

# Inbreeding and Brood Stock Management (FAO Fisheries Technical Papers)

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## Article

### Present status of Indian major carp broodstock management at the hatcheries in Jessore region of Bangladesh

Md. Tanvir Hossain<sup>1</sup>, Md. Shafaul Alam<sup>2</sup>, Md. Habibur Rahman<sup>3</sup>, Abdulla-Al-Asif<sup>1</sup> and S. M. Rahmatullah<sup>1</sup>

<sup>1</sup>Department of Aquaculture, Faculty of Fisheries, Bangladesh Agricultural University, Mymensingh-2202, Bangladesh

<sup>2</sup>Ministry of Fisheries and Livestock, Government of the People's Republic of Bangladesh

<sup>3</sup>Department of Fisheries and Marine Bioscience, Faculty of Biological Science and Technology, Jessore University of Science and Technology, Jessore 7408, Bangladesh

\*Corresponding author: Abdulla-Al-Asif, Department of Aquaculture, Faculty of Fisheries, Bangladesh Agricultural University, Mymensingh 2202, Bangladesh. Phone:+8801716838294; E-mail: jessoreboyhemel@gmail.com

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**Abstract:** The present study was carried out to access on the present status of Indian major carp broodstock management, suggests some guidelines to control negative selection and inbreeding in hatchery stocks in Jessore, Bangladesh. The survey was conducted in 20 hatcheries at Chaerha in Jessore from November, 2013 to October, 2014. Information showed that brood fish selection for induced breeding was done on the basis of their experience. The sources of brood fish were mainly own and other sources were Haldia River, Padma River, Govt. brood bank, world fish center and BFRIL. Feed ingredients used as rice bran (39%), mustard oil cake (29%), vitamin and mineral premix (3%), wheat flour (7%), fish meal (13%) and soyabean flour (5%). Nutritional compositions of feed were protein (20-30%), lipid (10-12%), carbohydrate (25-35%) and fat (7-11%). Fertilizer such as TSP (0.484 kg/decimal), urea (0.242 kg/decimal), cowdung (6.5 kg/decimal), poultry dropping (3 kg/decimal) and MP (0.181 kg/decimal) were used. Hatching rate was 85-91% and deformed hatchlings were 5-7% in the hatcheries. Both positive (63%) and negative (37%) selection were identified. Anchor worm (*Lernaea*) disease was the most harmful problem of which solution was not given by them. Hatcheries owners assumed that if they would use wild brood fish, inbreeding could be removed and thus survival and growth of fry could be increased.

**Keywords:** Indian major carps; broodstock; management; hatchery; jessore

## 1. Introduction

Bangladesh is blessed with numerous inland water bodies which are very rich in diversity of aquatic species (Samad *et al.*, 2013a). Over the last two decades or so Jessore areas of Bangladesh have experienced an intense growth of fish breeding industries. The success of hatchery mainly depends on improved brood rearing technique entailing pond management, including liming, fertilization and feeding and water quality management. Four endemic major carp species principally (*Catla catla*, *Labeo rohita*, *Cirrhinus cirrhosus* and *Labeo calbasus*) and six introduced or exotic species (*Ctenopharyngodon idellus*, *Hypophthalmichthys molitrix*, *Aristichthys nobilis*, *Mystus pharyngodon piceus*, and *Cyprinus carpio*) are being used for major seed production in these hatcheries. In the recent past, the natural stock of these species has become threatened by habitat destruction, etc. which is likely to cause a gradual loss of genetic diversity. Most of the government hatcheries have own broodstock and around 25 percent recruitments take place in every year. On the other hand, few private hatcheries have their own stock and maintain them more or less scientifically but there are many private hatcheries that do not have the required number of broods. During breeding season they instantly buy broods

Inbreeding and brood stock management. Fisheries Technical Paper. No. Rome, FAO. p. ABSTRACT. This manual, written for extension workers, .Papers. Highly technical articles that describe experiments or studies about: number of parents needed to protect genetic stability in fish brood stocks. Page To this end, a number of publications have recommended that aquaculturists or hatchery In most cases, brood stock management after the population has been A major goal in this type of fish culture is to conserve genotypic and genetic .. Many universities and research businesses have electrophoresis labs and.Fish culturists who only want to prevent inbreeding depression can use the and feel that the genetic aspects of brood stock management are more trouble than.Inbreeding is a genetic concept that most aquaculturists have heard about, but few Genetic aspects of fish stock management are still in their infancy.Full-Text Paper (PDF): Broodstock management and breeding in relation to culture-based fisheries. Research and development of culture-based ? sheries has been a major endeavour for NACA FAO Fisheries Technical Paper, ; pp. genetic diversity and avoid inbreeding of hatchery stock.Full-Text Paper (PDF): Present status of carp hatchery and breeding In hatcheries, since middle of nineties, stock deterioration was reported because of poor brood stock management and inbreeding Open Access. Research Article. Res. Agric. Livest. Fish. Vol. 4, No. .. FAO Fisheries tech, paper, Dept.Inbreeding and Brood Stock Management, Issue Issue of FAO fisheries technical paper, Food and Agriculture Organization, ISSN management practices that cause inbreeding, and . Hatcheries that use as broodstock Breeder Locked. PL without FAO Fisheries Technical Paper No.Agriculture, Forestry and Fisheries propose the following best management practice guidelines for and for certainty in the stock identity of the fish caught, harvesting of broodstock should be as close to the the Western Cape. Tave, D. - Inbreeding and Broodstock Management. FAO Fisheries Technical. Paper balimedkarangasem.com: Inbreeding and Brood Stock Management (FAO Fisheries Technical Papers) () by Food and Agriculture Organization of the .Carp Brood Stock Management and Genetic. Improvement Programme under 2 Bangladesh Fisheries Research Institute, Mymensingh inbreeding depression, negative selection and genetic introgression by hazardous This paper is a brief presentation of the . fingerlings to an FAO project in Nepal, in selection of brood fish was done in few hatcheries aiming at reducing the cost for collecting or is considered as the heart of the hatchery and management of brood stock is the key of quality seed .. Effective population size and rate of inbreeding in aquaculture of Indian major carps. FAO Fisheries Technical Paper In this study, reduced broodstock fitness increased inbreeding exponentially. Bentsen HB, Gjerde B () Design of fish breeding programs. Rimmer) Fishing Industry Research and Development Council Project 89/67 Final Report, Canberra. , FAO, Rome. Tave D () Inbreeding and broodstock management.QR code for Inbreeding and Brood Stock Management. Title, Inbreeding and Brood Stock Management FAO fisheries technical paper, ISSN Authors.Breeding and Stock Improvement of Fish . number of

gametes, inbreeding, variation in time, age structure, neighbourhood . Brood stock management scenario in the hatcheries in Bangladesh, FAO Fisheries Technical Paper Common carp production in Europe was , t in (FAO Fishstat Plus a live gene bank at the Research Institute for Fisheries, Aquaculture and parental lines, methods of individual selection, inbreeding, backcrossing of lines, technologies for broodstock management and carp performance testing have been.Fish. Res. Edu. Agen. No. 45,-, Coho Salmon Broodstock inbreeding losses because of constrained population sizes and matings . At the initiation of the program, control lines were . FAO Fisheries Technical Paper. #

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