

Project Title: Genetic characterization of Major carps in natural and hatchery stocks using molecular tools

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Funding Agency: HEC under SRGP

Various challenges in the fisheries sector can be efficiently met by employing genetic approaches. In recent years the depletion of fish stocks has sparked an intense interest in fish genetic resource management and conservation. Research on fish genetic resources is far less advanced. A little attention has been paid to research, management and conservation of aquatic genetic resources in Pakistan. During last several decades, anthropogenic interventions such as overfishing, hydrological alterations, environmental degradation, and inappropriate stocking approaches have negatively influenced the fish biodiversity and natural fishery resources at various scales. Hatcheries commonly maintain minimal broodstock populations, recruit successive generations of broodstock from within the 'system' and spawn multiple species simultaneously in common tanks to minimize production costs. The available evidences support a widely-held perception that genetic degradation of hatchery stocks is occurring, and that both inbreeding depression and inadvertent hybridization are common problems contributing to poor quality fish seed production. With inbreeding, hybridization and translocation widespread concerns have also been raised over the potential impact of hatchery-produced fish seed on the genetic integrity of wild fish populations. So the project is designed to investigate genetic issues relevant to the aquaculture, stock enhancement and fisheries management of major carps (Catla catla, Labeo rohita, and Cirrhinus mrigala) in the hatchery and wild populations. Various challenges in the fisheries sector can be efficiently met by employing genetic approaches. In recent years the depletion of fish stocks has sparked an intense interest in fish genetic resource management and conservation. Research on fish genetic resources is far less advanced. A little attention has been paid to research, management and conservation of aquatic genetic resources in Pakistan. During last several decades, anthropogenic interventions such as overfishing, hydrological alterations, environmental degradation, and inappropriate stocking approaches have negatively influenced the fish biodiversity and natural fishery resources at various scales. Hatcheries commonly maintain minimal broodstock populations, recruit successive generations of broodstock from within the 'system' and spawn multiple species simultaneously in common tanks to minimize production costs. The available evidences support a widely-held perception that genetic degradation of hatchery stocks is occurring, and that both inbreeding depression and inadvertent hybridization are common problems contributing to poor quality fish seed production. With inbreeding, hybridization and translocation widespread concerns have also been raised over the potential impact of hatchery-produced fish seed on the genetic integrity of wild fish populations. So the project is designed to investigate genetic issues relevant to the aquaculture, stock enhancement and fisheries management of major carps (Catla catla, Labeo rohita, and Cirrhinus mrigala) in the hatchery and wild populations.