

Macro-Mouthbrooder

by ALEXANDER A. PRIEST



I would guess that every fishkeeper has a “dream fish” that he or she would like to have. Even aquarists that specialize in one (or maybe two) species, usually have a “wish list” for a particular color, body shape or pattern, or fin type.

For many hobbyists who specialize in anabantoids, and especially those who have a special interest in the so-called “wild bettas” (a term I do not really like, but that seems to have gotten general acceptance to mean all species of the genus *Betta* except for the species *splendens*), that “dream fish” is the *Betta macrostoma*.

The *Betta macrostoma* is the stuff of hobby legends. Six to eight years ago, one pair could command a price of \$1,000 or more, and that was **before** the cost of shipping (usually from Thailand or Malaysia to a licensed shipper in the U.S., and from the shipper to you). Even now, as I write this article, the aquatic auction website Aquabid has a posting for a pair of wild caught *B. macrostoma* at a price of \$175, not including the cost of shipping them from Thailand to a U.S. shipper, or the shipper’s fee for sending them on to you. If only one person bids on this pair and gets them for the original asking price of \$175, that person could easily pay between \$250 and \$300 for the pair. While that is much less than a few years ago, it is a fairly high amount to pay for fish one could not examine personally before purchase, and that are notoriously difficult to keep and breed.

If you do not consider yourself to be at least an “advanced” aquarist, I recommend against getting this fish. For those of you fortunate enough to acquire this species, who feel up to the task of keeping what can be a very challenging fish, and who can devote extra time to this effort, I hope this article will dispel some of the myths and misinformation (which I found in abundance) about this fish, and will help you to succeed in keeping it. I’ll start by giving you some facts about this species, then progress to my own experiences.

First of all, *Betta macrostoma* is an anabantoid, or a “labyrinth,” fish. That means this species (as all members of the genus *Betta*) has a “labyrinth organ” in its head that allows the fish to take in oxygen directly from the air, instead of relying on its gills to extract oxygen from the water. The labyrinth organ helps the inhaled oxygen to be absorbed into the fish’s bloodstream. Because of this, it is quite possible for *mactostoma* to “drown” in a bag completely filled with water, or in an aquarium where there is no airspace

Second, this is a paternal mouthbrooder. This means the male carries fertilized eggs in his mouth (technically his buccal pouch) until the eggs hatch. Once hatched, the male releases the fry into the water and (based on my experience with other *Betta* mouthbrooders) usually just ignores them afterwards. I say “usually” because, as you will learn, I happened to acquire the Hannibal Lecter (i.e., psychotic cannibal) of this species, which presented me with a unique set of challenges.

Third, while those who keep “tankbusters” might not consider *B. macrostoma* to be a large fish, among members of the genus *Betta*, it is one of the largest. I’ve read reports of wild caught males reaching five inches in length¹, although 3.5 inches is generally the maximum adult length in the aquarium.

Fourth, it is a notoriously difficult fish to keep, and even harder to breed in captivity. Information on the proper way to keep this species varies considerably, with more misinformation than correct information available. According to articles in the June and July 1982 issues of Tropical Fish Hobbyist, Dr. Herbert Axelrod once collected *B. macrostoma* in the hope of breeding them. All of the fish he collected died in Japan and Florida (where the fish had been taken in what turned out to be unsuccessful breeding attempts).

One website² had this to say: “Care: Extremely difficult. Only specialists should try to keep the fish. Requires painfully pure and very soft water (90% RO), with a strong current, filtration over active peat. Large tanks are also advised, the fish can swim extremely fast, and have been known to kill themselves by swimming against the tank glass. Tanks should be covered extremely well, as *Betta macrostoma* is an excellent jumper, and is susceptible to cold air. Lot’s of hideouts, especially floating plants, and very frequent large waterchanges. An UV filter is strongly recommended.”

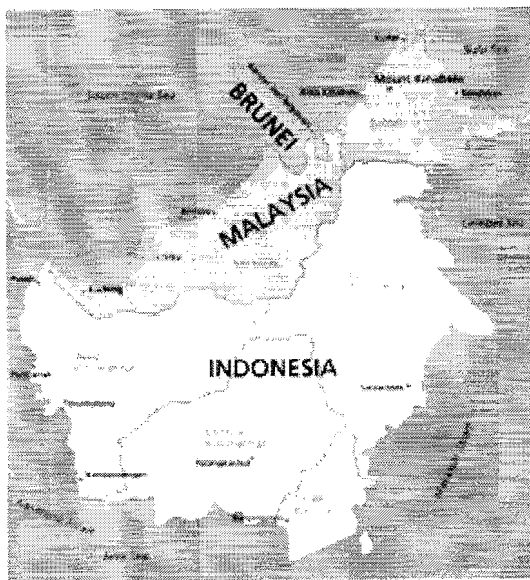
Regarding the above, I can tell you that *Betta macrostoma* can survive, and even spawn, in 100% New York City tapwater (soft, neutral pH) with blackwater extract (which provides essentially the same benefits as peat) and driftwood (which further helps acidify the water). I do agree that the fish is a jumper. I keep a very tightly sealed glass lid on their tank, and have often heard them hitting the glass top. Whenever I need to do tank maintenance extensive enough to require the removal of the tank lid, I have a “snorter” standing

by to keep an eye on the fish. Unlike the quoted recommendation of frequent large water changes, I do small partial water changes at least every other day. (This fish does require very clean water, but I have also found that it does not do well with rapid and large changes in its environment.)

Following is an excerpt (edited by me to suit a “family” publication) of an exchange of messages from the Internet “IBCSMP” Yahoo Group. One member of that group wrote: “Last fall I picked up a pair of *macrostoma*. The male was active and eating everything for 10 days and dropped dead. The female continued to be active and eating everything for another day but was dead in the morning.” The reply (and note that this is from the person in charge of the International Betta Congress Species Maintenance Program, Gerald Griffin) was: “*macrostoma* is one of those pain in the *ss fish that do cr*p like that....My experience with them was about the same.”

This is not the first account I have read, or been told about, of “sudden unexplained death syndrome” in *Betta macrostoma* — yet another reason why paying \$250 to \$300 for a fish, sight unseen, to be transported over hundreds, perhaps thousands, of miles is not the smartest investment you could make. Another website³ cautions: “This species has very strict water requirements and is a challenge to keep alive.”

Betta macrostoma was first found in the Malaysian state of Sarawak in the northern part of the island of Borneo, and scientifically described on the basis of a single preserved specimen⁴. Later, it was found in the Sultanate of Brunei, also located on the island of Borneo. A recent expedition to Loagan Bunut National Park in Sarawak found them there, as well⁵.



Borneo

The natural habitat of this fish includes rivers, waterfalls, swamps, and other isolated water bodies, so a moving water stream is advisable when keeping them in the home aquarium.

The species name *macrostoma* literally means “large mouth,” and when these fish open their mouths fully, head on they resemble a floating hollow tube. “Large” mouth is an understatement!

Males are far more colorful, being reddish in color with spots on the dorsal fin, and occasionally at the base of the caudal fin, and with dark patches around the mouth and eyes. These spots somewhat resemble the patterns of peacock feathers, giving rise to the common names of “Peacock Betta” and “Spotfin Betta” (although, it is more commonly known as the “Brunei Beauty”). Females are generally a plain grey. Juveniles (and sometimes adults when they are stressed or frightened) have horizontal stripes.

While they reportedly can tolerate a pH of from 6.5 to 7.5, they come from an acidic native environment, so I keep my *B. macrostoma* at the lower pH range. They also come from relatively cool water, so I keep them at between 72° to 76°F. New York City tap water, as I mentioned, is naturally very soft, so much so that usually I get a zero general hardness reading from most test kits.

Male *B. macrostoma* are very territorial. It is important to provide them with caves and hiding places. For a long while, I was actually unable to keep my male and female in the same 20 gallon Long tank, without the male attacking the female. A clear tank divider fashioned for me by one of our GCAS members was used for quite a while, until it appeared that the male’s interest in the female was other than to rip her throat out.

I fed my adult *B. macrostoma* live blackworms, and occasionally live adult brine shrimp, to condition them for spawning. I saw my male *B. macrostoma* “holding” eggs in his buccal pouch nearly a dozen times. Each time I would find, a few days later, the male eating normally, with no swollen pouch, and no fry in evidence. While I never actually witnessed cannibalization of the fertilized eggs, I can only infer that this is what happened. So, when I actually discovered live fry, I immediately expelled both adults to another tank (I can’t discount the possibility of the female having eaten eggs or fry from previous spawnings), and kept the fry in the original tank.

So far, I have found my aquarium-raised *B. macrostoma* fry to be relatively undemanding. They will eat dry pellets, frozen mysis shrimp, and small blackworms. In feeding blackworms to fry, I do not chop or cut the worms. First, as far as I’m concerned, recently killed food is not the same as live food. Second, even if rinsed, some blood and fluids from the worms will leach into the water.

thereby polluting it. Dead food (even if recently killed) does not move the same as live food, and so is less likely to trigger an “attack” response from fish.

I keep my worms in a plastic shoe box in the refrigerator. I rinse the worms thoroughly in the box, so that most of the dead ones that float to the surface have been discarded. Then I tilt the box from side to side. Some of the smaller worms will separate out, and I use my index finger to pick up the ones that are clearly moving. Those are put in a small container with water from the fry tank. When I think I have enough, I empty the container into the fry tank. After an hour, I syphon out any uneaten worms.

In this way, I know that worms which are too large for the fry are not being fed, that all the worms which are being fed were alive, and that there are no dead worms remaining to pollute the tank. Obviously, this takes a bit of time. But remember, I did warn you that caring for these fish would require extra effort.

As my fry are maturing I do notice some defense of “territories” in the tank, especially by those fry I can clearly see are males. The tank has many caves and hiding places, and I hope to keep the fry together as long as possible, to see if I can get some natural “pairing off.”

As I mentioned earlier, *B. macrostoma* is a paternal mouthbrooder. What this entails is that the male embraces the female to expel her unfertilized eggs. The female picks up the eggs in her mouth and adds the male’s milt (sperm). Then the female “tosses” the now-fertilized eggs to the male, who holds them until they hatch. While I did not get to witness my fish spawning, someone recently posted a *Betta macrostoma* spawning on the Internet at:

http://www.youtube.com/watch?v=ziwX9rax_Ic

What you don’t see in that video is the very start of the spawning, when the male squeezes eggs from the female, and the female puts them in her mouth. This video picks up with the female already having eggs in her mouth, and shows her getting the milt from the male, then tossing the eggs to the male.

Betta macrostoma is listed as “Vulnerable” on the Red List of the IUCN (International Union for Conservation of Nature and Natural Resources), and is listed as an “At-Risk” fish by the **C.A.R.E.S Preservation Program**. In fact, this fish (locally known as Ikan Pelaga Brunei) had once been thought to be extinct, until it was “rediscovered” in 1981 in one of the waterfalls in Brunei.

Adult male *B. macrostoma* are very attractive. They have even been called “the king of bettas”⁵. But, as I hope I have demonstrated in this article, they are not for the beginner, the casual fishkeeper, or an aquarist interested only in getting quick Breeders Award Program points. They are an endangered species (according to the Red List of the IUCN), readily prone to disease, require constant attention to water quality, and are extremely prone to jumping.

I have found that the more hiding places you have, the less prone these fish are to jumping out when startled. Instead, they seem to prefer to “dive for cover” into whatever cave or cranny they can readily find. Since a cave or cave-like structure is most frequently used by brooding males, you can see the importance of having many caves in a *B. macrostoma* tank.

If you are up to the challenge, and are willing to put forth the extra effort, you can be rewarded by having “the king of bettas,” this “Brunei Beauty,” living in your fishroom.



Betta macrostoma fry exhibiting the horizontal “juvenile” stripe pattern

¹Bleher, Heiko, “Return of the Brunei Beauty,” *Tropical Fish Hobbyist*, May 1987.

²http://aquaworld.net/firms.com/Labyrinthfish/Betta/Betta_macrostoma.htm

³<http://www.aquariumlife.net/profiles/labyrinth-fish/brunei-beauty/100105.asp>

⁴Pinter, Helmut, *Labyrinth Fish*, Barrons, 1986.

⁵Kamihata, Shigezo, “Searching for *Betta Macrostoma* in Borneo,” *Tropical Fish Hobbyist*, January 2006.

