

INDUCED BREEDING AND REARING OF COMMON CARP (*Cyprinus carpio*) AND SILVER CARP (*Hypophthalmichthys molitrix*),

At Mandal Fish Hatchery Farm, Rupandehi, Nepal



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A thesis submitted in partial fulfilment of the
Requirement for the award of the degree of Master of Science
In Zoology with special paper Fish and Fisheries

Submitted To

Central Department of Zoology
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Kirtipur, Kathmandu
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August, 2015

DECLARATION

I hereby declare that this thesis has been done by myself, and has not been submitted elsewhere for the award of any degree. All sources of information have been specifically acknowledged by references to the author(s) or institution(s).

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RECOMMENDATION

This is to recommend that the thesis entitled “ **Induced Breeding and Rearing of Common carp (*Cyprinus carpio*) and Silver carp (*Hypophthalmichthys molitrix*) at Mandel Fish Hatchery and Fish Farming, Rupandehi Nepal** ” has been carried out by **Mr. Babu Ram Banjade** for the partial fulfillment of **Master’s Degree of Science in Zoology** with special paper **Fish and Fisheries**. This is his original work and has been carried out under my supervision. To the best of my knowledge, this thesis work has not been submitted for any other degree in any institutions.

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This thesis work submitted by **Mr. Babu Ram Banjade** entitled “**Induced Breeding and Rearing of Common carp (*Cyprinus carpio*) and Silver carp (*Hypophthalmichthys molitrix*)” at Mandal Fish Hatchery and Fish Farming, Rupandehi, Nepal” has been accepted as a partial fulfillment for the requirements of **Master’s Degree of Science in Zoology** with special paper **Fish and Fisheries**.**

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ACKNOWLEDGEMENT

I would like to express my gratitude to Dr. Archana Prasad, Lecturer, Central Department of Zoology, Tribhuvan University, for her able guidance and encouragement to carrying out this dissertation work.

I would like to acknowledge my sincere gratitude to Prof. Dr. Ranjana Gupta, Head of the Central Department of Zoology for her valuable suggestion and provision of required departmental facilities to complete my study work. I am also obliged to Prf. Dr. Surya Ratna Gubaju for this encouragement and support

I am very grateful to Mr. Rameshor Mandal , founder and owner of Mandal Fish Breeding Farm (Private Farm), he has Former Fisheries Development Assistant at Fish Division , Bhairahawa, and my special thanks go towards Mr. Rishi Baral, Mr. Balaram Awasti , Mr. Thaneshowar Poudel, Mr. Shivish Bhandari for their generous support throughout this work . I am also thankful to Mr. Laxman Khanal, Lecturer, Central Department of Zoology and Dr. Gaurav Devkota, Medical Officer, Rupandehi District Hospital for their constant inspiration, suggestion and encouragement to make it possible to complete the present work.

I am extremely thankful to my parents Mr. Balkrishna Banjade and Mrs. Radhika Banjade, my wife Mrs. Kamala Pandey and my brother Mr. Kendra and Mr. Bimal Banjade for their wonderful support and notable help throughout my work.

At last I express my heartfelt thanks to all my friends and other personnel who helped me directly or indirectly to prepare present dissertation.

Babu Ram Banjade

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LIST OF ABBREVIATIONS

Abbreviated form	Details of abbreviations
ΔF	Rate of in breeding
$^{\circ}C$	Degree Celsius
AGDP	Agricultural Gross Domestic Product
bw	Body Weight
CC	Common carp
CDZ	Central Department of Zoology
cm	Centimeter
DO	Dissolved Oxygen
DOFD	Directorate of Fisheries Development
FAO	Food Agricultural Organizatio
GDP	Gross Domestic Product
GPS	Global Positioning System
ha	Hector
hrs	Hours
JICA	Japanese International Cooperation Agencies
Km ²	Square Kilometer
LRH	Lueiting release hormone
m	Meter
MFHF	Mandal Fish Hatchery Farm
Ne	Effective Population Size
NG	Nepal Government
PG	Pituitary gland
ppt.	Precipitation
SC	Silver carp
SD	Standard Deviation
SE	Standard Error
UNDP	United National Development Program

ABSTRACT

Nepal has Several types of water resources and rich in indigenous fishes fauna of cold and warm water. However exotic species contribute significance in agriculture productions. Common carp and Silver carp are an exotic fish to Nepal. It was introduced from India in 1959 and Israel in 1960. The present work was carried for five months from February 2014 to July 2014 in Mandal Fishery Breeding Center (MFBC), Pathar Danda Rupandehi. It was started from 2057 BS. The present study was undertaken to study Physico-chemical parameters, biology of common and Silver carp - fecundity, gonadosomatic index (G.S.I), fertility rate, hatching rate, embryonic development and growth of common carp and Silver carp (fry). In the period of study, the range of temperature of in different ponds was 20-33⁰C, pH of water showed it to be alkaline during whole study period, dissolved oxygen and free CO₂ were 5.8- 9.2 and 13.8-17.2 mg/l. The total number of eggs spawned was found to range from 2,50,000 – 4,60,000 and GSI 10% of female brood fish using ovaprim hormone and PG along with LRH. The fertility rate or rate of fertilization of eggs by milt was recorded 83 %. Out of total fertilized eggs, only 53.6 % of them were successfully hatched. Cleavage of egg was observed after 4 hr of fertilization. After 28 hr, eyed egg could be distinguished due to pigmentation and visible through the choroid. This stage was called Eyed Stage. The development of embryo could be noticed at 36 hr inside the egg. The development of embryo continued and the hatching takes place after 48 hours of fertilization. The length and weight of hatchlings was recorded gradually increasing. Hatchlings after transferring to the nursery pond, the fry were fed with artificially formulated feed with 45% protein at the rate of 5-10% body weight and the growth check-up was done at weekly intervals. Length and weight of fry was noted gradually increasing from first week to fourth week.