

COMMUNITY BASED FISHERY MANAGEMENT: A CASE STUDY OF ACADJA METHOD OF FISHING ON THE BADAGRY CREEK, OGUN STATE, NIGERIA

O.A. OLOPADE, O. I. TAIWO, D. AJIBADE AND F. A. ALUKO

ABSTRACT

The objective of the study was to elucidate and analyze key conditions for communal acadja system on the Badagry creek in Ipokia Local Government Area of Ogun State. A sample size of 120 respondents was used for the study. Data were collected with structured questionnaires and analysed with the use of descriptive statistics such as means and percentages. The study revealed that most (86.9%) of the respondents were fully involved in the communal acadja with only 9% of them participated primarily for income generation while the larger percentage of the respondents involved for subsistence. It was observed that the fishers have some degree of tenure on the area of installation because of traditional regulatory mechanism in place. However, some constraints faced by the fishers as a result of implantation of acadjas include abandon of certain fishing gears, changing of fishing grounds, small fishing grounds and destruction of fishing gears. It was therefore recommended that acadja systems should be planned and implanted in the context of multiple uses of water body that integrated acadja systems with fishing and migration.

Key Words: Acadja, , Community, Creek, Fishery.

INTRODUCTION

Fisheries and natural aquatic resources are attracting more and more attention as the 21st century unfolds. Human use and abuse of aquatic resources are growing almost uncontrollably with potentially dire consequences for fisheries and other aquatic biotic. Norse (1992) noted that most fishing stocks, currently used are believed to be fully or ever over exploited. As of 1994, the FAO has found that about 35% of the 200 major fishery resources are mature (i.e. plateauing at a high exploitation level), 40% are still “developing” and 0% remain at low exploitation (undeveloped) level. This indicates that around 60% of the major world fish resources are either mature or senescent and given that few countries have established effective control of fishing capacity, these resources are in urgent need of management action to halt the increase in fishing capacity or to rehabilitate damaged resources” (FAO, 1997).

Engineering of aquatic environment is one of the methods of rehabilitating damaged resources. FAO (2001) noted that engineering of aquatic environment to improve levels of reproduction, shelter, fish resources and vital habitat has been identified as one of the fisheries enhancement techniques. A wide range of habitat enhancements are being carried out in inland and marine fisheries, using traditional and recently developed technologies (Williams *et.al.* 1997, Cowx and Welcomme 1998, Morikawa 1999) Welcomme and Batley (1998) listed fish shelter as one of the techniques for stock enhancement. This technique is not alien to the cultural makeup of our fishers in Nigeria. For example Fagade (1969) and Kusemiju (1973) described the acadja fisher shelter in Lagos Lagoon and Lekki Lagoon respectively. The technique has been known to Ogun State fishers through their indigenous knowledge systems (Adekoya, 1997).

Acadja systems consist of an outer ring of hardwood or bamboo poles, inside which soft, brushwood branches 2-2.5m in length are either implanted upright in 50cm of mud or placed in a variety of patterns on the muddy bottoms in waters up to 1.5m deep (Balarin, 1987). Acadja is known to functions as protection or shelter for fishes, preventing early harvest of small ones and harvest of “pregnant” ones; as a means of increasing productivity in the long term by providing surfaces for growth of sessile organism and establishment of new food chain; as a fish-aggregating

device that concentrates fish for easier fishing and as a barrier against big fishing vessels that encroach from time to time on territorial waters.

Recent years have seen an increasing interest in acadja system in brackish water in Nigeria. The water bodies have been radically modified as a result of acadja system. These changes have been marked by vastly increase intensification of fish production from these water bodies. Solarin (1998) observed that the acadja accounted for 25% of the total fish produced in Lagos Lagoon. Despite its importance in terms of nutritional, social, economic and environmental benefits acadja has been associated with serious social impacts and have become famous for feuds over fish, fishing rights and allocation of those rights. For example, the anarchic development of acadja has led to conflict with other kinds of exploitation of water bodies such as navigation on individual fishing (Hem *et.al*, 1995). This social conflict led the local Beninese authorities to ban the practice in 1981 in the Lake Ayene region (Pliya, 1980).

Very little is known about the extent, degree of use and impact of acadja on the socio-economic of the fishers in Nigeria. To this effect there is the need to elucidate and analyze key conditions for communal acadja system on Badagry creek, where acadja is thriving and suggest better management and organization in terms of economic and social benefit.

MATERIALS AND METHODS

The study area is situated on the Badagry creek. It lies on the extreme corner of the western part of the Ipokia Local Governmen Area, Ogun State, Nigeria and stretches from Yewa lagoon to the Republic of Benin lat⁵26' and 2⁰45'E. An initial reconnaissance survey was carried out to identify the acadja. The acadja systems (consisting of bamboo poles, twigs and tree branches) estimated 5.6ha were found scattered on the creek in an irregular pattern mainly from Akere fishing village and stretches to Republic of Benin. The survey was carried out with the aid of structured questionnaire and visual observations in all the six fishing villages chosen for the study. From each village, 20 respondents were randomly selected. A total of 120 respondents were used in this study. Data collected were coded and analyzed using descriptive statistics.

RESULTS AND DISCUSSION

Socio-Economic Characteristics

Majority (67.43%) of the respondents interviewed were between 31 and 60 years of age while only 14.3% of the respondents fell within the age range of 20years and below. Only 4.2% of the respondents were above 60years old. This showed that the respondents were youthful and active but matured. Both men and women are involved in fishing activities on the creek, but the results indicate that majority (70.8%) of the respondents were males while females constituted 29.2percent (Table 1). The fishing population comprising of three tribes, half of the respondents (52.5%) were Eguns, while the remaining tribes were Eyos (34.2%) and Anagos (13.3%). Results also show that most of the respondents (69.2%) have not gone through formal education while 20% of them had primary school education and only 6.67% of the respondents had attended secondary school education. Poverty and irregular income are leading causes of low educational attainment in Africa (Bene and Heck, 2005).

The respondents have quite a long wealth of experience in fishing on the study area with most (60%) of them having more than 20 years (Table 1). Many (68.3%) of the respondents got their income from fishing and associated activities and only 31.6% of the respondents combined fishing with other livelihood activities like farming and trading. From Table 1, it can be seen that most (76.7%) of the respondents depended on the creek for all their fishing activities while the remaining 23.3% of them fished in other water bodies. The fishers are restricted to the creek because of the size of their boats and the design of their fishing gears.

Table 1: Socio-economic characteristics of Respondents

Variables	Frequency	Percentage (%)
Age		
Less than 20	11	9.2
21 – 30	23	19.1
31 – 40	43	35.8
41 – 50	28	23.3
51 – 60	10	8.33
above 60	5	4.2
Sex		
Male	85	70.8
Female	35	29.2
Tribe		
<i>Eguns</i>	63	52.5
<i>Eyos</i>	41	34.2
<i>Anagos</i>	16	13.3
Education		
No formal education	83	69.2
Primary education	24	20.0
Secondary education	8	6.67
Post secondary education	5	4.2
Occupation		
Fishing	82	68.3
Fishing and farming	22	18.3
Fishing and trading	16	13.3
Fishing Experiences		
1 - 5yrs	3	2.5
6 – 10yrs	12	10.0
11 – 15yrs	10	8.3
16 – 20yrs	23	19.2
above 20yrs	72	60.0
Fishing On Creek		
Occasionally	28	23.3
Everyday	92	76.7

Source: Field Survey, 2005.

Perception About Acadja

The survey found that all the acadjas are owned by the fishing communities and they reside in land based cluster villages near to creek embankment. Table 2 shows that most (80.0%) of the respondents were fully involved in the communal acadja. This could be attributed to long familiarity among residents, blood relationships and other cultural ties. Mitchell (1956) noted that the fundamental sociological element in African rural society is the extended family.

Another finding from the study was that only 10.8% of the respondents interviewed participated in communal acadja primarily for income generation while majority (89.1%) of them was involved for subsistence. In a typical African rural setting a high degree of interaction exists among household and economics is constrained by tradition, kinship and community-wide needs for security and survival. However, there is need to promote the communal acadja as a strategy for generating income for the fishers. The new code of conduct for responsible fisheries supports this (Article 6.19).

Table 2: Perception About Acadja

Involvement	Frequency	Percentage (%)
Fully involved	96	80.0
Not involved	24	20.0
Reason For Involvement		
Income generation	13	10.8
Subsistence	107	89.1
View On Individual Acadja		
Individual Acadja	68	56.7
Communal Acadja	52	43.3
Perception About Acadja		
Strategy for conserving fish stock	42	35.0
Cultural makeup	59	49.1
Obstacle to their sources of livelihood	19	15.8

Source: Field Survey, 2005.

Good fishers by nature are fiercely competitive and independent and therefore do not easily respect excessive constraints. The results in Table 2 show that about half (56.7%) of the respondents wanted to install individual acadja but they could not do so because of the fishing leaders decision for communal acadja. Community decisions appear to be of greater importance in establishing and maintaining patterns of resources use within rural settlement (Ruddle, 1984), moreso that the social and cultural forces that bind the fishermen into a relatively tight knit, cohesive group in which individual, for the sale of their group (Short, 1989).

Resources are socially defined; different stakeholders have different perception about resources. From the results in Table 2 large number of respondents (35%) perceived the acadja systems as a strategy for conserving fish stock, 49.1% of them sees it as part of their cultural makeup while about 15.8% of the respondents perceived it as hindrance to their sources of livelihood.

Property Rights Regimes

The concept of property regimes clarifies the question of who has access to control and protects the rights to resources (Sair, 1998) Table 3 reveals the condition of participation in commercial acadja system. Almost 69.1% of the respondents claimed that one must either live in one of the six fishing villages, 26.7% of them said having kinship ties while only 4.2% of the respondents claimed that willingness to cooperate with other fishers and be involved during implantation of acadja. The implication of this is that the fishers have some degree of tenure on the area of installation and rights to exclude others from fishing in the area. Property rights thus constitute the essential basis for effective management of fisheries. One of the main findings from the study was high degree of knowledge the fishers already had about rules and regulations that may be applicable to management of acadja (Table 3). It was showed that fishing in areas where acadja were deployed has been subject to a multitude of community regulations. However, more than half of the respondents 52.5% admitted to disobeying the regulations. This could be attributed to financial pressures on the members of community and lack of alternative livelihood.

Table 3: Property Rights Regimes

	Frequency	Percentage (%)
Condition of participation		
Live in one of the seven villages	83	69.1
Kinship ties	32	26.7
Involvement in implantation	5	4.2
Rules and Regulations		
Restriction of the use of certain fishing gears	96	80.0
Prohibition of fishing around acadja	85	20.8
Prohibition of the use of chemicals	111	92.5
Prohibition of the use of magical power in fishing	13	10.8
Protective measures against intruders	5	4.2
Compliance with rules and regulations		
No violators	63	52.5
Violators	57	47.5

Source: Field Survey, 2005.

Table 4: Impact Of Acadja On Fishing Activities

Effects of Acadja on Fishing	Frequency	Percentage (%)
Abandon of certain fishing gears	47	39.2
Changing of fishing grounds	32	26.7
Destruction of fishing gear	33	27.5
	8	6.7

Source: Field Survey, 2005.

Table 3 shows some constraints faced by the fishers as a result of implantation of acadjas on the creek. The table shows that 39.2% of the respondents reported that abandon of certain fishing gears that are susceptible to destruction of acadjas as their main problem. About 26.7% of the respondents said that changing of fishing grounds, a choice that can be ill afforded by fishers with limited fishing range while 27.5% of the respondents identified relatively small fishing grounds. Destruction of fishing gears by acadjas was identified by 6.7% of the respondents. The implication of the results is losses in income and supply of fisheries products creating conflicts in the fisherfolk communities. However, for acadja systems to develop sustainably, access to fishing grounds should be guaranteed and where necessary, regulated for the mutual benefit of fisheries and acadja system.

CONCLUSION AND RECOMMENDATIONS

The study revealed that acadja systems as an important community tradition activity employed in the control and exploitation of fishery resources in the study area. The systems were devised by community to ensure equitable distribution and a sustainable of fishery resources in the creek. However, there is need to promote the communal acadja as a strategy for generating income for the fishers. It is therefore recommended as follows:

1. The need for proper planning of acadja systems by map out sites on the creek based on stakeholder's knowledge and their understanding to avoid conflicts and achieve positive reinforcing interactions.
2. The need for capacity building among service providers to support and identify with acadjas systems through analysis of the diversity and dynamics of the fishers livelihood and their role in fishery resources management.

3. The need for improved access for poor people to materials, financial services, extension services and markets.
4. Acadja systems should be governed by certain guidelines and codes of conduct that do not allow for the abuse of environment.

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EFFECT OF DIFFERENT INTESTINES OF SEMEN COLLECTION AND BIOCHEMICAL EVALUATION OF THE SEMINAL PLASMA OF WEST AFRICAN DWARF BUCKS