect.

Discus fish like clean water and a quality diet. Plants used in the discus aquarium should be thoroughly washed with a safe aquarium plant disinfectant. This can remove snails and bacteria on the plants. Snails can quickly over run an aquarium and snail removing chemicals are harsh on discus. A decline in water quality will lead to stress in discus fish, which can lead to health problems. Clean water, at the proper temperature is important. Clean water should have zero ammonia and nitrite levels. Elevated nitrate levels indicate a need for water changes. In some areas, nitrate is present in the tap water. Overfeeding can increase nitrate levels. High nitrate levels inhibit growth and color development in discus. New discus fish arrivals may have scratches or torn fins. Adding non iodized salt at a rate of one tablespoon per 20 gallons will promote rapid healing. Salt has many uses at various doses. The salt should not remain in the aquarium over an extended period. Unlike mollies or goldfish, discus do not require or like water containing salt. New discus arrivals that were shipped have spent several hours in a dark box. Avoid opening the box under bright lights. Discus eyes are designed for vision in murky waters and bright lights can irritate them. Opening a dark box in bright lights will irritate their eyes and in an effort to escape the light the discus may lie down. I recommend leaving the aquarium lights off for 4 or 5 hours after introducing new discus to the aquarium this allows time for the discus to adjust their eyes. My discus fish are pampered and well fed. I recommend a light feeding of frozen bloodworms after the new discus arrivals have been in the aquarium for 6 hours. They will be hungry so avoid the temptation to overfeed. Frozen bloodworms are a favorite with my discus fish. If my discuses are fed frozen bloodworms the first few days after arrival, they will settle in and bond with you quickly. Other discus breeders may offer different advice for their discus fish.

Discus Fish Care in Water Changes

Water changes on the discus aquarium are an important aspect of proper discus fish care. Water changes must be done on a regular basis to ensure a healthy discus aquarium. Discuses thrive in clean water conditions.

If you do not have the time or means for the above method try these steps below.

When you receive your new discus fish, you should remove the rubber bands from their bag and add approximately 2 inches of water to the bag that your discus fish are in from your aquarium.

Allow the bag to float upright in the aquarium for around 10 minutes with the discus fish in it and then add another 2 inches of water... repeat this procedure until the bag is 3/4 of the way full of water. Once you have done this pour the discus fish and water from the shipping bag into their new home in your discus fish aquarium. This will allow the temperature, pH and waters hardness to gradually adjust, helping your new discus fish to acclimate to their new home in a stable manner. Once the discus fish are adjusted to their new home (usually 1-2 hours) go ahead and feed them. Generally live blackworms are the easiest to get discus fish to eat. Frozen bloodworms are another great first food for new discus fish. I also recommend leaving the aquarium lights on not off for your new discus fish's first entry into the tank... imagine yourself being placed in a strange new house.

Wouldn't you feel more comfortable if you could see your surroundings?

Proper Diet for Your Discus

In the stomachs of captured wild discus fish contain small shrimp, insects and insect larvae, small fish and fair amounts of plant material. When discus fish eat, they appear to mouth the food and spit it out before recapturing it and swallowing it. The reason for this is their teeth, or lack of teeth. Discus fish do not have teeth, but rather grinders in the jaw. The scientific name "symphysodon" means jaw grinders. So when the discus fish is eating, food is taken into the mouth, ground up and spit out, then picked up again for regrinding before swallowing. During this process, many food particles fall to the bottom of the discus fish aquarium. Discus fish will expel water at foods resting on the aquarium bottom, and then pick them up as they float. Discus fish are poor predators and many baby guppies have grown to maturity in a discus aquarium. This behavior in feeding discus fish indicates a discus fish diet consisting primarily of nonmotile worms, crustaceans and insect larvae. Studies done on commercial fish show different needs for carnivores versus herbivores, fresh versus marine and cold versus warm water fish. By comparing the requirements of fresh water carnivores, which live in a warm environment, we can formulate a complete discus fish diet.

Published accounts of discus fish care by various discus breeders tells us that discus are very flexible in their dietary preferences regarding their discus fish diet. Some discus fish breeders feed single source foods such as brine shrimp, beef heart or bloodworms. Other discus fish breeders feed live foods. The average discus fish breeder uses a combination of frozen foods and dry foods. We can summarize the following on the discus fish diet:

1. Discus fish need a minimum of 40-45% protein in their diet. Discus fry would benefit from a minimum of 55% protein in their diet.

2. Discus fish can utilize both saturated and unsaturated fats as energy. Fat supplementation at 20% of the discus diet is tolerated as long as sufficient essential fatty acids (1-2%) are supplied.
3. Simple carbohydrates such as sugars are probably utilized but the more complex starches are poorly digested.
4. Because discus are a soft water fish (water low in minerals), a calcium/phosphorus ratio of 1:35 should be supplied in the discus fish diet.

An important consideration in formulating the discus fish diet should be variety. While discus may live and even reproduce on a non-varied diet, the deficiencies that occur may account for vague problems such as slow growth and outbreaks of disease. Any live food added to the discus fish diet carries an element of risk with it. Some discus breeders feed a diet that consists of only beef heart. A varied discus fish diet can meet dietary requirements using a combination of commercial discus fish foods. Live, frozen or a homemade frozen discus fish food containing the proper ingredients should be utilized in the discus fish diet.

Information about Discus Diseases and Medications

One thing I have learnt by keeping Discus is that they don't usually just die for "no reason". In most cases there is some sign that something is wrong. When I ignored these signs, I lost precious fish. Some of the diseases and parasites I have encountered are described below.

Hole in the Head Syndrome



This is a disease often associated with Discus, but it also affects Geophagus species, Uaru amphiacanthoides and Astronotus ocellatus. If treated correctly it need not be a problem. If left untreated, it can cause permanent scarring and even death. The most important treatment is heat treatment. Over a couple of days raise the temperature from 30C to 36C. Additional aeration will be required to ensure adequate oxygen supply. This temperature must be maintained for 8 to 10 days for full recovery; however, the temperature must be dropped if the fish goes into stress. In addition to heat, the fish can be given Flagyl (Metronidazole) orally once every three days for the duration of the heat treatment. See next paragraph for the method.

Internal parasites

Internal parasites in the gut can be assumed, if the fish becomes emaciated or produces white, jelly-like feces. I have no idea of what species of parasites are infecting our fish, but in most cases heat treatment (as for Hole-In-The-Head Syndrome) and Flagyl given orally cures the fish. To treat the fish, assuming the fish is still eating, soak some live blood worms or black mosquito larvae in a solution of 10 ml of liquid Flagyl to 200 ml of water for about one hour. Then feed the worms or wrigglers to the fish. This treatment can be repeated every 2 to 3 days for 10 days. If the fish is not eating, then the job is a little more difficult. I have had success by removing the fish from the water and placing it on a wet towel and injecting (using a syringe without needle) the medication down its throat. I use a 2 ml syringe and a mixture of 1 part liquid Flagyl, 2 parts of Liquifry (to try and get the fish's strength up) and 3 parts water. Before returning the fish to the tank wait for the fish to swallow. It is normal for excess medication to be expelled from the fishes gills and mouth.

This treatment can be done twice a day, until the fish shows signs of recovery. The treatment of non-eating fish is not always successful.

External parasites



External parasites come in many types and I am unsure of exact species. However, I have found by symptoms, that there are differences and different medications are required. Basically I have two main medications for use for external parasites.

* Jungle Labs Parasite clear which I use for fish that are scratching themselves on objects in the tank.

I believe this to be skin fluke and use this drug for anything I feel requires mild treatment. Dosage is one tablet for every 40 litres of tank water, repeating two weeks thereafter.

Gill fluke



Gill fluke is a common disease in Discus and is worth mentioning separately to other external parasites. In adult Discus, it is usually associated with heavy breathing, however, in fry it causes much greater problems. When young Discus get to around 10 cent piece size, gill fluke may become a problem. The parents carry gill flukes in small amounts all the time and if the parents are left with the babies too long, after free-swimming, then the parents can pass them on to the babies. The classic symptoms are heavy breathing and erratic swimming as though the fish has been bitten on the gill by something inside. This can be accompanied by a spasm and sudden paralysis resulting in the

fish sinking motionless to the bottom. This condition seems to be brought on by overcrowding and high feeding rates associated with raising the fry, and can be avoided sometimes by spreading the fry out as they grow.

Bacterial infections

Bacterial infections can strike Discus the same as any other fish and I have found that two medications are good.

* The best is Chloromycetin and comes in powder form. The dosage is one teaspoon to 100 litres of water. It is always fast acting and some improvement should be noticed in 8 hours if it is going to work for that condition. A second dose after two days may be needed, but there is no need to remove the previous dose as it dissipates out after 12 hours. It is important to store Chloromycetin absolutely dry and away from light.

* The other medication is Oxolinic Acid. A stock solution of half a gram of the powder in 500 ml of de-ionised water can be made up and stored. The dosage is 1 ml of the stock solution to 10 litres of tank water. This treatment is only effective on some types of infections.

White Spot and Velvet Disease



These two diseases are rare in Discus due to the high water temperature (30°C) they are kept at. But if you do happen to get these parasites then heat treatment will cure it without drugs. White spot is treated with 34°C for 10 days, whereas Velvet Disease is treated for 2 days. Heat treatment can cure many problems, because most parasites can't withstand high temperatures. Another parasite, which is also treated with heat, is Costia: 33°C - 34°C for 4 days.

Where to obtain these medications

- * Flagyl in suspension (liquid Flagyl) is a prescription drug from the chemist. A prescription can be obtained from a veterinarian, if required.
- * Para-Ex is made by Wardleys and is available from aquarium shops.
- * Chloromycetin, can be obtained in capsule form from some chemists of veterinarians and some aquarium shops.
- * Oxolinic acid can be obtained through a chemist from chemical supply houses.

Precautions

When heat treatment is used, use a separate low wattage externally adjustable heater and keep a careful eye on the temperature as often as possible. Make adjustments only if someone is home for a few hours after the adjustment, to minimize the risk of "cooking" your fish. When administering medications, calculate the tank capacity accurately to avoid overdosing. A good method is to take the internal dimensions in centimeters and multiply the length by width by height to the water line divided by 1000.

Breeding Discus Fish

The Discus fish has gained a reputation of being hard to breed, but it is actually quite an easy fish to keep and breed once you have figured out how to keep the water quality at imperative levels in the aquarium. If you fail at this, you will most probably end up with anorectic, unhealthy Discus fish that refuses to breed altogether. The same goes for the fry aquarium - Discus fry that are kept in unhealthy conditions will often end up stunted since they will not eat enough. Before you make any attempts at breeding Discus you should therefore make sure that you are knowledgeable and devoted enough to keep the water quality up at all time – not only once in a while when you have some extra time to spend on your hobby. Discus fish will actually do a lot of the fry raising work for you since they both guard and feed their fry, so repaying them by devoting some energy to frequent water changes are certainly not too much to ask.

Obtaining a Discus pair



If you want to you can buy an established Discus pair that has already spawned together in the past. Such a couple will however be expensive, and most aspiring Discus breeders therefore purchase a group of juvenile Discus fish instead and let them grow up together. Hopefully, at least one pair will form in a group of Discus as they reach maturity. If you are lucky you will get several pairs. Getting a least six specimens is recommended. Try to mix Discus fish from several different sources since this will decrease the risk of getting a too limited genetic pool.

Discus breeding aquarium

Once a Discus pair is formed they will claim a territory and defend it against all the other Discus fishes. When you notice this, it is time to either remove all the other fish or set up a special breeding aquarium for the pair. A 20-30 gallon aquarium is big enough to serve as breeding aquarium and the only mandatory décor is a vertical spawning site. It is however a good idea to

Include hiding spots as well, since Discus pairs can fight each other quite violently.

Water management

As mentioned in the beginning of this article, water management is extremely important when keeping and breeding Discus. The levels of nitrogenous waste must be kept as close to zero as possible. Carry out a small water change every day in the breeding aquarium and use your test kit to keep an eye on the levels of ammonia, nitrite and nitrate. Wild Discus live in soft and acidic waters, but if you have captive bred specimens they might be accustomed to harder and less acidic conditions. The recommended water temperature is 86 degrees F.

Feeding

Feeding your Discus a varied and nutritious diet – and making sure that the fish actually eat it – is imperative if you want to breed Discus. Poor water quality can cause poor appetite in Discus and must therefore be avoided at all costs. Live food such as white worms and bloodworms is certainly recommended, but be careful with live food that you do not cultivate yourself since it might introduce disease. You can supplement live food with high quality prepared foods to make sure that your fish receives all necessary vitamins.

Spawning and fry raising

Once the couple has started to spawn, you can expect a new batch of eggs to be laid every week or every second week for up to 15 times in a row. A healthy, well functioning pair can go through two such spawning cycles per year. The eggs will normally hatch within 48 hours and the fry is free-swimming after another 72 hours. The free swimming fry will swim up to their parents and start feeding on a special type of nutritious mucus produced by the skin of the parents. They can continue to feed off their parents for several weeks, but you should start giving them newly hatched brine shrimp as well when they have been free swimming for 5-6 days.

Fry aquarium

The longer you leave the fry with their parents, the higher the risk of parasites being transmitted from the adults to the fry. The fry can also start eating not only mucus but pieces of skin and flesh from their parents, and this will naturally weaken the parents considerably. Most breeders therefore remove the fry to their own fry aquarium after 2-3 weeks. Fry without their parents should be fed at least six times a day and can for instance be given microworms, newly hatched brine shrimp and chopped up bloodworms. Keeping the water quality up is naturally extremely important. Feed only small servings and carry out at least one water change per day.



Artificially Raise Discus Fry

If your discus pair is not looking after its babies or even worse is eating them. You have two options , you either wait until they get it right or you take the time to raise the fry yourself.

The two main things that affect the success of raising fry are water quality and diet.

Very young discus are sensitive to changes in water e.g. pH, temperature. When doing a water change it is important to keep this in mind and test the water going in. They also require a clean home with no toxins in the water. All uneaten food must be vacuumed out so it does not pollute the aquarium.

Their diet is also important and the one of the main things to remember is that they must be fed little but often. This helps to reduce pollution.

Once the parents have spawned leave the eggs a couple of hours before removing them using a container.

The eggs then need to be placed into a little tank filled with water from the other tank, it needs to be the same temperature as the other tank and either have a little sponge filter in it or just an air stone.

Then you need to add a couple of drops of methyl blue just to prevent egg fungus. The eggs should hatch in 48 hours. They will then eat there yolk sacks and become free swimming in 72 hours.

Once they are free swimming they should be fed a liquid fry food and rotifers and then in a couple of days newly hatched brine shrimp and powder food. Feed them 4 or five times a day

Change 50% of the water every day and make sure the perimeters are the same; or else the fry will become stressed.

In two week the little discus can be moved in to a larger tank. Again it is easier to use a container as a net could cause damage. Continue to feed four times a day with a 50% daily water change.

When they are ready move them to a diet of frozen bloodworm and fine granules. They should reach 2in after about two months.

