

SPAWNING THE PUMPKINSEED SUNFISH (LEPOMIS GIBBOSUS)

by Joanne Bockstael, Ottawa, Ontario

We, as aquarium hobbyists living in Canada and the United States, are really very lucky, for within the boundaries of continental North America is to be found a vast wealth of fish (and other aquatic) life. We have an incredible number of fish species of which we can boast, but among them is one species which we rarely mention. This fish is the humble Lepomis gibbosus, the Pumpkinseed Sunfish.

The Pumpkinseed is one of the commonest sunfish. Perhaps it is because of this that we tend to overlook or ignore it, and in doing so we are doing the Pumpkinseed and ourselves a great disservice. In general appearance, Pumpkinseeds present a typically cichlid-like profile and are quite colorful even outside the spawning season. The Pumpkinseed's basic ground color is a dull greenish-gray with darker vertical bars. This is overlaid by a yellowish to orange cast which deepens in hue on the belly. The eyes are red with a black pupil which is bisected by a black bar. The head region is decorated by several dark, more-or-less horizontal bars which are separated by light "electric-blue" zigzagging lines which extend to the edge of the operculum. The operculum is decorated by a "sunspot," a prominent black spot edged in red around part of its circumference. The Pumpkinseed is further decorated by numerous red dots over its body and flanks. These may extend in a vague checkerboard pattern into some of the fins, though this seems to be a regional characteristic, and is totally absent in specimens from many areas. (I mention it since my own Pumpkinseeds do show a strong pattern of red dots on most of their fins, while individuals I have seen which were collected from an area less than 400 miles from where I live showed no red whatsoever on the fins and only a sparse scattering of red dots on the upper part of their bodies.)

If collecting for the home aquarium, it is best to start with young Pumpkinseeds less than 4" in total length. They must have plenty of space in their new home, as these fish will reach a total length of some 8-10" at maturity and will be far less belligerent when fully grown if they haven't been overcrowded from the start. I found I got the best results if I kept no more than six fish in a tank of not less than 40 gallons. The tank I used was equipped with an undergravel filter while the young fish were growing, but as they matured they began to show a very cichlid-like habit of "redecorating" their tank. The U.G. filter was then replaced by two DynaFlo 150 power filters. The gravel I used was a mixture of a nearly fine grade of crushed dolomite in a dark gray color and a coarse grade of "roadside" gravel (a mix of granite and slate commonly used in road-bed construction in Canada). A couple of pieces of driftwood and several large rocks (granite mainly) completed the decorations. Plastic plants may be used, but live plants really take a beating. Be sure to leave a few large open areas

for swimming, as sunfishes (of any species) are not prone to hide. Also, they will need these spaces later for spawning. Pumpkinseeds are not fussy when it comes to the water in their tank, but they cannot tolerate dirty water for long. As coldwater fish, they need more oxygen than small tropicals, so be certain your filtering system is adequate and always working well. The pH of their water should be alkaline, but with regular water changes and no sudden drastic moves by your local water company, they will adapt themselves to anything from 6.7 to 8.2; however, extremes should be avoided.

Pumpkinseeds are heavy eaters and need even more than usual if they are to spawn. I feed mine on raw beefheart which has been mixed with flake food, oatmeal (small amount, as it clouds your water when there's too much; use not more than one cup to two pounds of meat), some unflavored Knox gelatin, and (if I can get lots, as in summer or fall) nearly as many earthworms by weight as I have of the beefheart. This mixture is put through a blender (do not blend to a fine texture; leave the meat in small bits!), then packed in thin layers (up to $\frac{1}{2}$ ") in freezer "Zip-loc" bags and frozen. I need only break off what I need in small chunks and feed directly into the tank. The gelatin will help hold the food in lumps from which the fish can easily bite mouthfuls, which makes removing the leftovers much easier. I feed as much of this plus frequent meals of chopped earthworms as the fish will eat in five to ten minutes, as often as four to six times daily. These are fish which can really eat!

To bring these (like most) native fish into spawning, it is necessary for them to go through a "cooling period." I am lucky in that my bedroom is quite cool all winter (due to drafts) and cool in summer too (thanks to an air conditioner). It is here that I keep whatever natives I have. Beginning at any time of year, I either open the door to a balcony or hike up the air conditioner so that the room and the fish are chilled for a few hours a day (until I can't tolerate the cold any longer!). Gradually over a few weeks, they are chilled, then warmed, over and over, every day. Simultaneously, the length of time the tank lights are kept on is gradually increased from 10 to 14 hours a day. With heavy feeding, it isn't long before the fish come up to spawning condition and begin to think of setting up housekeeping.

If all goes well, once your fish are from six to eight inches in length, they should begin pairing off. The males will show a much deeper orange on the belly and they will set up territories within the confines of the tank. (Having lots of room at this stage will keep the scrapping down to a minimum, and these fish can and do fight hard!) The females will definitely look and be heavier in the ventral area, and they will tend to keep near a central point such as a piece of driftwood more or less in the middle of the territories. Unless you have several large tanks prepared in advance, it

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is best at this stage to remove all but one pair (or trio) from the aquarium. More than one male, and few if any fry will be produced, as the males will fight with each other and with the females. Extra pairs can be kept apart (permanently), given away, or even returned to the wild state (they adapt back to the wilds very easily after even two or three years in captivity).

For a time, the male will flirt with his mate(s). Between such bouts, he will choose an open area of tank bottom, and, using his tail, will dig a fair-sized pit (hence the need for room). Fairly fine gravel is necessary, first of all so that the male does not lacerate his tail while "digging," and also, if the gravel is too coarse, the male will become discouraged and no spawning will occur. Once the pit is ready, the female is nudged over to it, and, with the fish side by side, the eggs are laid and fertilized. When spawning is completed (often with more than one female), she (they) should be removed, or she (they) will be at risk of being killed. Her (their) part is over and her (their) continued presence serves no purpose. For two or three days until the eggs hatch, the male will guard the pit, fanning and often even mouthing the eggs. Once the eggs have hatched, though, the male should also be removed. You can try feeding the male while he is "on guard," but usually the male will not eat, and you just run the risk of polluting the tank. I would suggest you not have an under-gravel filter in a spawning tank because of their method of spawning. When a spawning seems imminent, you should shut off power filters and substitute a couple of sponge filters run by a strong pump.

The fry of the Pumpkinseed Sunfish will thrive on a diet of newly hatched brine shrimp nauplii right from the start. After a week or so, microworms can be added. Soon after this, feedings of the adult diet "blenderized" to a very fine grade can begin. The fry grow rapidly. From one female of 7-8", you can expect to get at least 300 eggs. Likely, it will be 500 or even more if your breeders have been well conditioned and are two or three years old or older. Most of these eggs will hatch and the fry will survive, so that a roomy tank (or tanks) is necessary. Myself, I returned nearly all of the fry to the stream from which the parent fish were collected. After all, how many people want Pumpkinseeds? More people should, as they are great fish--easy to keep and to spawn. And not everyone has them.
