LIVELIHOOD DIVERSIFICATION AND FISHERS' AGREEMENT WITH FISHERIES CONSERVATION POLICIES IN COASTAL AREAS OF LAGOS STATE, NIGERIA

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ABSTRACT

Natural resources are crucial to the livelihood and well-being of coastal communities. These resources are, however, depleting, affecting the dwellers' livelihoods. This study examines the household livelihood diversification and fishers' agreement with fisheries conservation policies in coastal areas of Lagos State, Nigeria. A multistage sampling procedure was adopted, and seventy-two fishers were randomly selected from five coastal fishing communities. Data were collected using a validated interview schedule and subjected to descriptive and inferential analytical techniques. Results revealed that the majority of the fishers were youthful between 21-40 years (76.4%) with a mean age of approximately 37 years, male (65.3%), and married (83.3%). The mean fishing experience and household size were computed as 16 years and 6 persons, respectively. Majority of the fishers operate on a full-time basis (94.4%) and during the morning period (77.8%). Findings indicated that the highest proportions of the fishers had household members whose livelihood diversification was moderate (37.5%) and high (34.7%). It was discovered that the most commonly used fishing gears were gill nets (77.8%), fish aggregating devices (73.6%), cast nets (68.1%) and seine nets (62.5%). The majority (91.7%) of the fishers indicated the exploitation of woods from mangrove areas, 55.6% reported the loss of fishing gears on the water, and 34.7% observed conflicts among water users. The awareness of fishing policies ranged from 0.0% to 32.0%. Closed areas and not keeping certain fish types were agreed by 59.7% as fisheries conservation policies. The study established significant associations between household livelihood diversification and agreement with the closed season (χ^2=21.696, p≤0.01) and not keeping certain fish types (χ^2=12.246, p≤0.05) as coastal fisheries conservation policies. The study concluded that coastal fisheries resources are depleting and do not guarantee sustainable fisheries development. It was recommended that government agencies should raise awareness of fisheries policies in coastal fishing communities.

Keywords: Closed season, Coastal fishery, Conservation policy, Fishing gear, Livelihood diversification

INTRODUCTION

Artisanal fisheries are the major source of employment and livelihood for people living in the riverine and coastal areas of the country (Olopade *et al.,* 2017). Eight coastal States—Akwa Ibom, Rivers, Cross Rivers, Bayelsa, Delta, Ogun, Ondo, and Lagos States—are located along Nigeria's 960 km of coastline, with coastal water stretching for 853 km from the east to the west (Olaoye and Ojebiyi, 2018). Fishing activities are prominent in coastal waters (Ogunsola, 2018). In addition to being widely available and less expensive than meat, fish is a good source of protein. Nigerians consume 40% of dietary animal protein from fish (Dada, 2007. According to FAO (2018), coastal fisheries contributed about 88% of the global fisheries production in 2016. In coastal communities, fishing provides the dwellers with direct and indirect economic opportunities (Agbebi *et al.,* 2020).

Coastal communities, primarily found in rural and semi-urban communities of Nigeria, are highly dependent on natural resources for their livelihoods and well-being (Agbeja, 2012). The communities' reliance on the natural resources (land, forest, oceans and other water bodies) makes them easily susceptible to the impacts of ecosystem degradation and natural resource depletion caused by population growth, urbanization, habitat degradation by spills and sand mining etc., fisheries depletion, public health and sanitation, lack of land use planning and coastal erosion (Agbeja, 2012). Though fishing is a significant activity in coastal areas, rural dwellers also venture into other income-generating activities through livelihood diversification, especially agriculture and other natural resource-based occupations. This, according to Agbeja and Jenyo-Oni (2013), is because coastal communities have diverse, varied and complex livelihoods.

Coastal areas are characterized by seasonal variations and fluctuations which affect the productivity of the fisheries sector regarding the availability of different species (Agbeja and Jenyo-Oni, 2013). According to the authors, seasonal changes in weather influence livelihoods by

providing peaks in employment, income and expenditure. Under-employment and rural-urban drifts are among the consequences of the seasonal variation in coastal areas. According to Agbeja and Jenyo-Oni (2013), some institutions have related and overlapping characteristics and conflicting policies and priorities. Livelihood is a process by which people make a living through specific capabilities, assets, and activities (Ellis, 2000). A livelihood refers to set of activities essential to everyday life that are conducted over one's life span. Such activities could include securing water, food, medicine, shelter, clothing, and access to these, that determine the living gained by individuals and households (Allison and Ellis, 2001, cited in Agbeja and Jenyo,-Oni, 2013). The livelihoods of fisheries communities are highly dependent on the health and sustainability of fish resources, the ecosystems that support them, the institutional arrangements governing the management of their social relationships, and identity maintenance (Wallman, 1984, as cited by Agbeja and Jenyo-Oni, 2013).

The fisheries system is a complex system made up of the environment, other aquatic species, fish, and the people that gather, use, and manage these resources (Olopade *et al.*, 2017), as an essential source of fish, conservation of the coastal resources through appropriate management measures, there is need to undertake studies that enhance understanding of socioeconomic and cultural factors influencing the value of coastal people to their fishery resources (Diegues, 2001). The current understanding of fisher behaviour is rudimentary (Abernethy *et al*., 2007). According to Francis *et al.* (2007), a more ecosystem-based approach is necessary for effectively managing the fisheries system. Conservation and sustainable use of fisheries resources can only be achieved through appropriate management of human activities and communities surrounding and using them. Agbeja (2017) also identified the effective management of the impact of human activities on the marine ecosystem and its surrounding environment as the primary issue to focus attention on towards achieving the sustainable development of marine fisheries resource use.

Livelihood diversification among the dwellers of coastal communities has been observed as an important human activity which can guarantee sustainable fisheries development in fishing communities. Hence, the study aims to assess household livelihood diversification and fisheries conservation policies of coastal areas in Lagos State. The specific objectives were to describe the socio-demographic characteristics of fishers in coastal communities of Lagos State, ascertain the fishing practices of the fisherfolks, assess the household livelihood diversification levels of the fisherfolks, identify the fishing gears used by the fisherfolks, determine the condition of coastal fisheries resources, and assess the fisherfolks' awareness and agreement with coastal fisheries conservation policies. The study also tested a hypothesis on the association between livelihood diversification and agreement with fisheries conservation policies at 0.05 levels of significance.

METHODOLOGY

This study was carried out in Lagos State, which lies in the southwestern part of Nigeria and has boundaries with Ogun State both in the north and east, on the west by the Republic of Benin and the south, stretches for 180km along the coast of Atlantic Ocean (Olopade *et al*., 2017). It has 22.5% of Nigeria's coastline and an area of 3.577sqkm (Shimang, 2005; Ogunsola, 2018). Landmass with about 786.94sqkm (22%) is lagoons, creeks, Lagos, Ikorodu, Badagry, and Epe. The State is endowed with marine, brackish and freshwater ecological zone with varying fish species that provide fishing opportunities for fisherfolks.

A multistage sampling procedure was adopted in this research. The first stage entailed the purposive selection of Badagry Local Government Area of Lagos State because it is one of the Coastal Local Government Area (LGA) in Lagos State with high fishing intensity. The second stage involved randomly sampling five (5) fishing communities along the coastline. In the third stage, about 50 percent of the fisherfolks in the selected fishing communities were chosen by simple random sampling. This resulted in a total of 72 fisherfolks from the coastal areas of Lagos State, which served as the sample size for this study. This study was based on primary research, which collected data with a validated interview schedule from the selected fisherfolks at their respective fishing communities. The data were subjected to descriptive (frequency, percentage, mean and standard deviation) and inferential (Chi-square analytical technique) statistics using the Statistical Package for Social Sciences – SPSS version 21.0. Results are presented in frequency distribution, charts and graphical methods.

RESULTS

Socio-demographic characteristics of coastal fisherfolks in Lagos State, Nigeria

Results on the socio-demographic characteristics of the coastal fishers in Lagos State are presented in Table 1. It shows that the highest proportions of fishers in Lagos State were in the age bracket of 31-40 years (52.8%) with the mean age and standard deviation being approximately 37 years. It was revealed that about two-thirds (65.3%) of the fishers in Lagos State were male. About one-fifth (20.8%)

of the fishers in Lagos State had no formal education, while 37.5% and 41.7% had primary and secondary education, respectively. Concerning marital status, Table 1 shows that the majority (83.3%) were married. Family type shows that about half (51.4%) of the fisherfolks in Lagos State were from extended families.

Also, 59.7% and 34.7% of the fisherfolks in Lagos State were from Yoruba and Egun/Awori tribes, respectively. It was further revealed that 59.7% and 36.1% of the fisherfolks in Lagos State had a household size of 1-5 and 6-11 persons, respectively, with mean household size and standard deviation being six persons and two, respectively. As shown in Table 1, 33.3% and 37.5% of the fisherfolks in Lagos State also engaged in fish processing and crop farming, respectively, while 30.6% of the fisherfolks in Lagos State do not engage in other occupations. On membership of association organizations/groups, Table 1 reveals that 15.3% and 18.1% of the fisherfolks in Lagos State belonged to fishers' associations and cooperative societies, respectively. In comparison, 66.7% were non-members of social organizations.

Table 1: Distribution of coastal fishers in Lagos State by socio-demographic characteristics

Socio-economic variables	Frequency	Percentage %	Mean
Age (years)			
21-30	17	23.6	**36.6 years**
31-40	38	52.8	**(8.8)***
41-50	12	16.7	
51-60	3	4.2	
>60	2	2.8	
Sex			
Male	47	65.3	
Female	25	34.7	
Highest educational attainment			
No formal education	15	20.8	
Primary education	27	37.5	
Secondary education	30	41.7	
Tertiary education	0	0.0	
Marital status			
Single	3	4.2	
Married	60	83.3	
Divorced	2	2.8	
Separated	7	9.7	
Family type			
Nuclear	35	48.6	
Extended	37	51.4	
Tribe			
Yoruba	43	59.7	
Egun/Awori	25	34.7	
Others (Agbon, Ghanian)	4	5.6	
Household size (persons)			
1-5	26	36.1	**6 persons (2)**
6-10	43	59.7	
11-15	3	4.2	
Other occupations			
Fish processing	2 4	33.3	
Arable crop farming	27	37.5	
Trading	5	6.9	
Others (gleaning, motorcycle transport, artisanal works, menial jobs)	10	13.9	
None	22	30.6	
Membership in associations/groups			
Cooperative societies	13	18.1	
Fishers' associations (e.g., Fadama)	11	15.3	
Community Development Associations	0	0.0	
None	48	66.7	

***Figures in parentheses () are standard deviations**

Fishing practices of coastal fishers in Lagos States, Nigeria

Results of the fishing practices of coastal fisherfolks are represented in Table 2. It shows that most (94.4%) of the fishers were into fishing on a full-time basis and that 30.6% and 52.8% of those in Lagos State had 1-10 and 11-20 years of fishing experience, respectively, with the mean fishing experience being 16 years. Table 2 reveals that 77.8%, 27.8% and 25% of the fisherfolks went fishing during the morning, overnight and evening periods respectively. The distribution of respondents by fishing duration reveals that the highest proportion (45.8%) of the fisherfolks spent 4-6 hours per fishing trip while 37.5% and 16.7% spent 7-9 and 1-3 hours per fishing trip with a mean fishing duration of approximately 5.7 hours per fishing trip. Table 2 further reveals that almost equal proportions (36.1%, 33.3% and 37.5%) of the fisherfolks used self, family and hired labourers, respectively.

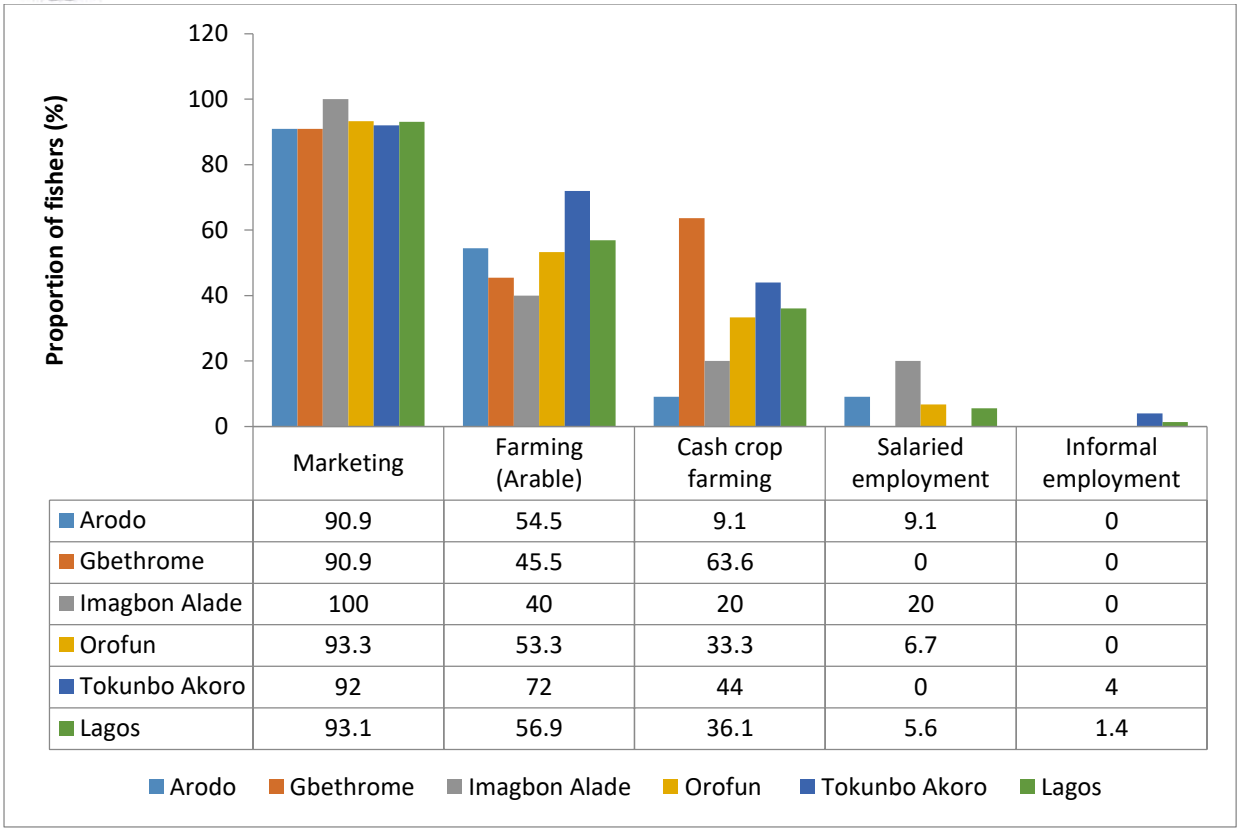
Table 2: Fishing characteristics/practices of the fisherfolk**s in Lagos States**

Fishing characteristics/practices of fisherfolks	Frequency	Percentage%	Mean (SD)
Mode of fishing			
Full time	68	94.4	
Part-time	4	5.6	
Fishing experience (years)			
1-10	22	30.6	15.8 years (9.1)
11-20	38	52.8	
21-30	10	13.9	
>30	2	2.8	
Period of fishing**			
Morning	56	77.8	
Afternoon	14	19.4	
Overnight	20	27.8	
Evening	18	25.0	
Fishing duration per trip (hours)			
1-3	12	16.7	5.68 hours
4-6	33	45.8	(2.168)
7-9	27	37.5	
Sources of labour**			
Self	26	36.1	
Family	24	33.3	
Hired	27	37.5	

****multiple response items**

Household livelihood diversification of coastal fisherfolks

Results presented in Figure 1 shows that 90.9% and 54.5% of the fisherfolks in Arodo were involved in marketing and arable crop farming, respectively. At Gbethrome, 90.9%, 45.5% and 63.6% of the fisherfolks were engaged in marketing, arable crop farming and cash crop farming, respectively. Additionally, it was revealed that all (100%) of the fisherfolks in Imagbon Alade were involved in marketing while 40.0% were engaged in arable crop farming. Figure 1 further reveals that 93.3% and 53.3% of the fisherfolks in Orofun were involved in marketing and arable crop farming. Figure 1 shows that 92%, 72% and 44% of the fisherfolks in Tokunbo Akoro were involved in marketing, arable farming and cash crop farming, respectively. Overall, the highest proportions (93.1% and 56.9%) of the fisherfolks in Lagos were involved in marketing and arable crop farming, respectively.



	Marketing	Farming (Arable)	Cash crop farming	Salaried employment	Informal employment
Arodo	90.9	54.5	9.1	9.1	0
Gbethrome	90.9	45.5	63.6	0	0
Imagbon Alade	100	40	20	20	0
Orofun	93.3	53.3	33.3	6.7	0
Tokunbo Akoro	92	72	44	0	4
Lagos	93.1	56.9	36.1	5.6	1.4

Figure 1: Livelihood activities of other household members (*multiple responses were allowed***)**

Results presented in Figure 2 reveal that the highest proportions of the fisherfolks in Lagos State had household members whose livelihood diversification was moderate (37.5%) and high (34.7%). On community basis, 54.5 percent of the fisherfolks in Arodo community had household members with a moderate level of livelihood diversification. Also, 45.5% and 27.3% of the fisherfolks in Gbethrome community had household members with high and moderate levels of livelihood diversification, respectively. At Imagbon Alade, 30.0%, 40.0% and 30.0% of the fisherfolks had no, moderate and high levels of household livelihood diversification, respectively. Figure 2 further reveals that 46.7% of the fisherfolks in Orofun community had household members with a moderate level of livelihood diversification. Figure 2 shows that 48 percent of the fisherfolks in Tokunbo Akoro community had household members with a high level of household livelihood diversification, while 28.0% and 20.0% had moderate and low levels of livelihood diversification, respectively.

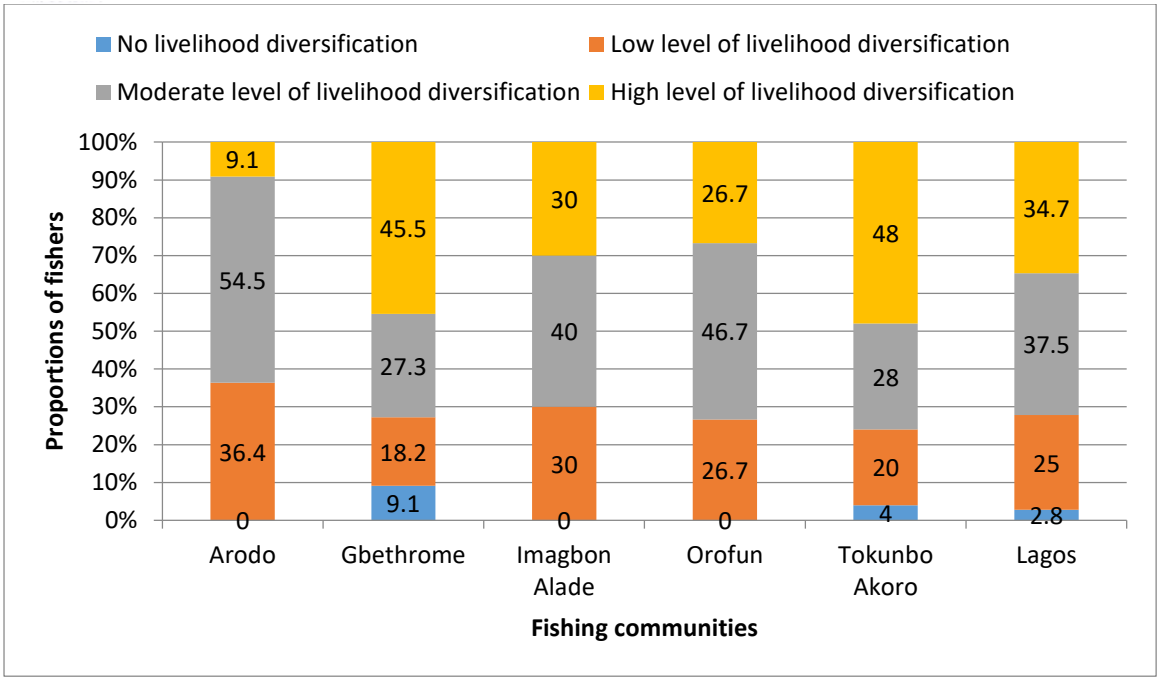


Figure 2: Fisherfolks' level of household livelihood diversification in Lagos State

Fishing gears among coastal fisherfolks in Lagos State

As shown in Table 3 same proportions (63.6%) of the fishefolkrs in Arodo and Gbethrome communities were using gill net, Fish Aggregating Devices (FADs) and cast net. Additionally, 63.6% and 45.5% of the fisherfolks in Arodo and Gbethrome, respectively, were using seine nets. Table 3 further shows that all the fisherfolks (100.0%) in Imagbon community were using gill net and seine net, while 90.0% and 70.0% of the fisherfolks in the same neighbourhood were using FADs and cast net, respectively. Gill net, seine net, FADs and cast net was used by 73.3%, 60.0%, 80.0% and 66.7% of the fisherfolks in Orofun community. Table 3 also reveals that 84.0%, 56.0%, 72.0% and 72.0% of the fisherfolks at Tokunbo Akoro were using gill net, seine net, FADs and cast net, respectively. And almost close proportions (77.8% and 73.6%) of fisherfolks in Lagos were using gill net and FAD. When pooled together, Table 3 reveals that gill net, seine net, FADs and cast net were used by 77.8%, 62.5%, 73.6% and 68.1% of the fisherfolks in Lagos State.

Table 3: Fishing gears used by fishers in Lagos State

Fishing gears	Arodo	Gbethrome	Imagbon	Orofun	Tokunbo Akoro	Lagos
Gill net	63.6	63.6	100.0	73.3	84.0	77.8
Seine net	63.6	45.5	100.0	60.0	56.0	62.5
Fish Aggregating Devices (FADs)	63.6	63.6	90.0	80.0	72.0	73.6
Cast net	63.6	63.6	70.0	66.7	72.0	68.1
Trawl net	9.1	18.2	20.0	13.3	32.0	20.8
Hook and line	9.1	36.4	40.0	33.3	20.0	26.4
Trap	0.0	18.2	10.0	6.7	8.0	8.3

Condition of coastal fishing resources

Results on the condition of coastal fisheries across study locations in Lagos State are presented in Table 4. It reveals that 81.8% and 60.0% of the fisherfolks in Arodo and Orofun communities reported conflicts among water users. None of the fisherfolks across the five studied locations knew of any protected area against fishing. Tangible proportions of the fisherfolks in Arodo (54.5%), Ghethrone (36.4%), Imagbon Alade (90.0%), Orofun (33.3%) and Tokunbo Akoro (64.0%) reported a loss of fishing gears on the water. All the fishers (100.0%) at Arodo, Ghethrome and Imagbon Alade communities indicated that woods are being exploited from mangrove areas, while 80.0% and 88.0% of the fishers in Orofun and Tokunbo Akoro, respectively reported the same. Overall, 91.7 percent of the fishers in Lagos State, indicated the exploitation of woods from mangrove areas, while 55.6 percent said the loss of fishing gears on the

water. Also, more than one-third (34.7%) reported conflicts among water users.

Table4: **Condition of coastal fisheries in Lagos State**

Condition of coastal fishers	Arodo	Gbethrome	Imagbon Alade	Orofun	Tokunbo Akoro	Lagos
Conflict among water users	81.8	9.1	0.0	60.0	8.0	34.7
Conflict with other fishers	9.1	0.0	10.0	0.0	0.0	2.8
Awareness of protected area against fishing	0.0	0.0	0.0	0.0	0.0	0.0
Fishers dumping fishing gear	0.0	18.2	10.0	13.3	12.0	11.1
Loss of fishing gears on the water	54.5	36.4	90.0	33.3	64.0	55.6
Experience of pollution	0.0	0.0	20.0	20.0	4.0	8.3
Wood exploit from mangrove areas	100.0	100.0	100.0	80.0	88.0	91.7

Awareness of fisheries conservation policies

Results presented in Figure 3 reveal that 32.0 percent of the fisherfolks in Tokunbo Akoro community were aware of coastal fisheries policies, while only 13.3%, 9.1% and 9.1% of those in Orofun, Arodo and Gbethrome communities were aware of the policies. However, none (0.0%) of the fishers in Imagbo Alade were aware of coastal fisheries conservation policies.

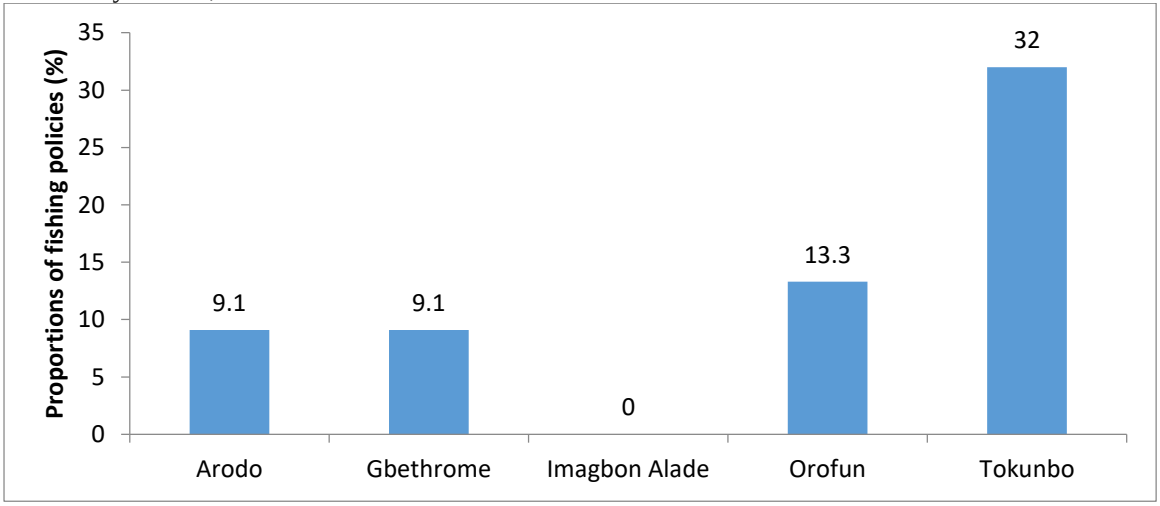


Figure 3: Fisherfolks' awareness of fishing policies in Lagos State

Fisherfolks' agreement with fisheries conservation policies

Table 5 presents coastal fisherfolks' agreement with fisheries conservation policies in the different study locations. It reveals that 53.3 percent of the fisherfolks in Orofun agreed with gear restriction. Also, 45.5 % of the fisherfolks in Arodo and Gbethrome agreed with gear restriction as fisheries conservation policies. The majority (81.8%) of the fisherfolks in Gbethrome, 46.7%, 45.5% and 44.0% of those in Orofun, Arodo and Tokunbo communities agreed with mesh size regulation. It reveals that 81.8%, 66.7% and 56.0% of the fisherfolks in Arodo, Orofun and Tokunbo Akoro communities, respectively, agreed with not keeping certain fish types. In comparison, 72.8%, 53.3%, 68.0% and 45.5% of the fisherfolks in Gbethrome, Orofun, Tokunbo Akoro and Arodo agreed with the closed area as fisheries conservation policies.

Table 5: Cconservation policies in Lagos State

Conservation policies	Arodo	Gbethrome	Imagbon Alade	Orofun	Tokunbo Akoro	Lagos
Gear restriction	45.5	45.5	20.0	53.3	44.0	43.1
Closed season	9.1	0.0	10.0	0.0	8.0	5.6
Mesh size regulation	45.5	81.8	10.0	46.7	44.0	45.8

Not keeping certain fish type	81.8	36.4	0.0	66.7	56.0	59.7
Closed area	45.5	72.8	0.0	53.3	68.0	59.7
Licenses to reduce fishing capacity	9.1	0.0	20.0	0.0	8.0	6.9

Association between household livelihood diversification and fisherfolks' agreement with coastal fisheries conservation policies

Table 6 shows the results of the Chi-square analysis on the associations between household livelihood diversification and fisherfolks' agreement with coastal fisheries conservation policies in Lagos State. It reveals that there were significant associations between household livelihood diversification and agreement with the closed season (χ^2 = 21.696, p≤0.01) and not keeping certain fish types (χ^2 = 12.246, p≤0.05) as coastal fisheries conservation policies.

Table 6: Results of Chi-square analysis on relationships between livelihood diversification and fisherfolks' agreement with coastal fisheries conservation policies in Lagos State

Coastal fisheries conservation policies	χ^2	df	p-value
Gear restriction	3.291	4	0.974
Closed season	21.696	4	0.001**
Mesh size regulation	7.300	3	0.505
Not keeping certain fish type	12.246	4	0.027*
Closed area	7.513	4	0.482

***indicates significant association at 0.05 levels of significance**
****indicates significant association at 0.01 levels of significance**

DISCUSSION

It was evident from the findings of this study that more than three-quarters of the fisherfolks in Lagos State were younger than 40 years. The mean age also indicated that younger persons dominated fishing. This finding aligns well with the position of Oose *et al.* (2017a) that artisanal fisherfolks are mostly active as only agile people can withstand the rigour of coastal fishing. Oose *et al.* (2015) had earlier submitted the dominance of people younger than 50 in coastal fishing. Osagie (2012), Odebiyi *et al.* (2013) and Olopade *et al.* (2017), in different studies, also found that majority of the fishers were youths in their active age. The current findings, however, contradicted the conclusion of Ogunsola (2018), who observed the shortage of youth in artisanal fishing due to rural-urban drift. The young age of the coastal fisherfolks could guarantee the sustainable development of coastal fisheries resources as youth are known to be energetic and innovative, contributing to increased productivity.

Though the male gender dominated fishing, the findings indicated that women's involvement in fishing is increasingly gaining prominence in coastal areas of Lagos State. Male dominance was also reported in the studies of Ogunsola (2018) and Bradley *et al.* (2020). They attributed this to the physical exertion involved in fishing which is considered to be beyond the capabilities of women. The findings indicated that fisherfolks in coastal areas had different levels of education, with the majority being considered literate which contradicts the findings of Agbebi *et al.* (2020), which indicated that artisanal fisherfolks in coastal communities had a low level of education. The fisherfolks' literacy level could enhance their involvement and participation in coastal fisheries policy formulation and implementation, as educated persons are more likely to contribute to developmental issues in society.

Furthermore, coastal fishing was dominated by married persons who were saddled with meeting the needs of household members such as children and spouses, as marriage confers some level of responsibility on both partners. Most previous studies (Okeowo *et al.*, 2014; Oose *et al.*, 2015; Agbebi *et al.*, 2020) among fisherfolks in Lagos and the other Southwestern States had reported similar findings that married men dominated coastal fishing. Since the participants are youth, it is highly possible that most of their household members would depend on them for their basic needs such as feeding, clothing, shelter and education. Fisherfolks were from nuclear and extended families, which has implications on the household size of the fisherfolks as nuclear families tend to keep smaller households than extended families. Additionally, it was indicated that coastal fishing was practiced by people from different tribes and ethnic groups. This could be a result of fishing communities and other rural areas accommodating people from Nigeria and neighbouring countries.

On distribution by household size, coastal fishing was dominated with persons with moderately large household size. This could be as a result from having fisherfolks with nuclear and extended families within coastal fishing communities. The average household size reported in this study is smaller than in previous studies (Oose *et al*., 2017b) among fishers in coastal fishing communities of Southwest Nigeria. The smaller household size could be linked to fishing households' inability to cater to large household sizes as fishing is becoming less lucrative owing to the dwindling and degrading coastal fisheries resources, which are getting worse daily. As further found from this study, coastal fisherfolks in Lagos State were also engaged in fish processing and arable crop farming, implying that the coastal fisherfolks heavily relied on agriculture-based, especially the fisheries resources. This agrees with the notion of Agbeja (2012) and Adeogun (2016) who argue that coastal communities of Nigeria are reliant on natural resources for their livelihoods and well-being and that this makes them highly vulnerable to the adverse effects of ecosystem degradation and natural resource depletion.

It also indicated that the coastal fisherfolks households in Lagos State had some level of diversification. This means that coastal fishing was not done on a full-time basis by some of the artisanal fisherfolks household members, and this agrees with a previous study (Olopade *et al.,* 2017) which indicated that only about 52.9% of the artisanal fisherfolks in Lagos State brackish and coastal waters operated fishing on a full-time basis. This finding supports the submission of Bene and Friend (2009), that are involved in multiple livelihood activities. Furthermore, many of the fisherfolks were non-members of social organizations, while only a few belonged to cooperative societies and fishers' associations. This implies the management of coastal fisheries resources as members of organizations will aid in their participation in coastal fisheries management. It was deduced that coastal fishing was dominated by full-time fisherfolks who had spent almost half of their age in coastal fishing, implying that the sampled fisherfolks had substantial experience in fishing. Experienced fisherfolks are expected to understand both the present and past conditions of coastal fisheries resources and, based on this understanding, contribute meaningfully to the design and implementation of fisheries conservation strategies. This is in tandem with Olopade *et al*. (2017) that fisherfolks with the highest years of experience should have good skills and better approaches to sustainable fishing operations.

The study also indicated that fishing was done in the coastal areas at different times, but those who went fishing during the morning dominated the sampled respondents. The preference for the morning period could be linked to intense heat and fear of dangerous animals, which characterized the afternoon and overnight periods (Olopade *et al*. (2017). It was further found that the fishers spent an average of 5.7 hours per fishing trip which means that though the fisherfolks spent a substantial period on a fishing trip, the time spent is still within the maximum number of man-day hours allotted to men. Finally, the study's findings indicated that labour utilized for fishing in the coastal areas was done by either the fisherfolks, their family members or hired labourers. This could have resulted from the differences in family types as fisherfolks from extended family members are likely to utilize family labour. In contrast, nuclear family members will rely either on themselves or hired labourers.

It was also evident that coastal fisherfolks had household members engaged in marketing, arable crop farming and cash crop farming. This further implies that coastal fisherfolks also diversified into marketing, arable crop farming and cash crop farming. Farming has been reported in previous studies (Nwabeze, 2016; Apata and Rahji, 2012) as an important means of livelihood in different coastal fishing communities. The findings also corroborate the results of previous studies (Oyesola and Oladeji, 2008; Nwabeze, 2016), which reported that rural dwellers, especially those in fishing communities, are involved in multiple income-generating activities as an adjustment and coping strategy against poverty. Variation in livelihoods results from differences in fisherfolks' access to livelihood assets, productive resources, and opportunities for securing livelihoods (Nwabeze, 2016).

Diversification, the process by which households engage in multiple income-generating activities, is both a risk-spreading and vulnerability-reducing strategy (Brugere *et al*., 2008).The findings also indicated that fisherfolks in Lagos State had substantial levels of diversification. A high level of household diversification could imply a lesser concentration of coastal fisherfolks in the management of coastal fisheries resources because, according to Brugere *et al.* (2008), diversification is a means of reducing dependence on the fisheries resource and making restrictive management more accessible and less controversial for those affected by such policies. Households' livelihood diversification could be attributed to the extent to which fishing is considered lucrative. Hence, those who perceive fishing as lucrative are likely to engage in fishing at higher levels. This is in tandem with the submission of Nwabeze (2016), who attributed the high level of livelihood diversification in Jebba Lake Basin to the non-lucrative nature of fishing in recent times.

The commonly used fishing gears among the coastal fisherfolks in Lagos State are gill nets, seine nets, FADs and cast nets, while trawl nets, hook and line and traps were not in use by most of the fishers. This implies that improved fishing gears are mainly used among coastal fisherfolks. Using these fishing gears could guarantee coastal fisheries conservation because most gears are selective. The coastal fisheries in Lagos State are characterized by wood exploitation from mangrove areas, conflict among water users, and loss of fishing gear on the water. Conflict within coastal communities could be linked to the variance between divergent interests, within limited and dynamic socio-spatial and ecological dimensions, with little effort at critical consensus (Adeogun, 2016). Loss of fishing gear on the water body could result in ghost fishing which is one of the reasons for the declining fish catch in coastal water bodies (Olaoye and Ojebiyi, 2018). The lack of awareness of protected areas against fishing activities is an indication that there are no areas protected against fishing. This implies that the coastal fisheries resources are not in excellent condition for sustainable development. The current status of the coastal fisheries could be among the reasons for the deficits in fish supply because it does not guarantee a sustainable supply of fish. This leads to the degradation of fisheries resources which makes them diversify into economic activities to access incomefrom alternative sources and allow fish stocks to recover (Cinner *et al.*, 2009).

It was further evident that there was a relatively low awareness of coastal fisheries policies among fisherfolks across the fishing communities. A lack of agreement among fisherfolks has been reported by a previous study (Azima *et al.*, 2018) that more than half of fisherfolks had no license to operate. The low awareness of these policies is an indication that fishermen, who are the primary stakeholders at the fishing community level, have been neglected. The neglect of these stakeholders in the design and implementation of fisheries development policies was also affirmed by Agbeja (2012). Due to this, Agbeja (2012) concluded that there is very weak equity in participation in the Nigerian fisheries development. This could be among the reasons for the noticeable poor condition of coastal fisherfolks in Lagos State. Olopade *et al.* (2017) also reported a lack of regulation as the main threat to fishery resources.

Despite the low awareness of coastal fisheries policies, it was evident that a substantial proportion of the fisherfolks in Lagos State were in agreement that not keeping certain fish types, closed areas, mesh size regulation, and gear restrictions were good strategies for improving fisheries conservation in coastal communities of Lagos State. The low awareness of fisherfolks in fisheries management, according to Araujo and Seixas (2013), is because fisherfolks only participate by consultation and by providing information because the decision-making process follows a top-down approach. Inferential statistics indicated that household livelihood diversification of the fisherfolks was significantly associated with the closed season and not keeping certain fish types. This implies that fisherfolks with lower household livelihood diversification are more likely to agree with these policies.

CONCLUSION AND RECOMMENDATIONS

It was deduced from this research that the fisherfolks were experienced in coastal fishing and operated mostly on a full-time basis in the morning. Despite their full-time operation, they diversified highly into marketing, arable and cash crop farming. It could be concluded that coastal fisheries resources are depleting and leading to conflicts among water users, which does not guarantee sustainable development. Therefore, fisherfolks in Lagos State should diversify more into non-fishing livelihood activities to improve natural productivity of the waterbody, thereby improving the yield and sustainability of the aquatic resources, and the government agencies should organize sensitization meetings with fisherfolks in coastal communities to increase their awareness of existing fisheries conservation policies. The fisherfolks should also be engaged in the design and implementation of fisheries conservation policies.

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