

The

SCAAT

In This Issue:

Betta pugnax

Poecilia reticulata

Vallisneria species

Xiphophorus variatus

Breeding Rainbowfish part 2



Club Notes



Our Mission Statement: Meetings of the St. Catharines & Area Aquarium Society are held on the first Monday of each month, 7.30p.m., at the Seafarers & Teamsters Union Hall, 70 St. Davids Rd. E. Thorold, Ont. No meetings are held on Mondays that are holidays. Those meetings are held on the second Monday. There are no meetings during the months of July and August. *The Society, established in 1958, is a non-profit, educational organization dedicated to the task of promoting interest in the breeding, raising, maintenance and study of tropical fish, both at the beginner and advanced levels.* The St. Catharines & Area Aquarium Society is a charter member of the Canadian Association of Aquarium Clubs Inc. (CAOAC) www.caoac.ca. SCAAS is also a member of the Federation of American Aquarium Societies (FAAS). More news and information about St.Catharines & Area Aquarium Society can be found at <http://www.scaas.info>

Our next meeting will be held on December 05.2011 Start time is 7.30 pm ALL ARE WELCOME
This month's program will be our Christmas meeting with free members raffle & pot-luck foods

2011 – 2012 Executive

President – Tom Hillier - - - - (905)227-5008 - tom.hillier@hotmail.com
1st Vice President – John Verhage – (905) 735-7776 - jverhage@on.aibn.com
2nd V President – Joe Krawchuck (905-325-5562) - drummers_secret@hotmail.com
Secretary – Pam Danyluck - - - - (905)562-3290 - danyluck@sympatico.ca
Treasurer – Bob Hayslip - - - - (905) 646-2802 - jules_bob@hotmail.com
Past President - Ken Brady - - - - (905) 935-4716 - kbrady2@cogeco.ca

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Breeder Awards – Tom Bridges - - (905) 735-3352 - tp.bridges@sympatico.ca
CAOAC Representative – Tom Hillier (905)227-5008 - tom.hillier@hotmail.com
Editor - DAVE Unruh - - - - - (905) 684-9860 - dunruh@cogeco.ca
Jar Show – Pat Shriner – - - - (905) 354-1367 - gpshriner@sympatico.ca
Library – Gary Phelps - - - - (905) 563-6523- gphelps@yahoo.ca
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Raffle & Draws – Priscilla Heus - (905) 988-9741- heus7@hotmail.com
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Membership Dues:

Family: \$ 25.00
 Single - \$ 20.00
 Junior - \$ 10.00 (under 16)
 Seniors - \$ 10.00 (over 65)

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Cover photo of a pair of *Betta pugnax*
 Photo © by DAVE Unruh

Jar Show

The fish of the month for December are Swords, platies & mollies
For January it will be Anabantids

President's message

December is here and this is the last meeting of the year. I hope everyone comes out to the December meeting. We have a few things planned. Last meeting we had Ernest Biktimirov do a talk and presentation on his different hobbies and interests in the fish hobby other than fish. It was very interesting and was very well received by all with a lot of comments on it. I would like to thank Ernest from the club for his donations to our auction.

Santa might be able to make an appearance if he is not too busy to see the children old and young. There will be a pot luck lunch so everyone bring something if they can. There will also be a 'members only' prize table. Each membership will be given tickets to put in for the different prizes of fish and other things.

This will be the last chance to say to everyone have a very happy safe and merry Christmas from the executive of the club.

This is the time for giving so I would like to see everyone bring out something for the food bank. It is a just and worthy cause and no one should have to go hungry.

See you at the meeting.

Tom Hillier President

Ho, Ho Ho



Photo © by DAve Unruh

Membership Meeting Minutes

November 7, 2011 submitted by Pam Danyluck

Meeting Commenced at 7:45 pm.

Opening and Welcome: Tom Hillier welcomes everyone present. Also welcomes visitors. One of our visitors was a previous member in the 50 & 60s and was the editor of our Scat back then.

Upcoming Events and Announcements: Read by Tom Hillier

November 13 Tropical Fish Club of Erie County Auction only

November 13 Peel Regional Aquarium Club Auction only

Jerry Draper gave a quick run down of the bans for bringing fish across the border. As of December 1, 2011 a permit to bring fish across will be needed.

Aqua Terra in Niagara Falls will now be open Sundays 12 – 4.

Announcement made by Pam Danyluck on behalf of Roman

Roman is looking for volunteers to sign up for video taping of their fish tanks.

Treasure's Report: Bob Hayslip was absent, but Ken Brady was on hand to give us an update.

Float \$159.11

Bank \$2482.68

Total \$2641.79

Breeding Award Program: Tom Bridges presents a Specialty Catfish Award to Tom Hillier.

Horticultural Award Program: Joe Krawchuk has no awards to present this month.

October's Program was a very interesting and educational talk by Ernest Biktimirov one of our own club members. He spoke about extending our hobby to collecting of different objects with fish on them. Some of these collectables are: Currency paper and coins, stamps, postcards, match boxes, playing and cigarette cards. Some of these items also had information on them about the fish displayed. There are plenty of books available on this topic for anyone interested. There were also prizes and donations relating to the hobby of collecting.

Refreshment Break supplied by Shawn and Shirley

Jar Show Awards: Pat Shriner presented jar show awards to: Joe Krawchuk

Door Prize was won by Jerry Draper.

Nightly Raffle

Evening Auction

Meeting Adjourned at 10:14 pm.



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Remember that the at the **Christmas** meeting we will be having a potluck,  so please bring a favorite

, finger foods  or snacks to share. We are also taking donations of dry or canned goods for the local food bank.

Thanks

Breeding *Poecilia Reticulata* (a.k.a The Common Guppy)

By Joseph Krawchuk

Most of you who are familiar with this type of fish might think that breeding them is as simple as adding water to a tank and then adding a male and female guppy – well, that’s exactly the case – except when your aim is for something a bit fancier.

My guppy breeding adventures began shortly after the spring fish auction in Brantford. I won a custom made 15 gallon tank that was divided into three equal sections. I was wondering what I was going to do with such a tank, until trios of fancy guppies began to sell for around \$15 to \$20 at the auction. I thought to myself, perhaps this new tank can become a guppy breeding project. After deciding that I wanted to breed a type of snakeskin guppy (I was fascinated by the patterns that mature males exhibited) I quickly began my search for a male and female yellow snakeskin guppy. After finally receiving a juvenile pair of these nice looking fish I placed them in one compartment of my new guppy breeding tank.

The tank contained fine sand for the substrate, a small heater and a small sponge filter. I placed a clump of *Najas* grass in the tank with them and began to feed them heavily with microworms, white worms, flake foods, and frozen brine shrimp. The pair very quickly began to grow, but after a month and a half there were still no fry! This seemed unusual, especially for guppies, but given the fact that there was only one male and one female, the process of breeding seemed to take a lot longer. It was not until I began to add aquarium salt to the water when completing my water changes that the female appeared to be gravid. Well, sure enough after that she began to successfully give birth to around 30 fry every 25-30 days. The first batch of fry were scooped up and placed in the second section of the tank and were fed a steady diet of microworms, decapsulated brine shrimp eggs, and crushed flake foods.

After several weeks I could already see that several of the fry were developing into males and their tails were beginning to colour and grow larger. After around four months I began to select the nicest male and female from my batches of fry and placed them in the third section of the guppy tank. At this point I had A LOT of baby guppies, so I set up a 10 gallon grow-out tank for the guppy fry that were in the second section of the guppy breeding tank and placed one male and three adult females in the second section. I now had nine yellow snakeskin female guppies that were happily breeding in all three sections of my guppy tank.



If anyone was at the Hamilton Auction or our club’s auction, you probably noticed the trios of snakeskin guppies that were for sale. I have successfully reached my goal and now I am able to produce a steady enough supply of yellow snakeskin guppies to sell young trios at the auctions. Look for my guppies at the November meeting!

RONA
Welland

SCANNING THE EXCHANGES

& etc.

with Pat and Tom



BAP ACHIEVEMENT AWARDS presented at the November meeting

Specialty plaque for Catfish awarded to Tom Hillier for breeding 5 distinct species.

Congratulations! *Tom Bridges, BAP chair*

GOOD READING...

▶ ... in the Hamilton & District Aquarium Society's monthly bulletin –

November, 2011

*Breeding *Symphonichthys Suzarti*
by Charles Drew

*The Spotted Corydoras – *Corydoras delphax*
by Deborah Foltyn

▶ ... in the Kitchener-Waterloo Aquarium Society's newsletter – 'Fins and Tales' –

November, 2011

*Expanding my Gro Op – a HAP article & *Pseudocrenalibus Philander* – disperses aka The Copper Mouth Brooder
by Brent Lemanski

*Water World Travel & Georgia Aquarium Trip
by Dick Mattinson

**Pundamilia* sp. Blue Bar by Terry Clements

*Playing the Shell Game by Ed Koerner

*Adventures in DIY – Building a Box of Water
by Rick Glencross

*Stirring the Pot by Jane Glazier

▶ ... in the Greater Cincinnati Aquarium Society's newsletter – 'Fincinnati' –

November/December 2011

**Pelmatochromis Buettikoferi*: A Case of Mistaken Identity by Chase Klinesteker
Reprinted from the Nov 2009 SWAM Bulletin of the Southwestern Michigan Aquarium Society.

▶ ... in the Tropical Fish Club of Erie County's newsletter – 'Some Things Fishy' –

November, 2011

*Food for Killies – author unknown

Most clubs' newsletters are on their web sites. If they are not available to you, let me know and I'll provide you with the article.
Pat B.



Don't forget to bring some food to share at this month's meeting, along with a donation of a canned item for the food bank.



Horticultural Highlight

By Joe Krawchuk



In this month's highlight we will be focusing on the Vallisneria Genus. There are numerous variations of Vallisneria that can be obtained for and grown in the aquarium; however, there are only a few that seem to be the most popular amongst aquarium hobbyists. Although there are many different variations of Vallisneria, the common name that is used most often is "Jungle Val". Due to the plant's smooth, ribbon-like leaves and its ability to grow well in a wide variety of aquarium conditions, Jungle Val has been an aquarium favourite in the hobby for many years.

In terms of distribution, Jungle Val can be found all over the world. In fact, it can even be found in many small lakes and ponds right in the Niagara region. Due to the fact that it can withstand a variety of growing conditions, it is no surprise that Jungle Val can be found in so many different parts of the world.

Jungle Val can tolerate a wide range of temperatures that can fluctuate from 64 to 82 degrees Fahrenheit. Similarly, a PH between 6.0 and 9.0 can be tolerated amongst many varieties without any

adverse effects on the plant. The fact that this plant can tolerate such an array of water parameters makes it a great choice for beginners who are wishing to add live plants to their aquarium(s).

Once Jungle Val has been established in an aquarium, its growth and reproduction is quite prolific. These plants send out runners where new plants begin to grow and continue to send out runners as well. Many varieties can grow in excess of two feet tall and once they reach the top of the aquarium they continue to grow horizontally across the top of the aquarium. If left unmaintained, the plant can begin to block out light that may be needed for the well-being of smaller plants that are lower in the tank. For this reason, many people 'trim' their Jungle Val when it grows too tall for their aquarium. In most cases, this method works quite well, but sometimes the leaves begin to rot and decay at the point where they were cut. Since they reproduce very quickly, older and rotting stems should be removed to thin out the plants and to allow the new runners to have room to grow.

In my experience, many varieties of Jungle Val are great background plants that grow very quickly without requiring a lot of attention. Although fertilizer supplements are appreciated, the waste produced by fish in the aquarium is enough for this plant to thrive. Since it can withstand a large variety of water parameters and lighting conditions this plant can be a great starter plant for anyone who is thinking about trying to keep live plants in their aquarium(s).

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Breeding Xiphophorus Variatus (The Variatus Platy)

By Joseph Krawchuk

As with most live bearing fish, it is usually quite easy to have them breed in a community tank. The variatus platy is no exception. After purchasing a trio of red "twin-bar" variatus platies and placing them in a 40 gallon tall planted aquarium, their colours seemed to 'pop' against the vibrant green colour of the jungle val and amazon sword plants. The tank is heavily planted and is filtered by an Aquaclear 70 hang on the back filter. The temperature of the water stays at a pretty consistent 78 degrees and the ph of the tank remains around 7.0.

I decided it would be nice to breed them and raise the fry to add even more colour to the tank. A steady diet of frozen brine shrimp, white worms and flake food were used to condition the fish and within no time at all the females were gravid and getting bigger every day. Finally, a day apart the females gave birth to quite a few fry.



I placed a large amount of frogbit in the tank to allow the fry to hide amongst the roots and to discourage the other tank mates (mostly swordtails) from eating the fry. This seemed to work out well and many of the fry could be seen hiding near the surface of the tank. Microworms and crushed flake food was given to the fry which helped them to

develop very quickly. Soon I had quite a few reddish-orange platies swimming amongst the plants and adding to the beauty of the planted tank.

I sold many of them at various club auctions and still have the original parents and several of their offspring in my tank. These peaceful and colourful fish make perfect additions to any community tank, and produce steady batches of fry every month.

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Year of the Rainbowfish

A monthly column about Rainbowfish by Derek Tustin
Reprinted from the September 2011 issue of "Tank Talk"
the newsletter of the Durham Region Aquarium Society

Breeding Rainbowfish

Part 2 (see the Oct 2011 issue of the Scat for part 1)



average, and therefore the breeding temperatures, while higher than normal conditions, should be less than the range stated above. In short, research your fish before you try and breed.) For breeding purposes, the photoperiod should be about 16 hours of light a day. The pH, while not critical, should be above neutral, preferably around 7.5. Filtration, especially to provide aeration, is essential. Most recommend a sponge filter, but I have also had success in using an Aquaclear filter set to low. This works best in larger tanks, so not to create too much agitation for fry when they do hatch.

Keep the males and females separate for a period of two weeks, making sure that you are feeding them high quality food, at least once a day, but preferably twice.

At the end of the two week separation, reintroduce the females and watch nature take its course.

The Spawning Medium

As mentioned, in nature Rainbowfish will spawn on logs, rocks, plants and the submerged roots of marginal plants. In a controlled breeding environment, you want to be able to provide a suitable spawning location, but also provide something that is portable as well. Most breeders of Rainbowfish will use a spawning mop for controlled breeding.

A spawning mop is essentially a grouping of yarn that either floats or sinks to the bottom of the tank where Rainbowfish will deposit their eggs. The majority of mops are attached to cork or Styrofoam floats that permit the mop to remain suspended in the water. Some are not attached to floats and remain on the bottom of the tank. (Editor's Note: See "DIY: Spawning Mops" in this month's edition of Tank Talk.)

Should you desire a more natural spawning medium, especially one that will grow in aquariums as opposed to ponds, you might consider the use of one of the various aquatic mosses. Java moss (*Vesicularia dubyana*), Christmas moss (*Vesicularia montagnei*) and flame moss (*Taxiphyllum* sp. 'flame') are all suitable and have the added benefit of housing microscopic organisms that will provide food to the newly hatched fry.

For outdoor ponds, success can be found in the use of water hyacinth (*Eichhornia crassipes*) or water lettuce (*Pistia stratiotes*). The roots of both of these floating plants remain suspended below the plant, and Rainbowfish will readily deposit eggs therein.

Of course, if you have an unplanned breeding, the Rainbowfish will have used any location and any surface they found suitable.

An alternative spawning medium is stiff-bristled bottle brushes. One of the problems is that the majority of Rainbowfish are egg eaters. That is, once the eggs are deposited, they will start eating them, especially if they have not been well fed. Therefore, it is necessary to remove spawning mops on a regular basis to a hatching tank to ensure that some eggs survive. If you find that your Rainbowfish are feasting on eggs almost as soon as they are laid, you may consider the use of the stiff-bristled bottle brush. The bristles still supply a location for the depositing of eggs, but also act as a deterrent to the Rainbowfish accessing the eggs to eat them.



If you are using an artificial spawning media (spawning mops or bottle brushes), make sure that you thoroughly sterilize them before using them a second time. If you are using a natural spawning media, then only use it for a specific species, and do not place it in another container with a second species.

The Eggs

So, you've got males and females that have been well conditioned, and a location for them to lay their eggs. The fish should display the same behaviours as they do in nature, and soon you will have a bunch of eggs.

You need to examine the spawning medium preferably a number of times a day. (Remember that Rainbowfish will eat their eggs, and if you examine a mop a number of times, you are likely to find eggs before they are eaten.) Rainbowfish tend to spawn most in the morning, although they will continue to spawn throughout the day. Females will usually only lay 1 to 5 eggs at a time. The number of eggs laid in total by a female during a spawning cycle can vary from 40 to upwards of 100+. This variation is highly dependent on the age of the fish, the given fish's general health, and the feeding regiment used to condition the fish. You should cease breeding and return the adults to the permanent home once the number of eggs produced in a day is noticeably reduced, or if you see the female acting in a reserved manner or hiding from the male.



The eggs will be similar in appearance to small glass beads, slightly amber in colour, and about 1 to 2 millimetres in diameter. The eggs are “negatively buoyant”, or in other words they sink. However, the eggs are laid with short adhesive threads that attach them firmly to the spawning medium.

Once you see eggs in the spawning mop, remove the mop from the breeding aquarium and transfer it to the hatching tank. An alternative method is to physically remove the eggs from the mop and transfer them into a smaller container floated within the breeding tank. This protects the eggs from predation but still maintains the general conditions under which they were deposited. The eggs themselves are relatively robust, and can be removed from the mop by gently grasping the egg between two fingers and pulling the adhesive strand from the mop. This can be a bit tricky and takes a bit of practice, but results in the same mop being able to be continuously used. Make sure that your fingers are extremely clean before attempting this, as any contamination can lead to fungus developing on the eggs. If you do use a floating container until the fry hatch, you should still have very slow aeration of the water (which permits oxygenation of the eggs, and encourages water movement to keep any contaminants from settling on the eggs), and ensure that you still maintain high quality via partial water changes. Also, there is some evidence that Rainbowfish eggs that are exposed to full light will not hatch, or if they do, the fry will be handicapped. If you float the container in the breeding tank, or place the eggs in another tank, ensure that they are not exposed to direct lighting.

As mentioned previously, you want to keep the temperatures relatively high in the hatching tank. Lower temperatures result in a longer incubation period. Depending on the species and the temperature, the average incubation period ranges from five to twelve days, and for the majority of the species available, you should expect a fertilization rate of 70% to 80%. You will be able to identify eggs that have not been fertilized as they will quickly develop a cloudy milk colour. Very soon after, they will appear “fluffy”

as they rapidly become fungused. You should remove any infertile eggs immediately, as the fungus can quickly spread to other eggs, killing them in the process.

One preventative tactic that is often employed by some Rainbowfish breeders is the addition of Methylene blue (a treatment for fungal infections) to the egg container, one treatment being all that is usually required. Still, the removal of any fungused eggs manually is still more effective than relying on a chemical treatment, but it is more time consuming. If you experience a high number of fungused eggs in the three days after the eggs are laid, the majority of the eggs will likely be infertile. A high number of infertile eggs is usually attributable to either infertility of the adult Rainbowfish, or water quality issues.

On the other hand, eggs that have become fertilized will remain clear until they begin to develop “eye-spots”. Those in the Rainbowfish community refer to this as being “eyed-up” and it indicates that you are well on your way to having a successful hatching.

The Fry

You need to keep a careful watch on the eggs to know when the fry hatch. They fry will be 3 to 4 mm in size and are almost completely transparent. It is much easier to see them if you examine them in a bare-bottomed tank from above.

Immediately after hatching, the fry will swim (sink) to the bottom of the tank where they will remain for one or two days, before swimming to the surface, where they will spend the next week or so in the one centimetre immediately below the surface.

When the fry hatch, they will have a yolk sac that will provide nourishment and sustenance for the first two days. It should be noted that the depletion of the yolk sac is when the fry will return to the surface in search of food.



Melanotaenia boesemani fry

Providing sufficient food for fry is one of the most challenging aspects of raising Rainbowfish fry in the first couple of weeks of life.

It is recommended that liquid fry food be the first food, followed by small foods such as powdered spirulina, JBL Gold Pearls or Hikari First Bites, and then later by larger food such as live brine shrimp. The feeding regimen that I have successfully used is as follows;

Week 1

Wardley's Essentials Fry Food (liquid fry food)
Powdered spirulina
JBL Gold Pearls

Weeks 2 - 3

Powdered spirulina
Hikari First Bites

Weeks 3 +
Powdered spirulina
Hikari First Bites
Sera Vipagran Baby
Live baby brine shrimp

I try and feed as often as possible, but find that with fry if I feed them four times a day, I realize good results. With my work schedule, I tend to feed at around 7:00 AM (when I leave for work), 5:00 PM (when I return home), 8:00 PM and 11:00 PM.

In relation to maintenance of the fry rearing tank, you still need to maintain excellent water quality, but as the fry are very sensitive to changes in water chemistry, you need to do more frequent water changes of smaller amounts. For the first two months I change 10% of the water every other day using water that is pre-conditioned. I usually take that opportunity to siphon any debris from the bottom of the tank. In using a siphon around fry, you have to be careful as they are very easily caught while siphoning. Before discarding the waste water, check it for fry, and return any that were inadvertently caught back into the rearing tank.

I personally advocate the inclusion of snails in any fry rearing tank. Some recommend mystery snails (*Pomacea bridgesii*), but I have also successfully used Malaysian trumpet snails (*Melanoides tuberculata*), common pond snails (*Stagnicola* spp.) and nerite snails (*Nerita* spp.). They will eat food missed by the fry, and as an added advantage can be used to maintain colonies of infusoria (and excellent initial fry food), which feed on partially digested snail waste.

It cannot be overstated that you must maintain excellent water quality. Poor water quality can lead to lower survival rates, increased incidence of disease, physical deformities (bent spines for instance), a wide variation in size of the fry, and slower growth.

But even with excellent water quality, baby Rainbowfish are very slow growers. It takes one year on average for a baby Rainbowfish to reach maturity and a size of 5 cm – 7.5 cm (2" – 2½"). As with most fish, the more space you are able to provide, the larger they will grow.

In general, the *Melanotaenia* species are the easiest to breed, with *Chilatherina* being a bit more difficult, and *Glossolepis* species being very challenging.

Communal Breeding

Rainbowfish are also known to breed in a community tank. I personally have had an unexpected breeding of *Melanotaenia misoolensis*. One day I looked in the tank and saw several fry swimming around the upper corner. I removed them, and then over the following several weeks found more fry, almost on a daily basis. Removing the fry as they are seen will increase survival, but if you have no other fish that will predate the fry, and the parents are well fed, it is possible to have fry grow to maturity in the same tank as the adults. However, you will never obtain the number of fry you would in a dedicated breeding tank.

However, I must add a word of caution. I keep species only tanks, and therefore my definition of "community tank" is a given Rainbowfish species, and other non-Rainbowfish species. I tend to keep a different type of pleco, a school of cory cats (*Corydoras* spp.), and a school of oto cats (*Otocinclus* spp.) in each of my tanks. As Rainbowfish often miss any sinking food, and will not usually eat off of the substrate, I find that having a "cleaner crew" helps avoid pollution from decaying food. However, to many a "community tank" may include several species of the same fish. If you are keeping several species of Rainbowfish in a community tank and subsequently discover fry, do not keep them. One of the major problems in the Rainbowfish community is hybridization. I'll actually be addressing some of

this next month, but for now, please do not keep hybrid Rainbowfish, or if you do keep them, do not disseminate them without clearly labeling them as such.

Pond Breeding

My personally preferred method is to breed Rainbowfish in a pond. Unfortunately our local climate allows at most 4 months of the year (mid-May through mid-September) when this can be accomplished, but even in that short time frame you can obtain a significant amount of fry from one species (150+) or cycle two or three species to obtain fry from a wider variety.

I have bred Rainbowfish in both deck-top tubs and in-ground ponds. I would personally recommend using an in-ground pond as it provides a more stable environment. Regardless of the actual container, you should have excellent water flow and a variety of plants. I find that in addition to spawning in the roots of both water hyacinth (*Eichhornia crassipes*) and water lettuce (*Pistia stratiotes*), they will often spawn in the roots of emergent plants that have grown through containers.

My method is to remove floating plants and placing them in a breeding tank (or tub outside) and to then capture any missed fry by scooping them up in small Tupperware containers and adding them to the breeding tank or tub. You can continue to pull plants every 5 – 7 days, or continue to scoop fry throughout the summer. In 2009 I used this method to breed *Melanotaenia australis* (20+ fry), last summer it worked for *Chilatherina fasciata* (80+ fry) and *Melanotaenia misoolensis* (60+ fry), and this year *Melanotaenia boesemani* (90+ fry).

Rainbowfish Breeding and C.A.R.E.S.

In addition to the satisfaction that you can realize from breeding Rainbowfish for yourself, it should be noted that several *Chilatherina*, *Glossolepis* and *Melanotaenia* species are included on the C.A.R.E.S. Conservation Priority – Species At Risk list, and by breeding these species, you can assist in conservation efforts. (I have noted those that are occasionally available locally with an asterisk.)

- *Chilatherina bleheri* *
- *Chilatherina sentaniensis* *
- *Glossolepis dorityi*
- *Glossolepis incisus* *
- *Glossolepis wanamensis*
- *Melanotaenia arfakensis*
- *Melanotaenia boesemani* *
- *Melanotaenia eachamensis*
- *Melanotaenia lacustris* *
- *Melanotaenia oktediensis*
- *Melanotaenia parva* *



Melanotaenia oktediensis

Conclusion

Breeding Rainbowfish is actually relatively easy. While there are several factors that need to be considered and monitored, each of them is relatively easy to control. I can personally attest that while it can be frustrating to wait for your fish to breed, and then subsequently wait for your fry to grow, the end result is worth it. To see a creature that you have nurtured successfully breed, and to see the next generation grow over time, is an amazing and fulfilling endeavour. I hope you try your hand at breeding Rainbowfish and agree with me.

Betta Pugnax

by Dave Furness

Betta pugnax are from and around Malaysia. They have also been found in Singapore, the Indonesian Riau Islands, and Sumatra. A species from Penang Island has an attractive red brown coloration on their body. My pair may eventually have this hint of red, but at this present time, only seem to have a brown body, with the male having a blue operculum. The males are more brightly coloured and have longer fins. I have read an article stating that they can grow up to 12 inches, which I feel, is a bit of a stretch. I feel that 4 inches is probably the norm instead. The males are also larger than the females.



I put a pair of Pugnax into a ten gallon tank with a sponge filter and a lot of artificial plants to hide behind. They are more comfortable in a low lit tank. They prefer soft water, 12 dGH, with a PH between 4.0 and 7.5, and a temperature between 75 and 82 degrees F.



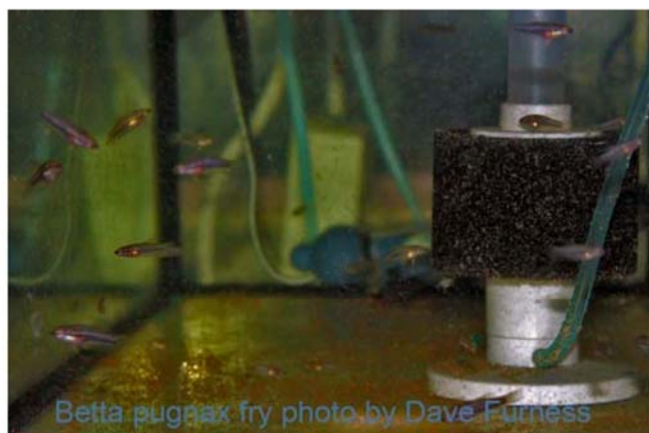
Betta pugnax are mouth brooders, with the male taking care of the incubation of the eggs. The male embraces the female in typical betta fashion,

and squeezes out her eggs. They can lay more than a hundred eggs. The female picks up all of the eggs and then spits them out to the male. After spawning the male retreats into the vegetation to incubate the eggs for 9 to 16 days.



At this time, it is probably best to remove the female. It is the female who initiates the spawning process. If she is ready to spawn before the fry have hatched, she will harass the male. He may swallow the eggs if this happens.

I have spawned the pugnax twice. The first time I left the female with the male. When the fry were free swimming, the female hunted them down and ate, all but two. Shortly after, they had spawned again. It would have been wiser for me, to have removed the female after the spawn for two reasons. First, to allow the male to incubate the eggs in peace, away from her advances, and, second, to allow the male time to rest and eat again, so he will not starve to death. I conditioned the pair on trout worms and freeze dried worms. They will take flake as well. The fry was fed some liquid fry for a couple of days, and then switched them to microworms and brine shrimp, twice daily. I find that they grow fairly fast.

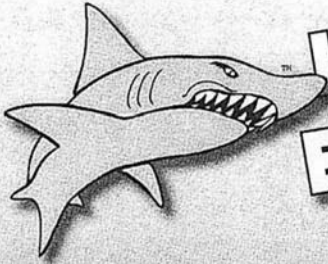




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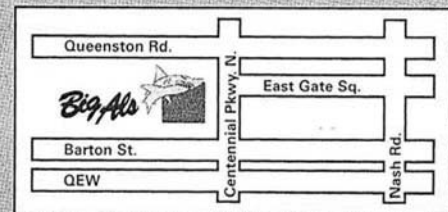
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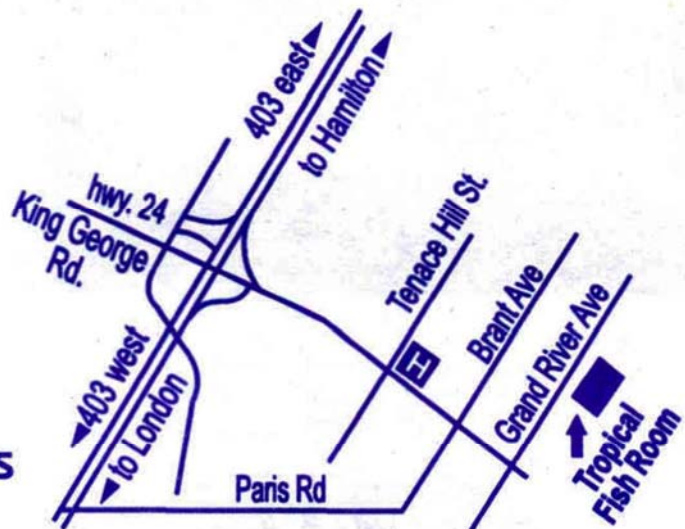
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