Killifish are found throughout the world. The only continents where representative species are not found are Antarctica and Australia. North America has her share of these interesting fish. Scattered in every possible type of habitat, from acid swamps to desert springs and ocean shores, these highly adaptable fish make good aquarium inhabitants. They are undemanding about their quarters, requiring less space than many native fishes. Almost any food is acceptable, and breeding them is relatively easy when compared to many other native species.

Killifish or egg laying tooth carps (Family Cyprinodontidae) were originally thought to be closely related to the suckers, minnows and carps (Order Cypriniformes), thus the origin of the name of the order (Cyprinodontiformes) to which they belong, along with the livebearing fishes. The livebearing fishes are sometimes called the livebearing tooth carps. The members of this family, commonly called killifish, were not named for their killing ability but rather from an old Dutch word "kill" meaning small stream or waterway. Thus killifish are "fish of the Kills". The killifish are characterized by having well-developed teeth and a great deal of sexual dimorphism (which means that male and female of each species are different in appearance from one another).

The three subfamilies of the Family Cyprinodontidae having members in North America north of Mexico are Cyprinodontinae, Fundulinae, and Rivulinae with Cyprinodontinae containing the genera Cyprinodon, Floridichthys, and Jordanella. Fundulinae is composed of the genera Adinia, Crenichthys, Empetrichthys, Fundulus, Leptolucania, and Lucania. Rivulinae is composed of but one member of the genus Rivulus.

The Cyprinodontinae are generally short and deep-bodied. They are foragers searching for food on the bottom or wherever they can find it. Algae and other soft plants form a large part of their diet and their intestinal tract is lengthened to provide better digestion of bulk food. The males of many of these related species take over a small territory during the mating season, driving away any intruders. The only fish allowed to enter is a female ready to lay eggs. Jordanella floridae, the flag fish, goes so far as to fan the eggs, as do many of the cichlids. Many species inhabit brackish waters.
The Fundulinae are of all sizes and shapes but are generally elongated and laterally compressed. Many forms are top swimming fishes and have a mouth designed for catching food floating on the surface. They are fast swimmers and great jumpers (keep your aquarium covered!).

The sole member of Rivulinae is *Rivulus marmoratus*, a hermaphrodite. Although rare in Florida, it is occasionally found in Cuba and Northern Puerto Rico. Even though it is encountered in fresh waters, it is primarily a marine to brackish water form. Like the Fundulinae, this fish is a good jumper.
Ranging in size from the one inch *Leptolucania ornata*, the swamp killifish, to the eight inch *Fundulus catenatus*, the stud fish, killies give the aquarist ample choices for community and breeding tank inhabitants. The larger species vary in aggressiveness but most can safely be kept together. An interesting community setup can be made by mixing some of the bottom, middle and top living native killies, thus filling all the niches in the aquarium.

*Fundulus catenatus*

Small species can be kept in five gallon tanks. Some of the larger kinds, such as *Fundulus grandis* and *Fundulus catenatus* need more space. Feeding is not a problem, as most killies will eat frozen and dry food which should be supplemented with live food. Some species need a lot of vegetable matter in their diet. Algae or frozen spinach is a good dietary supplement for these fish.

*Fundulus grandis*

Most killies will adapt to hard alkaline water, which is found in many places in North America. If you are from an area where the water is soft and acid you may need to add calcium to the water, as many native killies can not live in this kind of water. A plaster of Paris block can help remedy a situation where the water is too soft. The addition of 1/4 teaspoon of non-iodized salt per litre of water will help prevent diseases. Be sure to watch your plants, though, as some plants are adversely affected by salt. Most killies, even those from brackish and marine water, can be gradually acclimated to fresh water, but at least 1/4 teaspoon salt per litre should be kept in their water. Most natives do not appreciate water with a lot of dissolved organic matter (i.e., urea and nitrates), and benefit greatly from regular changes. At least a fifth of the water should be changed each week. This is especially needed for those species which go through a resting period in the winter. As a general rule the farther north a species occurs, the longer the resting period.
Breeding killies is generally fairly easy. The top swimming fishes generally lay their eggs in floating plants, although some of these fish lay their eggs in sandy shallow areas. Bottom dwelling fishes usually lay their eggs on algae mats or gravel. Many of the fishes choose a territory and defend it against other males, similar to the behavior of cichlids, allowing only females ready to spawn to enter.

For breeding, a trio of one male and two females is generally recommended, as the males can be hard on a single female. In the case of *Rivulus marmoratus* a single fish is fine as they are self-fertilizing (hermaphrodite). A spawning mop of acrylic or nylon yarn is the best thing to provide for the parents to lay their eggs on. The eggs can easily be removed from the mop with your fingers or by lifting them off with tweezers. Place the tweezers behind the egg rather than squeezing the egg as this can damage it. If you are not sure whether your fish is a top or a bottom spawner, make a mop that is long enough to reach from the top to the bottom of the breeding tank. Then, when you have noticed in which part of the mop that the eggs have been placed, you can put in a floating mop or a bottom mop. Boiling the mop before using it is generally a good idea, as this will remove many of the chemicals and dyes that have been added to the yarn. If you are not sure that the yarn you are using is nontoxic, put the mop in a jar of water with an inexpensive guppy. If the guppy survives the mop should be OK. Extra mops can be provided so that the females have a hiding place from the often too persistent male.

If you can’t find any eggs in the mops some experimenting with different conditions may be tried. Separating the male from the females and feeding them heavily for a few days sometimes works. When the fish are placed back together they should be ready to lay a lot of eggs, and hopefully they will be too distracted to eat many eggs. Many species are avid egg eaters. Increasing the amount of time the lights are on may initiate spawning. Raising the tank temperature to eighty degrees may also help. A thicker spawning mop, changing water, feeding more, can be tried to encourage the fish to spawn. If you want to remove the eggs from the mop and incubate them separately, any shallow tray or jar can be used as an incubating container. Do not place the eggs in direct light as this can kill them.

A different kind of set up from the bare tank and spawning mop technique can be tried. Put the parents in a tank with plants and gravel. Leave them there for about a week, then remove them. Hopefully in about another week you should notice some fry swimming about the tank.

The incubation period of North American killies varies from a few days to several months, depending on the species and temperature, a dead or infertile egg usually appears cloudy with a white dot on one side of the egg. Be cautious in your discarding of dead eggs, as most fertile eggs will become slightly cloudy during normal development. A little acriflavine in the water at first will help retard fungus. The water should be gradually replaced with water from the parents tank, or the acriflavine may retard hatching. Some species' eggs are sensitive to acriflavine. Always test a few eggs before subjecting a complete spawn to acriflavine.
The fry of many North American killies are large enough after hatching to eat baby brine shrimp and micro worms. In the case of the smaller fry infusoria or green water should be fed as a first food. It takes from three to six months for young fish to become sexually mature. They may not achieve full growth for a year or two.