

## Note

### Induced spawning of the endangered golden mahseer, *Tor putitora*, with ovaprim at the State Fish Farm near Dehradun

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#### ABSTRACT

Endangered golden mahseer, *Tor putitora*, has been successfully bred during September 1997 at the State Fish Farm near Dehradun (Baint-wali-Mandi) by intramuscular administration of the synthetic hormone drug ovaprim (single dose, 0.20 ml/kg body weight) to the females. Since males were mature and oozing under pond conditions, they were not given any treatment. After 24 hours, about 4,000 viable eggs were released and fertilised with the fresh milt. About 70-80 % fertilization and 60-65% hatching success were observed.

During the recent years, there has been a drastic decline in the population of the golden mahseer (*Tor putitora*) in Himalayas due to the construction of dams and barrages across the rivers, destruction of breeding grounds and wanton (illegal) killing of juveniles and brood fishes through poisoning or dynamiting (Joshi, 1986 ; Sehgal, 1991). Since artificial fecundation and ranching of the depleted water bodies with the fingerlings are the envisaged strategies for the conservation and rehabilitation of endangered species (Kulkarni and Ogale, 1986; Sehgal, 1991), an attempt has been made to breed the endangered mahseer with ovaprim at Uttar Pradesh State Fish Farm located at Baint wali-Mandi near Dehradun (Garhwal Region).

The State Fish Farm is located 38 km away from Dehradun on Dehradun-Dak Patthar-Chakrata road near the foothills of the Himalayas bordering Himachal Pradesh. River Yamuna is about 1 km away from the farm. The ponds continuously receive seepage water from the adjoining canal through inlets and discharge the excess water through outlets. Bottom of the ponds contain gravels and boulders. The chemical characteristics of the pond water are: conductivity 165.0µ mhos/cm, pH 6.9, dissolved oxygen 9.3 ppm, COD 3.96 ppm, silicates 34.28 ppm, phosphate 0.065 ppm, total hardness 66.0 ppm, Ca hardness 34.0 ppm, Mg hardness 32.0 ppm, chloride 6.0 ppm, sulphate 18.0 ppm, nitrate 1.37 ppm, total alkalinity 56.0 ppm, chromium 0.002 and Cd 0.001

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ppm. Ammonia nitrogen, fluoride, Cu, Ni, Zn, Fe, Pb and Mn were not detected in the pond water.

State Fisheries Department has good stocks of pond-reared golden mahseer (*Tor putitora*) collected from Yamuna river as fingerlings. The average temperature of pond water fluctuates between 18 and 24°C. Since the fish has pairs of healthy *T. putitora* weighing 1.5 to 2.0 kg were selected for the breeding experiments. Since the males were mature and oozing freely on slight pressure under the pond conditions, they were not given any treatment whereas the females were administered intramuscularly with ovaprim (sGnRHa<sup>+</sup> domperidone; Syndel Laboratories, Vancouver) in the dose of 0.20 ml/kg body weight (single injection) on 10.9.1997 at 1030 hours. Males and females were kept in separate hapa for easy handling and care was taken not to injure the brood stocks. After 24 hours, all the three females released viable eggs with the flapping of tail following gentle pressure on their belly. About 4,00 eggs were released and fertilised with the fresh milt. Around 500 fertilised eggs were kept in enamel tray at room temperature (22.28°C) whereas the remaining eggs were placed in a hatching tray near the inlet of the pond receiving freshwater (temperature 20-24°C). Development of larvae was studied under magnifying lens and microscope.

Eggs of *T. putitora* were orange in colour and their size ranged between 2.2 and 3.2 mm. Though the facilities were limited at the farm, about 70-80 % fertilization was achieved. The fertilised eggs kept at room temperature (22 and 28°C) recorded a little faster development than those placed in the pond

water (20-24°C) as the neural crest stage appeared at 48 hours in the former whereas it took about 68 hours in the latter. Similarly, the fertilised eggs at room temperature were hatched out in 80-96 hours whereas those maintained in the flowing water of pond took about 110-120 hours for hatching. About 60-65 % hatching success was achieved. The hatchlings were handed over to the State Fisheries Department for further rearing.

Attempts made in the past to breed the golden mahseer (*T. putitora*) in Kumaon region through hypophysation met with little success (Tripathi, 1977; Pathani and Das, 1979). Later, Joshi (1982, 1986) bred *T. putitora* by pituitary homogenate administration and stripping the specimens collected from Bhimtal Lake. Subsequently, Sehgal (1991) and Shyam Sunder *et al.* (1993) have standardised this technique for large scale production of seed of golden mahseer at Bhimtal (Kumaon Himalaya). Several attempts made during the seventies to induce *T. putitora* to breed at the State Fish Farm, Baintwali-Mandi near Dehradun remained unsuccessful (Sehgal, 1991). We achieved success in induced spawning of the pond-raised endangered golden mahseer with ovaprim administration and viable hatchlings were produced under the agroclimatic conditions of the Doon Valley (Garhwal Region). Nandeesh *et al.* (1993) have bred the pond-raised endangered Deccan mahseer (*Tor khudree*) by ovaprim administration. Recently Ogale (1997) has also successfully induced spawning in *T. putitora* at Lonvala (Pune, Maharashtra), Western Ghats though at a higher dose (female 0.60 ml/kg; male 0.20 ml/kg) of ovaprim injection.

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