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Socio-economic profile of inland fishermen and fish farmers of Telangana state

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Abstract

The study was conducted in six districts of Telangana state to analyse the profile characteristics of respondents (fishermen and fish farmers). The research employs an ex-post facto research design, collecting data from 240 fishermen and 60 fish farmers across six districts. Personal interview method was used to collect data and appropriate statistical tools were applied to analyse the data. The majority of fishermen were middle-aged (47.08%) and illiterate (49.58%), engaging in Fishing + Agriculture labor + Agriculture (33.33%), with medium fishing experience (40.83%) and low income (52.50%). They exhibited low extension contact (46.67%) and low innovativeness (40.00%), with medium economic motivation (47.08%) and medium group cohesiveness (40.00%). Fish farmers, also mostly middle-aged (46.67%), were educated up to high school (31.67%), involved in Fish farming + Agriculture + Livestock (56.67%), with low fish farming experience (45.00%) and medium income level (38.33%). They displayed high economic motivation (53.33%) and high market orientation (50.00%), with a significant portion owning ponds (90.00%) of more than 0.5 hectare in size (35.00%).

Keywords: Profile characteristics, fishermen, fish farmer, inland fisheries, Telangana state

Introduction

The fishery sector in India holds significant economic importance, boasting varied resources and vast potential. As the world's 3rd largest fish producer and 2nd largest in aquaculture, after China, it is considered a sunrise sector poised to play a pivotal role in the Indian economy. Recent trends indicate a shift from marine to inland fisheries, with the latter contributing substantially, from 36% in the mid-1980s to 70% presently.

Employing approximately 25 million individuals directly and twice that number along the value chain, fisheries provide livelihoods while also addressing hunger and nutrient deficiencies as fish is a rich and affordable source of protein. India currently accounts for 8.00% of global fish production, with inland fisheries witnessing a transition to aquaculture over the past 25 years, now comprising approximately 76%.

Telangana, India's youngest state, emphasizes holistic development and inclusive growth. Fisheries, a vital traditional occupation, sustains around 5 lakh families in the state and serves as a significant food source. The state is endowed with 4,324 tanks covering 40.94% of its water spread area, along with 74 reservoirs constituting 31.56%.

Additionally, there are approximately 19,476 small tanks, covering 27.51% of the total water spread area. Aquaculture thrives on more than 2500 ha. Telangana's abundant human resources include 27.14 lakh individuals, predominantly fishermen, organized into about 4000 fishermen societies, with roughly 3 lakh members statewide (Telangana State Fisheries Department, 2019).

Telangana State's inland fisheries sector is a vital component of its socio-economic landscape, yet remains relatively underexplored in terms of understanding the profile characteristics of its fishermen and fish farmers. This research aims to fill this gap by comprehensively analyzing the demographics, occupational patterns, socio-economic status, and cultural dynamics of inland fishermen in the region.

Materials and Methods

The Telangana state was chosen as the locale of the study. The existing 31 districts of the state are divided into three nearly homogeneous strata (each stratum with a given a number of districts 10-11-10) based on climate, rainfall, soil quality, resource spread, intensity and diversity of fisheries and aquaculture activities. For sampling, two districts from

each strata were selected in consultation with the Department of Fisheries. Thus six districts were selected for study. Karimnagar, Nizambad, Medak, Wanaparthy, Mahabubabad and Yadadri Bhuvanagiri districts were selected. Forty fishermen were selected from each of the selected districts purposively based on availability of aquatic resources. Thus, thus constituting a total of Two hundred and forty fishermen. Ten fish farmers were selected using convenience sampling from each district. Thus, the selected second set of sample constituted a total of sixty fish farmers. Ex-post facto research design was adopted in this study. The data was collected with the help of pretested interview schedule. The statistical methods and tests such as frequency, percentage and quartile deviation technique were

used for the analysis of data.

Results and Discussion

1. Age

According to the findings presented in table 1, it is evident that a significant portion of the fishermen, approximately 47.08 percent, fell within the category referred to as "middle age". This was followed by 28.33 percent of the fishermen categorized as "old age". The remaining 24.58 percent were classified under the "young age" category.

Among fish farmers, approximately 46.67 percent were classified as belonging to the "middle age" group, while 31.67 percent were categorized as "young age" and 21.67 percent fell under the "old age" category.

Table 1: Distribution of respondents according to their age

S. No.	Category+	Fishermen (n=240)		Fish farmer (n=60)	
		F	%	F	%
1.	Young age (Up to 35 years)	59	24.58	19	31.67
2.	Middle age (35-50 years)	113	47.08	28	46.67
3.	Old age (Above 50 years)	68	28.33	13	21.67
	Total	240	100	60	100

Based on the aforementioned table, it was evident that a significant majority of respondents were classified as being in the "middle age" category. This reveals that individuals within this age group have a more active role in fishing compared to those in the "young" and "old" age groups. The result are in accordance with the findings of Kabir *et al.* (2012) ^[5], Pandey and Upadhyay (2012) ^[8], Salim *et al.* (2013) ^[11], and Sujathkumar (2016) ^[7] respectively.

2. Education

The findings presented in table 2 demonstrate that among fishermen, nearly half of the respondents (49.8%) were categorized as "illiterate". Additionally, 16.25 percent had received education up to the "primary school" level, 10.83

percent had attained "high school education", 8.33 percent had completed "higher secondary school education", 7.50 percent were able to read but not write, followed by 4.58 percent who were "graduates", and 2.92 percent possessed the ability to "read and write".

These results indicate that a larger proportion of fishermen involved in fishing activities lack formal education. The fishing sector in the study area was predominantly comprised of individuals with limited education, with a significant portion being either illiterate or having completed only primary school education. This tendency may arise from their inclination to earn income at an early age, which often leads to limited educational opportunities.

Table 2: Distribution of respondents according to their education

S. No.	Category	Fishermen (n=240)		Fish farmer (n=60)	
		F	%	F	%
1.	Illiterate	119	49.58	0	0.00
2.	Can read only	18	7.50	2	3.33
3.	Can read and write	7	2.92	6	10.00
4.	Primary school	39	16.25	13	21.67
5.	High school	26	10.83	19	31.67
6.	Higher secondary school	20	8.33	11	18.33
7.	Graduate	11	4.58	9	15.00
8.	Post graduate & Above	0	0.00	0	0.00
	Total	240	100	60	100

Among fish farmers, approximately one third (31.67%) had obtained a "high school education", followed by 21.67 percent who had completed "primary school", 18.33 percent who had achieved a "higher secondary school" education, and 15.00 percent who were "graduates". Additionally, 10 percent possessed the ability to "read and write", while 3.33 percent had the ability to "read only". The results revealed that a significant proportion of fish farmers had a good level of education. It was particularly interesting to observe the participation of graduates in fish farming, indicating a positive outlook for the future growth of the fish farming

sector. This suggests that there is a promising scope for further development and advancement in the field of fish farming. Similar findings were reported by Jha (2009) ^[4], Jambhale (2014) ^[3], Sethi (2015) ^[13] and Parasuraman *et al.* (2016) ^[10] respectively.

3. Occupation

The findings presented in table 3 indicated that a majority (33.33%) of fishermen were engaged in a combination of activities involving "fishing + agriculture labor + agriculture". This was followed by "fishing + agriculture +

livestock" (26.25%). Additionally, 23.33 percent and 17.08 percent of respondents were involved in "fishing + agriculture + livestock" and "fishing only" respectively. It is evident that a significant number of respondents were involved in multiple enterprises, combining fishing with other agricultural or livestock-related activities. This trend

can be attributed to several factors, including risk reduction, improved income prospects, and enhanced livelihood security. The diversification of activities allows individuals to mitigate risks associated with a single enterprise and capitalize on the potential benefits of multiple income streams.

Table 3: Distribution of fishermen according to their occupation

S. No.	Occupation	Fishermen (n=240)	
		F	%
1.	Fishing only	41	17.08
2.	Fishing + Agriculture labour	56	23.33
3.	Fishing + Agriculture labour + Agriculture	80	33.33
4.	Fishing + Agriculture + Livestock	63	26.25
5.	Fishing + Other business / job	0	0.00
	Total	240	100

From the results presented in table 4, it can be observed that a majority (56.67%) of fish farmers considered their major occupation to be "fish farming + agriculture + livestock". This is followed by "fish farming + agriculture" (30.00%) and "fish farming + other business / job" (13.33%). Interestingly, none of the respondents reported sole fish farming as their primary occupation.

This observation may be attributed to the perceived high

risks associated with fish farming. Fish farmers often engage in diversified activities to mitigate potential losses and enhance their overall income. By combining fish farming with other occupations such as agriculture or other business ventures, individuals aim to reduce their dependence on a single income source and improve their resilience in the face of uncertainties inherent in the fish farming industry.

Table 4: Distribution of fish farmer according to their occupation

S. No.	Occupation	Fish farmer (n=60)	
		F	%
1.	Fish farming only	0	0.00
2.	Fish farming + Agriculture	18	30.00
3.	Fish farming + Agriculture + Livestock	34	56.67
4.	Fish farming + Other business / job	8	13.33
	Total	60	100

4. Fishing / Fish farming experience

A summary of the findings presented in table 5 reveals that 40.83 percent of fishermen had a medium level of fishing experience, followed by 34.58 percent with high fishing experience and 24.58 percent with low fishing experience. It is evident that a majority of fishermen possessed medium to high levels of experience in the fishing industry. This trend

was attributed to the fact that a significant proportion of fishermen belonged to the middle to old age groups, which naturally results in accumulating medium to high levels of experience over time. The experience gained by these fishermen through years of involvement in the fishing activities might have contributed to their proficiency, knowledge and skills in the field.

Table 5: Categorisation of respondents according to their fishing / fish farming experience

S. No.	Category	Fishermen (n=240)		Fish farmer (n=60)	
		F	%	F	%
1.	Low (< Q1)	59	24.58	27	45.00
2.	Medium (Between Q1 & Q3)	98	40.83	21	35.00
3.	High (> Q3)	83	34.58	12	20.00
	Total	240	100	60	100
Fishermen: Q1 (25 th percentile) = 17, Q3 (75 th percentile) = 25					
Fish farmer: Q1 (25 th percentile) = 4, Q3 (75 th percentile) = 5					

The results depicted in table 5 indicates that among the total fish farmers surveyed, the highest proportion (45.00%) had low fish farming experience. This was followed by 35.00 percent of fish farmers with medium fish farming experience and 20.00 percent with high fish farming experience. This distribution of experience levels might be due to the fact that in recent times, there has been an increasing demand for fish. As a result, many of the

respondents may have recently adopted fish farming as an enterprise, leading to a relatively low level of experience in the field. The emerging nature of fish farming as a business opportunity likely explains the higher proportion of individuals with lower levels of experience.

The findings of the study were in confirmation with the findings of Sivanesan (2014)^[15] and Sen and Roy (2015)^[12] respectively.

5. Annual income

The findings presented in table 6 illustrates that among fishermen, majority (52.50%) of the respondents reported low level of annual income. This was followed by 37.08 percent of respondents who reported a medium income level and a smaller proportion (10.2%) with a high income level. One possible reason for this income distribution might be the presence of a large size of fishermen cooperative

societies where profits were shared among all the members of the society. In such cooperative arrangements, the income generated from fishing activities was divided among the members, resulting in a more equitable distribution of earnings. Consequently, individual fishermen may receive a relatively lower share of the total income, resulting in a higher percentage of respondents reporting a low income level.

Table 6: Categorisation of respondents according to their annual income

S. No.	Category	Fishermen (n=240)		Fish farmer (n=60)	
		F	%	F	%
1.	Low (< Q ₁)	126	52.50	13	21.67
2.	Medium (Between Q ₁ & Q ₃)	89	37.08	23	38.33
3.	High (> Q ₃)	25	10.42	21	35.00
	Total	240	100	60	100
Fishermen: Q ₁ (25 th percentile) = 20,000/-, Q ₃ (75 th percentile) = 60,000/- Fish farmer: Q ₁ (25 th percentile) = 45,000/-, Q ₃ (75 th percentile)=1,25,000/-					

The findings presented in table 6 indicates that among fish farmers, 38.33 percent reported a medium level of annual income, followed by 35.00 percent with a high income level and 21.67 percent with a low income level.

These results reveals that a majority of fish farmers had medium to high annual income levels. One possible reason for this observation may be the adoption of scientific practices in fish farming. By incorporating efficient management practices, fish farmers enhanced productivity and yield, leading to increased income levels.

Additionally, the good market orientation of fish farmers also might have contributed to higher income levels. By identifying market demands, targeting specific market segments, and effectively marketing their fish products, fish farmers optimized their profitability. This market-oriented approach enabled them to fetch better prices for their produce and attract more customers, ultimately might have moved them to higher income groups.

6. Pond size: Upon examining table 7, it was evident that the majority of fish farmers (35.00%) were utilizing a pond area of 0.5 hectares and above for fish farming. Around 20.00 percent of fish farmers were managing pond areas ranging from 0.4 to 0.5 hectares, while 11.67 percent of fish farmers were managing pond areas between 0.3 and 0.4 hectares.

These figures suggest that a significant proportion of fish farmers have access to relatively larger pond areas for their fish farming operations. Larger pond areas provide greater space for fish cultivation, allowing for increased stocking density and potentially higher yields.

Further, it is important to note that the size of the pond area can have implications for various aspects of fish farming, such as production capacity, investment costs, and resource management. Fish farmers with larger pond areas may have the advantage of accommodating more fish and implementing advanced farming practices, potentially leading to higher productivity and income.

Table 7: Distribution of fish farmers according to pond size (n=60)

S. No.	Area (ha)	F	%
1.	Below 0.1	3	5.00
2.	0.1-0.2	8	13.33
3.	0.2-0.3	9	15.00
4.	0.3-0.4	7	11.67
5.	0.4-0.5	12	20.00
6.	0.5 and above	21	35.00
	Total	60	100

Analysis of the results presented in table 7 reveals that, approximately 33.33 percent of the respondents were operating fish farming activities in ponds that were below the recommended size for efficient fish culture. This finding suggests that nearly one-third of the respondents lacked a sufficiently large pond size required for practicing fish farming effectively.

The reason for such results may be attributed to several factors. Firstly, limited availability of land and access to larger water bodies refrain fish farmers from acquiring or utilizing larger pond areas.

Additionally, financial constraints also played a role in limiting the size of the ponds. Constructing or expanding ponds demands investment in infrastructure, land

preparation, and other necessary equipment. Lack of financial resources might have also confined fish farmers to operate in smaller ponds.

Further it was also observed that, few fish farmers were unaware of the recommended pond sizes for specific fish species or the advantages of larger ponds in terms of higher stocking densities, better water circulation, and improved growth rates.

7. Type of pond

From the findings presented in table 8 it can be observed that, the majority of the ponds used for fish farming purposes in the study area were classified as perennial (81.67%), while only a small portion (18.33%) were

categorized as seasonal. The presence of perennial ponds is crucial for engaging in fish farming activities. Therefore, based on these findings, it can be inferred that the fish

farmers in the study area possessed the necessary production resources in the form of perennial ponds, which are essential for successful fish farming operations.

Table 8: Distribution of fish farmers according to type of pond

S. No.	Category	Fish farmer (n=60)	
		F	%
1.	Seasonal	11	18.33
2.	Perennial	49	81.67
	Total	60	100

8. Pond ownership

Based on the results presented in table 9, it was found that the majority of fish farmers (90.00%) in the study area possessed the record of right for their ponds. In contrast, approximately 10.00 percent of fish farmers practiced fish farming in leased-in ponds obtained from other individuals. This indicates that fish farming in the study area was predominantly carried out in ponds owned by the farmers themselves.

Table 9: Distribution of fish farmers according to their pond ownership

S. No.	Category	Fish farmer (n=60)	
		F	%
1.	Lease	6	10.00
2.	Own	54	90.00
3.	Both	0	0.00
	Total	60	100

The possible reason for such results might be that, owning a pond provides fish farmers with greater control over the

resources and management of their farming operations. They have the freedom to make decisions regarding the pond's development, stocking, feeding, and harvesting without being dependent on external parties. Fish farming is often considered as a long-term investment and owning a pond allows farmer to have a dedicated and stable site for their operations. They can make infrastructure improvements and invest in long-term strategies for sustainable fish production.

9. Extension contact

Based on the results presented in table 10, it was evident that a significant portion of fishermen had low extension contact (46.67%), followed by medium (45.42%) and high (7.92%) extension contact. One possible reason for this distribution might be due to the lack of sufficient extension staff in the fisheries department. Insufficient extension staff might have resulted in limited outreach and coverage, making it challenging to establish regular contact with a large number of fishermen.

Table 10: Categorisation of respondents according to their level of extension contact

S. No.	Category	Fishermen (n=240)		Fish farmer (n=60)	
		F	%	F	%
1.	Low (< Q1)	112	46.67	37	61.67
2.	Medium (Between Q1 & Q3)	109	45.42	17	28.33
3.	High (> Q3)	19	7.92	6	10.00
	Total	240	100	60	100
Fishermen: Q1 (25 th percentile) = 10, Q3 (75 th percentile) = 16 Fish farmer: Q1 (25 th percentile) = 6, Q3 (75 th percentile)=11					

From the findings provided in table 10, it can be observed that among fish farmers, majority of them (61.67%) had low extension contact, followed by medium (28.33%) and high (10.00%) extension contact.

provided in table 11, it was indicated that nearly half of the fishermen (47.08%) had medium level of economic motivation, followed by 33.75 percent with high level of economic motivation and only 19.17 percent with low level of economic motivation.

10. Economic motivation: Based on the information

Table 11: Categorisation of respondents according to their economic motivation

S. No.	Category	Fishermen (n=240)		Fish farmer (n=60)	
		F	%	F	%
1.	Low (< Q1)	46	19.17	9	15.00
2.	Medium (Between Q1 & Q3)	113	47.08	19	31.67
3.	High (> Q3)	81	33.75	32	53.33
	Total	240	100	60	100
Fishermen: Q1 (25 th percentile) = 23, Q3 (75 th percentile) = 31 Fish farmer: Q1 (25 th percentile) = 19, Q3 (75 th percentile)= 26					

Based on the information provided, it was evident from Table 11 that more than half of the fish farmers (53.33%) had high level of economic motivation, followed by 31.67 percent with medium level of economic motivation and only 15.00 percent with low level of economic motivation.

Indeed, the findings indicated a medium to high level of economic motivation among the majority of fishermen and a high to medium level of economic motivation among fish farmers suggest that the desire to earn more might be a common driving factor for individuals across occupations, including fishing and fish farming.

The basic urge to improve one's financial situation and generate income was a universal human motivation. Regardless of the occupation, individuals aspire to enhance their economic well-being and seek opportunities to increase their earnings. This shared economic motivation can be observed among both fishermen and fish farmers, as they engage in income-generating practices to fulfill their economic goals.

For fishermen, the fishing profession serves as a means to earn a livelihood. It provides opportunities to catch and sell fish, which can contribute to their income and financial stability. The medium to high level of economic motivation among fishermen indicates that they recognize the economic potential in their profession and actively pursue strategies to maximize their earnings.

Similarly, fish farmers engage in fish farming as a business venture, aiming to generate income and improve their financial situation. The high to medium level of economic motivation among fish farmers reflects their strong drive to succeed financially in the fish farming industry. They adopt income-generating practices, invest in production resources,

and optimize their farming techniques to enhance profitability.

11. Risk orientation

It is apparent from the table 12 that 45.00 percent of the total fishermen had low level of risk orientation followed by medium (37.08%) and high (17.92%) level of risk orientation. It was clear than more than 80 percent had low to medium level of risk orientation.

The high percentage of fishermen with a low level of risk orientation can be attributed to their experience and familiarity with traditional fishing practices. Fishermen who had been engaged in fishing for a long time might have developed a sense of comfort and confidence in the methods they have been using. They may view these practices as tried and tested, leading to a lower perception of risk. Fishing is inherently a risky profession, as it depends on unpredictable factors such as weather conditions, fish availability, and market fluctuations. However, the significant proportion of fishermen with a low level of risk orientation suggests a prevalent risk-averse mindset. Fishermen may prioritize stability and seek to minimize potential losses or setbacks by opting for less risky fishing approaches.

In certain regions, fishermen had limited access to advanced fishing technologies and innovations. The absence of modern equipment or knowledge about alternative fishing techniques might have also contributed to a low level of risk orientation. Fishermen may stick to traditional practices due to a lack of exposure or awareness of alternative methods that could involve higher risks.

Table 12: Categorisation of respondents according to their risk orientation

S. No.	Category	Fishermen (n=240)		Fish farmer (n=60)	
		F	%	F	%
1.	Low (< Q1)	108	45.00	8	13.33
2.	Medium (Between Q1 & Q3)	89	37.08	25	41.67
3.	High (> Q3)	43	17.92	27	45.00
	Total	240	100	60	100
Fishermen: Q1 (25 th percentile) = 19, Q3 (75 th percentile) = 26					
Fish farmer: Q1 (25 th percentile) = 21, Q3 (75 th percentile)= 26					

Among fish farmers 45.00 percent had high level of risk orientation followed by medium (41.67%) and low (13.33%) level of risk orientation. The possible reason was fish farming often requires significant investments, both in terms of capital and resources. The high percentage of fish farmers with a high level of risk orientation suggests that they possess an entrepreneurial mindset. They were willing to take on higher risks in order to pursue potential higher returns and growth opportunities in their fish farming ventures.

12. Market orientation

Based on the results presented in table 13, it was evident that an equal percentage of fishermen, specifically 38.33 percent, had both low and medium levels of market orientation, followed by 23.33 percent with a high level of market orientation. This indicates that the majority of fishermen exhibited a low to medium level of market

orientation.

The possible reason for this observation may be attributed to the common practice among fishermen of selling their catch directly to middlemen or merchants. This direct selling approach provides convenience to the fishermen, as they do not have to concern themselves with aspects such as transportation, storage, marketing, and price realization. Such reliance on intermediaries, fishermen might had limited exposure to market dynamics and opportunities for value addition.

As a result, this lack of direct engagement with the market and reliance on middlemen contributed to a relatively poor market orientation among the fishermen. They may not actively seek latest market information, explore alternative marketing channels, or adopt strategies to maximize their profit potential. Instead, their focus may primarily revolve around the catch itself, with less emphasis on market-driven considerations.

Table 13: Categorisation of respondents according to their market orientation

S. No.	Category	Fishermen (n=240)		Fish farmer (n=60)	
		F	%	F	%
1.	Low (< Q1)	92	38.33	12	20.00
2.	Medium (Between Q1 & Q ₃)	92	38.33	18	30.00
3.	High (> Q3)	56	23.33	30	50.00
	Total	240	100	60	100
Fishermen: Q1 (25 th percentile) = 31, Q3 (75 th percentile) = 36 Fish farmer: Q1 (25 th percentile) = 24, Q3 (75 th percentile) = 31					

Among fish farmers, 50.00 percent exhibited a high level of market orientation, followed by 30.00 percent with a medium level and another 20.00 percent with a low level of market orientation. The findings from Table 13 indicate that the majority of fish farmers demonstrated a medium to high level of market orientation.

Fish farmers with a high level of market orientation were likely driven by a business mindset and a strong desire for profitability. They recognize the importance of understanding market dynamics, consumer preferences, demand and supply fluctuations. These farmers might have actively engaged in market research, identifying lucrative market opportunities, and adapt their production and marketing strategies accordingly. Fish farmers with a high level of market orientation actively access market information and establish networks with buyers, distributors, processors, and retailers for better analysis and for earning more profits.

The findings were well supported by the research findings of Jha (2009) ^[4]. However, the findings had been partially

supported by the findings of Basavakumar *et al.* (2011) ^[1], Kumar and Shivani Patnaik (2014) ^[6] and Panigrahi and Bakshi (2014) ^[9], respectively.

13. Innovativeness

The meticulous examination of the findings presented in table 14 revealed that 40.00 percent of the fishermen exhibited a low level of innovativeness, while 33.33 percent demonstrated a medium level and 26.67 percent displayed a high level of innovativeness. These findings suggest that a significant proportion of the fishermen surveyed showcased medium to low levels of innovativeness, indicating a prevailing trend among the majority of individuals within the fishing community.

Fishermen belong to communities or social circles with a conservative approach and be less exposed to innovative ideas and less likely to adopt them compared to those in more progressive or interconnected communities. Limited access to financial resources or technological advancements also hinder the adoption of innovative practices.

Table 14: Categorisation of respondents according to their innovativeness

S. No.	Category	Fishermen (n=240)		Fish farmer (n=60)	
		F	%	F	%
1.	Low (< Q1)	96	40.00	11	18.33
2.	Medium (Between Q1 & Q ₃)	80	33.33	24	40.00
3.	High (> Q3)	64	26.67	25	41.67
	Total	240	100	60	100
Fishermen: Q1 (25 th percentile) = 13, Q3 (75 th percentile) = 21 Fish farmer: Q1 (25 th percentile) = 17, Q3 (75 th percentile) = 23					

Based on the results presented in table 14, it is evident that among fish farmers, 41.67 percent exhibited a high level of innovativeness, followed by 40.00 percent with a medium level and 18.33 percent with a low level of innovativeness. These results indicate that a significant majority of fish farmers surveyed displayed medium to high levels of innovativeness, highlighting a prevailing trend within the fish farming community.

In general, fish farming is an industry that relies on innovation to improve efficiency, productivity, and profitability. Fish farmers with a high level of innovativeness might be motivated by the potential economic benefits associated with adopting innovative techniques.

The findings of the present study are analogous to the findings of Shankar (2010) ^[14], Manimekalai and Sujathkumar (2016) ^[7], respectively.

14 Group cohesiveness

From table 15 it could be seen that the 40.00 percent of fishermen had medium level of group cohesiveness

followed by high (33.75%) and low (26.25%) level of group cohesiveness.

Table 15: Categorisation of fishermen according to their group cohesiveness

S. No.	Category	Fishermen (n=240)	
		F	%
1.	Low	63	26.25
2.	Medium	96	40.00
3.	High	81	33.75
	Total	240	100
Fishermen: Q1 (25 th percentile) = 10, Q3(75 th percentile) = 14			

The results from table 15 clearly depicts that majority of fishermen had high to medium level of group cohesiveness. The possible reason might be due to the fact that all the fishermen were generally from the similar economic background, almost from the same locality who were meeting regularly on the same purposes tend to develop 'we feeling' among the group which helps to promote group cohesiveness.

15. Group leadership

The results from table 16 depicts that 37.08 percent of fishermen had low level of group leadership followed by medium (34.58%) and high (28.33%) level of group leadership.

Table 16: Categorisation of fishermen according to their group leadership

S. No.	Category	Fishermen (n=240)	
		F	%
1.	Low	89	37.08
2.	Medium	83	34.58
3.	High	68	28.33
	Total	240	100
Fishermen: Q1 (25th percentile) = 8, Q3(75th percentile) = 15			

It is clear from table 16 that more than two third of fishermen had medium to low level of group leadership. The leader had the responsibility of maintaining the activities of FCS by ensuring co-operation and co-ordination among members. The reason for medium to low levels of group leadership was due to the absence of regular trainings and orientation provided to group leaders by fisheries department\extension functionaries which helps in motivating group leaders towards the welfare of fishing community.

Conclusion

The study reveals that middle-aged individuals dominate both fishing and fish farming, with fish farmers generally exhibiting higher levels of education. While fishermen often have limited formal education, fish farmers tend to be more educated, especially among graduates. Diversification in occupational activities is notable, with many engaging in multiple enterprises alongside fishing or fish farming. Fishermen typically report lower annual incomes, while fish farmers demonstrate medium to high income levels. Pond size and ownership significantly influence fish farming operations, with larger ponds associated with higher productivity. Factors like extension contact, economic motivation, risk and market orientation, innovativeness, group cohesiveness, and leadership play vital roles in shaping the dynamics within these communities. Overall, the study highlights the need for targeted interventions and support mechanisms to address the diverse needs and challenges faced by fishing and fish farming communities. By promoting education, enhancing access to resources, fostering innovation, and strengthening collective action, policymakers and stakeholders can contribute to the sustainable development and prosperity of these vital sectors.

References

- Basavakumar KV, Devendrappa S, Srinivas ST. A study on profile of fishing community of a village in Karnataka. *Karnataka Journal of Agriculture Sciences*. 2011;24(5):684-687.
- Department of Fisheries, Government of India. Inland Fisheries [Internet]. Available from: <https://dof.gov.in/inland-fisheries>
- Jambhale SG. Socio-economic and fishing profile of fishermen community in South Konkan of Maharashtra State: A Geographical Study. *Aayushi International Interdisciplinary Research Journal*. 2014;1(4):30-41.
- Jha UM. Economics of fish farming in flood-prone areas of Bihar with special reference to Koshi River System [MSc Thesis]. Bhagalpur: Chankya Education Trust; 2009.
- Kabir MS, Hou X, Akther R, Wang J, Wang L. Impact of Small Entrepreneurship on Sustainable Livelihood Assets of Rural Poor Women in Bangladesh. *International Journal of Economics and Finance*. 2012;4(3):265-280.
- Kumar ST, Patnaik S. Marine Fisheries; its current status, sustainable management and socio- economic status of the marine fishers of Odisha, through Indian Marine Policy: A Case Study. *Research Journal of Animal, Veterinary and Fishery Sciences*. 2014;2(7):10-19.
- Manimekalai M, Sujathkumar NV. Socio-economic profile of women engaged in fisheries activities in Tamil Nadu, India [Internet]. Research Gate; 2016. Available from: https://www.researchgate.net/publication/305891160_Socio-economic_profile_of_women_engaged_in_fisheries_activities_in_Tamil_Nadu_India
- Pandey DK, Upadhyay AD. Socio-economic profile of fish farmers of an adopted model aquaculture village: Kulubari, West Tripura. *Indian Research Journal of Extension Education, Special Issue*. 2012;2:55-58.
- Panigrahi AK, Bakshi A. A study on profile of fishing community of the river side villages of River Churni, Nadia, West Bengal with special reference to socio-economic and technological appraisal of fishermen. *International Journal of Research in Applied, Natural and Social Sciences*. 2014;2(3):97-102.
- Parasuraman G, Sivakumar K, Shilpa BP, Mithrasan AT. What ails the fishermen community in Ennore Creek: A socio - demographic analysis. *Indian Journal of Science and Technology*. 2016;9(25):1-8.
- Salim SS, Sathiadhas R, Narayanakumar R, Katiha PK, Krishnan M, Biradar RS, *et al.* Rural Livelihood Security: Assessment of fishers social status in India. *Agricultural Economics Research Review*. 2013;26:21-30.
- Sen A, Roy M. Socio-economic status of fish farmers in Tripura, India. *International Journal of Current Research*. 2015;7(6):17090-17096.
- Sethi N. Socio-economic and environmental implications of prawn cultivation in Chilika Lake, Odisha [MSc Thesis]. Rourkela: National Institute of Technology; 2015.
- Shankar S. An analysis of the knowledge level of fisherfolk about Marine Fisheries Management and Resource Conservation [M.F.Sc Thesis]. Mumbai: Central Institute of Fisheries Education; 2010.
- Sivanesan R. Problems and prospects of fisherfolk in Kanyakumari District of Tamilnadu. *International Journal of Research in Management & Business Studies*. 2014;1(1):7-12.