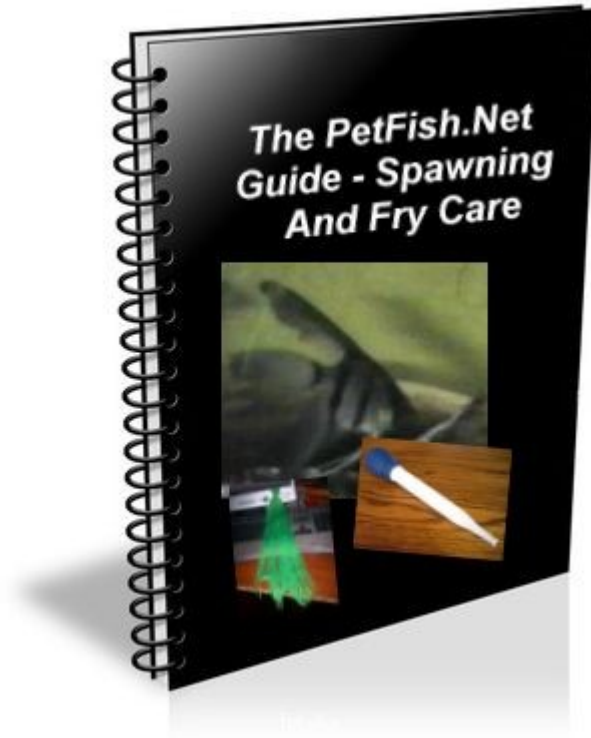


# Spawning And Fry Care



## ***Keeping And Spawning Zebra Danios***

By GroupieKilla4eva



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Scientific name: *Danio rerio*

Common names: Zebrafish, Zebra Danio

Origin: South East Asia

Adult size: 2 inches (5cm)

Average Lifespan: 5 years

Minimum Tank size: 10 gallons

Good Tankmates: Tetras, Barbs, Guppies, Mollies, and most other fast moving small fish. They may nip at slow moving longer finned fish if not kept in a group of six or more of their own kind. And since they are top dwellers any bottom dwellers, such as corydoras or otos, that won't eat them would also be fine.



Zebra Danios with Tiger Barbs

Zebra Danio Variations The following are just a few variations of *Danio rerio*. Others include Leopard Danios and Albino or Golden Leopard Danios.



Longfin Zebra Danios  
©2007 PETCO Animal Supplies, Inc.



Albino or Golden Zebra Danios  
© Animal World



Genetically altered danios called Glofish  
© www.glofish.com

## ***Breeding Zebra Danios***

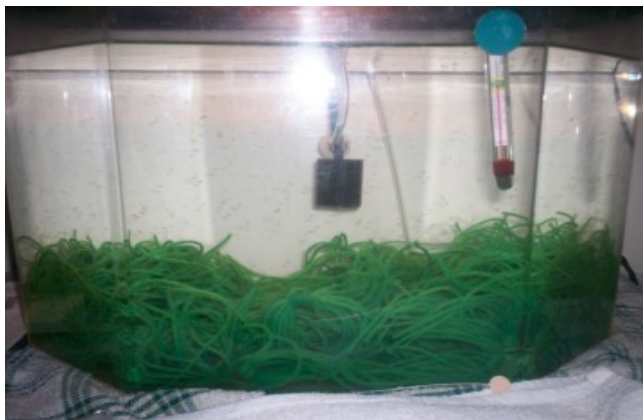
1. Move prospective female to a separate breeding tank (6-10 gallon will be fine for now) with spawning mops and an established sponge filter. You'll need to use acrylic yarn and you'll need 10-20 spawning mops. The key is for the eggs to land in the tangle of the spawning media in order to prevent the parents from eating them.



This is a spawning mop

2. Put the male in with the female after a day of her becoming acclimated. Acclimate her slowly and completely, make sure she's not shocked by the temp or ph in the breeding tank. Try to put the breeding tank in a low traffic area (not too many people or pets around) to keep their stress down.

The tank should look like this:



3. The happier and better fed the pair is, the better they will breed. In order to condition them for optimum breeding they should be fed protein rich food such as bloodworms. This will also help stimulate egg production.

4. Be prepared to feed 50-100 tiny fry in a couple days. They will need to be fed after the first 24 hours of hatching. At this newly hatched state they can be fed golden pearls, spray dried krill, powdered spirulina, and other commercial fry foods such as Liquifry. In the best case scenario you will have been expecting fry ahead of time and be able to feed the fry live foods such as vinegar eels or microworms. After they are a few weeks old you can start them on finely crushed flake foods and newly hatched brine shrimp. It is also very important to keep their water clean and warm. Prevent them from getting chilled by keeping the tank between 75-80 degrees fahrenheit.

5. After a few more weeks I would move them into a bigger tank with more room so that they properly develop. You can use Rubbermaid totes or several of those plastic shoeboxes as grow out tanks if you have nothing else. Just make sure to keep them warm and well fed. You will need an established sponge filter for each grow out tank.

### **A few parting words:**

This is a great little fish for beginners because they are very hardy and will withstand beginners' mistakes and less than perfect water conditions. There are so many beautiful variations and colors. One can find them in just about every pet shop that sells fish and at a relatively low price. Whether you've never owned fish or you've kept fish for years, it has been my experience that these are delightful fish to own.

Here's hoping you all have healthy fish!!!!

## ***Guppy Breeding Questions***

By: **Aiptasia**

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1) What is the most desirable trait in guppies?(finnage, size, color, etc...)

1) Depends on what you're trying to achieve in any given strain. The best standards to go by are the ifga.org standards, which you can find at [www.ifga.org](http://www.ifga.org).

2) What is a good size for the breeding tank?

2) Anything from a ten to a twenty gallon should be sufficient. Grow out tanks should be larger, 30-40 gallons.

3) How many tanks do I need?

3) Depends on how large of an operation you'll be setting up. Show guppies are usually sold in trios (male/female/female). I'd say one small tank for each trio of adults and about three grow out tanks per strain. One for small fry, two for medium fry split up by sex (males/females).

4) What is the best type of breeder box/breeder net?

4) Homemade ones are the best. You'll need to find a plate of egg crate material with holes large enough to let the fry fall through yet large enough to keep the adults out of it, and position the plate about 1/3 from the top of the tank. The trio can live up top, fry drop underneath. Check the resources at IFGA.

5) Are live plants a yes or no? And are they better for the fry, or the parents?

5) Plants are fine but not required. They do make the females more secure and comfortable with dropping fry and can protect fry from hungry adults that may turn on them. That's up to you. Some breeders use them, some don't.

6) Would one tank be exceptable, with the use of a breeder box/net, and release the fry when they are big enough to fend for themselves?

6) A "colony tank" setup, which allows the adults and fry to co-habitate, is fine except that some of the fry will be picked off by the adults. If this is for a profit, you won't want that.

7) How much money do you think I would be spending on tanks, foods, etc...

7) Do the math. Price tanks and filters at your LFS. I would advise you to use a good earthworm based flake food as it really increases the productivity of females. Ken's fish has them: [www.kensfish.com](http://www.kensfish.com).

8) Is it really like most websites say, just add water and fish, and wallah, babies.

8 ) Not quite that simple. Guppies are actually a brackish water fish, so they do require a little

saltwater to do really well. They can have problems like any fish but are generally hardy and drop fry every 30 days or so. They don't call them "millions fish" for nothing. ;)

9) How much is it (really) to ship live fish. I know most aquabid's say its like \$35 and that can't be right.

9) Depends on your shipping method, your carrier, and the speed of delivery. Most shippers use a #4 sized shipping box for guppies with an insulated styrofoam inner cooler and a heat pack in the winter time. Figure it costs you about \$7 per box including the heat pack. You'll also need to use a tranquilizer and ammonia neutralizer like bag buddies tablets, and breather or 2 mil shipping bags. Then, you have to decide whether to send them overnight or 2-3 day mail. That's usually based on the weight of the box and the distance from your zip code to theirs. Figure the box weighs 2-3 lbs. when packed and loaded, then estimate the shipping at any one of the carriers online (US postal service, UPS or Fedex). There, you can estimate the shipping from one zip code to another.

If you look at the very first stickied thread in our buy/sell/trade forum, you'll find a great thread detailing how to ship fish with the US postal service. This time of year, i'd suggest you use overnight shipping as the only option in your aquabid auctions. Offer your clients 2-3 day shipping in the late spring, all summer, and early fall before it gets too cold. Again, [www.kensfish.com](http://www.kensfish.com) has some great breeding/shipping supplies. Also, boxes can be found here if you need them: [http://www.cameronpackaging.com/insulated\\_boxes.html](http://www.cameronpackaging.com/insulated_boxes.html)

## ***Raising Baby Kribensis With Commercial Foods***

By: **Aiptasia** - November 11, 2006

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Hello everyone. :)



This is a blog where i'll be posting the progress of raising my latest batch of 75-100 baby kribensis fry on commercially prepared foods, most of which you can purchase for yourself in a good quality pet shop. In a nutshell, I have two of the best Kribensis parents you could ask for (Pelvicachromis pulcher). A beautiful, highly colorful female at 3.5" long, and a wonderful 4.5" long male make up the soul cichlid residents of their own 40 gallon tank. Kribensis pairs can make excellent parents, and luckily I have a pair that's eager to spawn every four to six weeks. That means I usually have more baby Kribensis fry than I usually know what to do with. I've given them away, sold them to local pet shops, traded them for dry goods and even auctioned them off in lots of five or six fish on Aquabid auctions.

I've cultured all sorts of live foods for my fry (daphnia, hatched artemia, infusoria, vinegar eels) having felt that live foods both encourage a faster growth rate, but also bring out the natural feeding characteristics of the fish. While there is no doubt that live food cultures are extremely beneficial to feeding fry, they aren't the only means of providing food for small egg layers. Personally, I found culturing my own live foods to be an extra chore (PITA) when I could use commercially prepared foods to provide excellent nutrition and growth rate to my young fish.

For this next batch, my Krib fry are going to get fed a commercially prepared diet of dry foods and frozen foods that anybody can purchase and store with no muss, no fuss. Food that's high in nutrition that baby fish will relish and consume with absolute greed at each feeding. Please feel free to read along and post comments as this blog continues. In the next post, we'll discuss the foods and overall diet plan we're going to use for rapidly raising happy, healthy fry to sub-adults.

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Title: Part Deux, 11/12/06

Post by: Aiptasia on November 12, 2006, 11:47:26 AM

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Viola, ze food...



Ok, in the previous post I outlined that i'm going to be using commercial foods for feeding my latest clutch of Krib fry. The base of their diet is going to consist of the new "Golden Pearls" dry larval fish food which I purchased from Ken's Fish [www.kensfish.com](http://www.kensfish.com).

Here's the description from the website of the product:

*Golden Pearls is a revolutionary new larval diet that has successfully replaced live Artemia nauplii in marine fish hatcheries in Europe. A patented processing technique (agglomeration of micro-encapsulated particles) resulting in feed particles or "clusters" that resemble raspberries (under the microscope). Golden Pearls have tiny air pockets that keep the feed particles in the water column, not on the bottom of the tank, and mimics live brine shrimp nauplii.*

*Ingredients: Brine shrimp, squid, shrimp and fish protein, animal protein, purified fish oils, phospholipids, astaxanthin, vitamins and protected minerals, antioxidants, and immunostimulants. These are now available in 3 sizes!*

*Analysis: Protein - 60%, Lipids - 8%, Ash - 15%, Moisture - 8%, Vit C - 2000 ppm, Vit E - 400 ppm, Astaxanthin - 500 ppm.*

I liked that the food came in three different particle sizes for larval fish. I decided to use the 50-100 micron particle size for feeding my Krib fry. The powder itself is very fine (like flour) and it comes to you in a vacuum sealed bag with a handmade label. Since it has no preservatives, I was worried that the non-resealable bag would allow too much moisture to come into contact with the powder, so I poured it all into a freezer style ziplock topped bag.

The golden pearls are a very high protein diet for fish, which should encourage a rapid amount of growth in the young cichlids. However, it is a little lacking in broad spectrum nutrition, so I decided to use it in combination with another commercially prepared fish food, Hikari First Bites. It comes in

a similar powder/micron size which is fine enough for larger egg laying fish. Here's the nutritional breakdown:

*Hikari First Bites provide complete and balance nutrition for the all important development stage of your fry's life. Hikari First Bites promote proper feeding habits, long-term health, and superior disease resistance, allowing your fry to grow rapidly without fear of dietary deficiencies. Semi-floating to allow fry to eat at all levels of the aquarium.*

*Fish Meal, Milt Meal, Wheat Flour, Antarctic Krill Meal, Clam Meal, Spirulina, Seaweed Meal, DL-Methionine, Monosodium Glutamate, Garlic, Enzye, Vitamin A Supplement, Vitamin D3 Supplement, Vitamin E Supplement, Menadione Sodium Bisulfite Complex, Thiamine Mononitrate, Riboflavin, Pyridoxine Hydrochloride, Niacin, Calcium Pantothenate, Biotin, Choline Chloride, L-Ascorbyl-2-Polyphosphate, Inositol, Manganese Sulfate, Zinc Sulfate, Ferrous Sulfate, Calcium Iodate, Cobalt Sulfate, Magnesium Sulfate, Aluminum Hydroxide.*

*Crude Protein min. 48.0%, Crude Fat min. 3.0%, Crude Fiber max. 1.0%, Moisture max. 10.0%, Ash max. 15.0% , Phosphorus min. 1.3%*

I'm also feeding the fish frozen Arctic cyclops (cyclop-eeze bars) and frozen hikari baby brine shrimp as their last feeding of the day.

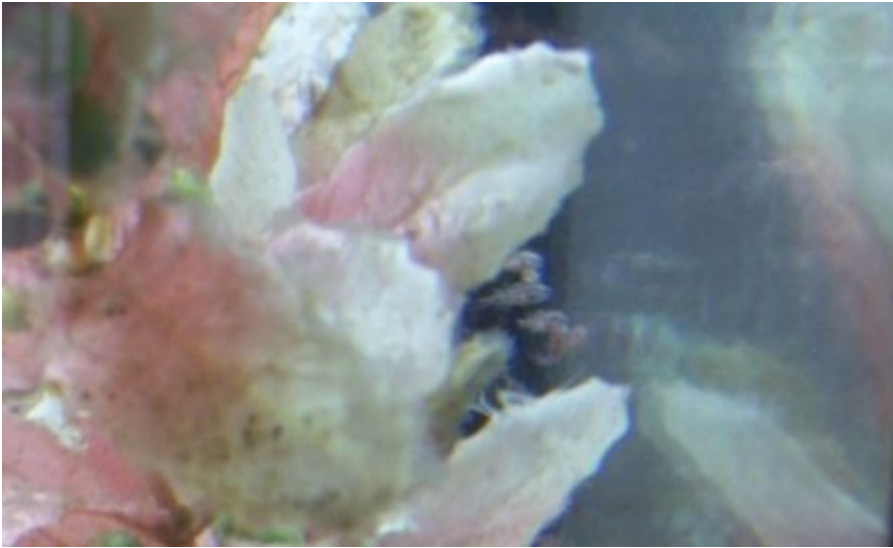
### **Feeding the fish:**



The fish are being fed 4x a day. Their initial feeding is golden pearls, second the hikari, third golden pearls (again) and last is half a cube of hikari BBS and a similar size shaving of arctic cyclops shaved off the frozen bar with a knife. I use a small pinch of the dry foods and dissolve them in a cup of tank water, then use a small turkeybaster to squirt the liquid into the mass of fish (same procedure with the cyclops/BBS). This "target feeding" approach reduces the amount of excess food, which only gets sucked into the filters and increases nitrates. They get two "puffs" of the food per feeding squirted into the main group of fish.

### **Fry Growth Rate:**

So far, the fry growth rate appears to be rapid. Currently the fish are approximately 1/8th of an inch long and much thicker around the middle than when first hatched. When newly hatched, Krib fry are about the size and circumference of an eyelash. On this diet, they've about doubled in size so far. The tank does contain several sources of naturally growing tuft algae as well as a large clump of java moss in the tank, so in-between feedings the fry have access to microflora to nibble on, and oftentimes the algae and java moss will trap food particles suspended in the water column. My poor camera has difficulty shooting clear pictures of the tiny fish, but in this shot you can see a small group of the krib fry on the right, and you can see their golden colored bellies just after a feeding of golden pearls.



Hopefully I can get some clearer images with patience and a tripod. These fry are about ten days old after hatching and have already metamorphosed into body shapes that are exact mini replicas of their parents. They're also displaying their juvenile vertical bars, which they use at this age/size to hide amongst plants and blend in with their backgrounds so other predators won't see them and eat them. This vertical barring fades as the fish mature, leaving them with only horizontal lines.

And now... the cutest picture i've taken all day.... A sorta fuzzy closeup of a baby Krib face



S/he's doing his best chubby pufferfish imitation, I guess... ::)

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**Title: Re: The Krib Crib: Raising baby Kribensis with commercial foods**

**Post by: Lori on November 12, 2006, 09:16:15 PM**

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This is so great, Aip....I'm really looking forward to reading their progress. I'm also ordering the golden pearls tomorrow. Did you say you put the bag of food in the freezer, or just in a freezer bag to keep it fresh?

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**Title: Re: The Krib Crib: Raising baby Kribensis with commercial foods**

Post by: **Aiptasia** on **November 13, 2006, 09:08:01 AM**

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Just into a freezer bag with a ziplock top. The Golden Pearls food contains no preservatives, so it's better to keep it air dry and tightly sealed when your not using it. If I can remember to, i'll probably toss a dessicant packet into the bag with the golden pearls. Probably after I open my next bag of beef jerkey. Any excuse for me to eat beef jerkey is a good thing. ;D

I wouldn't store it in the freezer unless you wanted to divide it into smaller bags and seal it completely. I just wouldn't want moisture to get into the bag, so I keep it in a drawer. Room temperature, dry, dark.

My next update will come this Friday, then i'm going out of town for a long thanksgiving break. Friends have already volunteered to fish sit. I just hope the fry will be of sufficient size by then to knock them down to two feedings a day for a week. They should be.

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Title: **Part tres**

Post by: **Aiptasia** on **November 14, 2006, 02:30:43 PM**

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O.k., I couldn't wait that long to do another update. It's Tuesday, and it's amazing how fast the fish are growing. They're at the stage where they're starting to show a little independence from their parents and each other, occasionally swimming away from the pack and investigating all on their own. Normally, this would be a dangerous time for the little kribbs, but since the only other tank inhabitants besides their parents are two small plecos (a bristlenose and a rubbernose), i'm not worried that they're going to get eaten. I'm still pushing their diet 4x a day in order to make sure they put on as much size by Saturday as possible. Since i'll be going out of town for an extended thanksgiving holiday, the fish will be cut back to twice a day feedings by their babysitter. I'm going to be sure to add additional Java Moss to the tank for them to pick at before I go.

**Mom and the kids:**



This picture was clicked just after a water change using the flash on the camera. Notice all the

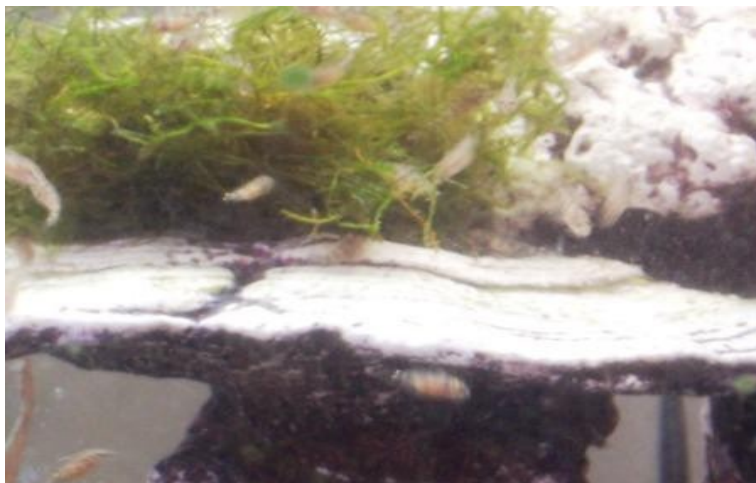
lovely water stains on the outside of the glass. :) I hadn't had time to wipe down the outside of the glass with a little vinegar when they all started displaying nicely for the camera, so I had to just grab and shoot. I hope the kribbs tell the plecos that they missed a spot or two. Sterile levels of cleanliness isn't required to raise baby kribbs, in fact.. the fish do better if they have algae to nibble on.

**Golden Pearls, Golden Bellies:**



I'm sorry for the fuzzy focus, but the powershot camera has difficulty focusing on small items within four feet of the lense. You can make out the fish and that they're gorging themselves on the golden pearls food. They're adding size every single day and are producing a lot more coloration in their skin at this stage. The vertical bars are clearly present and the inquisitive little fish are everywhere in the tank, all regions from top to bottom and front to back. :inlove:

**Java Moss is nummy:**



Here, some of the kribbs are nibbling on a clump of Java Moss. Not only is Java Moss a good spawning medium for some egg laying fish, but it can trap a lot of particle sized bits of food, usually contains a lot of microfauna for fish to nibble on, and helps reduce nitrates by competing with

algae for nutrients in your tank. The fish love to hover around it and pick at it for extra nutrition in-between feedings.

At this size, the fish are ready for a growout tank all on their own. Normally, this would be the time to move them, but i'm going to leave them in this tank (40 gallon) until I return from my thanksgiving vacation, as it is more than adequate in size to grow out the fish to 1". The parents and the plecos will not harm them.

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Title: **Re: Raising baby Kribensis with commercial foods (updated 11/14/06)**

Post by: **Lori** on **November 14, 2006, 03:51:35 PM**

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They grow up so fast, don't they, Aip? ;)

I'm sort of mad at you, bud. I was so excited to get some of the golden pearls but, as usual, I way over-shopped at Ken's, so I'm blaming you in part for my wide eyes and now empty wallet. \*sigh\* While many women want new shoes or jewelry, when asked by my husband what I want for Christmas, my answer is "Oh, that Rena XP4 canister filter, please!! " ;D

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Title: **Re: Raising baby Kribensis with commercial foods (updated 11/14/06)**

Post by: **Aiptasia** on **November 15, 2006, 10:06:20 AM**

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Quote from: Lori on November 14, 2006, 03:51:35 PM

They grow up so fast, don't they, Aip? ;)

I'm sort of mad at you, bud. I was so excited to get some of the golden pearls but, as usual, I way over-shopped at Ken's, so I'm blaming you in part for my wide eyes and now empty wallet. \*sigh\* While many women want new shoes or jewelry, when asked by my husband what I want for Christmas, my answer is "Oh, that Rena XP4 canister filter, please!! " ;D

It's all my fault, dude. That's the problem with Ken's stock, i've found that most of it is pretty good.

I hope he puts some freebie samples of stuff in your box like he usually does. Funny, I just took a Rena XP4 back to Petsmart last weekend. New in the box. I bought it about two months ago thinking I was going to use it for a tank setup, then never did. Which reminds me, I also have some coralife aqualight retrofits new in the box. I need to aquabid those off and get rid of them.

Maybe I can swap Ken for them for a lifetime supply of golden pearls... yeah!!! :)

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Title: **Re: Raising baby Kribensis with commercial foods (updated 11/17/06)**

Post by: **Aiptasia** on **November 17, 2006, 10:05:10 AM**

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Well, I just got news from a few local attorneys that two of my closings are in jeopardy. That means I won't be going out of town for Thanksgiving like i'd planned. :-\

The babies are fine. I need to do water changes when I get home from the office this afternoon.

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**Title: Re: Raising baby Kribensis with commercial foods (updated 11/20/06)**

**Post by: Aiptasia on November 20, 2006, 09:24:08 AM**

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Update:

O.k., the juvenile fry are definitely large enough to be moved into a tank all on their own. My adult female krib turned on the male at some point last night. I woke up this morning to find the male huddled against one of the heaters near the top left of the tank, with the female pecking and harrassing him. For a few days now, I've noticed that both the male and the female don't pay much attention to the fry any more, and the male had been barreling through the fry to get at some flakes. He must have done something that she didn't like, so i've moved him to a different tank (a 55 where I have some marbled angels). I'm debating just letting the male get settled into the 55 and moving the female in there with him, and letting the fry stay in the 42 gallon tank to grow out. They're large enough now that I don't think the two plecocs in the tank will bother them at all.

They're large enough now to eat the bigger sized golden pearls food. I should have anticipated this before hand, as I don't have any at hand to feed them in the 150-200 micron range. I'll order some in from Ken's fish this week and feed the juvenile kribes on frozen cyclops, BBS and daphnia until the food arrives. Yes, I could feed them crushed flakes, but I want to stay true to the golden pearls because the growth rate has been so rapid.

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**Title: Re: Raising baby Kribensis with commercial foods (updated 11/24/06)**

**Post by: Aiptasia on November 24, 2006, 05:50:43 PM**

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Final update (11/24/06):

This will be my final update and synopsis for raising kribensis with off the shelf commercial foods. I started their feeding regimen on the golden pearls, hikari first bites, frozen hikari BBS and frozen Cyclop-eeze on 11/10/06. They have received a few feedings of frozen daphnia along the way, but daphnia don't have a lot of nutritional value and was fed on the order of twice a week as a treat food. The other foods were given daily. It is now two weeks later (fourteen days) and the fish are now sub-adult juveniles approximately 1/2" long, and displaying their final color patterns. The fish are approximately three weeks old from the date they became free swimming and are large enough now to accept flakes, minced bloodworms and chopped freeze dried earthworms which I prepare in a coffee grinder on the "percolate" setting (espresso is too fine). This is my first batch being fed primarily a base diet of golden pearls, with the first bites and the water bugs strictly as supplements.

### Juvenile kribbs:



With other methods i've tried, getting them to this size takes approximately four and a half weeks, so their growth rate is about a week and a half faster than i'm used to seeing. I've been very impressed with using the 50-100 nanometer sized golden pearls for newly free swimming cichlid fry. When I first started, these little guys were barely the size of an eyelash.



They did have some extra veggies in their diet in the form of algae which is growing in the tank, as well as plenty of picking at a healthy clump of Java Moss along the way. The fish really do appreciate the extra nutrition that algae can provide. The tank does have two plecos but the plecos have preferred scavenging for uneaten baby fish food and have ignored their regular algae eating duties. Even with 30-40% water changes every other day AND target feeding the fish, the tank still has plenty for the plecos to scavenge.





The fish are about a week away from sellable/auctionable size on Aquabid, a process that normally takes about eight weeks from hatch out to selling them. I've managed to cut the time on this batch down to five and a half to six weeks, meaning that this batch should be ready for new homes just a couple of weeks before christmas. The adult female still remains in the tank and keeps a wary eye on the plecós, even though they're essentially harmless. She did get into a scrap with one of the plecós a few nights ago when it decided to take up residence in her flowerpot, and somehow the pleco got the better of her in the confrontation. I think that she must have charged in after it and somehow the pleco blocked her exit. She has obvious fin damage to her left pectoral fin and her caudal fin, but nothing she can't recover from. It's unusual for a pleco hickey to be so damaging but I guess the pleco wasn't leaving the flowerpot for her so easily.

Now that the fish are accepting adult foods, there's no need to continue the golden pearls/hikari portions of their diet. I will continue to supplement their diet with daphnia and cyclops, as both frozen foods are a little larger than BBS and are healthy for their digestive tracts. Baby brine shrimp are now too small and are ignored by the young kribs.

As you can see, they're losing their youthful vertical striped camouflage in favor of horizontal patterns and their skin color is changing from transparent to white. You can clearly see color pigments beginning to emerge in their skin, although subdued.

Anyone want some kribs for xmas? ;D

Edit: FYI, here are the particulars about the tank they were raised in..

Tank: 42 gallon freshwater tank

Filters: 1 Magnum H.O.T. filter and one Aquaclear 50 HOB filter w/open pore sponges over their intakes

pH: 7.2-7.4

TDS: 180-200 ppm

Temperature: 78-82 degrees

Water change regimen: 30-40% every two days, tap water, prime as conditioner

## ***Tropical Fish Breeding for Profit***

Tropical Fish Breeding for Profit

By [Randy Wilson](#)

At some point in your life you have probably had a fish tank in your home. Kids all over the world start out with guppies and goldfish in round bowls on their dressers. For some people, this has led to a fish breeding business in the tropical fish market.

Even looking at the recent slew of children's movies that are based underwater, you can see how the popularity of tropical fish is increasing. Many tropical fish breeders have seen a rise in sales over the last two years alone. This has led the entire industry, from aquarium makers to salt providers, in increased sales and profits as well.

Raising tropical fish requires a little know how and some specialized equipment. Typically, tropical fish will require more room than your average guppy, so a large area for tank set up will be needed. Depending on how many species you would like to raise will determine the number and size of the tanks you need to operate.

Also consider the number of offspring you are likely to get from each species. Some species of tropical fish can have hundreds of offspring at one time. A percentage of these offspring will probably have to be culled, or destroyed, because their quality will not be up to your standards for your tropical fish breeding business. The small and weak should be culled so as not to cause problems in the entire tank environment.

Tropical fish breeding and raising fish to a marketable maturity will require time and patience. Do your homework on growth rates and reproductive rates of each species you plan to breed. You will also need to know the compatibility of different species if you plan to work with more than one in your tropical fish breeding business.

Salts, water, and water testing equipment are also a must and should be top of the line. Water quality will play not only a crucial role in the survival of your fish, but also in the success of your operation as a whole in your tropical fish breeding. Tropical fish can be very delicate. Your education will save you time and again if you learn as much about each species that you are breeding as possible. For example, copper will kill just about any tropical fish, so you will need to know how to set up water conditions for your fish accordingly.

Basic supplies such as food and water conditioners can be purchased from local aquarium supply stores. However, you may research the internet to see if you can buy in bulk to save money on the things you will use the most - salts, conditioners, nets and the like. You will also find there is a wealth of information available on species, their natural conditions, captive raising of fish, and much more. You will need to educate yourself often to produce good quality and beautiful fish for successful tropical fish breeding.

Once you have begun producing your fish, you will need to get them to your market. Transporting tropical fish takes skill and timing. If you are shipping fish, which is becoming more and more common, make sure that you are shipping them overnight, to an address that will have a person

present to accept the package at delivery. Always make sure that your customer acknowledges this shipping arrangement in advance and is aware of your returns and allowances policies.

Packaging your fish can be tricky as well. There are several methods of packaging live fish for transport that are efficient and should ensure live delivery. Depending on the size and oxygen requirements of the species involved will depend on the type of packaging you will need.

Most commonly, fish are double bagged, one bag tied at the opening and turned upside down into another bag that is also then tied. This prevents corners from closing in on the fish and also provides extra piece of mind against leakage. Packing materials will need to be tight, but not crushing, to keep the bagged fish upright. A good suggestion to frequent buyers of your fish is to offer a discount to them if they return your packing materials, as the extra padding and such can get expensive.

Tropical fish can be startlingly beautiful and pleasurable to watch. It is no wonder that tropical fish breeding is both profitable and rewarding. Preparing well for this tropical fish breeding business will help you succeed. If you educate yourself at every turn on breeding, water conditions, raising and culling your fish, you are sure to make a great splash on the tropical fish industry.

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Randy has dozens of home based business articles at [Profitable Businesses that are home based](#) such as [Unusual Money Making Opportunity](#).

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## ***Tips On Breeding Tropical Fish***

By [Tim Lee](#)

If you are looking for tips on breeding tropical fish, you must first decide what type of tropical fish you wish to breed. Some tropical fish are live bearers, which means they give birth to live minnow babies. The other type are egg bearers, which means the mother lays eggs and the minnow babies hatch from the eggs.

Most sources that provide tips on breeding tropical fish suggest that live bearers are the better place to start, especially for beginners who have limited to no previous breeding experience. Beginner breeders should hone their skills using any of three live bearer fish types, which are the three of the easiest to breed: mollies, guppies or platys.

One of the first, and perhaps most important, tips on breeding tropical fish that bear live young is to keep the baby fish, called fry, away from the rest of your community tank. Adult fish consider fry to be excellent food, so if you don't keep them separated, your breeding efforts will be sacrificed to the appetites and instincts of the rest of your fish. In fact, even the fry's own parents enjoy eating them.

Your best bet to avoid this fate is to use a separate breeding tank, with heavy foliage to provide cover for the fry. Once the mother has given birth, she can be returned to the main tank, which the young fry can grow in comparative safety.

Water temperature and tank size are both very important when it comes to tips on breeding tropical fish. Each different breed of fish has a different optimal breeding temperature, so first determine that. Fish will breed when the water temperature signals to them that it is breeding season. If you maintain this optimal temperature, the male and female fish will be more likely to breed. As a general rule, larger tanks tend to produce larger numbers of fry in one birth as well.

These tips on breeding tropical fish are but the tip of the iceberg. If you are serious about breeding, seeking the advice of an experienced breeder and relevant literature is always advisable.

For more tips on breeding tropical fish, please visit <http://www.breeding-tropical-fish.com>

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## ***Spawning Tropical Fish***

By Clint Norwood

Spawning Aquarium fish is easy in many cases. Just follow these simple procedures:

- Make sure you have a real pair
- Make sure the breeders are in the best of health
- Condition the breeders on good food
- Have clean water of the proper pH and hardness for the particular species
- Provide for their special needs, such as caves or spawning mops or spawning grates etc
- Disturb the pair as little as possible



And there you have it as far as basics go, please see the individual fish articles for specific details for particular species.

## ***How Fish Spawn***

By Clint Norwood

**Live Bearers** - Fry are born, not hatched.

These fish give birth to fully developed free swimming fry.

The gestation period is usually around a month. Most fry will need to be protected from their parents, as they will attempt to eat their own fry. There is absolutely no parental care involved. Live Bearer fry will accept ground up flake food as well as baby brine shrimp and micro worms at birth. This group includes Mollies, Guppies, Swordtails and Platies among others.

**Egglayers** - Fry are hatched from eggs.

**Egg Scatterers** - Lay their eggs indiscriminately around the tank, they give no care as to where the eggs may fall except to hunt them down to eat them. Fry usually hatch within 24 hours, but don't become free swimming for another 2 - 3 days. Fry will need the tiniest of live foods to get off to a good start, if not available you can use "egg layer" tube fry food. This group includes Danios, Barbs, and some Tetras.

**Egg Hangers** - These fish lay their slightly adhesive eggs attached to plant leaves, roots, bog wood, and/or other similar items found in the water, including the sides of the tank in an aquarium. This group includes Goldfish, Plant Spawning Killifish, some Tetras and Rasboras, Pencil Fish, most Corydoras catfish, White Clouds and Rainbow Fish.

**Bubblenesters** - This group of fish lay their eggs in a previously built (by the male) bubble nest. The male will usually look after the fry until they become free swimming. This group consists mainly of Bettas and Gouramis and other Anabantoids.

**Cave Spawners** - This group consists mainly of Cichlids. The spawning act is usually performed inside a selected cave, the eggs are deposited on the sides or roof of the cave. The one or both of the parents will usually take charge of the eggs and fry, defending them well after they become free swimming and will cease only after the fry are removed or she has another brood. Members of this group are Kribensis, Apistogrammas, some Gobies and some Catfish.

**Rock/Leaf Spawners** - Similar to the cave spawners except that the action is centered around a rock, leaf or piece of slate. This group includes some Gobies, Angelfish, Discus, Oscars, Firemouths and most other large cichlids.

**Mouthbrooders** - Eggs are laid in a place like a cave or rock but (depending on the species) the male or the female will take the fertilized eggs in their mouth for incubating. The fry are well looked after by the parents as with the cave spawners and rock spawners. A small group which includes a few Cichlids such as the Egyptian Mouthbrooder, and a few Anabantoids.

**Soil Spawners** - Almost exclusively a Killifish spawning method. Eggs are buried in the substrate and left to sit through the dry season when the ponds dry up. The eggs remain viable until the rainy season returns and the fry hatch out.

## ***Fry Rearing Tanks***

By Clint Norwood



Rearing tanks for your fry need to be bare, with no gravel and other unnecessary clutter. You want it to be easy to keep clean. Growing fry need to be fed heavier and more often than normal adult fish and therefore you'll need to make more frequent water changes. You need to use a good filter, but one that doesn't cause too much turbulence that would knock the fry around. I recommend a sponge filter for fry tanks.

The size of your rearing tank will depend on how many fry are going to be in it at any one time. For example a small batch of 10 Killifish fry would only need a one gallon container to start with, you want to keep the fry in close proximity to their food. But a batch of 200 Angel Fish fry would need at least a 10 gallon tank to start with and would need to be spread out into more tanks very soon, as they start growing.

The main rules for rearing tanks are

**Cleanliness,**

**Heavy Feeding,**

**Frequent Water Changes**

and **Room To Grow.**

## ***Feeding Fry***

By Clint Norwood

After you've spawned some fish you need to be ready to feed the fry. Most fry don't need any food for the first 3 - 5 days, while they live off their yolk-sac, but then they will be ready to eat:

### **Food For The Tiniest Fry**

Some fry such as those from Tetras, Rasboras and some other fry will need very tiny food. A product called "Egglayer" fry tube food will work fine. But if you don't have it or can't get it you can always use the old boiled egg trick. This involves boiling an egg, get only the yolk part and pinch off just a very small piece; put this in a small jar or vial, add some aquarium water and then shake vigorously to dissolve and disintegrate the yolk food into microscopic pieces. Then you can add just a tiny amount, maybe 2-5 drops, to the fry tank. This egg yolk food should suffice for the tiny fry for a few days until they are ready for the next step, which is:

### **Food For Not-So-Tiny Fry**

The next step for the tiny fry would equal the foods you can use for most aquarium fish fry. Fry from fish such as Livebearers, Cichlids, Killifish, Catfish, Bettas etc, will all be able to handle fry foods such as Baby Brine Shrimp, Vinegar Eels and Microworms and crushed up flake food as a first food. Some Aquarist I know are not willing to use "Live Foods" for their fish, but there's really no excuse for not feeding the fry live foods because it really gets them off to a much better start than just plain old flake food or even the tube foods. Most fry will only need live foods for the first few weeks and can then be weaned off to regular fish foods.

### **Think Ahead**

If you are getting ready to spawn some fish you should think ahead and decide which kind of fry food you are going to use. Many fry are lost because the Aquarist isn't ready for to feed the fry the proper foods. So check your (LPS) local pet shop for the "Egglayer Tube Food", or get a microworm culture or Brine Shrimp Hatchery started before the arrival date of the new fry. Clean water and good food are of the major importance in raising fry, so think ahead and be prepared.



## ***The Amazing Easy Difficult Fry Rearing Method***

By Clint Norwood

This is a discovery that I made by accident. I have tried to keep a strain of *Fundulosoma thierryi* going for some years now. *Thierryi* fry are tiny and really difficult to raise, especially for the first 2 weeks.

One day while harvesting some daphnia I found 3 ¼ inch fry. They turned out to be *thierryi* fry. They had thrived in the daphnia tank! The nasty cloudy yeasty daphnia tank! I usually use my old tank water to refill the daphnia tanks, so I must have accidentally transferred some *thierryi* eggs to the daphnia tank. Now I'm not a genius, but I know a good thing when I see it, so naturally I took advantage of this discovery.

Since the accidental discovery I have used the "dump em in the daphnia tank" method for various hard to raise fry. I've had excellent luck with Blue-Eyed Rice Fish fry, which are among the tiniest fry I've ever seen. And it's worked with just about every fry I've tried.

Another fry trick is to put them in a tank jam packed with Java Moss. Java Moss has millions of tiny organisms living among its tiny fronds, all just about bite size for tiny fry.

Just thought I'd pass along this discovery. It has helped me a lot with the "difficult" fry in my life.

## ***Culling Fry***

By Rachel Hunt

Culling basically means removing the fry from the gene pool you're trying to breed for. For example, say I'm breeding guppies and I want only guppies with blue tails. As my fry age and I can see their colors, I will have to cull any fry that do not have blue tails or else I'm going to end up ruining my "blue tail only" strain.

The way you choose to cull (remove undesirable fish) is up to you. Some people simply remove the fry with unwanted traits (in my example, say guppies with red tails) and either sell them to local fish stores or sell/give them away online or at fish clubs. Some people feed fry with undesirable traits to larger fish. Some people euthanize undesirable fry. How you choose to remove them is up to you, but if you're a somewhat serious breeder you will have to cull at some point.

One other thing, you should always eliminate any fry with genetic defects that cause them physical problems so that you're not polluting the gene pool by just passing them on to someone else that may breed them. For example if I suddenly turned up having a ton of guppy fry in one of my spawns that all had deformed swim bladders, I would not give them away or sell them, I would destroy them. That also goes hand-in-hand with being a responsible breeder/fishkeeper. You should breed for the betterment of the species, always (although what is "better" is always widely debated, serious deformities should not be allowed to live unless you're sure they are not going to breed).

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