



Sustainable Management And Socio-Economic Impacts Of Fisheries In Kanniyakumari District, Tamil Nadu: A Comprehensive Study

Asha^{1*}, Dr. S. Bhuvaneswari²

¹Ph.D Scholar, Department of Economics, VELS Institute of Science, Technology and Advanced Studies, Chennai-117.

²Assistant Professor, Department of Economics, VELS Institute of Science, Technology and Advanced Studies, Chennai-117.

Citation: Asha et al. (2024), Sustainable Management And Socio-Economic Impacts Of Fisheries In Kanniyakumari District, Tamil Nadu: A Comprehensive Study, Educational Administration: Theory And Practice, 30(4), 5710-5722, Doi: 10.53555/kuey.v30i4.2275

ARTICLE INFO ABSTRACT

The fisheries sector plays a significant role in the socio-economic fabric of coastal regions, contributing to food security, employment generation, and economic development. Kanniyakumari District, located in the southernmost tip of Tamil Nadu, India, is endowed with rich marine biodiversity and a vibrant fishing community. However, unsustainable fishing practices and inadequate management have raised concerns about the long-term viability of fisheries resources and their socio-economic impacts on local communities. This study aims to comprehensively assess the status of fisheries resources, evaluate current management practices, and analyze their socio-economic impacts on the fishing communities in Kanniyakumari District. A mixed-methods approach combining qualitative and quantitative techniques will be employed to gather data. The assessment of fisheries resources will involve surveys, interviews, and data analysis to determine the species composition, abundance, and distribution. Additionally, the study will evaluate the ecological health of fishing grounds through habitat assessments and biodiversity surveys. The analysis of current management practices will focus on policies, regulations, and institutional frameworks governing fisheries in the district. Interviews with key stakeholders including government officials, fisherfolk, and local NGOs will provide insights into the effectiveness of existing management measures and identify potential gaps and challenges. The socio-economic impacts of fisheries will be examined through household surveys, income assessments, and participatory rural appraisals. This will include assessing the contribution of fisheries to household incomes, livelihood diversification strategies, and the socio-cultural significance of fishing communities. The findings of this study are expected to provide valuable insights for the sustainable management of fisheries in Kanniyakumari District. Recommendations will be formulated based on scientific evidence and stakeholder consultations to enhance the resilience of fisheries resources and improve the socio-economic well-being of fishing communities. By promoting sustainable fishing practices, strengthening governance mechanisms, and supporting community-based management initiatives, this study seeks to contribute to the conservation of marine biodiversity and the empowerment of coastal communities in Kanniyakumari District and beyond.

KEYWORDS: Fisheries, Sustainable Management, Socio-economic Impacts, Kanniyakumari District, Tamil Nadu, India.

INTRODUCTION

The fisheries sector is a vital component of the socio-economic fabric of coastal regions worldwide, contributing significantly to food security, employment generation, and economic development. In India, fisheries play a crucial role in providing livelihoods to millions of people, particularly in coastal states like Tamil Nadu. Kanniyakumari District, situated at the southernmost tip of Tamil Nadu, is renowned for its rich marine biodiversity and vibrant fishing communities. However, despite its potential, the fisheries sector in Kanniyakumari faces numerous challenges related to sustainability and socio-economic development. This study aims to comprehensively assess the status of fisheries resources, evaluate current management

practices, and analyze their socio-economic impacts on the fishing communities in Kanniyakumari District. The findings will provide valuable insights for designing effective strategies for sustainable fisheries management and enhancing the well-being of coastal communities.

1. Importance of Fisheries in Kanniyakumari District: Kanniyakumari District boasts a diverse marine ecosystem, including coastal waters, estuaries, and offshore areas, which support a wide variety of fish species. The fishing industry is a crucial source of livelihood for a significant portion of the population, with traditional fishing practices deeply ingrained in the local culture and heritage. Fish and fishery products contribute substantially to the dietary needs of both local communities and urban markets, ensuring food security and nutrition.

2. Challenges Facing Fisheries Management: Despite its importance, the fisheries sector in Kanniyakumari District faces several challenges that threaten its long-term sustainability. Overfishing, habitat degradation, pollution, and climate change are among the primary concerns affecting fisheries resources. Unsustainable fishing practices, including the use of destructive gear and illegal fishing methods, exacerbate these issues, leading to declines in fish stocks and ecosystem health. Additionally, inadequate infrastructure, limited access to credit and technology, and weak governance structures further constrain the sector's potential for growth and development.

3. Need for Sustainable Management: Recognizing the urgent need to address these challenges, there is a growing consensus among policymakers, researchers, and stakeholders about the importance of adopting sustainable fisheries management practices. Sustainable management aims to ensure the long-term viability of fisheries resources while promoting the socio-economic well-being of fishing communities. This involves implementing science-based management strategies, enforcing regulations to prevent overexploitation, and promoting ecosystem-based approaches that consider the interconnectedness of marine ecosystems and human activities.

Objectives of the Study

The primary objective of this study is to assess the current status of fisheries resources, evaluate existing management practices, and analyze their socio-economic impacts in Kanniyakumari District. Specifically, the study aims to:

1. To assess the abundance, distribution, and health of fish stocks and marine ecosystems.
2. To evaluate the effectiveness of current fisheries management policies, regulations, and institutions.
3. To analyse the socio-economic contributions of fisheries to local communities, including income generation, employment, and cultural significance.
4. To identify key challenges and opportunities for enhancing the sustainability and socio-economic resilience of the fisheries sector.

Statement of the Problem

The fisheries sector in Kanniyakumari District, Tamil Nadu, faces multifaceted challenges that threaten its long-term sustainability and the socio-economic well-being of local communities. These challenges stem from a combination of ecological, economic, and social factors, which necessitate urgent attention and effective intervention.

1. Overexploitation of Fisheries Resources: One of the primary problems facing the fisheries sector in Kanniyakumari District is the overexploitation of fish stocks. Unsustainable fishing practices, including the use of destructive gear, illegal fishing methods, and excessive fishing pressure, have led to declines in fish populations and biodiversity. This overexploitation not only jeopardizes the ecological health of marine ecosystems but also undermines the livelihoods of fisherfolk who depend on these resources for their sustenance.

2. Habitat Degradation and Pollution: Habitat degradation and pollution further exacerbate the challenges facing fisheries in Kanniyakumari District. Coastal habitats such as mangroves, seagrasses, and coral reefs are critical for the survival and reproduction of fish species, yet they are increasingly threatened by coastal development, pollution from urban and industrial sources, and climate change impacts such as sea-level rise and ocean acidification. The degradation of these habitats reduces fish productivity and resilience, posing significant challenges to sustainable fisheries management.

3. Weak Governance and Institutional Constraints: Weak governance and institutional constraints hinder the effective management of fisheries in Kanniyakumari District. Existing policies and regulations may lack enforcement mechanisms, leading to widespread non-compliance and illegal fishing activities. Limited institutional capacity, inadequate funding, and fragmented decision-making processes further impede efforts to address fisheries management challenges holistically.

4. Socio-economic Vulnerability of Fishing Communities: Fishing communities in Kanniyakumari District face socio-economic vulnerabilities exacerbated by the challenges in the fisheries sector. Dependence on a single livelihood source, limited access to alternative income opportunities, and inadequate social services contribute to poverty, food insecurity, and vulnerability to external shocks such as natural disasters and market fluctuations.

METHODOLOGY

Study Design

This study adopts a mixed-methods approach, combining qualitative and quantitative research techniques to gather comprehensive data on the status of fisheries resources and their socio-economic impacts in Kanniyakumari District.

Data Collection: a. Quantitative Data Collection:

Fisheries Surveys: Conducting fisheries surveys to assess the abundance, distribution, and health of fish stocks in different fishing grounds across Kanniyakumari District. This will involve sampling fish populations using standardized methods such as fishery-independent surveys and catch per unit effort (CPUE) analysis.

Ecological Assessments: Conducting ecological assessments of marine habitats, including mangroves, coral reefs, and seagrass beds, to evaluate their health and biodiversity. This will involve habitat mapping, biodiversity surveys, and monitoring of key ecological indicators.

Socio-economic Surveys: Administering household surveys to fishing communities to collect data on income levels, livelihood strategies, household demographics, and socio-cultural aspects related to fishing activities. Additionally, conducting participatory rural appraisals (PRAs) to gather qualitative insights into community perceptions, aspirations, and challenges.

Data Analysis

Analysing fisheries survey data using statistical techniques such as regression analysis, abundance estimation, and trend analysis to assess the status and trends of fish stocks. Ecological data will be analysed to evaluate habitat health and biodiversity indices.

Qualitative Data Analysis: Conducting thematic analysis of qualitative data from interviews, FGDs, and PRAs to identify key themes, patterns, and narratives related to fisheries management, socio-economic impacts, and community perceptions.

Educational status of fishermen

This section analyses the educational status of the fishermen community in the study area. For this purpose, the literacy rate has been evaluated. Along with this, the educational qualification of the male and female population has been taken for evaluation.

Table 1 Educational Status

Sl No	Education Status	Number of Respondents
1	Illiterate	21
2	Literate to SSLC	174
3	+2 - degree	69
4	PG and above	19
5	Professional degree	12
6	Technical degree	6
Total		300

Source: Primary survey

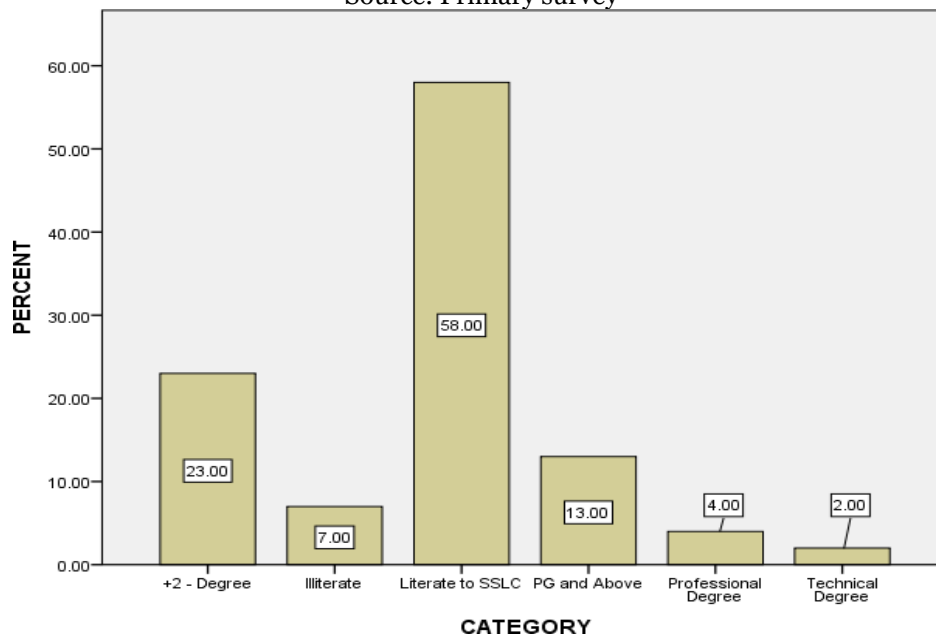


Figure 1 Educational Status

Three percent of educated fishermen (about 9 respondents) among the selected sample are employed in some firms though not in government regular service. They go for fishery related activities. Three percent of educated fishermen (about 9 respondents) among the selected sample are employed in some firms though not in government regular service. They go for fishery related activities in free times. Maximum number of fishermen is having educational qualification below SSLC. Nearly 23 percent are having +2 to degree education. 13 percent have PG and above level of education. 4 percent are having professional degree and another 2 percent are holders of technical qualification.

Economic status

Fishermen community lead not financially well life. This is because of their uncertain fish collection; marketing risk etc. the case is not different in the present study area too. The economic status of fishermen community has been analyzed. In order to analyse the economic status various factors are taken for consideration such as housing situations of fishermen community, Details regarding the ownership of land holding of fishermen, Availability of drinking water and other basic amenities, latrine facilities, Nature of ownership of boats, annual income, expenditure details, debt position etc.

Details Regarding the Ownership of Land Holding of Fishermen

The economic status of the fishermen community is analysed using details regarding the ownership of land holding of fishermen. Usually the coastal areas are thickly populated and hence the area of land available for the fishermen is very less compared to other areas of study.

Table 2 Details Regarding the Ownership of Land Holding of Fishermen

Sl No	Size of land (in cents)	Number	Percentage
1	0-5	75	25
2	5-10	93	31
3	10-15	39	13
4	15-20	33	11
5	20-25	24	8
6	25-30	18	6
7	30-35	9	3
8	35-40	6	2
9	Above 40	3	1

Source: Primary survey

It can be seen that majority of fishermen households have less than 10 cents of land area. That is 25 percent have only less than 5 cents of land. Another 31 percent have between 5 and 10 cent land. Very less number of households has more than 20 cents of land. It can be calculated that only 20 percent respondents have more than 20 cents of land area.

Availability of drinking water and other basic amenities

Accessibility of drinking water is a serious issue in the coastal areas. It has very much importance in determining the health status of the fishermen community in the coastal areas.

Hence the enquiry was made for knowing the accessibility in terms of drinking water in premises, drinking water near premises and away from premises. It can be noted that 45 percent of the households in the study area do have drinking water in premises. At the same time 39.3 percent have drinking water near premises while 15.6 households take water from distant places.

Table 3 Availability of Drinking Water

Sl No	Availability of drinking water	Number of respondents	Percentage
1	Drinking water in premises	135	45
2	Drinking water near premises	118	39.3
3	Away from premises	47	15.6
Total		300	100

Source: Primary survey.

Other Basic Amenities of Fishermen Households

Basic Amenities of Fishermen Households are shown below. The economic status of the fishermen community can be measured using various indicators. One such criterion used in the present study is to identify the average number of amenities for the fishermen households. The ownership of household amenities like chairs, tables, coats, almirah, TV, radio, fridge, car, two wheeler etc. are considered for analysis. It can be thus seen that majority are having basic amenities like chairs, coats, tables, mixie etc. It is also noticed that 75 percent fishermen families in the study are have TV. Only 2.3 percent of the total sample have car. However, 38 percent have two wheelers. It is interesting to notice that almost all the households

have mobile phones; even many are having more than one phone in their families. Table 4 shows that all of the respondents have mobile phones unlike other factors. Thus it is clear from this analysis that the fishermen community is holding many of the requirements at home. However, their accessibility of transportation facilities especially four wheelers is veryless.

Table 4 Amenities of Fishermen Households

Sl No	Amenities	Percentage of Respondents Owning the Amenities
1	Chairs	96
2	Tables	89
3	Coats	87
4	Almirah	60
5	TV	75
6	Radio	35
7	Two wheeler	38
8	Car	2.3
9	Fridge	56
10	Mixie	70
11	Mobile phones	100

Source: Primary survey

Nature of Ownership of Boats

Ownership of boat is an issue of existence for the fishermen community. In that sense it determines their economic status too. Hence query is made about the nature of ownership of boats. It can be learn that 53 percent of the total respondents have their own boats for fishing. The rest 26.3 percent do not own boats. It is interesting to note that 62 respondents that are 20.6 percent fishermen in the selected are hiring boats for fishery activities.

Table – 5 Nature of Ownership of Boats

Sl No	Ownership of Boats	Number	Percentage
1	Have own boat	159	53
2	Hire boat	62	20.6
3	No boat	79	26.4
Total		300	100

Source: Primary survey

Primary Source of Income

Source of income of the fishing community is also very important. It has been analyzed to get an idea about their main source of income.

Table -6 Primary Source of Income

Sl No	Source of Annual Income	Number	Percentage
1	Fishing	202	67.3
2	Business (fishing secondary)	69	23
3	Service (fishing secondary)	9	3
4	others	20	6.6
Total		300	100

Source: Primary survey

It can be thus seen that majority i.e. 67 percent household depend on direct fishing activities for their living. In case of 23 percent households, business is the primary source of income, but carries on fishery activities as a secondary source of income earning activity. Similarly 3 percent consider service sector activities as significant source of their income. Thus it is clear that fishing and allied activities are the significant/primary source of source of income for two third households in the study area. But it is quite interesting to see that a third of respondents are not relying on fishing and allied activities as a primary source of their income.

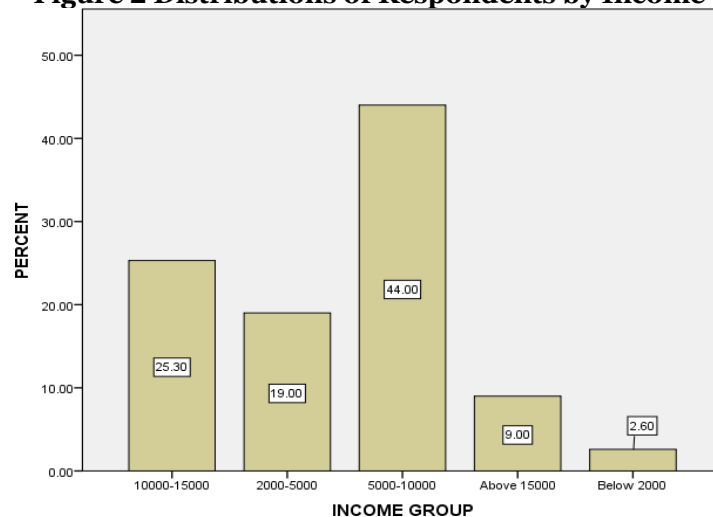
Distribution of Fishermen Households by Monthly Income

Apart from the main source of income, the distribution of fishermen households on monthly income has been made in the study. The result of the categorized data has been given in table 7.

Table -7 Distribution of Fishermen Households by Monthly Income

Sl No	Distribution of Fishermen Households by Monthly Income	Number
1	Below 2000	8
2	2000-5000	57
3	5000-10000	132
4	10000-15000	76
5	Above 15000	27
Total		300

Source: Primary survey

Figure 2 Distributions of Respondents by Income

It can be seen from the table that the monthly income of the fishermen community in the study area varies significantly. There are only 8 respondents having less than 2000 rupees as monthly income. 57 persons have an income between 2000 and 5000. Majority of them i.e. 132 respondents are having income between 5000 and 10000. There are also 76 persons earning income between 10000 and 15000. Only 27 respondents earn more than 15000 per month.

Details of Debt

It is an interesting fact to be noted that huge majority of the fishermen community is under debt. It can be noticed that 94.3 percent of them in the study area are having debt. The results are given in table 8.

Table -8 Details of Debt

Sl no	Debt Position	Number	Percentage
1	Having Debt	283	94.3
2	Not Having Debt	17	5.6
Total		300	100

Source: Primary survey

Even though the majority are using the facility of credit for financing their needs, about 5.6 percent (17 in absolute terms) respondents is neither borrowed nor access to the credit. Since the fishermen community is not well fit with their income to meet expenditures for maintaining both their fishing crafts and daily life, access to the credit should be assured.

Table 9 Fishermen Accessibility to Credit and Its Predictors: Discriminate Analysis

Group Statistics			
Accessibility To Credit		Mean	Std. Deviation
Yes	Gender	.78	.146
	Fishing as Primary Employment	.88	.493
	Income	4335.65	2089.44
	Level of Education	.61	.406
No	Gender	.43	.317
	Fishing as Primary Employment	.96	.111
	Income	2244.12	1018.714
	Level of Education	.41	.481

Total	Gender	.39	.488
	Fishing as Primary Employment	.96	.204
	Income	2991.28	2158.8
	Level of Education	.44	.455

Source: SPSS output on analysis of Primary Data

Table 9 depicts the descriptive statistics of respondents' credit behaviour and its probable predictors. The accessibility to credit is taken as categorical variable. The response yes represents the availability or accessibility of credit to the respondents. Whereas no represents non availability or inaccessibility of credit to the respondents. For running the discriminate function four probable predictors are chosen. They are gender, employment (Fishing as Primary), income and level of education.

Table 10 Canonical Discriminant Function Coefficient

	Function 1
Gender	-1.698
Fishing as Primary Employment	-2.023
Income	0.04520
Level of Education	.078
(Constant)	-2.888
Un standardized coefficients	

Source: SPSS output on analysis of Primary Data

Discriminate Function

The impact of all probable predictors is represented in table 10 shows that gender and employment have negative impact on the group membership of fishermen as having accessibility to credit. As far as the model is concerned, a fisher folk with gender as female and employment as fishing respectively has 1.698 times and 2.023 times lesser probability being the member of credit accessible group. The income and level of education have positive on the group membership of fishermen as having accessibility to credit. Discriminate function shows that, fishermen with higher income and level of education respectively has 0.04520 times and .078 times probability being the member of credit accessible group.

Based on the unstandardized coefficients, discriminate function is given as;

$$D = -2.888 - 1.698(G) - 2.023(F) + 0.04520(Y) + 0.078(E)$$

Where,

D = Discriminate function of credit
G = Gender

F = Employment (Fishing as Primary)
Y = Income

E = Level of education

Table 11 Credit and Predicted Group Membership

Classification Results ^{a,c} (Credit)					
		Accessibility of Credit	Predicted Group Membership		Total
			No	Yes	
Original	Count	Yes	80	34	114
		No	53	245	298
	Percent	Yes	74.3	31.7	106
		No	20.1	85.9	106
Cross-Validated ^b	Count	Yes	80	34	114
		No	53	245	298
	Percent	Yes	74.3	31.7	106
		No	20.1	85.9	106
a. 80.9% of original grouped cases correctly classified.					
b. Cross validation is done only for those cases in the analysis. In crossvalidation, each case is classified by the functions derived from all Cases other than that case.					
c. 80.9% of cross-validated grouped cases correctly classified.					
Source: SPSS output on analysis of Primary Data					

Source: SPSS output on analysis of Primary Data

The given table 11 shows how the predictor model is able to predict the actual group membership of fishermen's being the member of credit group or not. As far as credit members are concerned, it is able to correctly predict about 74.3 percent of group membership using our four discriminating predictors. As far as fishermen being not the member of credit group are concerned four predictors are good discriminators as they are able to predict about 85.9 percent of group membership.

Table 12 Tests of Equality of Group Means (Credit)

	Wilks' Lambda	F	df1	df2	Sig.
Gender	0.826	104.713	298	0	0.826
Fishing as Primary Employment	0.912	55.521	298	0	0.912
Income	0.844	93.647	298	0	0.844
Level of Education	0.923	70.187	298	0.001	0.923

Source: SPSS output on analysis of Primary Data

The table 12 shows that the given variables are good predictors of group membership. Gender, employment (Fishing as Primary), income and level of education are significantly different among two groups of fishermen even at one percent level of significance. The variables are discriminating the given function with high statistical significance. These predictors can be used as good discriminators for determining the group membership of fishermen as having credit or not having credit. Women those who are involved in fishing don't have much access to the credit. Similarly respondents those who do fishing as their primary occupation also don't have much access to credit. Whereas individual with better education and income has better access to the credit as detailed in the discriminate function.

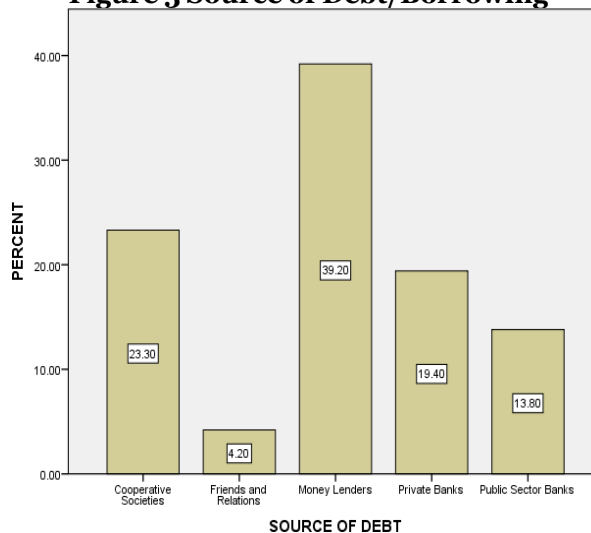
Sources of Debt/Borrowing

The source of debt/borrowing of the fishermen community is shown in the table given below.

Table 13 Source of Debt/Borrowing

Sl.No	Source of Debt/Borrowing	Number	percentage
1	Public sector banks	39	13.8
2	Private banks	55	19.4
3	Money lenders	111	39.2
4	Cooperative societies	66	23.3
5	Friends and relatives	12	4.2
Total		283	100

Source: Primary survey

Figure 3 Source of Debt/Borrowing

It can be seen that the fishermen community depend on various sources for funds such as public sector banks, private sector banks, Private individuals/money lenders, cooperative societies and so on. Out of 283 respondents having credit about 39.2 percent depend on sector banks for their financial requirements. This figure concludes that either respondents or public sector banks are reluctant to have mutual banking relations. Most probably the attitude of formal credit sources will be villain in financial credit habit of fishermen. The delay in getting finance, formalities and terms and conditions usually keep respondents away from the public sector banks as it is in other marginalized sectors. Money lenders and friend's relations together satisfy the credit needs of about 43.4 of respondents. This rate is alarming, which shows the dirty hands of money lenders plays a crucial role in fishing sector in Kerala like other unorganized sectors. Figure shows about 23 percent respondents depend on cooperative banks and 19.4 percent depend on private sector banks. Only 13.8 percent respondents depend on public private money lenders. Again about 4.2 percent of respondents are depending on friends. During the survey certain qualitative information are collected regarding the purpose of their borrowing. It is found that Most of them are officially borrowing (from formal source like public sector banks and cooperative banks) money for fishery related activities, but unfortunately

a major chunk of credit is using for other purposes than fishing and allied activities. Their credit requirements (officially and unofficially recorded) include maintenance of fishery equipment's, nets, boats, education of children, marriage, day to day expenses as well as hospital related needs.

Socio- Cultural Status

It can be noted that fishermen community in the study area do participate in various organizations like political parties, trade unions, NGOs etc. Around half of them are participants in the political parties. Nearly 28 percent participate in trade unions and 3 percent fishermen participate in NGOs. It is also noted that 19.6 percent respondents do not participate in any of the organizations. Thus it is clear from the analysis that around 80 percent fishermen in the study area have participation in different organizations showing their interdependence and involvement in the social activities.

Participation of Fishermen in Different Organizations

It can be noted that fishermen community in the study area do participate in various organizations like political parties, trade unions, NGOs etc. Around half of them are participants in the political parties. Nearly 28 percent participate in trade unions and 3 percent fishermen participate in NGOs. It is also noted that 19.6 percent respondents do not participate in any of the organizations. Thus it is clear from the analysis that around 80 percent fishermen in the study area have participation in different organizations showing their interdependence and involvement in the social activities.

Table 14 Participation of Fishermen in Different Organizations

Sl No	Participation in Organizations	Number	Percentage
1	Political parties	147	49
2	Trade unions	85	28.3
3	NGOs	9	3
4	No participation	56	19.6
Total		300	100

Source: Primary survey

Modern technology in fishing

The fishing occupation is related to technology. The advent of modern technology in fishing sector is a question of discussion in the present study. Majority of fishermen engaged in fishery activities for more than 10 years face reluctant to adopt modern technology. However, it is interesting to note that majority of the respondents that is 60 percent adopt modern technology. Only 21 percent respondents in the study area do not adopt modern technology. It is also interesting to note that 18.6 percent fishermen are not aware of modern technologies. Thus it can be summarized that fishermen are not fully against modern technologies. They are ready to adopt changed in the technology side.

Table 15 Modern Technology in Fishing

Sl no	Modern technology infishing	Number	Percentage
1	Adopt modern technology	180	60
2	Do not adopt modern technology	64	21.3
3	No idea about modern technology	56	18.6
Total		300	100

Source: Primary survey

Women Folk Involvement in Fisheries sector

Fishing activities are traditionally done by family members together. Involvement of women also is seen in this occupation. Women are usually involved in post fishing activities like processing, selling etc. Hence the respondents are asked about women involvement in fishing occupation. It can be seen that among the 300 respondents 111 admit that there is women involvement in fishing related occupation. This figure includes the number of women respondents also.

Table 16 Women folk Involvement in Fisheries Sector

Sl No	Women folk involvement	Number	Percentage
1	Yes	111	37
2	No	189	63
	Total	300	100

Source: Primary survey

Nature of womenfolk Involvement

Women are involved in various types of fisheries related occupation in the coastal areas. Their activities include selling the final product, processing, cleaning vessels and boats etc. there is also overlapping of these

activities. Many women are engaged in more than one of the above occupation. However, 74 percent are involved in processing of fish products. 32 percent are used to go for selling activities. Cleaning related works are also assisted by women. Hence the active involvement of women is found in the fisheries occupation.

Women folk Involvement in Fisheries Activates

Fishing activities are traditionally done by family members together. Involvement of women also is seen in this occupation. Women are usually involved in post fishing activities like processing, selling etc. Hence the respondents are asked about women involvement in fishing occupation. It can be seen that among the 300 respondents 111 admit that there is women involvement in fishing related occupation. This figure includes the number of women respondents also.

Table 17 Women folk Involvement in Post fishing Activities

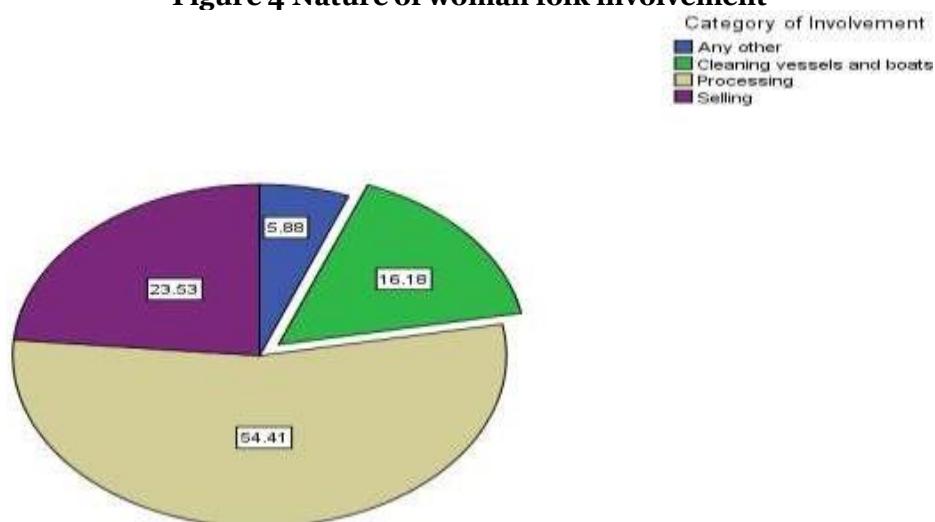
Sl No	Woman folk involvement	number	percentage
1	Yes	111	37
2	No	189	63
	Total	300	100

Source: Primary survey

Nature of Womenfolk Involvement

Women are involved in various types of fishing related occupation in the coastal areas. Their activities include selling the final product, processing, cleaning vessels and boats etc. there is also overlapping of these activities. Many women are engaged in more than one of the above occupation. However, 74 percent are involved in processing of fish products. 32 percent are used to go for selling activities. Cleaning related works are also assisted by women. Hence the active involvement of women is found in the fishery occupation.

Figure 4 Nature of woman folk involvement



In most food production systems technological changes, like mechanization, have usually resulted within the displacement of ladies from their ancient roles. This paper appearance at 3 totally different fisheries within the ancient sector within the central a part of the state of Kerala, Asian country and tries to analyse the changes in gender roles. The ring seine workplace that was ab initio little scale has currently remodeled into a capital intensive, high supercharged, labour intensive workplace with landings shifting from the beaches to the harbours. With the landings shifting to the harbours and changing into connected to the worth incentives of the market, girls have slowly been marginalized from promoting activity. The stake internet workplace is mostly practiced by the Dheevara community. Women square measure fully excluded from fishing operations and is available into the image solely once the catch is landed. In the localized clam fishery, women were once actively involved in handpicking for the clams. But motorised canoes gave more scope for men and hence women were displaced. These changes, would like fishery-specific interventions to grant girls bigger access to the advantages of the fisheries.

Youth in Fishing

An emerging trend found in the fishery sector of Kerala is the reluctance of the young generation to take up the fishery activities. Education is considered as the determining factor leading the new generation into the fishery sector or not. As it is noted the coastal community facing the problem in all basic sectors including housing, education, sanitation, hygienic issues, drinking water issues etc. Many children have the same complaint of their parents have no time to listen them, and they were always engaged in work and work

related activities. This is common in all parts of Kerala. The educated youth in the fishery sector do not like to take fishery as their occupation Nazy P. (2007). The primary data collected reveal the common recent trend as observed the agecomposition of fishermen and the arrival of children into this sector.

Difficulties Encountered in Fishing

Fishery activities are not so smooth and easy. They are involved several difficulties. The respondents are asked about the difficulties involved in the fishing occupation. The problems suggested are summarized as in table

Table 18 Difficulties Encountered in Fishing Sector

Sl. No	Problems	Percent
1	Cleaning vessels and boats	44
2	Damage caused to the fishing net due to rocks and dolphins	35
4	Shortage of kerosene	100
5	Lack of fish	92
7	Fisher men face unemployment due to seasonal fishing	100
8	Problems due to lack of nearby harbor	67
9	Banned on trawling	62

Source: Primary survey

Shortage of kerosene and seasonal fishing are the major difficulties faced by fisher folk in the study area. All respondents are facing the above said difficulties in their work. 92 percent of respondents are facing the difficulty of lack fish. About 67 percent of respondents are facing the problem of lack of nearby harbour. Only 35 percent respondents are facing the problem damage caused to the fishing net due to rocks and dolphins.

RECOMMENDATIONS AND SUGGESTIONS

Strengthening Fisheries Management Institutions

- Establishing a dedicated fisheries management authority or strengthening existing institutions to oversee the implementation and enforcement of fisheries regulations in Kanniyakumari District.
- Enhancing the capacity of fisheries department staff through training programs on sustainable fisheries management, law enforcement, and monitoring techniques.

Implementing Ecosystem-Based Management:

- Adopting ecosystem-based approaches to fisheries management that consider the ecological interdependencies between fish stocks, habitats, and human activities.
- Designating marine protected areas (MPAs) or fisheries management zones to conserve critical habitats and vulnerable species while supporting sustainable fishing practices.

Promoting Community-Based Management

- Encouraging the active participation of fishing communities in decision-making processes through the establishment of co-management arrangements or community-based organizations.
- Supporting community-led initiatives for sustainable fisheries management, such as participatory monitoring and enforcement programs.

Enhancing Livelihood Diversification

- Facilitating access to alternative income-generating opportunities for fishing communities through skill development programs, vocational training, and entrepreneurship support.
- Promoting diversification of livelihoods beyond fishing, such as aquaculture, eco-tourism, and value-added fishery products, to reduce dependence on marine resources.

Improving Infrastructure and Services

- Investing in the development of fish landing centers, storage facilities, and processing units to improve post-harvest handling practices and reduce post-harvest losses.
- Providing basic amenities and social services, including healthcare, education, and sanitation, to improve the quality of life for fishing communities.

Promoting Sustainable Fishing Practices

- Encouraging the adoption of sustainable fishing techniques, gear modifications, and seasonal closures to reduce bycatch, habitat damage, and overexploitation of fish stocks.
- Conducting awareness campaigns and training programs on sustainable fishing practices, fishery regulations, and the importance of conservation among fisherfolk and other stakeholders.

Enhancing Market Access and Value Chains

- Facilitating market linkages and access to fair markets for fisherfolk through the establishment of cooperatives, market networks, and value chain interventions.
- Promoting certification schemes, eco-labeling, and traceability systems to differentiate sustainably sourced seafood products and enhance market competitiveness.

Monitoring and Evaluation

- Establishing a robust monitoring and evaluation system to assess the effectiveness of fisheries management measures, track progress towards sustainability goals, and adapt management strategies as needed.
- Conducting regular assessments of fish stocks, habitats, socio-economic indicators, and governance structures to inform evidence-based decision-making and policy formulation.

CONCLUSION

The study on sustainable management and socio-economic impacts of fisheries in Kanniyakumari District, Tamil Nadu, has provided valuable insights into the challenges facing the fisheries sector and the potential pathways towards sustainability and socio-economic development. The assessment of fisheries resources revealed a complex picture of abundance, distribution, and health of fish stocks in Kanniyakumari District. While certain species may show signs of overexploitation or decline, others may exhibit resilience or recovery. Ecological assessments highlighted the importance of healthy habitats, such as mangroves and coral reefs, for maintaining fish populations and ecosystem resilience. The evaluation of current management practices identified strengths and weaknesses in the policy and institutional frameworks governing fisheries in the district. While existing regulations may provide a basis for sustainable management, enforcement mechanisms and institutional capacity may be inadequate. Community-based management initiatives and stakeholder engagement were recognized as essential elements for effective governance of fisheries resources. Analysis of socio-economic impacts revealed the significant contributions of fisheries to local livelihoods, income generation, and cultural identity in Kanniyakumari District. Fishing communities depend heavily on marine resources for their sustenance, yet they face socio-economic vulnerabilities exacerbated by factors such as poverty, limited access to alternative livelihoods, and inadequate social services. Strengthening enforcement mechanisms and institutional capacity for fisheries management and implementing ecosystem-based approaches that consider the interdependence of marine ecosystems and human activities promoting community-based management initiatives and stakeholder participation in decision-making processes and Enhancing livelihood diversification opportunities and access to alternative income sources for fishing communities and investing in infrastructure development, social services, and capacity-building programs to support the well-being of coastal communities. the study underscores the importance of holistic approaches to fisheries management that integrate ecological, economic, and social considerations. By addressing the interconnected challenges facing fisheries resources and fishing communities, sustainable management practices can contribute to the conservation of marine biodiversity and the enhancement of socio-economic development in Kanniyakumari District, Tamil Nadu, and beyond. Collaboration among government agencies, research institutions, civil society organizations, and local communities will be crucial for implementing the proposed recommendations and achieving lasting positive impacts in the fisheries sector.

REFERENCES

1. FAO. (2018). The State of World Fisheries and Aquaculture 2018 - Meeting the sustainable development goals. Food and Agriculture Organization of the United Nations. Rome. <http://www.fao.org/3/i9540en/i9540en.pdf>
2. Kanniyakumari District Fisheries Department. (Year). Annual Fisheries Statistics Report [Unpublished report].
3. Kumar, S., & Chandra, R. (2020). Socio-economic impact assessment of fisheries in coastal communities: A case study of Tamil Nadu, India. *Journal of Fisheries & Livestock Production*, 8(1), 1-7.
4. Muthuvel, P., & Vairamuthu, R. (2019). Fisheries resources and their conservation along Kanniyakumari coast, Tamil Nadu. *International Journal of Fisheries and Aquatic Studies*, 7(1), 136-140.
5. Nagarajan, M., & Selvaraj, G. (2017). Challenges and prospects of marine fisheries resources in Tamil Nadu, India. *Indian Journal of Geo-Marine Sciences*, 46(7), 1374-1381.
6. Ramachandran, C. (2019). Fisheries management in India: A review. *Indian Journal of Fisheries*, 66(1), 16-23.
7. Tamil Nadu Fisheries Department. (Year). Annual Fisheries Department Report [Unpublished report].
8. UNDP. (2019). Sustainable Development Goals. United Nations Development Programme. <https://www.undp.org/sustainable-development-goals> United Nations. (2015). Transforming our world: the 2030 Agenda for Sustainable Development. Resolution adopted by the General Assembly on 25 September 2015. A/RES/70/1.

https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_RES_70_1_E.pdf

9. World Bank. (2019). The World Bank in India: Overview. World Bank Group. <https://www.worldbank.org/en/country/india/overview>