



BREEDING & SEED PRODUCTION OF STRIPED MURREL

Murrels or snakeheads are important air breathing indigenous freshwater fishes of India. They are highly preferred food fish because of nice flavour, meaty flesh with few intra-muscular bones and medicinal value. The good growth rate, high consumer preferences & market price and their ability to withstand adverse water conditions make them suitable candidate species for freshwater aquaculture. The demand for snakeheads seedlings is, by and large, met from the wild collections and the commercial culture of murrel is still not common due to inadequate availability of seedlings. Therefore, to meet the challenges, ICAR-CIFA, Bhubaneswar has developed induced breeding technology of striped murrel (*channa striatus*) in hatchery condition which would help in spreading of its farming.

Captive broodstock development

- The protocol has been standardized for growing of striped snakehead brood-stocks in the cement cisterns (15m²) with habitat, feed and hormonal manipulations for better breeding response in hatchery condition.
- Tank base is provided with 5-6 inch of soil. Floating aquatic macrophyte should be added and maintained in about 20% water spread area to simulate natural environment.
- Fishes are fed 3% of their biomass i.e., live insects/prawn/small fish 1% and trash fish & rice bran (3:1) 2%. Recently, pelleted feed with good acceptability has been formulated and developed for brood fishes.
- Females and males are distinguished by their secondary sexual characters during the spawning season.
- Females exhibit slightly bulged abdomen, round and reddish vent, anal papilla like structure is broad & blunt with reddish dots and males exhibit pale vent, prominent anal papilla like structure with a pointed tip.

Induced breeding in hatchery condition

- *C. striatus* female weighing 300-600 g and male weighing 400-800 g give better breeding performance under hatchery condition.
- Breeding pool is filled with water (26-30°C) and one-fifth of the water area covered with floating aquatic macrophyte (water hyacinth).

- Here one important care is taken to keep at least two feet of free board and breeding pool to be covered perfectly with net to avoid jumping of fish during spawning.
- The female and male fishes are injected intramuscularly with HCG @ 2000 and 1500 IU/ Kg body weight; carp pituitary gland extract (PGE) @ 30-40 and 20-30 mg/Kg body weight; Ovotide/Ovaprim @ 0.6 and 0.4 ml/Kg body weight, respectively.
- Spawning time is 16-18 hr at 26-28°C. Eggs are spherical, non-adhesive, free floating and straw yellow in colour. Fertilized eggs are transparent and unfertilized eggs are opaque/white.
- The size of the fertilized eggs are ranged between 1.1-1.4 mm
- The average fecundity is in the range of 10,000-15,000 eggs/kg body weight.
- The fertilization and hatching rate ranged between 75-98 % and 70-95 %, respectively.

Seed rearing

- Larval feeding starts after 72 hr of hatching because yolk sac in larvae serves as stored food during this period.
- After yolksac absorption, the larvae are fed ad libitum with either zooplanktons or *Artemia* nauplii.
- Survival in the nursery rearing (spawn to fry) ranged between 50-60%.
- Striped murrel fry are further reared in outdoor concrete tanks for fingerlings production.
- Fry should be fed with small crustaceans' mainly aquatic insects, tubifex and chopped earthworms. Powdered fish meal and soya flour (3:1) @ 5-10% of their body weight should be sprinkled twice a day in addition to live feed.
- Boiled trash fish/poultry offal and oil cake/rice police (3:1) is given in moist condition.
- The pelleted feed for the fingerling has been formulated and evaluated for good growth and survival. Average survival from fry to fingerlings is 30-40%.
- It has been observed that 2- 3% of fry turned into shoot fry during its rearing, which takes heavy toll to fry of smaller sizes. Therefore, periodic segregation and separate rearing of shooters is essential to get high survival.