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**Rishabh Shukla**  
Department of Zoology &  
Applied Aquaculture,  
Barkatullah University  
Bhopal, Madhya Pradesh,  
India

**Sneha Sharma**  
Department of Zoology &  
Applied Aquaculture,  
Barkatullah University  
Bhopal, Madhya Pradesh,  
India

**Abhilasha Bhawsar**  
Department of Environmental  
Sciences & Limnology, Bhopal,  
Madhya Pradesh, India

**Praveen Tamot**  
Govt. MLB Girls College,  
Bhopal, Madhya Pradesh,  
India

## Assessment of socio-economic status of the Kolar River fisher communities in Sehore district, Madhya Pradesh, India

**Rishabh Shukla, Sneha Sharma, Abhilasha Bhawsar and Praveen Tamot**

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### Abstract

Fisheries play an important role in supporting livelihoods and providing food for over one billion people around the world. The study aims to better understand fishermen's livelihood patterns in the Kolar River basin, a tributary of the Narmada River in Madhya Pradesh, India. The current study was conducted from September 2020 to June 2022 to assess the livelihood status of the traditional fishing community of the Kolar River adjacent to the Bhopal region. During the study period, data were collected from 14 villages as well as Veerapur, Amdoh, Lawakhadi, Jholiyapur, Jharpipli, Lohapathar, Magarpath, Saras, Dabri, Balondiya, Bawadia, Khaamkhera, Sallikhera, and Jivantall near the Kolar River stretch via a well-structured questionnaire survey. A total of 200 fishermen were chosen at random to be interviewed.

The findings of the study revealed some fascinating information. The majority of the fishermen ranged in age from 24 to 55, with 70% being joint and 30% nuclear. Almost 71% of the fishermen were illiterate, relying on the village government school and hospital (which served as a secondary school for the rest of the population). To catch fish, they use trap gill nets and cast nets. According to the investigation, the majority of the houses (65%) were Kaccha, with Pakka houses housing 27% of the people. It was discovered that fish farmers were dealing with a variety of issues, including social, economic, and technical issues.

**Keywords:** Kolar River, fisherman community, livelihood pattern, and socioeconomic status

### 1. Introduction

Rivers have provided critical life support generations to the great civilizations that arose on river banks, and they continue to do so where their ecology and biodiversity are protected and conserved. 2017 (Mohite and Samant). Madhya Pradesh (the heart of India), like many other inland states in India, has abundant inland water resources that can be used for fisheries and fish culture. The Madhya Pradesh Department of Fisheries reports that the state has 3.35 lakh hectares of tanks and ponds and 17088 kilometres of rivers and canals. There are 53 fish hatcheries in the United States. The total amount of fish produced is 61581.49 tonnes. There are 58,528 members in the 1681 fisher cooperatives. Fishing plays an important role in supporting livelihoods worldwide and also forms an important source of diet for over one billion people. Further, inland fisheries are of particular importance to the rural poor accounting for about 15% of total global employment (FAO, 2000) [2]. Socio-economic status (SES) is a measure of an individual's or family's economic and social position in relation to others, based on various variables responsible for that like income, education, occupation, family affluence, physical assets, social position, social participation, caste, muscle power, political influence, etc. (Reza *et al.*, 2015) [3].

During the study period, the current study was carried out on the Kolar River basin to investigate the livelihood status of the Kolar River's traditional fishing community adjacent to the Bhopal region. This area is critical for alleviating rural poverty and supplying food to poor fishing communities. A diverse range of fish culture systems would be possible if fish farmers used improved technology, but the majority of fishermen in this area continue to use traditional fishing methods. However, the socioeconomic status of this fishing community is deplorable, and fish production is decreasing on a daily basis. Given the foregoing, the current study was agreed upon to assess the livelihood status and constraints faced by the

**Corresponding Author:**  
**Rishabh Shukla**  
Department of Zoology &  
Applied Aquaculture,  
Barkatullah University  
Bhopal, Madhya Pradesh,  
India

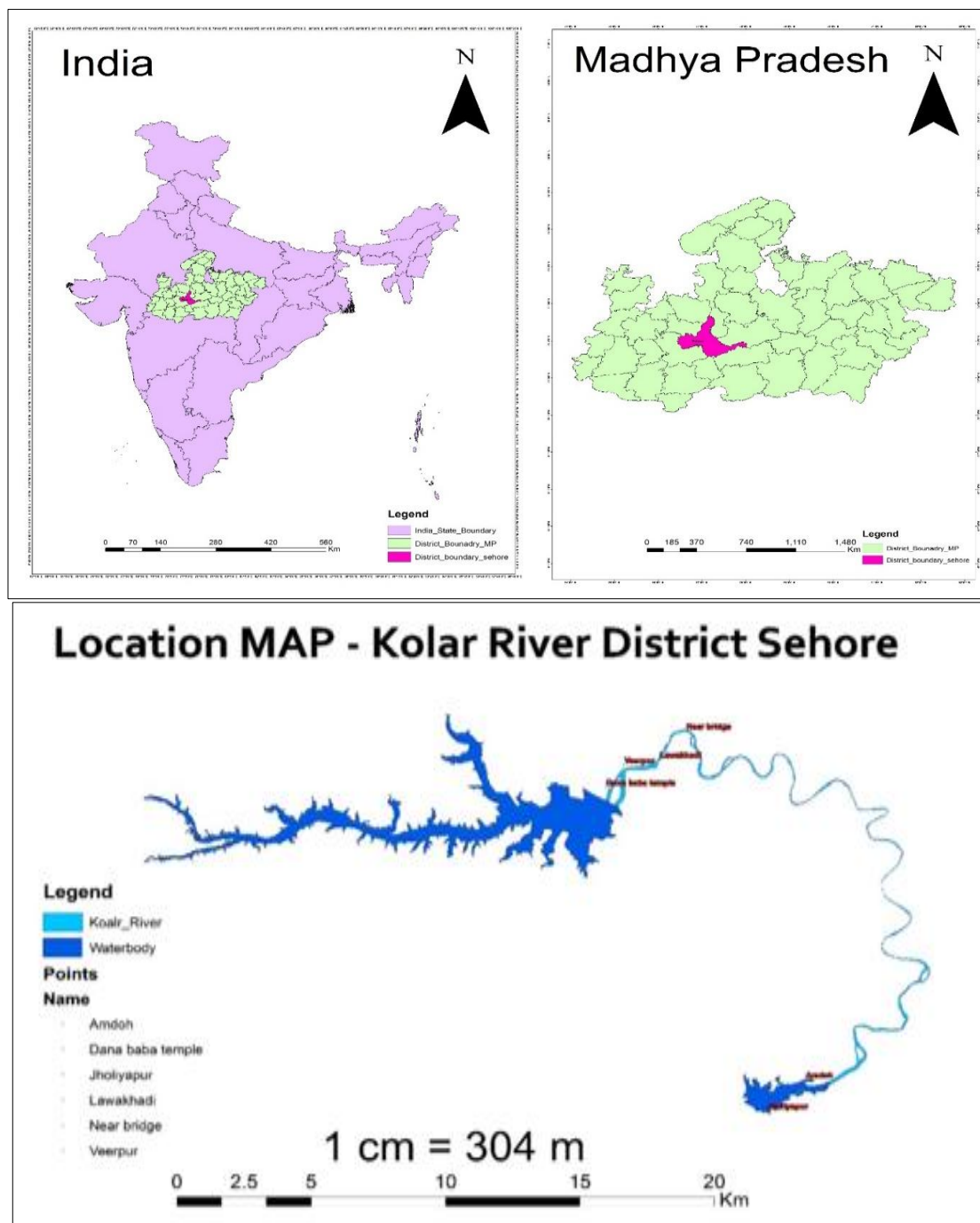
fishermen in the study, therefore the Kolar River stretch was chosen for the study in order to determine the socioeconomic status of the fish farmers. The study's goal was to collect information on the livelihood conditions of fishermen communities along a stretch of the Kolar River that would be useful in understanding the population's status and suggesting actions to improve their situations.

## 2. Material & Methods

### 2.1 Study area

The current study was conducted on the Kolar River, one of Madhya Pradesh's famous rivers. It is located 35 kilometres

southwest of the lake city of Bhopal, at the latitude and longitude of 21°14'N and 79°10'E. The Kolar River is an important tributary of the Narmada River. The river rises in the Sehore district's Vindhya Range and flows south-westerly to meet the Narmada River near Nasrullah Ganj in Madhya Pradesh's Sehore district. It has a total length of 101 kilometres and a drainage area of 1,347 kilometres. The river is the lifeline of the people who live in nearby villages, primarily for domestic purposes. Fishing for livelihood and food is a common practice in the local community. The fish diversity of the river and the livelihood of the fisherman is still unexplored.



**Fig 1:** Showing location map of the study area (Kolar River)

### 2.2 Sampling frameworks

The study was designed to assess the socioeconomic status and mode of subsistence of Kolar River fisher communities in the Sehore district. A seasonal field survey was conducted

to collect the necessary data using a random selection method. A total of 200 fishermen households in 14 villages along the river basin were surveyed. All the data were cross-checked to ensure the accuracy of the information collected

from the respondents. The Focus Group Discussions were held to identify problems and collect fishermen's recommendations on the problems identified in order to develop effective solutions. Regional fisheries officers also provide the necessary information on the socioeconomic conditions of fishermen. (Das *et al.*, 2015) [4].

### 3. Result & discussion

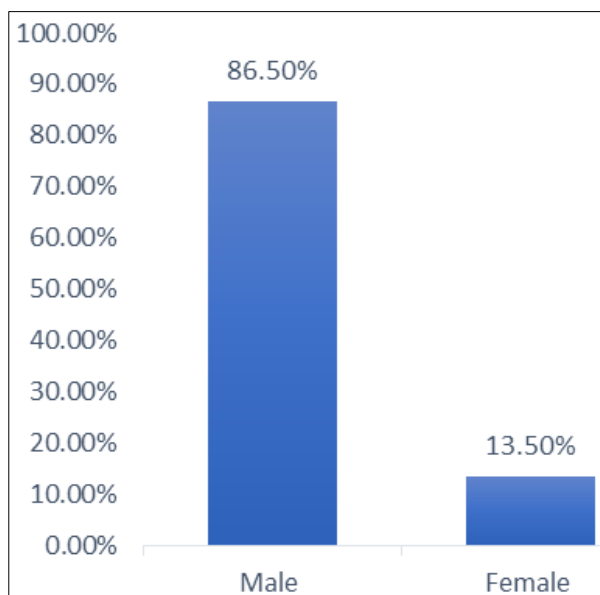
A detailed analysis is made of these parameters and presented in this section:

#### 3.1 Gender distribution

Gender distribution is an important factor in determining social status in any community. During the current study, it was discovered that 86.5% of male respondents and 13.5% of female respondents were actively involved in fishing at Kolar River. Similar results were found by Yadav *et al.* (2020) [5], who observed that males made up a higher percentage (82.8%) than females (17.2%) in their study in Ratnagiri, Maharashtra. Emaldarani & Kanmani *et al.*, (2019) [6]. Also reported that men and women participated in fishing at 94% and 6%, respectively, during their study in Tamil Nadu.

**Table 1:** Showing the age distribution of fishermen at Kolar River

S. No.	Gender distribution	No. of respondent	Percentage%
1.	Male	173	86.5%
2.	Female	27	13.5%
	Total	200	100%

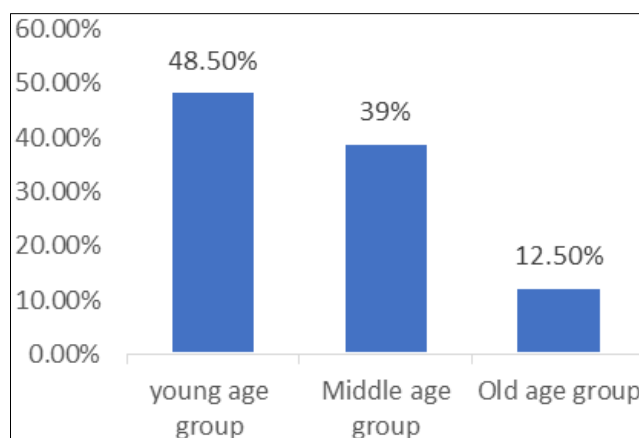


#### 3.2 Age distribution

One of the determining factors of an individual's ability to work is age. The age distribution in the current study was done in three classes, and the findings revealed that 48.5% of the respondents belonged to the young age group of 18 - 35 years, 39% of them belonged to the middle age group of 35 - 55 years, and 12.5% of the fishermen belonged to the old age group of 55-75 years during the study at Kolar River. S. Jayaselvi (2016) [7]. Discovered similar results in their Tiruchendar study. She stated that the majority of the fishermen were under the age of 50. And (Rajadurai and Manickavasagam (2019) [8] also discovered that most of the fishermen (42%) belong to the age group of 31 to 40 years in Thoothukudi district, Tamil Nadu.

**Table 2:** Showing the age distribution of fishermen at Kolar River

S. No.	Age distribution	No. of respondent	Percentage%
1.	young age group (18 to 35 years)	97	48.5%
2.	Middle age (35 to 55 years)	78	39%
3.	Old age (55 to 75 years)	25	12.5%
	Total	200	100%

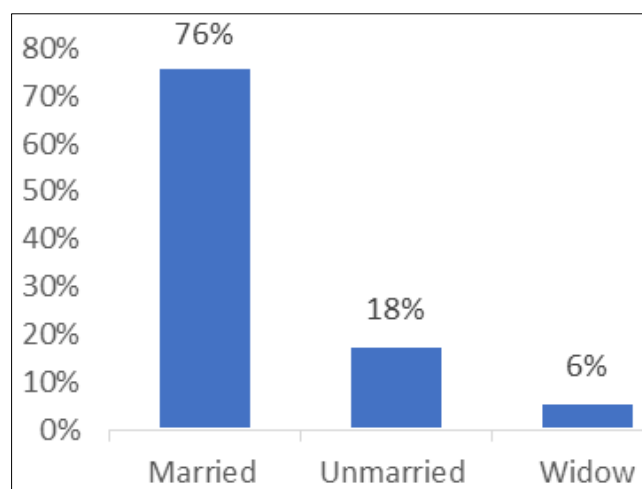


#### 3.3 Marital status

The marital status of fishermen was classified into three categories in the current study. According to the findings, the majority of the fishermen (76%) were married, while 18% were unmarried and 6% were widowed at Kolar River basin. Similar findings were observed by Ramesh and Deshmukh (2020) [9] during their study in the Paithan area, Aurangabad, (M.S.), India, and reported that 87% of total respondents married and 13% were unmarried. Yadav *et al.*, (2020) [5] also found that the majority of fishermen (82.8%) were married, 14.1% were unmarried, and 3.1% were widowed in their study in Ratnagiri, Maharashtra.

**Table 3:** Showing the marital status of fishermen at Kolar River

S. No.	Marital status	No. of respondent	Percentage%
1.	Married	152	76%
2.	Unmarried	36	18%
3.	Widow	12	6%
	Total	200	100%



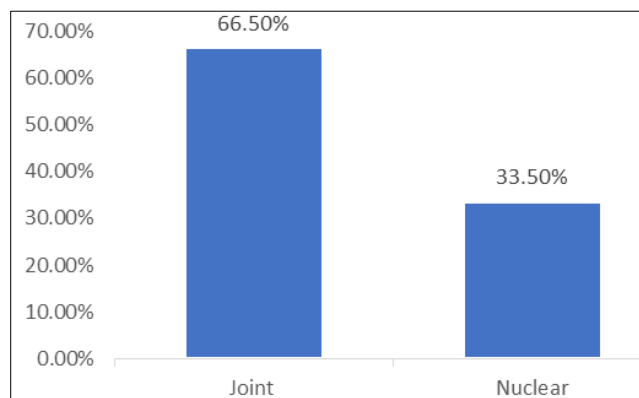
#### 3.4 Type of family

The type family is important because it plays an important role in the decision-making a man to work and save money. The type of family was divided into two parts joint & nuclear family. During the present study, it was found that

66.5% of fishermen's families were joined and 33.5% family were nuclear families. (Bhandarkar *et al.*, 2017) <sup>[10]</sup>. investigate About 36% of the fish farmers lived in a nuclear family and the rest (64%) in a joint family in Kabir Dham district, Chhattisgarh state, India.; and (Mathew J., and Joseph R.2020) <sup>[11]</sup> also found that 21.6% fishermen family were jointed and 78.4% family were nuclear family during their study in Kerela.

**Table 4:** Showing type of family of fishermen at Kolar River

S. No.	Type of family	No. of respondent	Percentage%
1.	Joint	133	66.5%
2.	Nuclear	67	33.5%
	Total	200	100%

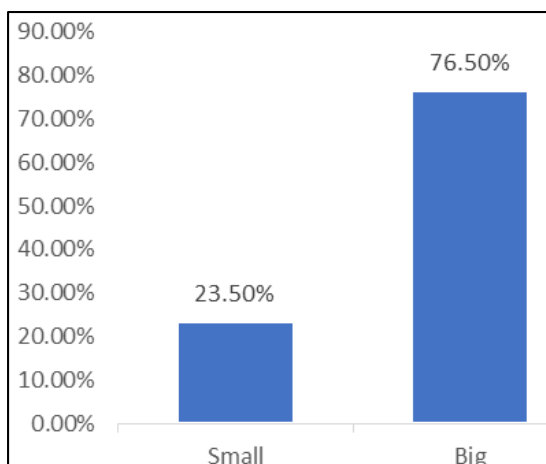


### 3.5 Family size

On the basis of family size, the fishermen were classified into two categories: Small (Five or less than five members) and big (More than five members in family). Large numbers of families have an impact on the direct economic status of fishermen. In the present study, the highest percentage was obtained in the joint family (76.5%) and the lowest percentage was obtained in the nuclear family (23.5%). Rajadurai & Manickavasagam 2019) <sup>[8]</sup>. Found that Most of the fish farmer (56%) belonged to big family in Thoothukudi district, Tamil Nadu.

**Table 5:** Showing the family type of fishermen at Kolar River

S. No.	Family size	No. of respondent	Percentage%
1.	Small (Five or less than five members)	47	23.5%
2.	Big (More than five members in the family)	153	76.5%
	Total	200	100%

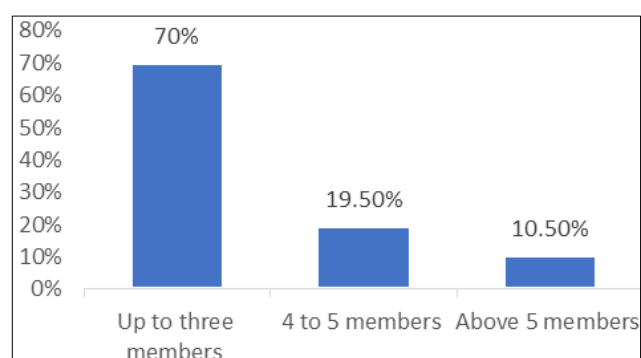


### 3.6 Number of household earners

The number of household earners is classified into three divisions like one earner, two earners, and three earners. In the present study, 70% of the household up to 3 members contributed to the income of the family. 19.6% of household earners up to 4 to 5 members contributed to the family income and 10.5% of the households, had more than 5 members contributing to the total family income. Mathew, & Joseph 2020) <sup>[11]</sup> supports the present findings during their study in Kerela, about 52.81% of the households, up to 3 members contributed to the income of the family.

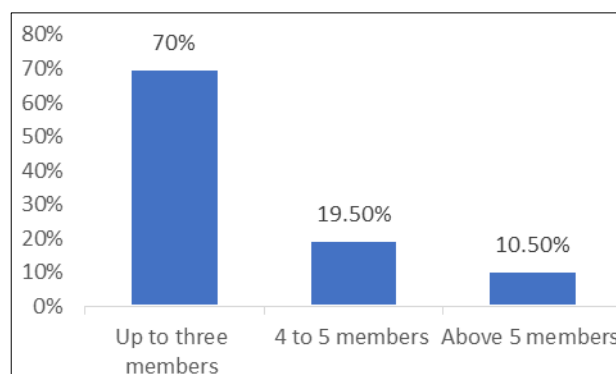
**Table 6:** Showing the numbers of household earners of fishermen at Kolar River

S. No.	Number of household earners	No. of respondent	Percentage%
1.	Up to three members	140	70%
2.	4 to 5 members	39	19.5%
3.	Above 5 members	21	10.5%
	Total	200	100%



### 3.7 Occupation status

Occupation status was divided into three parts, most of the fishermen were dependent on fisheries. In the present study, it was observed that 51.5% of villagers are fishers, 34% were dependent on agriculture and 14.5% people were involved in other businesses. Similar values reported by Yadav *et al.*, (2020) <sup>[5]</sup> in Ratnagiri (Maharashtra) and found that 50% of the people were dependent on the fisheries, 35.9% was fishing vessel crew members followed by 12.5% was fresh-dry fish seller/fish dryers and 1.6% peoples were involved in other business, and Dheeraj Kumar *et al.*, (2018) <sup>[12]</sup> also over served that 34.44% of people of the village are only concerned about fishing practices and about 20.66% of people were working as a vegetable seller including fishing practices.



**Table 7:** Showing the occupation status of fishermen at Kolar River

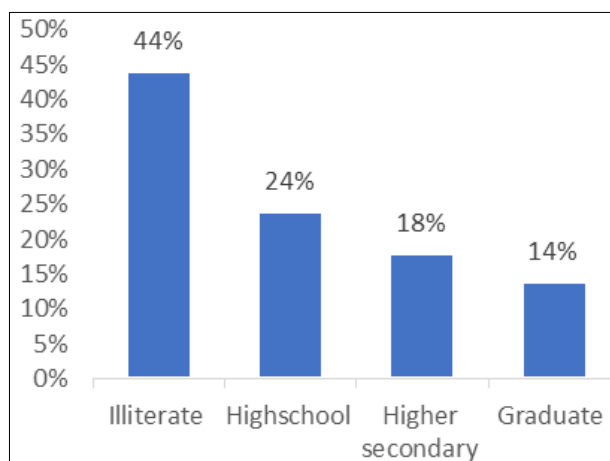
S. No.	Occupation status	No. of respondent	Percentage%
1.	Fishing	103	51.5%
2.	Agriculture	68	34%
3.	Other business	29	14.5%
	Total	200	100%

### 3.8 Education status

Education is an important factor in the development of the personality of individuals. There were maximum people Illiterate (44%), people who had passed high school (26.5%), 17% who had passed higher secondary, and 12.5% who had passed graduation. The literacy rate was not satisfactory in the communities of Kolar River. From the survey it was found that the literacy rate is low, only 57% of household members are literate. Ramesh, & Deshmukh (2020) <sup>[9]</sup> studies in Paithan area, and Parashar *et al.*, (2016) <sup>[13]</sup> in Narmada River obtained literacy rate 80% and 57%, respectively.

**Table 8:** Showing the education status of fishermen at Kolar River

S. No.	Education status	No. of respondent	Percentage%
1.	Illiterate	88	44%
2.	Highschool	53	24%
3.	Higher secondary	34	18%
4.	Graduate	25	14%
	Total	200	100%

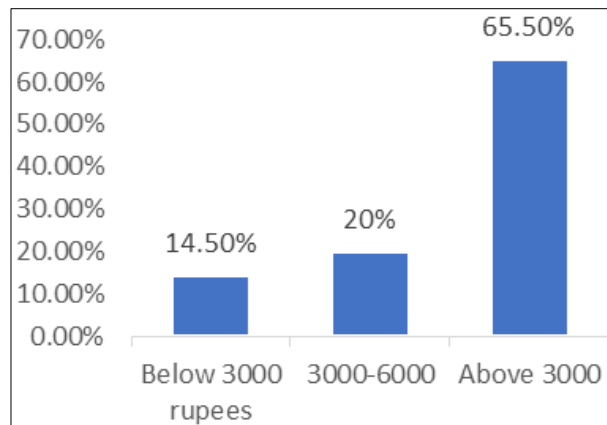


### 3.9 Income status

Income is an important factor that determines the standard of living of the people. The study shows that most of the respondent (65.5%) income of more than Rs.3,000, 20% of the respondents' monthly income is between Rs, 3,000 – Rs.6,000, and 14.5 percent of the respondents comes under the group below Rs,3,000 at Kolar River. Similar results find by Sethy & Nayak (2020) <sup>[14]</sup> in Odisha (46.8%) and Emaldarani. & Kanmani (2019) <sup>[6]</sup> in Tamilnadu (46%) They reported that most of the fisherman's income is around 5000 to 6000 per month.

**Table 9:** Showing the income status of fishermen at Kolar River

S. No.	Income status	No. of respondent	Percentage%
1.	Below3000 Rupees	29	14.5%
2.	3000-6000	40	20%
3.	Above 3000	131	65.5%
	Total	200	100%

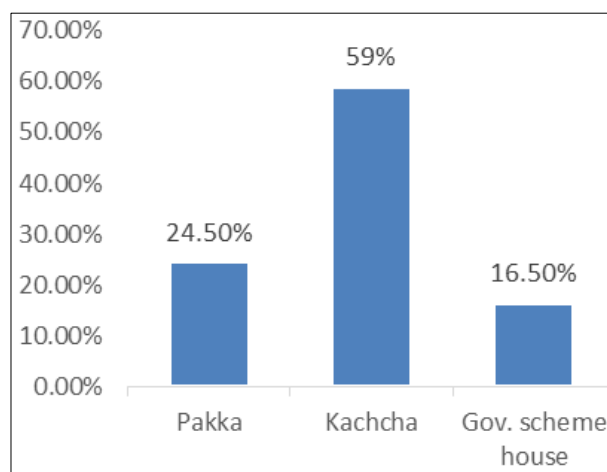


### 3.10 House conditions

Housing condition is one of the indicators of people's economic conditions. In the study area, there are three types of houses: mud houses (Kachcha) made of bamboo and tree leaves with mud floors and clay roof tiles, roof houses (Pakka) cemented and made of bricks, and only a few houses built by government schemes. It was discovered that kachcha made up 59% of the housing conditions for fishermen, followed by pakka (24.5%) and government schemes (16.5%) at Kolar River. Similar findings were investigated by Jayaselvi (2016) <sup>[7]</sup> discovered that 68% of respondents lived in tiled houses, 22% lived in terraced houses, and the remaining 10% lived in thatched houses. Parashar *et al.*, (2016) <sup>[13]</sup> also reported 73% live in Kutch houses (temporary houses formed with mud, bamboo, and khapra). On the other hand, 27% of the people are living in Pucca houses (permanent houses formed with bricks, sand, cement, iron rods, etc.)

**Table 10:** Showing the house conditions of fishermen at Kolar River

S. No.	House conditions	No. of respondent	Percentage%
1.	Tiled-roof house(pakka)	49	24.5%
2.	Mud house(kachcha)	118	59%
3.	Government scheme house	33	16.5%
	Total	200	100%



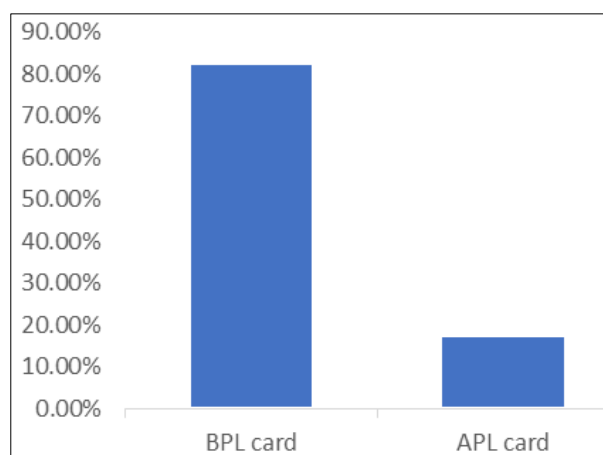
### 3.11 Economic status

The economic situation is measured by the ration card, In the current study, ration cards were divided into two categories: BPL (below poverty line) and APL (above poverty line) (above poverty line). According to the findings

of the current study, the majority of fishermen 82.5% had BPL cards, while 17.5% had APL ration cards. Similar results discovered by Bhandarkar *et al.*, (2017) <sup>[10]</sup> during their research in Kabir Dham district, Chhattisgarh, India, discovered that the majority of the fisherman used BPL cards. According to Santhosh *et al.*, (2015) <sup>[15]</sup> 87.1% of families fell into the APL category, while 12.9% fell into the BPL category. These findings are similar to those of the current study.

**Table 11:** Showing the economic status of fishermen at Kolar River

S. No.	Economic status	No. of respondent	Percentage%
1.	BPL(Rashan card)	165	82.5%
2.	APL(Rashan card)	35	17.5%
	Total	200	100%

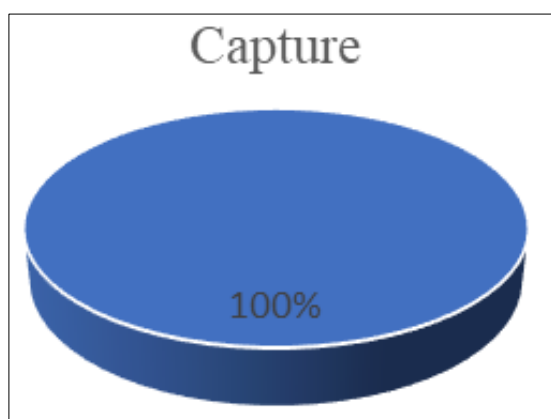


### 3.12 Fishing status

Fishing status is classified according to the type of fishing, the fishing vessel, and the number of fishing vessels. These parameters are critical for determining a fisherman's fishing status.

#### 3.12.1 Types of fishing

In the study area, 100 percent of fishermen were involved in capture fisheries operations for a living. According to the study, the fishers in the studied area were all involved in the capture fishery and all had mechanised fishing vessels. Ujjain and Patel(2011) reported in their study on the socioeconomic status of the fishermen community of Danti village in Valsad district, Gujarat, that 17.3% of fishermen had a local boat, 13.0% had a semi-mechanized boat, and 69.7% had a mechanised boat for fishing activity.



**Table 12:** Showing types of fishing of fishermen at Kolar River

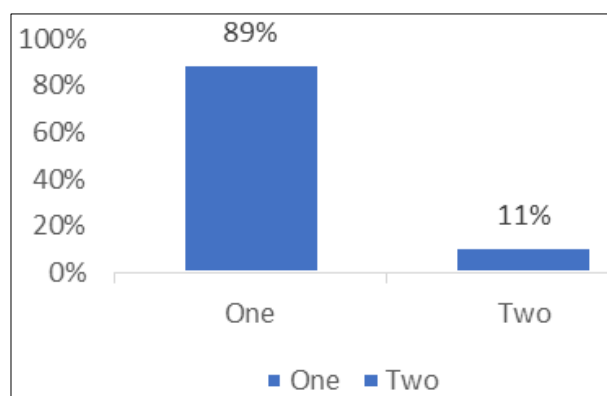
S. No.	Type of fishing	No. of respondent	Percentage%
1.	Capture	200	100
	Total	200	100%

#### 3.12.2 No. of fishing vessels

In the current study, it was observed that 89% of fishers were having only one fishing vessel while 11% of fishermen were having two fishing vessels. Similar finding observed by Yadav *et al.*, (2020) <sup>[5]</sup> during their study in Ratnagiri, Maharashtra, they observed that 92.9% of fishers were only one fishing vessel while 7.1% of fishermen were having two fishing vessels.

**Table 13:** Showing No. of fishing vessels of fishermen at Kolar River

S. No.	No. of fishing vessels	No. of respondent	Percentage%
1.	One	178	89%
2.	Two	22	11%
	Total	200	100%

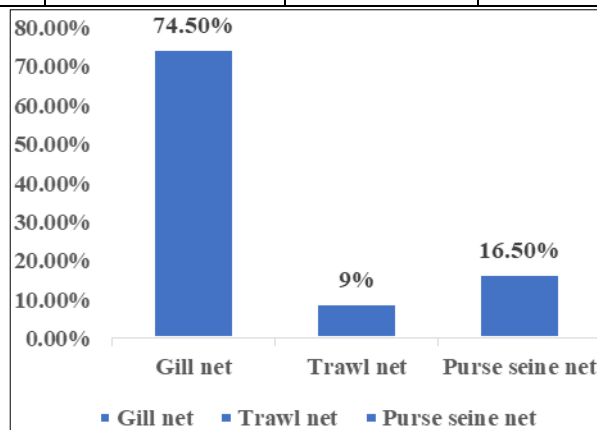


#### 3.12.3 Type of net for fishing

In the present investigation, it was found that 9% of fishermen were having trawl nets, 16.5% were with purse seine nets and the majority (74.5%) were using gill nets for fishing. Yadav *et al.*, (2020) <sup>[5]</sup> found similar findings during their study in Ratnagiri, Maharashtra mainly purse seine nets and trawl nets used for fishing.

**Table 14:** Showing type of net for fishing of fishermen at Kolar River

S. No.	Type of net for fishing	No. of respondent	Percentage%
1.	Gill net	149	74.5%
2.	Trawl net	18	9%
3.	Purse seine net	33	16.5%
	Total	200	100%





**Fig 2:** Showing socio-economic status of fisher communities at Kolar River basin, Sehore district, Madhya Pradesh

#### 4. Conclusion

Fishermen are an integral part of our society. Even though they provide excessive fish production, India is a major global fish supplier. The livelihood status of the Fishermen adjacent to the Kolar River was not satisfactory, and most of the fishermen are very poor. Majority of the fishermen belong to the age group of 18 to 35 years. All the respondents were Christians in the study area. Literacy rate was not satisfactory in the communities of Kolar. Most of the respondents are illiterate due to a lack of awareness of education. The majority of the fishermen were living in kachcha (mud houses). Few of them were living in pakka (tiled houses). Most of the respondent's income is more than Rs.6, 000 and they spend more on income for their daily needs. They live below the poverty line; a large number of respondents were having BPL cards. 51.5% of people are involved into fishing as their main occupation. Most of the fishermen were less perceptive about modern capture fisheries techniques still they are fishing with traditional gear and craft. The development and improvement of the livelihood status of the fishing community will ensure their good life as well as their better contribution to the nation.

#### 5. Recommendations

Some of the suggestions given below for their constraints:

- The Government must provide sufficient financial facilities at the low rate of interest to the fishermen.
- The Government must provide fishing equipment to the fishermen at a subsidized cost.
- The Government must be provided various health care facilities at a cheaper cost in the Kolar River basin.
- Provide training on an advanced method of fishing and organize awareness programs for fisherman communities.
- Provide marketing facilities.

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