Relative Efficiency of Innovated Traps in Small Scale Fishing Industry in Lagos Lagoon, Nigeria

Akinnigbagbe R.O[1], Akinnigbagbe E.A[1], Adeogun.O.A[1]., Jegede M.O[2].and Bolaji D.A[1]
[1]Nigerian Institute of Oceanography and Marine Research Lagos,
[2] African Institute for Science Policy and Innovation, Obafemi Awolowo University, lle-Ife, Nigeria
Corresponding Author: margaretolujegede@gmail.com.

ABSTRACT

The use of two innovated fishing traps in parts of Lagos lagoon namely; Badore, Makoko, Ilaje and Agboyi was investigated to determine their level of efficiency. These revealed various degrees of efficiency and selectivity in catching of fish resources from the lagoon. The local fishermen set their traps in the evening between 5pm and 6pm and retrieve it at 6am to 7am the following morning. The long hours of setting was believed to yield greater catch. The result of this work showed that fishing traps in Badore has increased the living standard of the fisher folks compared to other sampled fishing communities such as Makoko, Ilaje and Agboyi. From [the thirty questionnaires—ministered in each fishing community, the mean weight of fishes caught per canoe between May to September with the cylindrical basket traps (Igun) for fishes in Agboyi, Badore, Ilaje and Makoko were 203.6±5.89kg, 591.2±9.48kg, 110.4±12.39kg and 202.2±7.02kg respectively. For the wire made trap (Iyanmo), the mean weight of fish caught per canoe in Agboyi, Badore, llaje and Makoko were 216.8±5.09kg, 523.2±8.02kg, 107. 7±18.93kg, and 190.4S ±82kg respectively between May and September. In females of Tilapia guineensis the K-values varied from 0.12 to 30.73 as against 0.62 to 14.97 in the males. Male, Chrysichthys nigrodigitatus has a higher condition factor than the females and the K-values ranged from 0.71 to 0.97 while the females K-value range from 0.46 to 0.57. The lowest K-value was observed in the females of Chrysichthys nigrodigitatus with the largest body weight of 80.5. In Liza falcipinus, the females had a higher condition factor than the males. In females the K values varied from 0.10 to 0.21 as against 0.04 to 0.08 in the males. The lowest K-value was observed in the male that had the longest length of 35cm and corresponding largest body weight of 17.5g. Study revealed that the cylindrical basket traps for fish were more effective in Badore Lagos lagoon while the wire made traps were very efficient in catching fishes among Ilaje fisherfolks.

Keywords: *Catch per Unit Effort, Cylindrical basket trap, Fisher-folks, wire made trap, K-Value*

INTRODUCTION

Fish is a major and growing part of the diet of Nigerians; consumption is growing even faster than that of meat. According to a FAO (2007) project, in the year 2000, fish production in Nigeria grew by 22 percent while meat production grew by 6 percent. Between 2002 and 2009, fish production in Nigeria increased by 50 perhowever increased supply has not been able to match increased demand and Nigeria still remains Africa's largest importer with 620,000 MT in 2007. The high volume of fish importation constituted a large drain in the nation's foreign exchange reserve while the pressure of demand on the limited supply translates to high prices of fish and its products in the country (Adeyemi, 2011). Lamenting the shortfall of fish supply in the country, Adesina (2011) estimated the animal fish demand in Nigeria to be 2.66 million as against the annual domestic production of about 0.78 million, giving a gap of about 1.8 million metric tons. He expressed regret that the shortfall of fish supply in the country had led to a low annual per capital fish consumption rate of only 7.5 kilogrammes as against 15 kilogrammes per annum as recommended by

the Food and Agriculture Organization (FAO 2007). Oyemomi (2011) affirmed that increase in national fish production would not only diversify the country's resources base but also complement efforts aimed at achieving the Millennium Development Goals (MDG). He disclosed that an estimate of 10 million Nigerians were actively engaged in the upstream and downstream areas of fisheries operations, he said the contribution of the fisheries sub-sector to the nation's economy was significant ranging from employment creation to provision of raw materials for the animal feed industry. Nigeria is a Marine state of about 140 million people, with a coastline measuring approximately 853 kilometers. With this, the expectation is that Nigeria should be an exporter of aquatic foods. Sadly, however, Nigeria imports between 700,000 and a 900,000 metric tons of fish annually to partially meet a shortfall of 1,800,000 metric tons (Uba, 2012). Aquaculture experts in Nigeria has consistently reported an under-performance in meeting the targeted fish production quota, they note a huge gap in the demand and supply of fish. This huge gap between supply and demand forced Nigeria to import fish, making Nigeria one of the largest importers of frozen fish in West Africa (Ayinla, 2011). If situation will change, large and small scale fishing industries need improvement but research has concentrated more on large scale fishing thus living behind small scale fishing enterprise which is a major occupation and means of livelihood in developing countries such as Nigeria. It is on this note that this study focuses on improvement of fish productivity in Nigeria small scale fishing. To increase fish production in Nigeria, some factors come into play such as the improvement of the productivity of the aquatic environment and a review of methods used in catching the fishes.

The productivity of the aquatic environment can be increased by the construction and installation of artificial reefs and fish aggregating devices. These manmade structures provide shelters, food and breeding grounds for both fin and shell fish. Fish catching involves the use of different fishing gears which include the trawl net, cast net, lift net and traps among others. Traps are any form of semi-permanent staked net designed to intercept and hold fish during their daily or annual migrations within natural or artificial water bodies (Brandt, 1964). It is usually fitted with a device that deters the fish from leaving once they have entered. Trap fishing is a simple fishing method that has been used traditionally by fishermen all over the world to lure and catch aquatic animals (Brandt 1964). Traps have several advantages compared to other fishing gears; they do not need to be hauled. Brandt (1964) reported that each trap is provided with a mouth opening or entrance (with or without a non-return valve) and chamber(s) for fish collection, irrespective of the shape or the design or the material used in the construction. Traps have proven to be one of the most versatile types of fishing gear and have been modified to catch particular species and size ranges (NAFO 2016) and to exclude or reduce the entry of animals very similar to the target species. Traps used as sampling gears for stock assessment and biological studies, have originated from these designs in most cases. An effective trap should be one that filter out debris and catch fish unharmed. Trap catches are influenced by the season. Fagade and Olaniyan (1974) reported higher fish species diversity in the Lagos lagoon in the dry season (December to May) than in the wet season (June to November). A similar observation has also been reported by Solarin (1998) for the Lagos lagoon. Catch efficiency depends on the size, mouth opening, bait type, leaching time, tidal current and other factors.

Such gear retains the high quality of fish caught. Brandt (1964) reported that pots or the closely knit basket traps do not allow small fish to escape. Traps are highly selective for species and size of fish. The mesh size determines the lower length limit of fish trapped by Craig (1974) found wire-mesh traps with 0.64cm mesh trapped perch from 5cm and those of 1.28cm mesh caught fish from 9.5cm. The upper limit depends on the size of the funnel entrance. The funnel entrance can be round (winder mere perch trap) or vertical slit (carlander" trap, Swedish perch' trap). Within a species, the traps can also be selective for sex (Craig, 1974). The trap entrance, or funnel, can be regulated to control the maximum size of fish that enters. The trap mesh / hole size regulates the species size that will be caught. This is also a function of the type, model and characteristics of the trap being used. Sustainability of commercial fishes is best achieved when fishing gears are selective and have low impacts on bottom habitats (Philip et al. 2018). The efficiency of four different trap designs were tested in a serial collapsible fish trap in the south west coast of India. The oval shaped funnel design was discovered to be of better efficiency (Arun et al.). According to Ovegard and Lunneryd (2011), floating pots were not only specie selective but also reduced the proportion of undersized catch by more than 90% in a study that was carried out on the Atlantic. Different fishing traps were used in Nigerian fishing communities thus studies are needed that will assess the catching characteristics of these traps and also compare their efficiency across communities, fish species and condition factor of fishes caught. This gap is what the present study seeks to fill.

MATERIALS AND METHODS

After identifying the traps used in selected parts of the Lagos Lagoon, two of them based on similarity in their catches such as cylindrical basket traps for fishes (big) and wire made traps for fishes (medium) were monitored and studied to determine the frequency of the catches, investigate the fish species composition in relation to fishing gear selectivity.

Study Area

Lagos Lagoon is the largest lagoon along the West African coastline (Awosika and Dublin-Green, 1992). It is separated from the ocean by a narrow strip of barrier bar complex of the western Nigeria coastline. It lies approximately between longitudes 3024'E and 4000'E and latitude 60 26' 37'N with an aerial extent of 350km2. It has a rectangular shape with its longer axis running almost parallel with the orientation of the coastline. The longer west-east axis is about 60km long while the widest area along the north-South axis is almost 17km long. The lagoon has two arms; one connects it with the Lekki lagoon in the east while the second leads northwards into the hinterland. The Lagos Lagoon opens to the sea only through the commodore channel. This channel also serves as the only entrance to Nigeria's largest seaport of Apapa and Tin can ports. The Lagoon is drained by four main rivers, Ogun, Majidun, Agboyi and Aje with some other smaller rivers some of which are ephemeral. The origin and evolution of the Lagos lagoon is closely linked with the origin and evolution of the West African coastal geosynclines and classical theories of barrier- Lagoon origin. The fauna is composed of fresh, marine and brackish water species depending on the season. Among the fauna exploited for commercial purpose are; prawns, shrimps,

crabs, oysters and fishes. The Lagos lagoon had been primarily used for fishing as far back as early in the century. With increasing population along the shores and in the mainland it became a major waterway for commercial and private ferry and boat transportation, naval operations and lately for recreation.

Description of Study Sites

Four fishing communities were sampled, Ilaje, Makoko, Agboyi and Badore all in Lagos Lagoon. Agboyi represents the northern part, Ilaje represents the western part, Makoko represents south of west, while Badore represents the eastern part just to have a fair coverage of the Lagoon.

Ilaje

Ilaje area of Lagos lagoon is part of a series of fishing communities which is located within latitude 60 29' 36.6"N and longitude 30 22154.2' 'E. Ilaje is one of the fishing villages with a population estimate of about one thousand people. It is under Shomolu Local Government Area in Bariga, Lagos State. Ilaje is popularly known for its fishing activities in Lagos state with many developed fishing gears and traps that helped in fishing. Fishing activity is the major occupation practiced in Ilaje village and this does not exempt male and female both young and old ones. Most of the fisherfolks at Ilaje fishing community migrated majorly from Ilaje in Ondo State to settle down for fishing activities while some came from Badagry, they are called the "Eguns". These set of people comes and leaves to Badagry for business transactions.

Agboyi

Agboyi community is under Agboyi-Ketu Local Council Development Area of Lagos state situated within latitude 60 34' 57.2"N and longitude 30 24'26.5"E. It has a population of almost one million people with a ratio of 40:60 male to female (Internet Geography). Agboyi community is classified into three segments by the inhabitants namely Agboyi one, two and three. The three segments follows each other linearly while Ogun River and Lagos lagoon water intercepts at Agboyi. River Ogun flows in from different towns in Ogun State; namely Iganhun, Ibaraku, Abeokuta and others while the Lagos lagoon water flows from the towns within Lagos State. Fishing activities is well practiced all through the year in Agboyi community with the aid of different fishing gears that includes: the cast net, gill nets, circular lift nets which is locally known as "Garawa" for crabs, and traps of different types and sizes. Fisherfolks from Agboyi are majorly from Ogun state with the exception of few that are indigenes of Lagos State.

Makoko

Makoko is under Yaba Local Government Area situated within latitude 60 29' 36.6' 'N and longitude 30 2254.2' 'E, Lagos State. Over one million people mostly from Ilaje, Egun and Ijaw reside in Makoko but the greater population lives on water. Fishing is the major occupation practiced by both sexes in Makoko with the exception of few ones that dredges sand and mould blocks for building purposes. Makoko is popularly known for its productivity of fresh fishes which include both the shrimps and the crabs all through the year. Presently there is construction of bore-hole at

the newly built market called "Asejere market". These has really helped the fisher women to process the fishes in good form, either as fresh or smoked. It is reported that people also bring fresh fishes from Ijora-Olopa, Ido, Lagos state and takes it to "Agbami" which is the major fishing site for processing.

Badore

Badore is under Eti-Osa Local Government Area situated within latitude 60 30' 37.8' 'N and longitude 30 36129.9" E in Lagos State. It has a population of over one thousand people at fishing site. The major occupation of the people living in Badore is fishing but few are into quarrying and dredging of sand, boat carpentry and fetching of fire wood from the wild for fish smoking. It is reported that most of the sand dredgers are fishermen. Ministry of works and infrastructure are constructing jetty with terminal building at Badore to enhance the fishing activities in the community. Ministry of transportation, Lagos State Waterways are presently dredging ferry route from Ikorodu to Badore, this is to reduce the stress faced by the people in the community and also to reduce the cost of transportation.

Field Survey

In studying the efficiency of fishing traps in Lagos lagoon system, a combination of interview and field experiment was conducted. Thirty fisherfolks were randomly selected in each location and each fisherfolk was interviewed using structured questionnaire. These questions were meant to collect information on different traps and their efficiencies. This survey lasted for five months (May-September, 2009). Information collected were analyzed using statistical package for social scientists (SPSS).

Field Experiment: Setting of Fishing Traps at llaje and Badore Lagos Lagoon

The second phase of the study was based on collection of samples fortnightly with the use of two different fishing traps namely: the cylindrical basket traps for fishes (Igun), and the wire made traps (Iyanmo) and this lasted between February to April 2010. The cylindrical basket traps for fishes (Igun) and the wire made traps (Iyanmo) were set at Ilaje and Badore lagoon to be able to compare the two fishing villages that have the highest catches as reported by the fisherfolks.

Condition Factor of the catches at Ilaje and Badore Lagos lagoon

This indicate the state of well-being or the condition of fish species caught at Ilaje fishing community during the period of this study, that is, how lean or healthy (fat) the species are. It is represented with the formula below:

K=IOOW/L3

Where: W = Weight in Grams

L = Total Length

3 = Growth Exponent

K = Condition Factor

Catch per Unit Effort and Production Estimates of the Fishing Operation

Catch per Unit Effort (CPUE) is expressed as the average catch per day of a gear of a certain boat/gear type. Total fish production was estimated according to Solarin (1998) using this formula:

T= h x n x c.p.u.e

Where T = total fish production

h= average number of fishing days per month

n= estimated number of active or functional canoe units

c.p.u.e = catch per unit effort (kilogram per canoe per day per trip).

The Fishing Traps

The cylindrical basket traps for fishes and the wire made trap that are used in the fishing villages were examined and set to collect catches from Agboyi, Badore, Ilaje and Makoko. These traps, designed to catch fish are in form of cages or baskets made with various materials (raffia palms, wood, metal rods and wire netting). They are usually set on the bottom, with or without bait, singly or in rows, connected by ropes (buoy-lines) to buoys on the surface to show their locations.

Cylindrical Basket Trap for Fishes

This is the commonest trap used in rivers, lagoons, lakes and estuaries. It is cylindrical conical structure made from mid rib of palm fronds cane with two valves. The trap usually has two non— return valves with openings ranging between 35 to 40cm inward leaving only a narrow entrance. The length of the trap ranges between 70 and 90cm. It is used in catching both shellfish and finfish mostly by women and children. The basket trap is the commonest traps used in lagoons, rivers, lakes and estuaries. The materials for the trap are derived solely from the raffia palm. They consist of solid strands for the body of the trap and fibres for holding the strands in place. The strands are obtained from the midrib of the compound leaf (frond). This is scraped and split into long strands according to the size of the traps. Strands of about 0.5 mm wide and 100 cm long are used for medium to large traps. The strands are smoothed with sharp knives and bundled in readiness for use. Fibres for tying are extracted from the base of young raffia palm fronds and arranged in pairs in readiness for use. Actual trap-making involves twisting pairs of fibers over the raffia strands at regular intervals. When enough strands have been linked to form a sizeable mat, the mat is folded so that the two ends join up to make a cylindrical shape. The frond of a young raffia palm can also be used as a tying fibre if it is split lengthwise into four parts. The flexible stem of a climber plant is used to make a circular frame, which is slipped into the cylindrical trap and tied firmly to the trap using the same fibre. This gives the trap a firm shape. A conical door is made from tied strands and attached to the trap as an entrance. Another such door is placed midway into the cylindrical trap. The door has its base at an entrance to the trap and its apex inside the trap. With this design, the door allows fish to enter but prevent them from getting out again. The rear end of the trap is tied with the same fibre. The tying gives the trap its characteristic conical shape. It is commonly known as "Ogun" among the Yorubas.

Wire Basket Trap

This is a basket trap made of wire with stick at the frame of the mouth to form its shape. It has one entrance and can expand as the catches increases. It has been noticed for its effectiveness in catching fishes most especially *Chrysichthys nigrodigitatus* (cat fish) and *Clarias lazera* (mud catfish) and the crabs. It can harvest hundred fishes at a time

during the high peak of fishing. In Ilaje fishing village it's called "Iyanmo" and it is used without bait yet very effective. It is mostly constructed by the men and operated throughout the year.

RESULTS

Response from the fisherfolks at the four fishing communities sampled shows that the most prevailing fishes caught with the cylindrical basket trap made from the frond of raffia palm "Igun" and the wire made traps "Iyanmo" include tilapia, *Clarias nigrodigitatus*, barracuda, mullet, sardine, bonga, and shad among others. Traps are used in conjunction with baits, there are several baits used in the visited sites namely; worm, garri (mixed with cold water), maize shaft, shrimps, crabs, fish, beef/chicken, soap and termites, but usage varies from location to location. The most used traps were the cylindrical basket traps mainly by the women at Makoko, Ilaje and Badore fishing communities.

The Use of Fishing Traps in the Sampled Fishing Communities

Agboyi Fishing Community

Thirty-three percent of the fisherfolks in Agboyi fishing community use traps of different types, 30% use traps with acadja while others use the set net, cast net and the trawl net. Two traps are mostly used, they are the cylindrical basket traps (big and small) and the wire made trap (Iyanmo). At the locations visited, various traps are used but not with the same frequency, in Agboyi, the two traps in use are cylindrical basket traps (big and small) and the wire made trap (Iyanmo) and they are almost in the same proportion in terms of usage, 46.67% to 40% respectively while the remaining percentage (13.33%) use other fishing gears mostly among the women fisherfolks. The traps used are based on the fact that they record high percentage of catches, locally available and are cost effective. In Agboyi the species caught with cylindrical basket traps (big and small) and the wire made trap (Iyanmo) are *Chrysichthys nigrodigitatus, Elops lacerta, Tilapia guineensis, Channomuraena vitata, Liza falcipinus, and Arius gigas*. Though fishes were the major targets of the traps, crabs and rare cases clams find their way into them, baits used with the cylindrical basket traps (big and small) and the wire made traps (Iyanmo) are maize shaft, tiles, worms, crabs, fish and garri in little proportion which cost 300 naira per day. Sixty-three point six percent of the fishing traps are made by the women whereas 36.4% are made by men. The average cost of making big trap is 10,000 naira, medium size fishing trap costs 1,500 naira and the small size fishing trap is constructed at the rate of 150 naira each. The big trap lasts for 2 years, the medium size trap lasts for 8 months and the small size fishing trap lasts for three months. 62.07% of the fisherfolks set their fishing traps in shallow waters whereas 37.93% set their traps against the current. 66.67% set their fishing traps in the evenings and 33.33% set their traps in the morning. 63.33% of the fisherfolks collects their catches in the morning while 33.33% of the fisherfolks collects their catches in the evenings.

Ilaje Fishing Community

Ilaje fisherfolks uses traps of different types, 33% of the fisherfolks are engaged with the use of traps of different types only, 30% use traps with acadja, while others use the set net, cast net and the trawl net. Among the different fishing traps used in Ilaje, records shows that the cylindrical basket traps and the wire made trap has the percentage ratios of usage as 6.67 and 40 respectively. The women fisherfolks reported to value the fishing traps as being efficient and effective in carrying out successful fishing operation and the materials are locally available and are affordable by all. The fish species caught with the cylindrical basket traps and the wire made trap are *Chrysichthys nigrodigitatus, Elops lacerta, Tilapia guineensis, Channomuraena vitata, and Liza falcipinus*. Baits used with the cylindrical basket traps and the wire made traps are termites, shrimps, crabs, soap, eba and fish and these cost them 150 naira per day. Sixty three point thirty three percent of the traps are constructed by the women while 36.67% are constructed by the men. The big trap lasts for 2 years in Ilaje, the medium trap lasts for 8 months and the small size fishing trap lasts for 3 months. At Ilaje, 62.07% of the fishing traps are set in shallow waters while 37.93% are set against the current. 66.67% of the traps are set in the evening, 33.33% are set in the morning. 65.33% of the fisherfolks collects their catches in the morning.

Badore Fishing Community

Three traps are in use in Badore fishing community namely; the cylindrical basket traps (big and small), wire made trap and the bamboo trap with the percentage ratios of usage as follows: 17, 65 and 82.35 respectively. Species caught with cylindrical basket traps (big and small), wire made trap and the bamboo made traps are *Tilapia guineensis, Chrysichthys senegalensis, Chrysichthys nigrodigitatus, Elops lacerta, and Mugil cephalus*. The baits used with cylindrical basket traps (big and small), wire made trap and bamboo made traps are garri, fish, maize shaft and worms in little proportion which cost 100 naira per day. 60% of the fishing traps are made by men and 40% of it is made by the women. Ten thousand naira is the amount been used to construct the big trap, 1,000 naira is used to construct the medium size fishing trap and 500 is used to construct small size fishing trap. The big trap lasts for I year, the medium size fishing trap lasts for 6 months while the small size fishing trap do last for 3 months. Badore fisherfolks set their fishing traps in shallow waters. 96.43% of the fisherfolks set their traps in the morning and 3.57% of the fisherfolks set their traps at night. 96.43% of the fisherfolks collects their catches in the evenings and 3.57% collects their catches at night.

Makoko Fishing Community

Traps of different types are used in Makoko fishing community, 61% of the fisherfolks in Makoko use traps of different types, 33% use of Acadja while 6% use the lift net. Makoko records three types of traps namely; cylindrical basket traps, lift net and the wire made trap with the percentage ratios of usage as follows: 51.85, 25.93 and 22.22 respectively. Species caught with cylindrical

basket traps (big and small), wire made trap and the bamboo made traps are *Tilapia guineensis , Sarocentron hastatus, Arius gigas, Scarus hoefleri, and Cynoglossus browni* while the baits used with cylindrical basket traps (big and small) is acadja, liftnet for crabs and for the wire made traps are worms, garri and beef/chicken in little proportion which cost 200 naira per day. Traps in Makoko are made by both male and female. 72.73% are made by women whereas 27.27% are made by men this is because the men preferred to use other fishing gears to traps while the women finds the fishing traps to be easily handled by them. Big trap is constructed for 12,000 naira each, medium size fishing trap is constructed for 2,000 naira and the small size fishing trap is constructed for 700 naira each. The big trap lasts for I year and 2 months; the medium will last for 6 months while the small fishing trap lasts for 3 months. 55.6% of the fisher-folks set their fishing traps in the evenings whereas 44.4% set their fishing traps in the morning. 56.67% of the fisher-folks collects their catches in the evenings and about 43.33% collects their catches in the morning.

Catch per Unit Effort of Fishing Traps at the Fishing Communities Sampled

Catch per Unit Effort with Cylindrical Basket Traps

The mean weight of fish caught per canoe for five months with cylindrical basket trap (Igun) in Agboyi fishing community was 203.6±5.89kg while in Badore, the mean weight of fish caught per canoe between May to September, 2009 was 591.2±9.48kg. Also the fisher-folks in Ilaje fishing community used the cylindrical basket trap (Igun) within the study period and the mean weight of fish caught per canoe is 110.4±12.39kg and lastly, the mean weight of fishes caught per canoe for five months at Makoko fishing community is 202.2±7.02kg with Igun.

Catch per Unit Effort of the Wire Made Trap

In Agboyi, the mean weight of fish caught with wire traps was 216.8±5.09kg between May and September, 2009. In Badore, the mean weight of fish caught per canoe during the same period was 523.2±8.02kg. The fisher-folks in Ilaje fishing community using the wire made trap within the same period recorded 107.7±18.93kg while fisher-folks in Makoko recorded 190.45.±82kg.

DISCUSSION Efficiency of Artisanal Fisheries in Lagos Lagoon

The use of fishing gear (traps) in Lagos lagoon reveals various degrees of efficiency and selectivity in catching of fish resources. This study was conducted to provide information on the efficiency of fishing traps and their possible effect on the fish fauna in Lagos lagoon. The most used traps were the cylindrical basket traps mainly by the women at Makoko, Ilaje and Badore fishing communities. The wide use of fishing traps in lagoon was because of its versatility, low cost and ease of operation. The entrance / valve of no return mouth aperture prevent fish escape and also determine the size of fish that would be caught. The bait used in the study areas were maize shaft, worms, garri, crabs, fish,

termite, shrimp, beef, chicken and soap depending on the most preferred by the individual. However, from interviews conducted the traps could be baited or unbaited. The local fishermen set their traps in the evening between five and six o' clock and retrieve it at six to seven o' clock the following morning. The long hours of setting was believed to yield greater catch (Emmanuel, 2009). Women in the studied areas show some levels of competence in the area of basket trap operation. The involvement of women in the basket trap operations contrast with the general beliefs that women are responsible for the collection of the invertebrate only; or, that women only occasionally perform men's fishing (Matthew, 1991). A well-constructed big trap can last for a year or more if properly handled and kept after use. The site of the setting should be where there is low current velocity or not close to navigable area which could disturb the efficiency of the traps and the stakes should be constantly checked to see that it is strong enough and still holding tight to the soil.

Efficiency of fishing traps set at Ilaje and Badore Lagos lagoon

Thirty-five samples of *Tilapia guineensis* caught from Ilaje Lagos lagoon ranges between 4.5cm to 35cm and the ratio of male to female was 16:19 . Tilapia guineensis shows a direct relationship between length and body weight, length of 35.0 cm has a body weight of 50.2g while length of 4.5cm has a body weight of 28.0g which indicates an increase in length corresponds with an increase in body weight. The seven samples of Chrysichthys nigrodigitatus caught from llaje Lagos lagoon was three males and four females. The length of these samples ranges between 18.0 cm to 26.0 cm and it shows a direct relationship between length and body weight, length of 26.0g has a body weight of 80.5g while length of 18.0cm has a body weight of 56.0g which indicates an increase in length corresponds with an increase in body weight. Also five samples of Liza falcipinus was caught from Ilaje Lagos lagoon. The ratio of male to female was 2:3. The length of Liza falcipinus ranges between 25.0cm to 35.0 cm and it shows a direct relationship between length and body weight, length of 35g has a body weight of 17.5g while length of 25.0cm has a body weight of 12.5g which indicates an increase in length corresponds with an increase in body weight. This agrees with the earlier studies involving fish species from different water bodies by Fagade and Olaniyan (1974). Females Tilapia guineensis had a higher

condition factor than the males. In females the K-values ranged from 0.12 to 30.73 as against 0.62 to 14.97 in the males though the lowest K-value was observed in the female. Male Chrysichthys nigrodigitatus had a higher condition factor than the females and the K-values ranged from 0.71 to 0.97 while the females K-value ranged from 0.46 to 0.57. The lowest K-value was observed in the female that had the largest body weight of 80.5kg. In Liza falcipinus, the females had a higher condition factor than the males. In females the K- values ranged from 0.10 to 0.21 as against 0.04 to 0.08 in the males. The lowest K-value was observed in the male that had the longest length of 35cm and corresponding largest weight of 17.5g. This study identified that the use of all the fishing traps in Badore yielded value and has increased the living standard of the fisher-

folks. The Catch per Unit Effort (CPUE) of all the fishing traps in Badore fishing community is higher compared to Makoko, Agboyi and Ilaje fishing community. Based on the Catch per Unit Effort of fishing traps experimented at Badore and Ilaje fishing communities, this study agrees with the response of the fisherfolks that the cylindrical basket trap for fish is more effective in Badore Lagos lagoon while the wire made traps are very efficient in catching fishes among Ilaje fisher-folks.

CONCLUSION

It is suggested therefore that each community be encouraged to use such fishing methods that are more cost effective, and have greater yield in other to boost productivity to meet up with the demand for fishes and reduce the high volume of fish importation in Nigeria.

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