



University of Zabol
Graduate school
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**The Thesis Submitted for the Degree of M.Sc (in the field of
Fisheries Science)**

**Investigation on artificial breeding of
the Sistan snow trout (*Schizothorax
zarudnyi*) using synthetic hormones.**

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Abstract

The Snow trout (Cfidak-e-Sistan) (*Schizothorax zarudnyi* [Nikolskii, 1897](#)) is an endangered species of fish endemic to Hamoon Lake, Sistan, Iran. Natural fish populations have declined during the last several years because of environmental degradation due to drought and introduction of non-endemic fishes to Hamoon Lake. The purpose of this study was to evaluate the use of synthetic hormones, ovaprim and human chorionic gonadotropin (hCG) to induce spawning and determination of some reproductive parameters. Wild broods of snow trout (females and males 1328±45, 632±17.6 g respectively) were caught in the Chahnimeh reservoirs (Sistan) and transported to Zahak hatchery for artificial spawning. The Brood fish were divided into five groups and treated with: a) a) Quadruplet injections of different doses 0.2, 0.5, 0.5 and 0.3 ovaprim/kg fish body weight, 24 h intervals for females. Males injected 0.3 ml/kg ovaprim simultaneous second females' injection. b) Triplet injections of ovaprim and hCG with different doses; 0.2, 0.5 and 0.5 ml/kg ovaprim+1000, 2000 and 2000 I.U./kg of females body weight, 24 h intervals for females. Males injected 0.3 ml/kg ovaprim + 1500 I.U. hCG/kg of body weight simultaneous second females injection's) Quadruplet injections of ovaprim and hCG with different doses; 0.2, 0.5, 0.5 and 0.3 ml/kg ovaprim+200, 400, 400 and 300 I.U. hCG/kg of females body weight, 24 h intervals for females. Males injected 0.3 ml/kg ovaprim + 200 I.U.hCG/kg of body weight simultaneous second females injection. d) Triplet injections of hCG with different doses 400, 800 and 800 I.U./kg of females body weight, 24 h intervals for females. Males injected 500 I.U./kg of body weight simultaneous second females injection. e) A saline injection (control group) 0.3 ml/kg fish body weight.

The results showed mean working fecundity for a, b, c, d and e groups was 39531±7802, 18625±9704, 15682±5982, 0 and 0, respectively. Latency period was 36.2±3.77, 12.33±0.66 and 30.2±2.95, conversion percentage of dry egg to eyed egg was 88.97±0.9, 73.19±2.04 and 75.26±3.90, conversion percentage of eyed egg to larvae was 81.93±1.15, 75.67±0.19 and 71.03±1.03 for a, b and c groups, respectively. There were significant differences in the fecundity, latency period and other parameters mentioned above between the group treated only with ovaprim and the control group ($p < 0.05$, *Tukey's* test, respectively). So treatment of Snow trout with ovaprim is effective for spawning induction.

Keywords: *Schizothorax zarudnyi*, Spawning induction, Ovaprim, hCG, Sistan