

# FEDERATION OF BRITISH AQUATIC SOCIETIES

AQUARIUM MANAGEMENT CARE SHEET No: 7 Breeding

01/01/98

One of the more rewarding aspects of fishkeeping is seeing your fish multiply in numbers. Most fishkeepers see this as justification in their methods of fishkeeping, although we all know that many of our fish breed despite of our treatment of them, such is the urge to maintain the species.

## METHODS OF

**REPRODUCTION:** All fish breed from eggs, but it is the development of the fertilised eggs that gives us the diversity in reproduction methods.

The majority of fish are egg-layers where the fertilised egg develops outside of the fish's body. The unfertilised eggs are first expelled from the female under stimulus from the attention of the male. Eggs may be simply released amongst plants or scattered in open water to be fertilised by the free-swimming male; they may be deliberately laid on a pre-selected spawning site or placed in a floating bubbler; they can be laid out of water on an overhanging terrestrial plant leaf (or on the tank's cover glass); they can be buried in the substrate; they can be incubated in the parent's mouth.

Several of these methods have evolved to give better protection for the development of the egg and subsequent fry.

Alternatively, with the livebearing fishes, the fertilised eggs remain in the female's body to develop and later emerge as free-swimming fry. A variation in this method allows females to store sperm from the male so that further batches of young can be produced without any further 'mating' being required. An even more sophistication allows developing fry to obtain nutrients from the female via a primitive 'placenta'.

Such are the diverse methods awaiting fishkeepers wanting to breed their fish.

**SEXING :** The first practical barrier to overcome is sexing the fish and making sure you have a male and a female to breed with.

Livebearing species are easy to sex: the male has the anal fin transformed into a rod-like structure, the gonopodium, through which he injects sperm into the female. Females have the traditional fan-shaped anal fin.

It is important to strictly control which fish breeds with which: livebearers are notoriously promiscuous and will interbreed indiscriminately. Only put together fish of the same strain unless you really want a thankful of 'mongrels' as a result!

Egg-laying species need to be observed a bit more carefully. Males are generally more colourful and have longer finnage. Females usually are plumper in the body (due to the build up of eggs) when viewed from above. Egg-layers generally breed true without too many surprise packages amongst the offspring.

Sexing Goldfish: When in breeding condition, males develop small white breeding 'tubercles' on the gill-covers and on the first thick rays of the pectoral fins.

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## CONDITIONING

**THE PARENTS :** The fish need to be brought into breeding condition.

This entails feeding with high quality foods (especially live foods) for a couple of weeks before the fish are put together to spawn. Ideally, the sexes should be separated during this process to ensure both partners are at optimum 'ripeness' when re-united in the spawning tank.

It is possible to 'flock' or 'shoal' spawn fish rather than just a single male and female. In this case all the males would be separated from all the females prior to spawning.

**SPAWNING :** One of the problems with the more indiscriminate egg-laying species is that the egg-scatterers also have a very healthy appetite for their own eggs. Some precautions must be taken to prevent this.

Using a layer of marbles on the base of the spawning tank allows the eggs to fall between the crevices out of reach of the hungry adult fish. Dense bushy plants or spawning mops can also trap (and hide) eggs during spawning. Such plants also offer refuge to newly born livebearer fry.

Site spawners such as cichlids, gouramies and mouthbrooding species effectively protect both their spawning sites and developing fry from other fish. It is possible with cichlids to remove any spawning receptacle and hatch the eggs artificially away from the parents, but then you miss out on witnessing the amazing parental care exercised by these fish.

Killifish eggs, once collected from spawning mops, may need a period of semi-dehydration before being re-immersed in water to hatch.

In some cases, the spawning couple need not even meet each other! Goldfish females can be hand-stripped of their eggs and then the male's milt can be milked into their container to fertilise them.

It is advisable to supervise spawning if at all possible. Many male fish drive the females very hard during the spawning chase and often continue to harass them after spawning is complete.

The spawning tank should be furnished with plenty of bushy plants in which the female can hide if necessary, but in most cases it is best to remove her from the spawning tank as soon as possible after spawning has been completed.

**FRY CARE :** Once the fry hatch and are free-swimming they must be provided with plenty of correctly-sized food. Infusions, green water, liquid fry foods and newly-hatched Brine Shrimp are all good starting foods.

After a few days, the food size can be increased to include Grindal Worm, White Worm, sifted *Daphnia* and so on up to crumbled flake food, after which the more normal diet can be provided. Tank space will also become important too, so extra tank space should be available not just for growth but also to segregate the young fry for quality or sexes.