

# Study on breeding behavior in ornamental fish, *Poecilia sphenops*

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**Abstract:** An experiment was conducted for 3 to 4 weeks in glass aquarium tanks to studies on Breeding technique of molly (*Poecilia Sphenops*), ‘*Poecilia sphenops*’ is a species of fish, of the genus *Poecilia*, known under the common name molly; to distinguish it from its congeners, it is sometimes called short-finned molly or common molly. They inhabit fresh water streams and coastal brackish and marine waters of different regions. Mollies are an ideal choice of live bearing fish (they don't lay eggs) to place in a community aquarium or fish tank. For the most part, mollies are very easy to breed. A single female can produce over one hundred baby mollies, also called fry, in one live birth. They also come in a variety of colours, and work well with a wide community of other fish.

**Keywords:** *Poecilia*, Breeding, Fry, Glass tank

## Introduction:

Aquarium keeping is an age old practice and has become one of the most popular hobbies. As on high demand, throughout the world, rearing and marketing of ornamental fishes for the aquarium can be taken up as a means of available livelihood. About 100 years ago Chinese first began to domesticate gold fish (Witte and Schmidt, 1992). Glass aquarium was first used by the Romans (Courtenay and Stauffer, 1990). During 18th century gold fishes were transported to England. Ornamental fish trade began in Germany. 19th century about all the countries of the world started ornamental fish keeping. About 10 years back the Chinese scientist mutated gold fish and various types of gold fish have been produced. Most of the ornamental fishes are form Asian origin Ornamental fish species are popularly known as aquarium fish (Laha and Das, 2007). The culture of this species has become a source of employment generation for the rural people. Breeding and production technology of ornamental fishes differ from species to species according to the nature of their reproduction habitat and other psychological condition (Courtenay et al., 1984). Although many techniques used for ornamental fish breeding but not much difficult, the breeding method for specific ornamental fish species are closing guarded secret (With Worth, 1996). Farmers have operated almost entirely on their own, developing their own method and really on many years of experimentation (Ogilvie,1969). Aquarium fishes are broadly divided into two categories: Egg layers and live bearers. The egg layers are lay eggs but the live bearer do not lay eggs but give birth to live young are known as live bearers. They make excellent subjects for the home aquarium because of their hardiness and their exceptional frameless. Mollies are one of those most popular fish in the aquarium hobby, and most of the people have had at one time, at least one of these gentle and attractive live bearers in their fish tank. Most people mistakenly believe that there is only one species of molly available in fish trade, but there are three separate species available in the aquarium trade. However, at this point, most of the mollies available are so hopelessly hybridized, that it would be impossible to determine which species they originated from.

In any aquarium that contains both male and female mollies, you should try to maintain a ration of three females to every male. Male mollies will relentlessly mate with any females in the tank, and if their attention isn't divided between several females, then the female they focus on will eventually become highly stressed and may even die from the constant mating attempts. Molly fish can be housed in a community aquarium that contains fish of similar size, as long as they share similar water requirements. Because this is a large fish, it should be kept in a large aquarium or a small pond with surface area being more important than depth. The tank should have many aquatic plants and decorations, plants help to increase the water aeration and provide hiding place for the fish. In addition, the plants also provide a little vegetable food source for Mollies.

## Materials and Methods

Breeding technique of goldfish involves very few easy steps to prepare the tank for breeding. At least 20 gallons of water to breed two goldfish and Molly properly. The mollies are live bearer species .The sex ratio should one pair or a ratio of 2males 1 female or 1male 1 female. They do not lay eggs like most fish but instead give birth to young free swimming fry. As the male matures the anal fin develops into a structure for reproduction called the Gonadopodium. The Gonadopodium can be moved in almost any direction and stores the sperm in packs called sperm metamorphosis. Once the sperm is inserted into the female it fertilizers her eggs and the rest is stored in the oviduct walls for later use. The eggs are very rich in yolk and the young develop by consuming their yolk stores.

In light colored females pregnancy can be recognized by the growing dark body marking in front of the anal fin. Young Live-bearers are fairly large at birth and their development is very advanced. They can swim right away, which is needed to avoid their enemies including their parents who give on natal care. The fry grow very rapidly and will eagerly accept fine powdered food. As always

remove any uneaten food after 5 minutes. Be sure to keep your aquarium clean and change about 20% of the water in your aquarium at least once a week.

**Table-1 : Physicochemical parameters of the glass aquarium and tanks water during the breeding experiments**

Size : 2 to 4 Inches (5 - 10 Cm) Depending on the Species	2 To 4 Inches (5 - 10 Cm) Depending On The Species
Origin / Habitat	3 - 5 Years
Ph : 7.5 - 8.5	7.5 - 8.5
Life Span :	3 - 5 Years
Water Hardness	10° To 25° Dh
Molly Fish Temperament / Behavior :	Peaceful

### **Results:**

Molly starts breeding at the age of 4 months. The sex ratio was taken slight differently in jars of three sets, At the time of 1<sup>st</sup> breeding, the fry produced was more compared to second breeding. As per observation it is clear that they released almost equal number of babies in three sets at the time of delivery But, second Breeding the fry released was less in the set 3 and the time taken for the second production is increased in set 3. Since most live bearing species give birth to their young, the real skill lies in ensuring that the babies are not taken by other fish especially by the mother. In this work breeding trap was used to separate the fry in to different tank system for healthy growth of fry.

**Table-2 : Breeding cycle of Mollies :**

<u>No.of sets</u>	<u>1<sup>st</sup> Time of Breeding</u>		<u>2<sup>nd</sup> Time of Breeding</u>
<u>(Male and Females)</u>	Age/Fry-Produced	Time period between 1 <sup>st</sup> & 2 <sup>nd</sup> Breeding	Age/Fry-Produced
SET – 1 (one female with two males)	4 Months/15-22 fry released	28days	5Months/18-23 fry released
SET – 2(one female with two males)	4 Months/18-24 fry released	25days	5Months/15-21 fry released
SET – 3(two females with one male)	4-5 Months/15-18 fry released	36days	5Months/12-17 fry released



**Fig-a: Male and female Molly fishes**



**Fig-b: Fry produced by Molly**

**Discussion:**

There are several species, but in the main it works for mollies like this. They are born live and sink initially to the bottom. You can get floating breeding units that have a grid enabling the babies to fall through. The best thing then is to give them a tank of their own to grow up in. Mollies like a little bit of salt in the water, but if you do that then don't add too much and when doing water changes add it only for what you took out, not what evaporated. A teaspoon per gallon is enough.

By giving the babies with fry flake food, pieces of lettuce, soft insides of cucumbers and Small portions of egg yolk in the beginning will help to grow the fry faster. At some point one can put fish that cannot be eaten by what is in the main tank back into the main tank.

When they are a bit bigger we can see the males get a gonopodium and the females get rounder. If conditions are right, they will be mating themselves in a few months. The males pursue the females pretty much all the time and there is no pairing off, they are all doing it with all the females. The males dance about the females and use their gonopodia to shoot sperm towards the vent of the female.

Sailfin mollies, those big ones where the male has a huge sailfin, they like it more salty at breeding time as in nature they go into estuaries. They cannot really imitate that in a community aquarium so that particular species can be an exception to the rule.

**Conclusion:**

Ornamental fish culture now becomes a popular industry in different parts of India The breeding technique of live bearers are easy as they release really directly, we will have to rear the baby in separate glass tank systems to avoid the cannibalism from their parents.

By maintaining the proper physicochemical parameters in the glass tanks it is easy to rear the live bearers but the parameters should be monitored on weekly interval within optimum range.

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