J. Exp. Zool. India Vol. 23, No. 2, pp. 1421-1430, 2020 | www.connectjournals.com/jez | *ISSN 0972-0030*

ASSESSMENT OF FISHERY RESOURCES IN TRANS HIMALAYAS OF UNION TERRITORY LADAKH REGION (INDIA) USING GEOGRAPHICAL INFORMATION SYSTEM

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(Received 23 February 2020, Revised 23 April 2020, Accepted 30 April 2020)

ABSTRACT : Fishery resources of the region were assessed and resource maps were prepared using remote sensing and Geographical Information System (GIS). The total lentic and lotic water resources estimated were 132484.7 km2 and 5192.7 km, respectively. A total of 26 fish species were recorded from the rivers of the Ladakh division. Of which 23 fish species belonging to 4 families and 14 genera from Indus, 11 fish species belonging to 3 families and 9 genera from Zanskar and 12 fish species belonging to 2 families and 8 genera from Shayok river. It was also observed that variation in water quality parameters influences the distribution and abundance of fish species. Schizothoraichthys, Diptychus (Cyprinidae) and Triplophysa (Nemacheilidae) constitute the major fishery of the rivers.

Key words : Fishery resources, ichthyofaunal diversity, Union Territory Ladakh, GIS.

INTRODUCTION

India is one of the mega biodiversity hotspots in the world and occupies the 9th position in terms of freshwater mega biodiversity (Mittermeier *et al*, 1997). The country is bestowed with vast and varied coldwater/hill fishery resources that are spread over the Himalayan and peninsular regions as upland rivers, streams, high and low altitude natural lakes and reservoirs. Mahanta and Sarma (2010) reported that there are around 8,243 km long streams and rivers, 20,500 ha natural lakes, 50,000 ha of reservoirs, both natural and manmade and 2500 ha brackish water lakes in the high altitude regions. High-velocity waters, rapid cascades, deep pools and substratum comprising bedrock, boulder, sand, etc are the characteristic features of the coldwater rivers and hill streams. These enormous and diverse water resources in the uplands harbor rich ichthyofaunal diversity comprising of indigenous and exotic fish species viz., cultivable, non-cultivable, sports and ornamental (Sehgal, 1999; Mahanta and Sarma, 2010). The low productivity and higher degree of resource seasonality and unpredictability give rise to a unique diversity of aquatic life which is usually prone to many types of disturbances (Bhatt *et al*, 2012; Jena and Gopalakrishnan, 2012; Singh *et al*, 2014).

Fish and fisheries study has had an extended and distinguished history in India (Hora, 1951), but due attention has not been paid to fish conservation here. A large proportion of freshwater fishes are under threat owing to the fragile nature of their habitats and the pressure, they face from human activities in all parts of the world (LeCren, 1964; Maitland, 1993; Primack, 1998). In India, there are an estimated 670 species of freshwater fishes and 227 of these are threatened (Anonymous, 1997). The coldwater fisheries harbor 258 species belonging to 21 families and 76 genera. Out of these, the maximum of 255 species is recorded from North-East Himalaya, 203 from the west and Central Himalaya and 91 from the Deccan plateau (Vass and Gopakumar, 2002; Vass, 2005; Mahanta, 2010). The high percentage (35%) of endemic species being threatened is perhaps due to their localized distribution with other man-induced threats (Primack, 1998). In India, freshwater fishes have been poorly studied than their marine counterparts and whatever information is available from the studies is limited to commercial fishes only.