Golden mahseer, *Tor putitora* (Hamilton, 1822)

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- Golden mahseer (*Tor putitora),* is an important cyprinid which is considered as a flagship species in upland fisheries of Himalayan sub-continent by virtue of its economic, ecological, recreational, heritage, cultural and food values.

- However, the population of golden mahseer has been greatly dwindling over the years and as a result, it has been declared as '*endangered*' by IUCN.

- It is a multiple spawner; spawning season coincides with the onset of rains during May to September with two peaks (May-June & August-September).

- Males mature at the age of 3^+ years while females mature at 5^+ years. Mature males are in oozing condition throughout the year whereas ripen females have swollen belly with lemon yellow/brownish-golden colour eggs of diameter 2.0 – 2.5 mm.

- The flow through hatchery technology for captive breeding and nursery rearing of golden mahseer developed at ICAR-DCFR is the first of its kind in the country and consistently producing golden mahseer seeds.
- For captive breeding, the brood stock of 800-1500 g can be raised at temperature range of 18-22^{0}C in concrete tanks/ FRP tanks @ 2-3 no/m^2. Photothermal manipulations coupled with the provision of spawning substratum using bed bio-filter installed in FRP tanks and quality feed (44% protein), with regular health checks helps to achieve multiple spawning in captivity.

- Also, selected ripe brooders are stripped of their eggs and milt by exerting pressure on the caudal portion of the fish. The stripped eggs are collected in the plastic trays and the milt is spread over the eggs and then mixed with a feather and allowed to stand for five minutes.

- After that, the eggs are washed thoroughly with clean oxygenated water three to four times to remove the excess milt. Then the trays containing eggs are filled with fresh water and allowed to stand for 15-20 minutes in shade to allow the eggs to swell and harden before releasing them in hatching trays. The fertilized eggs are demersal, lemon yellow or brownish golden in colour. The fecundity is 3375-8944 eggs/Kg body weight.

- A fertilization of 90-99% is achievable through this protocol. Water flow of 1-2 L/min during incubation is maintained and increased to 3-4 L/min after hatching. Hatching period is 80-96 hours in water temperature 22-24.0°C with 80-85% hatching success.

- Once the yolk-sac is completely absorbed (11-13 days) and swim up fry start moving freely, the stock is shifted to nursery tanks and stocked @ 8,000-10,000/tank with water flow of 2-3 litres per minute. The young ones are fed with artificial feed. The survival rate is > 95 %.

- The advance fry of golden mahseer is used for ranching/re-stocking into coldwater lakes, rivers and reservoirs to conserve and rehabilitate its population in the wild.

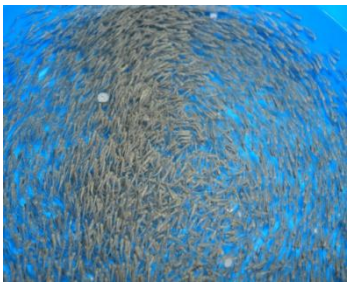
Flow Through Hatchery for golden mahseer

Stripping of female for eggs

Stripping of male for milt

Fertilized eggs spreading on incubation tray

Hatchling and early fry of golden mahseer



Advance fry of golden mahseer

An adult Golden mahseer