

PP-13

Fish Stock Assessment and Management Practices in Reservoir: A Case Study of Agriculture and Forestry University Fisheries Reservoir Nepal

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This study focuses on the fish stock assessment of the Fisheries Reservoir at the Agriculture and Forestry University (AFU) in Rampur, Chitwan district, Nepal. The main objective of this study was to assess the current fish stock in the AFU Fisheries Reservoir, identify potential problems, and implement effective fisheries management practices. The reservoir was divided into three sampling sites: Upstream, Middle Impoundment, and Downstream, covering a total area of 1,315 square meters.

A random sampling method using cast nets was employed at each site. Sampling was conducted over six days, with 10 net throws per site. In total, six different fish species were identified during the study, with a combined count of 30 individuals and a total weight of 160.7 grams. These species belonged to two different orders, Cypriniformes and Anabantiformes, and three families, with Cypriniformes dominating the catch composition, making up 93% of the total catch. Among the species, *Puntius sophore* was the most abundant, constituting **40% of the total catch**. The stock assessment was conducted using the partial count method, which estimated the total fish stock in the reservoir to be approximately 223 individuals. Despite the diversity of fish species observed, certain species that were recorded in previous studies in similar habitats were notably absent from this study. These species, such as *Brachydanio rerio* and *Colisa fasciatus*, were not found, possibly due to seasonal changes, overfishing, or habitat destruction. The study was conducted in the post-monsoon period, which may have affected species availability as certain fish species are seasonal and only present during specific times of the year. Additionally, overgrowth of aquatic plants like *Pistia* and overfishing by local residents were also identified as contributing factors to the reduction in fish diversity.

To mitigate these issues, the study proposed the implementation of fisheries management practices, including the establishment of **closed areas** where fishing is prohibited. "No Fishing" hoarding boards were prepared and placed around the reservoir to inform and engage the local community. Awareness campaigns were conducted to educate local residents about the importance of sustainable fishing practices and the consequences of overfishing on fish diversity. Twelve local participants, including both men and women, were informed about these conservation efforts.

In conclusion, the AFU Fisheries Reservoir is rich in fish diversity, particularly small indigenous species. However, the threat of overfishing and other human activities has led to a decline in fish stocks. This study emphasizes the need for effective fisheries management practices, community involvement, and the implementation of closed areas to conserve fish populations and maintain biodiversity. By combining scientific research with local awareness, the long-term sustainability of fish stocks in the reservoir can be ensured.

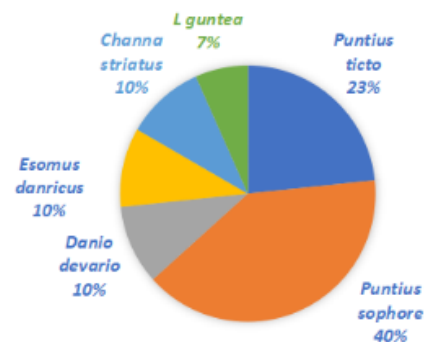


Figure: Fish species collected from Fisheries reservoir