

THE CULTURE AND BREEDING OF JORDANELLA FLORIDAE

by Wesley E. Smith

The flagfish, *Jordanella floridae* is a cyprinodont native to ponds, ditches, and marshes of Florida. Males attain a standard length of 6 to 8 centimeters and are attractively marked with alternating longitudinal red and irridescent green stripes. The females are somewhat smaller in size and are a yellowish olive color. Until sexual maturity the sexes cannot be visually distinguished as all fish have the basic color pattern of the female. Upon maturation however, the males acquire the brilliant characteristic adult coloration while the females remain olivaceous. All juvenile fish bear a black ocellus in the posterior portion of the dorsal fin. As fish mature this spot is lost by males but retained by females. Once mature, sexual dichromatism is retained independent of season.

TANK REQUIREMENTS

The available aquarium literature on this species, Sterba (1966), Innes (1948), and Axelrod (1962), states the flagfish may be kept in small tanks of 1.5 to 5 gal. capacity. From my experience this practice would seem a serious mistake. Mature males are territorial and characteristically aggressive in keeping intruding fish away from their breeding territory. In small tanks this defensive behavior usually results in injury or death to tank mates even when cover such as plants are present. I have found a 10 gallon tank is the smallest that should be used to house 1 male and several females. A 15 gallon tank is greatly to be preferred and if it is desired to breed the fish such a tank will nicely accommodate 2 males and five females. Some cover should be provided for the females. If one desires only a tank of fish and breeding is no concern, then more males and fewer females can be included. In the latter situation, if no spawning sub-strate is provided, there is rarely significant territorialism by males and aggression is seldom a problem.

It appears that the flagfish can tolerate a reasonably wide range of water types. Foster et al., (1969) used a synthetic hard water successfully but the species also thrives in soft water. My set-up utilizes a continuous flow of Lake Superior water (45ppm total hardness as CaCO₃). For my purposes I maintain water temperature at a constant 25°degrees Centigrade (77°F). This temperature appears to be near optimum for both breeding and growth of young fish. Temperatures down to approximately 19°C (66.2°F.) are acceptable for breeders, but spawning activity is slowed and the hatching time of eggs greatly prolonged.

BREEDING METHOD

Photoperiod should be 14 - 16 hours of light.

For a continuous supply of eggs I place 2 males and 5 females in a bare 15 gallon tank. At each end and on the bottom of the tank I place a spawning substrate made of a 4 x 6 inch rectangle of stainless steel screen over which dark green orlon yarn is strung creating a grid with parallel yarn strands about 1/16 inch apart. Conventional spawning mops work well but in laboratory work I have found the former scheme preferable due to easier collection and counting of eggs. In my experience it is inadvisable to use to use a smooth surface material such as nylon cord or fish line because it frequently allows successful egg predation by the females. The fuzzy surface of the orlon yarn apparently hinders egg predation.

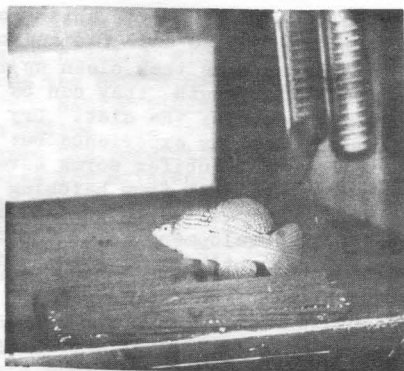


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Fig. 1 Territorial male over spawning substrate.

In a breeding set-up as described above, each female goes through a cycle in which she begins by producing perhaps 20 -40 eggs initially with increasing daily production until she is giving over 200 and as many as 400 eggs a day by about the 7th day. From this time for the next 7 days the daily production of the individual decreases until by about the 14th day egg production is terminated and the female enters a resting phase for several days. Then the cycle is repeated. If 2 males and 5 females are utilized in the breeding set-up an almost constant source of eggs is produced on a daily basis. It is not known if this will continue indefinitely but I have maintained such spawning for as long as 3 months with daily egg production. I have consistently had better results with young fish which have recently attained sexual maturity. They appear to be more vigorous, the males more vigilant in guarding the eggs and the daily egg production is usually higher than with fish 1 year of age or older.

The hatching of eggs must be accomplished in a separate tank from the adults or few larval fish will survive predation. If the water temperature is 25°C, the eggs will hatch in 4 -5 days.

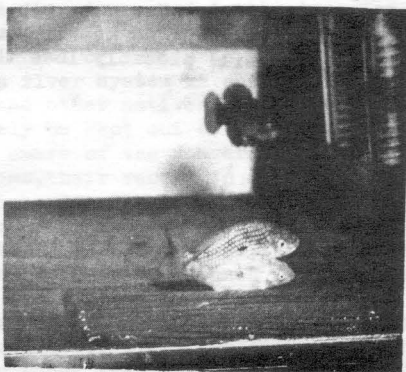


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Fig. 2. Spawning on stainless steel- orlon substrate.

FEEDING

When the larval fish are 2 days old I give them a flour- fine commercial dry food or one of the egg yolk preparations. I also try to have algae available to them in the tank surfaces. At 3-4 days of age the larvae are able to ingest brine shrimp nauplii and this

food becomes the basis of the diet. If rapid growth is desired it is important to keep the larvae well fed and consequently I feed them 8 times daily as much as they clean up in about 15 minutes. When they are about 5/8 in. in length they can be given frozen brine shrimp and it becomes the basis of the diet. Dry food is not readily accepted by this species on my experience but I vary the diet somewhat by feeding Daphnia and Tubifex worms several times a week. On this feeding regime fish will go from hatching date to sexual maturity in 6 to 8 weeks. It must be noted that it may not be possible to equal this rate of development in static tanks unless the water is either changed frequently or very well filtered. All my experience has been with a constant flow of fresh water through the tanks.

LITERATURE CITED

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