

**Research Article**

Socio-economic characteristics of artisanal fishers in Lagos state brackish and coastal water, Nigeria

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ABSTRACT**ARTICLE INFO**

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The aim of this study was to investigate the socio-economic characteristics of fishers in coastal and brackish water of Lagos State (Okunbadore, Okunorimedu, Liverpool and Otolu). Seventy fishers were interviewed using questionnaire administered for period of four months (covering the dry and wet season). The findings revealed 99% of the respondents were males and majority of the respondents were in their middle age. The household size of the artisanal fishers ranged from 7 – 10 members. Further results revealed that 84% of the respondents had more than 10 years' experience in fishing activities, as 53% of artisanal fishers engaged in fishing on full time basis. In order of importance over-fishing, oil spillage and waste from domestic and industrial sources, noise boat engine and lack of regulation were reported as threat to the fishery resources. Insecurity or attacks by armed robbers, lack of access to credit were main problems reported. The study recommended that creation of monitoring team to regulate fishing activities, provision of fishery input at subsidized rate and provision of credit facilities at reduced interest rate as measures for solving all the problems.

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INTRODUCTION

Fisheries system is complex, it includes the environment, other aquatic organisms, fish and the people who harvest, utilize and manage these resources. In order to manage the fisheries system effectively a more ecosystem based approach has been suggested which include a consideration of habitat issues and system resilience (Francis *et al.*, 2007). To date, the artificial separation most major fishery problems in the world are due not to poor understanding or biological management of fish but to problems with fishers (Hilborn, 1985).

Pauly (1999) postulates that regardless of the fishery management program, whether market-based, co-management or specific types of governance arrangement, the local communities living in real places and exploiting local fishery stocks must be included in any research and management initiatives. The disconnection between biological knowledge and conservation success has led to a growing sense among scientists and practitioners that social factors are often the primary determinants of success or failure (Mascia *et al.*, 2003). Conservation and sustainable use of fisheries resources can only be achieved through appropriate management of human communities surrounding and using them. Several scientists (Ruddle, 1996; McCay and Acheson, 1987; Diegues, 2001) have emphasized the need to undertake studies that enhance

understanding of socio-economic and cultural factors that influence the value of coastal people to 'their' fishery resources.

Social and economic information about a fishery can help those who design and implement policy by giving them a fuller understanding of how management measures will affect and be affected by the individuals and groups involved (Pomeroy and Fitzsimmons, 1998). The current understanding of fisher behaviour, particularly in small-scale fisheries, is at best rudimentary (Abernethy *et al.*, 2007). It is against this background this study set out to investigate the socio economic status, livelihood strategies, fishing patterns, identify the catch composition and by-catch associated with fishing activities and traditional knowledge systems of artisanal fisher folks in coastal and brackish waters in Lagos State.

MATERIAL AND METHODS

Lagos state lies to the south western part of Nigeria and has boundaries with Ogun State both in the north and east. It is bordered on the west by the republic of Benue and the south, stretches for 180km along the coast of Atlantic Ocean. It therefore has 22.5% of Nigeria's coast line and occupied an area of 3.577sqkm. Landmass with about 786.94sqkm (22%) of it being lagoons, creeks, Lagos;

Ikorodu, Badagry, and Epe. The state is endowed with marine, brackish and fresh water ecological zone with varying fish species that provide fishing opportunity for fisher men. The surveyed for this study was carried out in coastal and brackish waters of Lagos State. The instrument for data collection was through questionnaire administered for a period of four months (covering the dry and wet seasons) in four predominantly fishing villages namely Orimedu, badore, Liverpool, Otolu and participant observations. Since the fishing population is made up of indefinite strata with different characteristics. Fishing villages were purposively chosen from high intensity of fishing activities and high population of fishers. Twenty respondents were randomly selected from each fishing villages in all 80 questionnaires were administered and a total of 70 questionnaires were retrieved and used for the study. Data collected included: socio- economic characteristics, fishing gear used, fish catch, by-catch, threats to fisheries resources and identified problems encountered by the fishers. Data were analyzed using descriptive statistics such as percentages, means and bar charts.

RESULTS AND DISCUSSION

Socio economic characteristics of the respondents

Table 1 depicts that the majority (98.6%) of the respondents were males. The disparity in disposition could be accounted for by occupational emphasis. Fishing in open waters is tedious for females to withstand hence over 70% of women are involved in processing and marketing of fishery products. From Table 1, the economically active age groups of respondents in the study area ranged from 30–39 years (40%) and 40-49 years (21.4%), that is a total of 61.4% of the respondents. The fishers within the age of 30-39 and 40-49 years of age are mature and able to withstand stress in fishing operations; they put more time and other resources in the business, thereby resulting in increased

output of fish. Many of the fishers still cherish strong family unions with 78.6 % married. Household were characterized by high dependency ratio. For instance 40% of the respondents' houses were having between 7 and 10 members in their families. It is obvious that a large household size offer free and cheap labor for the fishing household. Though this helps to increase the output of fish production, a substantial amount of fish is also used for household consumption and therefore reduction in overall household income.

The level of education is low in the fishing community with about 45.7% respondents of fishers had no formal education. The bedrock of development is education and a crucial gauge for enhancing human resource capital. Educated fishers can increase production through the use of improved methods by reading extension leaflets. About 48.6% of the respondents had between 10-20years of fishing experiences. As a result, the respondents with the highest number of years should have good skills and better approaches to fishing operations. Through experience the fishers could read the weather, water current and were able to pull their resources together to enable them increase their output and forecast markets situation in which they sell their products at the higher prices. Those with less years of experience especially below 10 years of experience depend on and mostly inherit their fishing tools from their parents or been paid wages from an older more experienced fisher in whom they work for. They faced more risk in the early days of their fishing operation as most of them lack funds to purchase a boat engine of their own and feeling inferior to belong to any fishers association due to wide gap in age difference.

Results of the survey indicated that about 52.9% artisanal fishers engaged in fishing on full time basis while the remaining respondents combined fishing with other economic activities. Fishers are not confined to fishing only but are involved in a diversity of livelihood activities (Bene and Friend 2009)

Table 1: Socioeconomic characteristic of the respondents

Input	Parameter	Frequency	Percentage	Mean
Sex	Male	69	99	
	Female	1	1	
Age(yrs)	Below 30 yrs	9	12.9	
	30-39 yrs	28	40.0	
	40-49 yrs	18	25.7	36
	50-60 yrs	15	21.4	
Marital status	Single	6	8.6	
	Married	55	78.5	
	Separated	9	12.8	
Education	No formal education	32	45.7	
	Adult literacy	2	2.9	
	Primary education	13	18.6	
	Secondary education	23	32.9	
Household size	1-5years	15	21.4	8.2
	6-10 years	24	34.3	
	11-15 years	28	40.0	
	Above 16 years	3	4.3	
Years of Experience	Below 4 years	15	21.4	12.6
	4-6 years	25	34.3	

	7-10 years	28	40	
	Above 10 years	3	4.3	
Other businesses engaged by the fishers	None	37	53	
	Artisanship	11	16	
	Transportation Business	14	20	
	Trading on household items	8	11	
Daily Income on fishing activities (Naira)	1000-1999	8	11.4	
	2000-2999	10	14.2	
	3000-3999	26	37.1	3400
	4000-4999	12	17.1	
	5000 and above	14	20	

Table 2 reveals that more than half of the respondents (58.6%) were into fishing professions because of profit while about 28.6% of the respondents reported that fishing was their family business and only 12.8% engaged in fishing for subsistence. Fishing strategies were driven by the need to serve subsistence purposes, social obligations and the choice to maintain fishing as a life style, and as part of traditional livelihood and social institutions (Kronen and Bender 2007).

Table 2: Factors motivating artisanal fishers

Motivating Factors	Frequency	Percentage
Profit	41	58.6
Self-consumption	9	12.8
Tradition/family business	20	28.6
Total	70	100

Most of the respondents (90%) used various kinds of gear to fish with 30% of the fishermen employed beach seine for fishing during the survey (Fig.1). The study revealed that 95% of the respondents used dugout canoes with outboard engine (Ghana dugout canoe) (Table 3). Bene (1996) states that switching between options of gear, species or location is simply a change in fisher's behaviours.

Table 3: Fishing Crafts used by respondents

Fishing Craft	Frequency	Percentage
Dugout Canoe paddle with bamboo stick	3	4.3
Planked Canoe with outboard engines	67	95.7

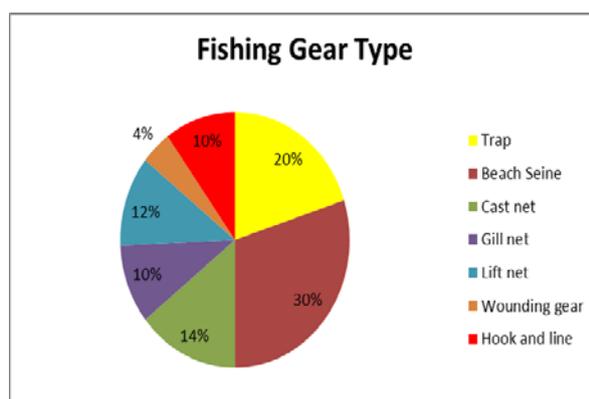


Fig. 2: Fishing gears used by respondents

From the table 4 about 84.3% of main catch of the respondents were fin fishes while 16% were shell fish. The vast Nigerian's inland, brackish and marine bodies of water contain enormous fin and shell fish resources with estimated total yield potential of 517,360 tonnes (Tobor, 1992).

Table 4: Catch composition

Species	Frequency	Percentage
Fish species	950	84.3
Shell species	177	15.7

The prevalent fish species observed in the study area include *Ethmalosa fimbriata*, *Pseudolithus typus*, *Carcharinus spp*, *Raja miraletus*, *Cynoglossus spp*, *Scoliodon terranovae*, *Dasyatis margarita*, *Conger conger*, *Carcharinus brachyurus*, *Sphyaena piscatorium*, *Lutganus gorensis*, *Arius spp*, *Sardinella spp* and *Galeoides decadactylus*. The shell fish identified included a total of 6 species namely *Callinectes spp*, *Ocyroda spp*, *Megalops atlantica*, *Penaeus spp*, *Cypraea spp*, *Caranx hippos* (Table 5).

Table 5: Predominant Fish species and shell fish caught by the Artisanal Fishers

Common Name	Local Name	Scientific Name
Bonga	Agbodo	<i>Ethmalosa fimbriata</i>
Croaker	Apo	<i>Pseudolithus typus</i>
Shark	Yanyan	<i>Carcharinus spp</i>
Skate	Apatamaja	<i>Raja miraletus</i>
Sole	Abo	<i>Cynoglossus spp</i>
Sharp nose Shark	Legure	<i>Scoliodon terranovae</i>
Stingray		<i>Dasyatis margarita</i>
European conger	Konga	<i>Conger conger</i>
Copper shark	Degide	<i>Carcharinus brachyurus</i>
Barracuda		<i>Sphyaena piscatorium</i>
Snapper	Igbukwe	<i>Lutganus gorensis</i>
Dermersal catfish	Kugbe	<i>Arius spp</i>
Sardines	Shawa	<i>Sardinella spp</i>
Threadfin	Opupu	<i>Galeoides decadactylus</i>
Crab	Akan	<i>Callinectes spp</i>
		<i>Ocyroda spp</i>
Crayfish	Ede	<i>Megalops atlantica</i>
Shrimp	Ede	<i>Penaeus spp</i>
Cowrie snail	Aje	<i>Cypraea spp</i>
Black-tailed trevally	Agasa	<i>Caranx hippos</i>

Figure 2 reveals the by catch composition associated with fishing activities during the survey. Shrimps and

undersize fish species were represented by 29% each, crab accounted for 21% while lobster and crayfish were often quit considerable in the catch.

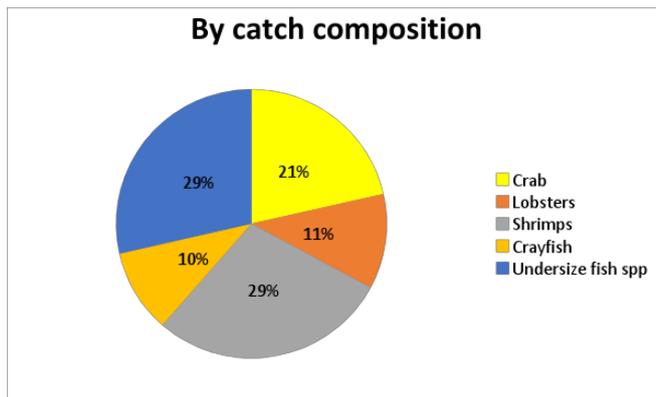


Fig. 2: The by catch composition associated with fishing activities

Analysis revealed that about 45.71% of the respondents consumed their by catch while 34% reported that freshly caught were usually sold to the local fish mongers. The remaining 17.14% of the respondents wasted the by catch by throwing it away either on the shore or into the sea (Fig. 3).

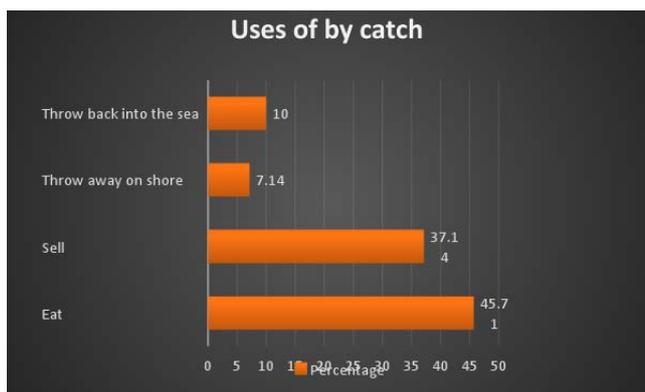


Fig. 3: By Catch Composition Associated with Fishing Activities

Table 6 shows that there are several reasons identified as threats to fishery resources in this study. The most important among them were overfishing, oil spillage and waste from domestic and industrial sources. Moses (1990) reported that overfishing, obnoxious / illegal fishing methods, siltation, and oil pollution as the major factors threaten fisheries resources in Nigeria.

Table 6: Threats to Fishery resources

Threats	Frequency	Percentage
Oil spillage and waste (domestic and industrial)	15	21.4
Over fishing	20	28.6
Lack of regulations	14	20
Noise from boat engine	14	20
Climate change	7	10
Total	70	100

Table 7 reveals the problems associated with fishing activities in study area. Some of the problems confronting the fishers were insecurity or attack by armed robbers

(42.9%), lack of access to credit (38.6%) and high cost of fishing inputs 11.4 %).

Table 7: Problems associated with Artisanal fishing activities

Problems	Frequency	Percentage
Lack of access to credit	27	38.6
Insecurity or attack by armed robbers at oceanfront.	30	42.9
High cost of fishing inputs fishing nets and crafts	8	11.4
Lack of spare parts for outboards engine	5	7.1
Total	70	100

CONCLUSION

This study provides information on the fishers’ socio economic status and fishing activities in the brackish and coastal water bodies of Lagos State. Based on the findings of the study it was found out that revealed 99% of the respondents were males and majority of the respondents were in their middle age. Analysis also revealed that 52.9% artisanal fishers engaged in fishing on full time basis while the remaining respondents combined fishing with other economic activities women. Data also revealed that oil spillage and waste from domestic and industrial sources, lack of regulations and climate change were reported as threats to fish resources. The problems associated with fishers’ livelihood include insecurity or attack by armed robbers, lack of access to credit, high cost of fishing inputs and lack of spare parts for outboard engines. It is therefore recommended that creation of monitoring team to regulate fishing activities, provision of fishery input at subsidized rate and provision of credit facilities at reduced interest rate as measures for solving all the problems.

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