Note

Spawning and parental behaviour in the induced bred murrels

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ABSTRACT

The spawning and parental behaviour of the hormone induced striped murrel, _Channa striatus_ and spotted murrel, _Channa punctatus_ were studied in different types of breeding tanks. The behavioural evidences of the parents strongly suggest that the eggs and hatchlings of both the species were guarded by the male parent.

Among air-breathing fishes, the murrels commonly called snakeheads (e.g. giant murrel: _Channa marulius_; striped murrel: _C. striatus_; spotted murrel: _Channa punctatus_) constitute a unique group of food fishes (Parameshwaran and Murugesan, 1976). Murrels naturally spawn during southwest monsoon (June - August) and northeast monsoon (October - December) in flooded rivers and ponds (Alikunhi, 1957). Reports are available on induced breeding and life history of murrels (Banerjee, 1974; Parameshwaran and Murugesan, 1976; Singh _et al._, 1986, 1988) but literature on spawning behaviour and parental care are scanty and also contradictory. Hence an attempt is made to study the spawning behaviour and parental care in induced-bred _C. striatus_ and _C. punctatus_.

The present study was conducted in 10,000 litre circular fibre tanks and earthen ponds (4x4x1m) for _C. striatus_ and cement tanks (3x3x1m) for _C. punctatus_. Ripe brood fishes were selected during the late spawning season in December 1999 by their external morphological features as reported by Parameshwaran and Murugesan (1976) and Haniffa _et al._ (1996). Brood fishes ranging from 600 to 800g of _C. striatus_ and 50 to 90g of _C. punctatus_ were injected intramuscularly with a single dose of pituitary extract (50 mg/kg body weight) and HCG (2 IU/g body weight) respectively. Immediately after hormone injection, the breeding sets (one female and two males) were introduced into the breeding tanks. Aquatic macrophytes like _Hydrilla verticillata_ and _Eichhornia crassipes_ were introduced into the breeding
tanks for hiding purpose. Spawning behaviour was observed at one hour interval after the hormone injection until egg laying.

Spawning activities of *C. striatus* and *C. punctatus* were first noticed after 6 and 4 h of the hormone injection respectively. Spawning was preceded by active male movement below the female in opposite direction. Then the mating pair made a slow upward and downward movement of approximately 10 to 20 cm within the water column. After 12 h, the mating pair jumped frequently above the water column to a height of 30 to 90 cm and occasionally out of the breeding tank. In both the species, the male was more actively involved in the courtship and was found to hit frequently the female snout and vent, which culminated in the release of gametes. Courtship behaviour continued till the complete release of gametes. (30 h for *C. striatus* and 28 h for *C. punctatus*). The unpaired male was driven out by the active male when it disturbed the mating pair. The unpaired male was passive and idle at a corner of the breeding compartment.

The fertilized eggs are usually buoyant in nature and adhered to each other forming an egg mass of 6-14 cm diameter (containing 2,500-4,000 eggs). The unfertilized eggs were not adhesive and were found scattered in the tank. In both the species, the male guarded the fertilized eggs. After hatching, the male moved around hatchlings and ventilated them with its pectoral fins. It was always aggressive and kept the young ones under vigil. Das et al. (1998) reported that aggressive behaviour is generally exhibited by female *Channa striatus*. On the contrary, in the present study, the male fish showed aggressive behaviour as it was probably taking care of the young ones, supporting the previous observations of Huntingford (1976) and Mckinnon (1996).

Parental care was observed in both the species irrespective of the type of breeding. If the eggs were removed and incubated in glass aquaria without parent, they were invaded by fungal infection and showed poor hatching rate on several occasions. Parental care of *C. striatus* was observed up to the fingerlings stage (4-6 cm length) in the earthen pond, whereas in the case of *C. punctatus* parental care and shoaling behaviour were noticed up to fry stage (2 cm length) only.

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**References**


