

Freshwater Dwarf Shrimp Reproduction

Overview:

When keeping dwarf shrimp in the home aquarium one of the most exciting aspects is their ability to multiply rapidly. Most dwarf shrimp can double their population in three to six months. Dwarf shrimp will be defined as any freshwater species of shrimp found in the Caridina and Neocaridina genera. These genera include the extremely popular red cherry shrimp (Neocaridina heteropoda), the highly refined crystal red shrimp (Caridina cf. cantonensis). This article pertains to those species which produce miniature adults directly from the egg during reproduction.

Sexing:

Of course when attempting to understand the reproduction process one of the most important aspects is the ability to sex your shrimp. However, this is not that easy. Some species are very easy to sex whereas others are virtually impossible to sex. Species such as the red cherry shrimp, yellow shrimp and snowball shrimp are very easy to sex. Other species such as the red gold flake shrimp, cardinal shrimp and harlequin shrimp can be extremely difficult to sex. Sexing really does depend on the species you are observing. Check out each Shrimp Info page to read the detailed information on that particular species and how to sex it.

Age:

Sexing also depends on the shrimp's age. Trying to sex adults is a lot easier than attempting to sex juvenile shrimp. Juvenile shrimp can be very difficult to sex, sometimes impossible depending on the size and species. Sexing sub-juvenile shrimp will most likely be impossible due to the fact that the shrimp is not old enough to display any gender identifying attributes. It is definitely a good idea to only attempt to sex adults.

Size & Coloration:

With many species the female is typically larger than the male. Also, the female is sometimes darker or more robust in coloration. As with the red cherry shrimp, the female is not only larger but a much darker red coloration. The male red cherry shrimp is instead almost colourless at times and much smaller. Females of some species may also display a line down their backs. Below is a photo of two red cherry shrimp, one male and one female. Notice the size difference and more importantly the difference in coloration.



Gender Attributes:

There are also other methods to easily sex a shrimp. Certain identifiers, or attributes, can differentiate a male from a female without question. These attributes typically involve the female and certain aspects of her anatomy that do not appear in males. Some of these attributes also occur at certain periods whereas some will appear at all times. Of course a female currently holding eggs will tell you that it is indeed a female. However, when eggs are not present there are other ways to tell.



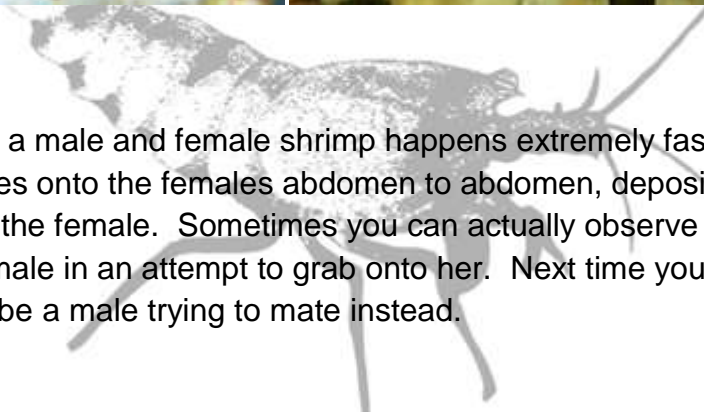
The "Saddle":

One of the most common and distinguishable attributes is the appearance of a "saddle" or miniature undeveloped eggs in the ovaries. The term "saddle" comes from the fact that the undeveloped eggs appear on the back of the shrimp, behind the head, which looks like the saddle on a horse. Below is a photo of the cherry shrimp with a "saddle". Notice in the first photo how the "saddle" actually looks like a real saddle you would find on a horse. In the second photo I have marked the "saddle" for you to see.



Mating:

The "Act" Mating between a male and female shrimp happens extremely fast. In a matter of seconds the male latches onto the female's abdomen to abdomen, deposits his sperm, and quickly then releases the female. Sometimes you can actually observe a male constantly harassing a female in an attempt to grab onto her. Next time you think that the shrimp are fighting it may be a male trying to mate instead.



Water Conditions:

Although the water requirements vary from species to species it is most important that all parameters be stable. Dwarf shrimp should only be kept in a fully cycled and well-established aquarium. Ammonia and Nitrites are very toxic to dwarf shrimp and should always be kept at 0 PPM (parts per million). Nitrate can be toxic as well and should be kept below 20 PPM, with less than 10 PPM being ideal.



Many of the caridina species require soft, slightly acidic (pH 6.0 – 6.8) water that is slightly cooler than tropical (22°-24° C). Most neocaridina species are a little less demanding. They often require a neutral pH (6.8-7.5) and are undemanding when it comes to water hardness. Neocaridina species prefer more tropical water temperatures (24°-26° C). Again, stability is the most important factor. A healthy dwarf shrimp will breed more readily and more prolifically in clean and well established water.

Feeding:

Food is an important factor in dwarf shrimp health and breeding. To ensure optimal breeding conditions for dwarf shrimp a constant food source must be provided. Whether it is an aquarium with a large amount of naturally occurring algae, or foods specifically intended for dwarf shrimp, as long as there is a stable source of food, dwarf shrimp will reproduce quickly.

Molting:

Once the three conditions have been met, and the sexed pair of shrimp are mature the breeding process will begin. First a female will find a comfortable hiding spot in the aquarium. Once she has become comfortable she will molt (molting is the shedding of the exoskeleton to enable growth of invertebrates). After molting the female will release a pheromone into the water indicating to the male shrimp her readiness to breed. The pheromone in the water will sometimes cause the male shrimp to swim erratically in search of the female.

Eggs:

After the mating process has occurred the female will pass her eggs through the sperm and deposit them in her pleopods (swimming legs) under her tail. The female shrimp will carry the eggs until they hatch, normally in 20-40 days. The female will often be observed fanning and cleaning the eggs. Once the eggs hatch, there is no longer any parental care of the young shrimp.

Raising Baby Shrimp:

There are two types of Dwarf Shrimp, high order and low order. Low order shrimp hatch as larva and often times require saltwater or brackish water to mature into small shrimp. High order shrimp hatch as miniature versions of the adult shrimp and require no special care.



Raising Low Order Shrimp:

Raising low order shrimp can be quite challenging. Upon hatching the larva need to be transferred to saltwater. These larvae are very small and require food that they can fit into their mouths. Many of the larvae require single cell algae as a first food and graduate to larger foods as they grow. Once the larvae metamorphosis into miniature versions of the adult shrimp they need to be transferred back into freshwater and cared for the same way an adult shrimp would be.

Raising High Order Shrimp:

Raising high order Shrimp (or post metamorphosis low order) is fairly easy. They have the same care requirements as the adult shrimp and require no special attention. To increase growth rate smaller high protein foods are recommended. When performing water changes it is important to make sure not to suck up the young shrimp.

Conclusion:

If you are interested in breeding dwarf shrimp make sure you have a sexed pair of shrimp, place them in a cycled and well-established aquarium, and feed them well. Nature will take its course and soon you will be caring for young shrimp. Dwarf shrimp will breed faster and the young will survive at a much higher rate if the aquarium is a species-specific aquarium. So keep these things in mind and beware of the addictive nature of caring for dwarf shrimp.

