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The Status of Fish Diversity of The Dudhkoshi River of Eastern Nepal

Om H. Shrestha* and Daya Ram Bhusal

Central Department of Zoology
Tribhuvan University
Kirtipur, Kathamdu, Nepal
oshresth@gmail.com

Knowledge about taxonomic data and current status of fish taxa become inevitable for management and policy making. Fishes are the most numerous and diverse vertebrate groups. Fricke et al. (2023) reported a total of 36,584 valid fish species, of which 18,574 are being freshwater. Conservation of freshwater biodiversity including fish is a major challenge, globally. South Asian country, Nepal is home to 252 freshwater fishes including 18 endemic and 16 exotic species (Shrestha, 2019). Nepal contributes about 0.1% of the total earth's surface, and accounts for 1.38% of the global freshwater fish (Fricke et al., 2023). The Koshi basin of Nepal lies within the biodiversity hotspot of the eastern Himalayan region (Shrestha et al., 2009), where biodiversity research becomes crucial. Dudhkoshi of Koshi basin is one of the least explored rivers regarding fish diversity.

We explored fish diversity status of this river incorporating species composition, diversity indices, and relative abundance, and also endeavored to reveal the conservation status of its ichthyofauna for the first time. Fish sampling was carried out using cast- and gill-nets with the assistance of local fishermen. A total of 22 species belonging to 13 genera, eight families, and three orders were collected. Cypriniformes and Cyprinidae were the dominant order and family, accounting for 77.27% and 36.36%, respectively. *Schizothorax richardsonii*, *S. progastus*, *Labeo dyocheilus*, *Barilius bendelisis*, *B. barila*, *Glyptothorax pectinopterus* and *Psilorhynchus pseudecheneis* were the most abundant (from highest to lowest) species and *Botia dario*, *Channa barca*, *Eutropiichthys murius*, *Garra annandalei*, *Puntius sophore* and *Schistura multifasciata* were the occasional (rare) species. The fish diversity status of Dudhkoshi River was medium ($H'=1.31$). Eighteen species were Least Concern (LC), two species were (DD), and one species was NT and one species was VU. *Neolissochilus hexagonolepis*, *Psilorhynchus pseudecheneis*, *Schizothorax progastus* and *S. richardsonii* had been proposed for legal protection in Nepal (NRDB).

To appreciate more generalized inferences about the fish diversity status of Dudhkoshi River, a comprehensive study integrating more seasons (e.g. winter and rainy) is highly recommended for future study.

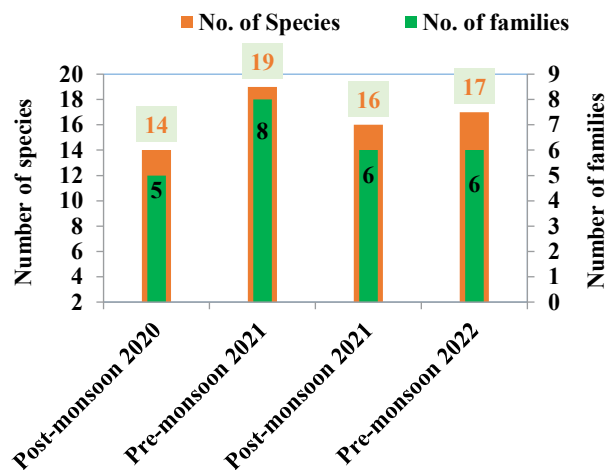


Figure 1: Number of fish species and families recorded in two seasons in Dudhkoshi River

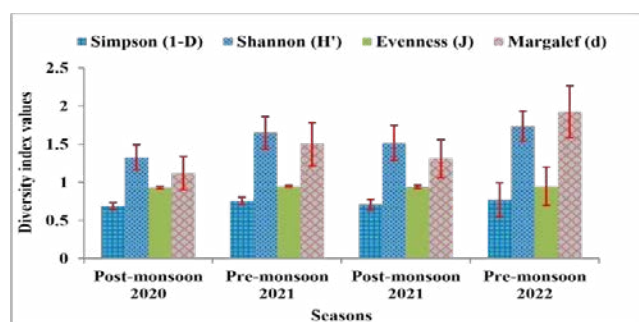


Figure 2: Fish diversity indices of the Dudhkoshi River