

Full Length Research

Socioeconomics and profitability analysis of artisanal fisheries in Mahin Lagoon, Ondo State, Nigeria

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The study of the socioeconomic status of the fisher folks and profitability analysis of artisanal fisheries in Mahin lagoon, Ondo State, Nigeria conducted for 18 months (June, 2011 - December, 2012) showed that the artisanal fisheries was male-dominated (81.4%). Majority of the fisher folks were married. Gill net fishing was mainly practised (54%), followed by cast netting (23%). Over 70% of the artisans used paddled canoes as against 26% used motorised boats. Access to credit, extension services and improved fishing inputs were very low at 7, 5 and 7% respectively. Most fisher folks showed poor recording habit. About 92% of the fisher folks did not keep records of transactions and catches despite the relatively high level of literacy (60% of them had minimum of secondary education). Majority complied to the use of 50.8mm mesh size showing responsible fisheries activities. Dearth of infrastructural facilities like health centres, training centres, post-harvest storage facilities, electricity and water supply was observed in most of the fishing communities. The two major challenges facing them were high incidence of water hyacinth (*Eichornia crassipes*) and oil spillage. This calls for governmental intervention in the area of training and provision of infrastructures that would increase the living standard of the artisanal fisher folks. Financial analysis showed the use of paddled canoes by 74% of the fisher folks was less profitable than use of motorised canoes by 26% of the fisher folks. Annual Gross Revenue was ₦ 546,000.00 for paddle canoe owners as against ₦ 910,000.00 for those using motorised boats. Earnings before Tax for fishing with paddle canoes and motorised canoes were ₦ 186,000 and ₦ 370,000.00 respectively. Return on Sales (ROS) for paddled and motorised canoe users were 31% and 36% respectively. Return on Investment (ROI) was 49% for paddled canoe fishing and 93.1% for motorised boat fishing and while the Benefit-Cost ratio was 1.52: 1 for paddled canoe fishing as against 1.69: 1 for motorised canoe fishing. The diverse challenges facing the fisher folks call for provision of a conducive enabling environment by the government. There is a need for training and sensitization of Mahin fisher folks. Fisheries policy makers should also adopt a 'Bottom-up approach' to accommodate the specific needs of the artisanal fisher folks who were the major stakeholders.

Key words: Fisher folks, socioeconomics, infrastructure, benefit-cost analysis, artisanal, lagoon.

INTRODUCTION

The artisanal fisheries sector is important in Nigerian fisheries industry being the major contributor to the domestic supply of fish. Despite the importance of the coastal areas of Nigeria and the artisanal fisher folks, the standard of living is far from being enviable, hence the need to study the socioeconomic status of the fisher

folks with a view to coming up with appropriate management strategies. There is a dearth of information on socioeconomic status on the artisanal fisher folks of Ondo State. There have been past works by authors like Williams (2006); Omitoyin and Fregene (2008) and others on the neglect of artisanal fisher folks of Nigerian coastal waters. The bulk of poverty-stricken Nigerians are in the coastal areas characterized by intense anthropogenic activities and dearth of infrastructural facilities, hence the need for this present study (Bolarinwa, 2015).

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The purpose of this study is to conduct a socioeconomic survey of the fisherfolks of Mahin lagoon in the coastal waters of Ondo State, Nigeria and do a comparative profitability analysis of artisanal fisheries using paddled and motorised canoes. They are useful in decision making on utilisation, management and conservation of the resources in coastal waters of Ondo State (Adebowale *et.al*, 2008). There is therefore a need to study the socioeconomic characteristics of the Mahin fisher folks of Ondo State coast. Baseline data to be generated could help in rational evaluation of necessary management practices.

MATERIALS AND METHODS

The study area

The study area is located in Ilaje local government area of Ondo State of Nigeria. The local government area with a population of 277,034 according to National Population Commission census was created on 1st of October 1996 by the Federal government of Nigeria and consists of over 400 towns and villages covering an area of 3000 km². The study area is predominantly inhabited by the Ilajes. The primary occupation in this locality is fishing.

Ilaje local government Area has the longest coastline of about 180 kilometers in Nigeria. It is bounded in the West by Ogun State coastline, in the East by Delta and Edo States, in the south by the Atlantic Ocean and in the North by the land mass of Okitipupa and Irele local government areas. The study area is contiguous to Nigeria South West coastline which is characterized by extensive lagoons of Niger Delta systems. It ranges from 4 to 6° latitude and it is part of the approximately 670 kilometres coastline of Nigeria. There is a large concentration of mangrove and fresh water swamps. The area is subject to tidal fluctuations with salt water incursion, between two to ten months of the year (King, 1998). There are wet and dry seasons. The rainy season spans May-October while the dry season starts from November and end by April.

The primary source was through the use of both quantitative and qualitative sources. The primary source was through the use of both quantitative and qualitative sources. The quantitative source includes the use of 125 well - structured and validated questionnaires. The questionnaire was validated by given it to experts in the area for content validation. The qualitative data were obtained using participatory approaches such as: Focus Group Discussions, participation observation and in-depth interview with key informants. Secondary data were obtained from relevant journals, textbooks and publications. Data collected were subjected to descriptive statistical packages.

RESULTS

Tables 1 and 2 showed 95% of the fisher folks of Mahin lagoon were males, most of whom fell between 21-40 in age. The level of literacy was relatively fair since only 10% had no formal education. About 64% had up to secondary education. This however did not reflect in their record keeping habit which was observed to be poor. Only 8% of the fisher folks keep records of financial transactions. The major challenges facing the artisans were access to credit (50%), followed by transportation (19%), storms, sand dredging and poor storage facilities. Majority testified to inadequacy of infrastructural facilities like municipal water, electricity and storage facilities. About 93% of them claimed to have no access to improved fishing inputs like nets and outboard engines. This is also revealed by the high occurrence of paddle canoe users in the lagoon. Only 26 % used motorised boats. Gillnetting was mostly practised (54%), followed by cast netting (26%) while some used spears, hooks and line. Traps were mainly used by the women.

Despite admission of poor knowledge of fishing laws, majority of them used the recommended 2 ply 25.8 mm mesh- sized gill nets for fishing. Group fishing in pairs were most common (95%). About half of the fisher folks belonged to cooperative associations (55%). This was the major source of funding of fishing activities in the area. Majority claimed lack of access to formalised sources of credit. Access to extension services was also a major handicap to fisheries development in the area. Because of the infrastructural inadequacy, poor terrain of the creeks, most extension officers never visited the fisher folks for advice and sensitization.

The poor access to improved fishing inputs such as outboard engines was revealed by the lower gross revenue received by the paddled canoe users when compared with those using motorised boats. Financial analysis as shown in Table 2 observed higher earnings before tax of ₦186,000.00 per annum for those using paddled canoes as against ₦370,000.00 for those fishing with motorised canoes. Other performance indicators such as Return on Sales (ROS), Return on Investment (ROI) and Benefit-Cost Ratios were 36.3, 93.1 and 1.69%:1 respectively for motorised boat artisanal fishing. ROS, ROI and BCR were 31, 49 and 1.52%:1 respectively for paddled canoe fishing.

- The aforementioned projections were based on ₦3000 per day income for paddle canoe fishing and ₦5,000 for motorised canoe fishing, 5 working days /week and average fishing days of 260 assuming peak season of 6 months (April-Sept 2012) and off-season (Oct-Mar, 2012) for paddle canoe fishing.

DISCUSSION

The survey revealed 95% of the fisher folks of Mahin

Table 1. Socioeconomic characteristics and fishing practices of Mahin Fisher folks, Ondo State, Nigeria.

Features	Frequency (%)
Gender:	
Male.....	65
Female.....	35
Age(Years):	
21-40.....	63
41-60.....	33
>60.....	4
Religion:	
Christianity.....	93
Islam.....	2
Traditional religion.....	5
Marital Status:	
Married.....	81
Single.....	17
Divorced/widow/widowers.....	2
Widow/Widower.....	3
Educational Status:	
Primary Education.....	25
Secondary education.....	35
Tertiary Education.....	29
No formal education.....	10
Major Challenges:	
Credit:	50
Transportation	19
Dredging	10
Storms	10
Post harvest storage gadgets	11
Access to Fishing Input	
No access	93
Have access	7
Type of Fishing Gears Used:	
Cast net.....	23
Gillnet.....	54
Traps.....	14
Hooks & Line.....	3
Spears.....	6
Knowledge of Fishing Laws;	
Yes.....	5
No.....	95
Access to extension services	
No access.....	95

lagoon were males, most of who fell between 21-40 in age. Majority were married (81%). Various authors have

reported similar trend in most coastal communities in Nigeria (Agbebi, 1998; Abbas et.al, 2010; Adeleke, 2014)

Table 1. Cont

Have access	5
Group Fishing:	
In pairs.....	95
Triple.....	3
Single.....	2
Membership of Cooperative Society:	
Yes.....	55
No.....	45
Ownership of Boats:	
Paddle canoes	74
Motorised Boats	26
Record-Keeping:	
Keep records	8
Don't Keep records	92
Net Mesh Size Used:	
25.4mm ply	
50.8mm ply	10
76.2mm	82
101.6mm	3

Source: Field survey (2012).

There was dearth of social amenities in the coastal community. Table 1 showed the most pressing needs of the fisher folks to be credit, transportation and post-harvest storage facilities apart from social infrastructures like municipal water supply, electricity and health facilities. Similar findings have been reported by past authors (Williams, 2006; Babale, 2008; Omitoyin and Fregene, 2008; Bolarinwa, 2013).

About half of respondents in Mahin lagoon, Ondo coast used gill nets (54%), followed by cast nets locally called 'obiriki' (23%). Traps (used mainly by the women) accounted for 14%, hooks and line 3% and spears used by the some Ilaje fisher folks accounted for just 6%. The most commonly used mesh size of nets were 2" (50.8 mm ply) used by over 80% of the fisher folks shows most are involved in responsible fisheries.

About 95% of the respondents were involved in group fishing (usually 2) in Mahin lagoon. Major fishing partners are friends. Most of the spouses are involved in fish processing and marketing. Access to credit, extension services and improved fishing inputs were generally poor accounting for over 90% frequency of occurrence.

The higher financial viability of motorised canoe fishing over the use of paddled high energy-sapping canoes as revealed by profitability ratios such as Return on Sales (ROS), Return on Investment (ROI) and Benefit-Cost Ratios was due to the ability of the motorised boats to cover longer distance inshore to fish. It is more labour-

intensive to fish without outboard engines in stormy waters. Past workers have attested to the higher revenue received by the fisher folks using outboard engines, hence the need for government intervention in the supply of improved fishing inputs (Omitoyin and Fregene, 2008; Abbas et al., 2010; Bolarinwa, 2013).

Conclusion

From the study, it is obvious that the artisanal fisher folks have been neglected in terms of supply of improved fishing inputs like outboard engines and netting materials, credit and infrastructural facilities despite their immense contribution to the domestic fish output. There is therefore a need for governmental intervention in the area of provision of fishing inputs and credit at concessionary rates. There is substantial difference in the financial ratios/performance indicators such as gross revenue, gross profit, net profit before and after tax, Return on Sales, Return of Investment and Return On Equity and Benefit-Cost Ratio for those fisher folks using paddled canoes and those using motorised boats, hence the need for government intervention. By and large, there is a need for more in depth study of the species composition and quality of Mahin lagoon of Ondo State in view of the on-going crude oil exploration coupled with rapid industrialisation occurring in Olokola Free Trade

Table 2. Annual income and expenditure statements of artisanal fisheries (Paddled and Motorised) in Mahin Lagoon, Ondo State, Nigeria.

Paddled fishing		Motorised fishing	
Description	Value(N)	Description	Value(N)
-Income during Peak season	390,000	Income during Peak season	650,000
-Income during off-season.	<u>156,000</u>	-Income during off-season.	<u>260,000</u>
Gross Revenue		Gross Revenue	
Annual Operating Cost:	<u>546,000</u>	Annual Operating Cost:	<u>910,000.</u>
-Fishing Gears (monofilament)	23,900	-Fishing Gears(monofilament)	23,900
-Paddles	2,000	-Paddles	2,000
-Kuralone Ropes	12,600	-Kuralone Ropes	12,600
-Mending Ropes	1,200	-Mending Ropes	1,260
- Floats	18,900	- Floats	18,900
-Lead	42,000	-Lead	42,000
Annual Depreciation	1,900	Annual Depreciation	34,000
-Value of Home consumption (assumed to be 10% of catch)	54,600	Fuelling at 4t/day	104,000
-Labor Wages	12,000	-Value of Home consumption(assumed to be 10% of catch)	91,000
-Owner's Emolument	120,000	-Labor Wages	72,000
-Sundries	<u>10,840</u>	-Owner's Emolument	120,000
		-Sundries	<u>18,340</u>
Total Prod.Cost	<u>360,000</u>	Total Prod.Cost	
		Earnings Before Tax(EBT)	<u>540,000</u>
Earnings Before Tax (EBT)	<u>186,000</u>	Tax.....	<u>370,000</u>
Tax.....	<u>18,600</u>	Net Profit After Tax	<u>37,000</u>
Net Profit After Tax	<u>167,400</u>	PROFITABILITY RATIOS	<u>333,000</u>
PROFITABILITY RATIOS:		Return On Sales(ROS):	36.3%
Return On Sales (ROS):	31.0%	Return On Investment (ROI):	93.1%
Return On Investment (ROI):	49%	Benefit: Cost Ratio (BCR):	1.69:1
Benefit: Cost Ratio (BCR):	1.52: 1		

Zone to ascertain the water quality of the aquatic ecosystem as this could affect biodiversity.

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