



## Himachal recreational fisheries, current status, challenges and future directions

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### Abstract

Himachal Pradesh is a great destination to fulfil fishing fantasies of every fisher and is prime destination for anglers in India. The origin of angling in Himachal Pradesh can be traced back to colonial era. Angling became favourite pursuit of the Britishers during nineteenth century and it was mainly for this reason that exotic species viz. brown and rainbow trout were transplanted in Indian rivers and streams. The introduced species of trout not only soon established in Indian waters but also bred and propagated fastly in view of rich oxygenated waters and ideal ecological condition of these rivers. Along with endemic mahseer (*Tor putitora*) the exotic trout (*Salmo trutta fario* and *Salmo gairdneri*) started offering excellent fishing to the European anglers. The literature is replete with records that Himachal Pradesh Rivers and streams provided exciting fishing to large number of sport lovers/ anglers and fishermen. Thomas (1897) brought a book "Rod in India" which incorporated his experiences of mahseer fishing in Northern Rivers. Later with more and more people getting interested in mahseer sport in view of unparalleled thrill it provides.

**Keywords:** recreation, fishery, Himachal Pradesh

### Introduction

A literature work of 12<sup>th</sup> century (1127 AD) pointing to the Significance of recreational fishery was Manasollasa written by King Someshwara in "Matsya Vinod" [1]. Negi testified that angling was popular during the times of Mughal empires [2]. Recreational fishery of the country seemed to have engaged the attention of British during the East Indian company rule. The recreational fisheries of the country that appeared during this period viz. "The Rod in India" by Thomas, "The Anglers handbook for India" by Cretin (1905), "Angler in India on Mighty Mahseer" by Dhu (1923).

Introduction of Brown trout in 1860's and rainbow trout in 1909 by British anglers in the streams of Himalaya was done [3]. The first attempt to introduce trout in Himalayan waters dates back to 1899, when Mitchell succeeded in bringing live eyed-eggs of brown trout from England and hatched them successfully in a hatchery in Harwan, Kashmir. The eyed eggs of the transplanted exotic brown trout were brought to Kangra and Kullu valley of Himachal Pradesh. The transplanted eggs were also hatched successfully in Mahili hatchery Katrain in 1909 and hatchlings produced were stocked in the streams of Kullu valley [4].

Two major trouts available in our waters are brown trout (*Salmo Trutta fario*) and rainbow trout (*Salmo gairdneri*). In the last three to four decades, however, a sharp decline was observed in the catches on account of multiple factors such as large scale road construction in the valleys followed by destruction of breeding and feeding grounds of the fishes, emergence of river-valley projects, rapid urbanization, fishing pressure and of course illegal and destructive means of fishing etc.

### Angling rules in Himachal Pradesh

The Licences for fishing in trout water in Kullu can be had

from senior Fisheries Officer Kullu. Licences can also have from the respective Fisheries officers stationed at Barot (Mandi District) and Chirgaon (Shimla District) for fishing in Uhl, Pabar and Beas.

For Mahseer licences are available from the Assistant Director Fisheries Pong Dam, Fisheries Officer, Khatiar, Harsar, Guglara, Nagrota Surian, Nandpur, Haripur, Dehra, Dadasiba and Barnali. Fishing for Mahseer is allowed with all type of baits. In case of Trout, only artificial baits are allowed. In Himachal Pradesh sport fishing banned from 1<sup>st</sup> June to 31<sup>st</sup> July. For trout fishing the ban is from 1<sup>st</sup> Nov to last day of February each year. While for Mahseer it's from 16<sup>th</sup> June to 15<sup>th</sup> August each year [6]. The tourism and fishery department are giving licensees to a specific stretch of river and there are restrictions on number of fish caught. Angling rules are liberal. Angler is permitted to catch six trout a day on each license; however a trout should not be less than 40 cm in size.

Fishing fees are nominal (Trout Rs. 100/- per day, stream wise, with artificial baits, Mahseer Rs. 40/- per day, Beat wise). The season for trout fishing is from 1 March to 31 October. In the lakes and rivers, fishing for species other than trout, is banned in the months June and July) [6]. For mahaseer and other river fish, the best months generally are those that have 'r' in their spelling January, February, March, April, September, October, November and December. Further based on scientific studies a clause has been incorporated in the H.P. Fishing rules under which minimum catchable size for mahseer has been increased from 300 to 500 mm or approximately 1.2 kg. giving opportunity to each female mahseer to breed at least once before being caught. Since incorporation of this clause in the Fisheries Act during 1998 the average size of mahseer has increased from 1.2 to 1.7 kg in Pong dam and 0.6 to 0.9 kg in Gobind Sagar reservoir.

### Area for angling

Himachal Pradesh with its perennially snow fed rivers and their numerous tributaries is indeed an anglers paradise. Trout can be hooked in river Beas and its tributaries viz. Tirthan and Parwati in Kullu, Lambadag in Mandi and Baspa in Kinnaur District. The best spot for angling are Rohru in Pabbar valley, Barot, Chirgaon, Sari Marog, Chamba Pattan etc. Mahseer fish is available in rivers and tributaries of Kangra valley including pong wetland. Sari Marog, Chamba pattan and Kuru village etc. are famous fishing spots for Mahseer [6].

### Angling activities in Himachal Pradesh

In an effort to attract foreign tourist Air India was reported to have sponsored two studies on mahseer fishing in India. It was a survey of the River Beas undertaken by Trek –n-Tour Himachal Pradesh, located at Palampur in H.P. with aim of developing Mahseer fishing for tourism.

Himachal angling association Palampur is very active in promoting angling tourism. The Himachal Pradesh angling association is also reported to be very enthusiastic in promoting sport fishery ethics among anglers, in making fishing gear available to its member in holding community activities like, seminar fishing competition and educational camp encouraging people involved in conservation method by granting awards for successful performance and in promoting national and international tourism [7].

### Threat and recent status of Mahseer

In recent years due to their proximity to human intervention, mahseer stock is threatened with multifaceted dangers posed by construction of series of dams, barrages/ weirs across the rivers on one hand and over-exploitation on the other.

- 1. Uncontrolled fishing:** While uncontrolled fishing and destructive fishing devices have adversely affected the riverine population, the construction of dams are acting as physical barrier to this migratory species, tending to prevent their access to their usual breeding and feeding grounds.
- 2. Construction of dams:** Dams interrupt the river continuum and block the longitudinal connectivity of rivers. They also generate a complex web of impacts which affect the physical and biological components of the riverine environment. The denial of migration also results in permanent and irrevocable eradication of fish stock ranging from depletion to complete extermination. The ever-diminishing catches of mahseer from the river Satluj, Giri, Beas, Chenab and their tributaries clearly speaks the effects caused by the construction of Pandoh, Chamera, Pong, Bhakra & Giribata barrages. Regardless of their height, weirs and dams constitute barriers to breeding migration of mahseer.
- 3. Construction of hydroproject:** Further, mahseer population is also affected by morphological modifications resulting from completion of river valley projects. These include change in slope, river-bed profile, submersion of gravel zones or riffle section as well as destruction of riparian vegetation and changes in tropic regimes. Most of the negative factors affect upper parts of the streams where lacustrine conditions are superimposed on the river. Downstream, the hydrological conditions get severely altered through reduction of water discharge. The adverse conditions of the flow can extend over many kilometers downstream

of the obstruction so that fish passages become difficult.

- 4. Indiscriminate catch:** Indiscriminate hooking, netting, dynamiting and electrocuting have also greatly affected the mahseer availability in the State's rivers and streams. In the pursuit of more and more catches, even the declared State's sanctuaries have not been spared by the poachers. Further, due to reduced availability of large mahseer in the streams, fishing pressure on juveniles is on the increase with the result that streams earlier assuring a bountiful harvest have started giving a dismal picture. The various anglers' Associations have painted a similar picture of other States of the country. Once teeming with thousands of mahseer, streams like Giri, Ashwani, Binwa Neugal, Beas, etc. the returns are sharply declining, raising the number of disgruntled anglers each year.
- 5. Overproduction of other species:** The sharp decline in mahseer catches has also been noticed in State's reservoirs. Gobind Sagar reservoir- known earlier as store-house of mahseer has recently become a Silver carp reservoir. As per available data mahseer used to constitute as high as 9% of the total catch during 1984-95 which has plummeted to a level of 1% during 1999-2000 maintained. Pong reservoir however has steady catch of mahseer during the last two decades ranging from 60-90 tonnes. The mahseer catches during 1999-2000 were 90 tonnes accounting 20% of the total catch. Further, the average size of mahseer in Pong reservoir has ranged from 1.5 to 1.7 kg during the last 15 years. Against this the average size of mahseer in Gobind Sagar declined from 1.9 to 0.6 kg. during the last 15 years barring the last two years when it has increased to 1.2 kg. in view of number of management efforts by the department.
- 6. Increase in water pollution:** The main problems are pollution (garbage, industrial and domestic sewage, and pesticides), the change in water level, a decline of fish stocks caused by high fishing effort, dam construction, unsustainable practices (such as capture of individuals below maturity size), and conflicts between commercial and recreational fishers, fishers vs the environmental police, and professional artisanal vs illegal fishers (Paula Gênova, personal observation).

### Socioeconomic importance of recreational fisheries

Recreational fisheries is largely recognised as a socio-economically important activity in countries, such as the USA and Canada [8], but is not fully recognised by governments in many emerging economies, including India [8], despite its growing reputation as an international fishing destination. Thus, recreational fisheries remain mostly unmanaged or mismanaged in these regions. Amongst 22 European countries there are an estimated 21.3 million anglers, with an estimated expenditure on recreational fishing in 10 of the countries in Western Europe where data were available in excess of \$US10 billion. In the USA, 29.9 million anglers paid \$US447 million for fishing licenses in 1996, down from \$US30 [9].

Recreational fishery in Himachal Pradesh can improve the socio-economic condition of the people staying in remot area as RF is directly linked with tourism sector. A small scale fisheries can be connected with tourism to make fish tourism. It is developed in Italy and helped to reduce

significant unemployment in fisher community. Such model can also be developed in our state also. People of these area can make anglers hut and can rent room and other items required for angling. Another important recreational fishery activity related to tourism is fish tournament and can help to generate significant revenue for host communities by attracting both anglers and attendees.

Angling activities can help the scientific communities as certain sites are not approachable by the scientist so far. So a collaboration between anglers, scientist and local community with the help of smartphone application. This can be helpful to collect various data and revenue generated through RF can be used to support conservation projects.

### **Conclusion**

Several conservation issues can be created due to mismanagement of recreational fishery such as stock exploitation, selective harvest of specific species, habitat destruction, fish mortality or diseases. So a great care should be taken for licencing of anglers, boats, closed season and catch size. Despite of so many challenges recreational fishery can be a powerful tool for both sustainable management of resources as well as upliftment of socioeconomic condition of the area.

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