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CHRIST THE TEACHER INSTITURE OF EDUCATION

NAIROBI CAMPUS

IMMATURE FISHING: A THREAT TO FOOD SECURITY IN UGANDA.

A CASE STUDY OF MAJANJI LANDING SITE BUSIA (UG)

A Project submitted to the Department of Education in Partial Fulfillment of the Requirements for the award of the Degree of Bachelor of Science in Education.

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STUDENT'S DECLARATION

This Project is my original work and has not been submitted in any other college, Institution or University for the award of degree.

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DEDICATION

This work is dedicated to my parents, Mr. Nkonoka Hilary, Theopista N. Nkonoka Brothers and Sisters, Mr. Nsubuga Charles, Deodata Nsubuga and family for their special love and care, above all for the gift of life. Special thanks to the Superior General, Mother Elizabeth and Councilors, the Congregation of the Little Sisters of St. Francis of Assisi, Dabani Community, Mr. Musoke and family, Sr. Lwanga and Mr. Kizito for proof reading my work.

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ABSTRACT

This study undertook to investigate immature fishing considered a threat to food security at Majanji landing site Uganda.

The research was based on three main specific objectives:

To investigate on whether immature fishing is a threat to food security. In addition, to investigate about the public and the government's awareness of the extent immature fishing has reached the lakes and rivers in Uganda and lastly, to give suggestions and recommendations that can assist the government and all Ugandans fight immature fishing on lakes and rivers.

The study sample consisted of fishers, the Local Council, Local People representatives, and Fisheries Department representative at the landing site. Questionnaires, interviews, observation, measurement and the camera were employed in the collection of data.

Study findings reveal that there are several factors that contribute to the choice of the use of illegal fishing equipments. Such factors include high costs of fishing equipments, lack of seminars and awareness programmes, bribery among Fisheries Officers and understaffing in the Fisheries Department.

It was also noted that the practice has led to scarcity of mature fish, a drop in the country's revenue, increase of the people carrying on fishing at the landing site, illegal fishing nets were in use and locally made fishing nets in place instead of the legal ones. All these indicate that immature fishing is a threat to food security at Majanji landing site and in the country at large.

To ensure that there is food insecurity in the country the study propose the following:

Awareness should be brought to all people of the importance of fish. The resource is a renewable one that can sustain both external and internal demands through which an increase of foreign revenue is realised. More so, seminars should be organized for the leaders.

Lastly, the government should see to it that fishing equipments reach the fishers at subsided prices and also make several checks on the resource since it has proved to be one of the country's money generating industries.

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LIST OF ABBREVIATIONS

GDP	Gross Profit
Ushs	Uganda Shillings
BMU	Beach Management Unit
NEMA	National Environment Management Authority
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
CTIE	Christ the Teacher Institute of Education
mm	millimeter
Sq.km.	Square Kilometer
FAO	Food and Agriculture Organization (The United Nations)
UG	Uganda Government

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CHAPTER ONE

1.0 Introduction

Immature fishing activities have became a major concern for the Government of Uganda during the late decade, to the extent that numerous check points have been established country wide to net people who are engaged in immature fishing practices. However, the malpractice continues.

To find a solution to this problem, the researcher has made an effort to get the magnitude of this malpractice and its root cause so as to come out with suitable recommendations that can assist the authorities to control it, for fish is one of the major food stuffs of the world and Uganda in particular. In addition, it is an economic booster for the country. Bad fishing habits such as those practiced at Majanji landing site will not only deprive the country of the essential food derived from fish but will cripple the economy of the country.

Ssemujju 1999 reports that, about 136,000 people are involved in artisan fishing and over 700,000 in related activities of fish processing fish transportation, fish trade and boat building.[1] According to Kagoda 2001 the population of 3.5 million people directly yet income from fish and is the second highest force earnings with 12 processing factories. He adds that fish export earnings to Uganda have increased from less than Ushs 1,000,000 to approximately Ushs 4,400,000 per annum in the last decade.[2]

According to the report given by The Ministry of Agriculture Animal Industry and Fisheries 2000 Uganda has substantial fisheries resources due to its many fresh water lakes and rivers.

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[1] "Will Fish Return to the Menu?", The Monitor, 12.
[2] The fish and fishing Industry, 36.

In 1995, the fisheries sub- section alone contributed about 2% of the total GDP. Therefore if the resource is protected and handled well it can sustain many within the country and the outside world.

Lake Victoria is the second largest lake in the world, with over 4000 landing sites on the side of Uganda. Lake Victoria covers 684,457 total area (sq. km), has 1134 meters height above sea level and 82 meters depth. Fish and fish products contribute over 60% of the country's total protein supply and are accessible to a large segment of the people. During 1994 and 1995, however, the catch stagnated around 103,000 metric tones due to the impact of illegal fishing equipments. Uganda is endowed with over 200 fresh water fish species. The challenge is to sustain this genetic heritage, which produces valuable domestic income for the country.[3]

Far- reaching changes have taken place in the ecology of lake Victoria, where the number of some endemic fish species fell due to young fish harvesting, which is the current threat to the sustainability of fisheries. The national vision is to triple that value of fish exports in five years. According to Food and Agriculture Organization's Report 2000 there is an increase in the demand for fish worldwide and it is anticipated to continue to rise with increasing population growth.[4] This means that fish is a major source of animal protein for the population and demand for it is projected to increase as population grows.

[3] Ministry of Agriculture Animal Industry and Fisheries, 123.
[4] World Planning, 67.

1.1 The Uganda Government Position on Fishing

Destruction of natural resources is not justifiable in any way. What was common at the lake were people giving various sacrifices to their gods, since this was the dwelling of their various gods. According to Wasswa 2001 the fisheries management in the past was vested with the central Government with out-posted fisheries staff. The administration and management was based on a command and control approach.

> "There was very little or no participation by fisheries communities in resource planning management and development prior to decentralization, local fishery leaders known as gabungas controlled fishing operations at fish landing sites".[5]

Today, in Uganda there are many destructive activities that take place. For example, lakes that used to be accessible to few people have been turned into hiding places for wrong doers and smugglers. Fish is at a high demand ever since the product became commercial both locally and abroad. According to the Fish Act of 1964 and the 1995 Constitution, rules and regulations protecting the natural resource were registered.[6] These aimed at controlling the malpractices at all water bodies.

In her study Moley 2001 alleged that the consumption of fish within any specific country is usually larger in low-income groups than among the rich.[7] Fortunately, fish provide critical nutrients to the body and nutrients (3-omega) which people need for better health.[8] However, fish is a renewable resource that, if handled and protected well, can sustain and keep both the domestic and export industries.[9]

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[5] Ministry's Yearly Report, 25.
[6] 1995 Constitution of Uganda, 179.
[7] Plan for Uplifting Africa, 48.
[8] Ibid., 49.
[9] Ibid., 45.

1.2 Background of the Problem

The management of Uganda's fisheries resource has passed through several phases in history. The key management issue during the early days of subsistence fishing was how to catch fish with rudimentary equipments. However, today there are craft or new technology that are used to harvest fish although not all of them are recommended. In the 1950s, however, the use of new technologies became a reality. From then onwards, the overriding management issue became how to contain over exploitation of fisheries resources. As a result of the findings of a survey on Lake Victoria, Graham 1959, made some principle recommendations with regard to future management of the resource, for instance, the prohibition of the use of gill nets with a mesh size of less than 127mm (inches) and others.[10]

The demand for Uganda's fish has continued to rise and this has consequently resulted in more people investing in the exploitation of the fisheries resources by use of undersized fishnets, unfortunately to the extent of fish poisoning so as to catch more. Some of the factors that have made to the greater demands for fishing include: the ever-rising population growth, the rapid urbanization, improved transport infrastructure and the favorable export market.[11] This was because all the natural resources were commonly shared and highly respected by all people.[12] According to Kivebulaya 1962 the period of pre- colonial, and the first two decades of the postcolonial periods, illegal-fishing activities did not exist in the fishing industries of Uganda.[13] Perhaps, as reported above all natural resources were commonly shared and highly respected by all people.

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[10] Ministry of Natural Resources, 102.
[11] Ibid, 103.
[12] The History of Uganda's Environment, 102.
[13] Ibid., 102.

In addition, Kivebulaya 1962 thought that, with the attainment of independence in 1962, Uganda adopted fully the colonial policies and laws governing all natural resources. [14] This meant provision of various laws and regulations to govern the resource.

The problem of illegal fishing according to Kivebulaya 1962 started in early 1960s and reached its climax in 1995 when Uganda began processing fish for external and domestic markets.[15] To satisfy the local and the external markets, fishers resorted to the use of illegal gears for fishing. These included the use of poison, undersized such nets, tycoon and several others Unfortunately, such fishing malpractices have resulted into the destruction of eggs and immature (younger) fish. This is a waste of the nutritious food and consequently a threat to food security.[16]

To clarify the issue and its seriousness Ssebukera 1998 gives Busia District's Report that lays down the harvest of fish in metric tones on Page 6, Table 1.1, for a period of four years, that is from 2000 to 2003.[17]

[14] The History of Uganda's Environment, 112.
[15] Ibid,109.
[16] National Environment Authority, 127.
[17] Ibid., 127.

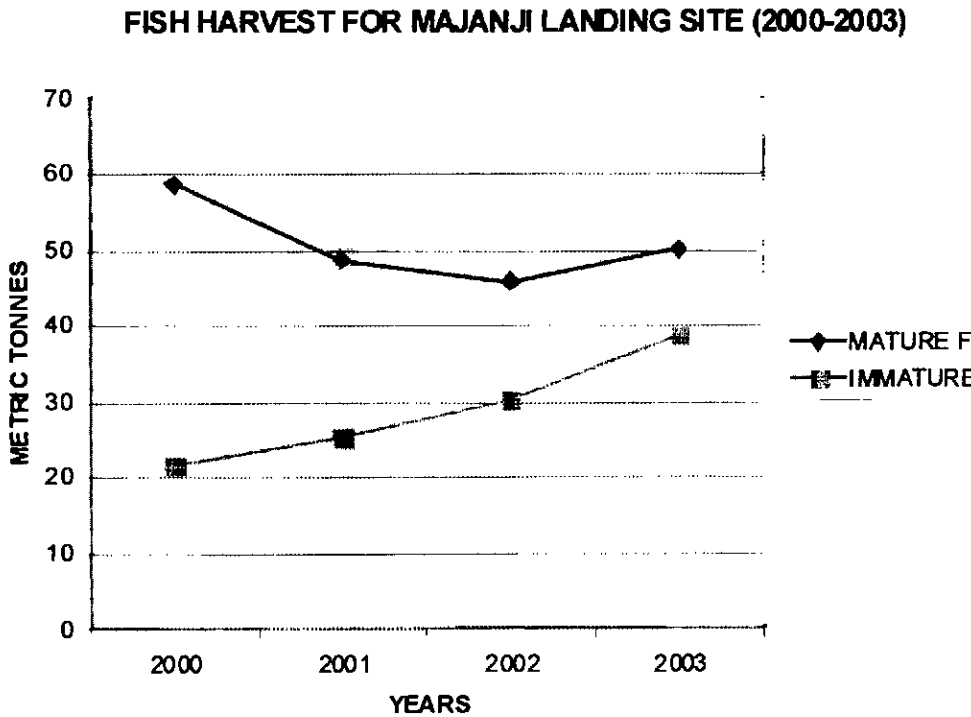
Table 1.1 Metric Tones of Mature Fish Versus Metric Tones of Immature Fish

MATURE FISH			IMMATURE FISH		
Year	**Metric Tones**	**Income in shillings**	**Year**	**Metric Tones**	**Income in shillings**
2000	58.6	42,267,000	2000	21.6	19,440,000
2001	48.7	42,951,000	2001	25.4	20,862,000
2002	45.9	46,722,000	2002	30.2	28,080,000
2003	50.1	52,895,000	2003	38.9	30,940,000
Total	**204.3**	**138,113,045**	**Total**	**116.1**	**99,322,000**

(Fisheries Busia, 2003)

The results of Table 1.1 above indicate a drop from 58.6 metric tones of mature fish harvested in the year 2000 to 50.1 metric tones in 2003. While the quantity of immature fish rose from 21.6 metric tones in the year 2000 to 38.9 metric tones in the year 2003. This means that immature fishing has been on an increase as mature fishing is drops in metric tones.

Figure 1.1



(Fisheries Busia, 2003)

Figure 1.1, shows the rise in metric tones of immature fish harvested over the period of years 2000 to 2003. However mature fish is decreasing in metric tones from years 2000 to 2003. This inconsistence therefore in the fishing industry of mature fish and the rising of immature fish harvested is what prompted the study. The case study area was Majanji Landing Site, Busia.

Majanji landing site is located in Namuduri County, Busia District, 20 kilometers from the Busia town side of Uganda that borders Kenya. According to the National Census (2003), Namuduri country has 20,923 people and among these 106 engages in fishing activities.[18]

[18] National Census, Busia District, (2003), 21.

There are also other activities that take place in this county, for instance retail trade, small-scale farming and several others. Of the 106 fishers, some are women, men and others schoolboys.[19]

1.3 Statement of the Problem

Fish is one of the main foodstuffs of the world in general, and Uganda in particular. It is also a source of revenue for individuals and for the nation. Fifteen years ago, big fish were readily available, while today premature or young fish are sold in plenty on the market. Immature fishing is one of the fishing malpractices that threaten food security in the country, yet fish is a renewable resource that, if handled well, can sustain and meet both the domestic and export demand.

The threat on the country's food resulting from fishing malpractices prompted the study action on the effect of immature fishing on the country's food. Various efforts in Uganda have taken place, for instance, putting up strict rules and regulations guarding the resource, through national legislation as seen under the Fish Act 1964. In addition to this, the President of Uganda in his Manifesto gave special protection to lakes, in the environmental action plan.[20] Furthermore the government has established a system of Beach Management Unit (BMU), whose work is to supervise the fishers and the vessels used in fishing. Such movements took place to protect the wavering fish population. Therefore, this research too took investigations on the causes and steps taken to protect the natural resource.

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[19] National Census, 21.
[20] 1995 Manifesto,71.

Guterl 2003 carried out a research from Fisheries Department in Southern Africa, to find out their views concerning illegal fishing. He found out that ninety percent of big fish have already been caught. This means that only ten percent is left. "Will rampant immature fishing cause the ocean's ecosystem to collapse?" was a question the researcher asked himself and to the fisheries department.[21] This question is still being asked today, and will be answered that if such practices continue on our lakes and seas, the ecosystem can collapse hence a threat to food security, that can lead to fish being extinct.[22]

In the Fish Act as well as the Constitution of Uganda, much emphasis is put on protection of natural resources, particularly lakes. There have been traces of violation of the policy, which indicates that the problem is not yet solved/eradicated from the country[23]. According to Table 1.1, it is quite clear that the malpractice of immature fishing is taking place in Uganda. Unfortunately, these causes have serious repercussions on fish the population and it is on this premise that this study set out to examine effects of immature fishing on food security. A good number of studies have concentrated on fishing elsewhere in the country, but none has so far been carried out at Majanji landing site, where a lot of illegal fishing activities take place. The purpose of the study therefore, is to examine the extent and effects of immature fishing on Uganda's food security.

[21] Troubled Sea: National History, vol. 94, No. 2, 99.

[23] 1995 Constitution, Article 233.

1.4 Objectives of the Study

The study set out to:

1. Investigate whether immature fishing is a threat to food security in Uganda.
2. Investigate the quality and quantity of caught at Majanji landing site.
3. Investigate on the public's awareness of the repercussions of immature fishing on the lakes and rivers of Uganda.
4. To give suggestions and recommendations that can assist the government and all Ugandans fight immature fishing.

1.5 Research Hypotheses

1. Scarce and undersized catches are as a result of immature fishing.
2. The booming business of fishing at Majanji landing site has attracted a high population of fishers.
3. Immature fishing has become a threat to food security.

1.6 Research Questions

1. Do fishers at Majanji landing site use illegal fishing methods?
2. How has the practice of illegal fishing affected the fishing industry at Majanji landing site?
3. What is the quality of the fish that is sold on the market?
4. Are there any solutions to the noticed problems?
5. Are there any Law Enforcement Officers at Majanji landing site?

6. Are there any traces of bribing noticed among the Law Enforcement Officers at the landing site?
7. Does Fisheries Department offer teaching and awareness programs or seminars to the people in the area?
8. Does the government supply the fishers with subsidized prices on the fishing equipments?

1.7 Significance of the Study

It is hoped that the findings of this research will make the society aware of the serious repercussions immature fishing practices have on food security within the country. It will help the community to avoid the dangers that are created due to failure to comply with the rules and regulations that protect the natural resources. The study will also help the state planners to create more job opportunities for the community. Doing this will lessen or completely eradicate illegal fishing methods.

1.8 Justification of the Study

The study was taken due to several factors. First, what caused a high demand on fish in the recent years in Uganda? To this question Kagoda 2001 noted that 3.5 million people live directly on income enervated from fish and it is the second highest forex earner with twelve processing factories in Uganda.[24] Second, the recent use of illegal fishing methods for instance, Gill net methods, mosquito seine and fish poisoning. However the Ministry of Agriculture Animal Industry and Fisheries elaborates more on these poor fishing methods in chapter two on page 17.

[24] The Fish and Fishing Industry, 62.

Third, the disappearances of some tasty fish species for instance, the Nile Tilapia. This is perhaps due to the harvesting of fish in shallow waters and these are supposed to be breeding areas for tilapia. Such methods not only harvest young fish but also destroy several eggs.[25]

1.9 Limitations of the Study

Since the study required only information concerning fishing, therefore it had to concentrate only in the circles of fishing dominated areas where fishing is practiced. For it was only in this area of Majanji, Busia, District where the appropriate information could be found.

1.10 Definition of Key Terms

Immature fishing: harvesting young fish that have not had enough time to accumulate both the fats and other essential nutrients, for example, omega (3).Nile Perch, which is less than 18 inches and Nile Tilapia less than 11 inches is considered immature.

Food security: access to adequate and sustainable food supplies.

Gears: different types of fishing equipments.

[25] The Fish and Fishing Industry, 65.

Fishing Vessel: is any fishing matter used or intended to be used for the exploitation of living fresh water fisheries resources, including fish transport or collecting vessels and any other vessel directly engaged in fishing operations.[26]

Beach Management Unit: is an organization of fishers (boat crew or barras), boat owners, managers, chatterers, fish processors, fishmongers, boat makers, local gear makers or repairers and fishing equipment dealer.[27]

Constitution: the system of laws and basic principles that a state, a country or organizations is governed by.[28]

Gabungas: Nickname for lake guards.

[26] The Fish and Fishing Industry, 50.
[27] Ibid.,52.
[28] Oxford Learners Dictionary, 163.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

The term fishing embraces all aspects of man's pursuit of aquatic animals in the seas and waters all over the world. Fishing is one of the oldest occupations of mankind. With increasing human numbers, more methods are being used to harvest fish and fishing becoming increasingly important.[29] However, this chapter presents the views of some selected scholars who cite similar issues concerning the impact of immature fishing towards food security in Uganda.

The scholars concur that the practice of immature fishing has brought some shortage to food production, especially in Africa. For instance, hundreds of young fish have been harvested in their early stages and several eggs also destroyed. As mature fish are caught, young ones are suddenly stopped from reaching their mature age hence the ecosystem circle is cut short. That is to say resource is in danger of extinction from the face of the earth if the practice continues. Illegal fishing methods have a long-term effect, for example, when undersized nets are used, the result is that young fish are caught yet they are the ones to restock the lake as the older fish die off. Therefore if not controlled the stock in the lake shall fall and so does the catches.

[29] Fish Resource, Uganda Investment Authority, 67.

CAUSES OF IMMATURE FISHING AND ITS IMPACT

2.2.0 High Population

Guterl 2003 carried a research from the fisheries departments of Malawi and found out that there was an increase in the human population and that people increasingly turned to the lake not only for subsistence's sake but also to satisfy a demand for fish, especially the tasty tilapia (ngege) in the growing urban centers.[30] In a similar study, Kichodo 1990 said that with increasing human numbers, more efficient and inefficient methods are being used to harvest fish, for fishing is becoming increasingly important.[31]

Kagoda 2001 noted that 3.5 million people live directly on income enervated from fish and it is the second highest forex earner with twelve processing factories in Uganda.[32] On the same issue Kajura 1994 concluded that high population growth, rapid urbanization and improved transport infrastructure are that main factors contributing to the greater demand for fish in Uganda. Therefore such demand has immensely contributed to illegal fishing activities.[33]

2.2.1 New Patterns of Settlement

Nyeko 2000 said that, fishfolk communities represent a special settlement pattern in Uganda. These communities are scattered along lakeshores and riverbanks. And a key issue for these communities is poverty.[34]

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[30] Troubled Sea: Natural History, Vol. 94, No. 2,155.
[31] Fish Resource, 97.
[32] The Fish and Fishing Industry, 62.
[33] Ibid., 92.
[34] Ministry of Agriculture Animal Industry and Fisheries, 108.

In addition, Kajura 1994 reports that, fisherfolk communities are either dispersed around the general areas of the landing sites more tightly clustered or nucleated at or near a landing site. He adds that the latter pattern of settlement is much more prevalent and may be permanent or temporary. Many of them have been formed through spontaneous encroachment on lake Victoria or lake Albert land and hence lack security of tenure.[35]

On the issue of fisherfolk, Sebukeera 1998 reported that most households in fisherfolk, communities are poor, despite having an almost assured source of income on daily basis. World wide, fisherfolk communities are not known to be wealth accumulators.[36] Furthermore, The National Environment Management Authority, 1998 reporter said that, a very small percentage of house holds in fisherfolk communities get income less than Ushs. 5,000 per month. Since most of the households do not own land in the areas where they live, they only have very little incentives to build permanent structures. The possible explanation for the poverty of fisherfolk households is that they receive less than 25% of the price that fish fetches in urban areas. In general, urban households are better off than households in rural communities.[37]

2.2.2 Women Income Generating Activities in Lake Victoria Fishing Communities

In his study Kajura 1994 said that the population of women in the fishing villages has been increasing over the last five years. They move to the landing sites in search of a source of income or with their husbands.

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[35] Report for the Ministry of Natural Resources, 101.
[36] NEMA, 67.
[37] Ibid., 23.

The survey indicated a participation of women in various income-generating activities such as equipment ownership, fish processing and mongering, selling of cooked food and other retail items. Plate number 3 on page 52 proves this; it views a lady fetching some water for cooking perhaps for those in the fishing activities. Some women are also involved in net repairing and other minor related activities.

The distilling and selling of local brew (Uganda Waragi, Maize beer, Banana beer) is a very popular occupation for women and it is a major source of initial capital for fishery business. The women are also involved in subsistence farming mainly for home consumption. Scarcity of land limits the level of farming and in many cases borrowed land is used.[38]

2.2.3 Irresponsible Attitude

In his study Wasswa 2001 noted that, the " I do not care" attitude that people have today tend to destroy the natural resource.[39] This is compared to a person who ate the egg depriving oneself of the meat. Unfortunately, the attitude exists among the people of Majanji landing site. They have gone to the extent of destroying the eggs and harvesting the young/premature fish.

[38] Report for the Ministry of Natural Resources, 103.
[39] Department of Fisheries,167.

POOR FISHING METHODS

2.3.0 Introduction

The Ministry of Agriculture Animal Industry and Fisheries 2000 gave a serious reminder to the general public on what is considered to be the Poor Fishing Methods in the country and how they have endangered the country's fish resource, as follows:

2.3.1 Gill Net Method

Gill nets and boat seines, the major fishing gear used by fisher folk on the lakes, are improperly used. Gills nets are operated actively by casting several of them into the water and the fishermen then pound the water using a club locally called 'tycoon' to drive the fish into the nets. This method locally known as 'Sekeseke' is non-selective and frightens fish. It causes tilapia and haplochmines, which keep the young in the mouth for protection to spit and expose them to danger.[40]

There is also another method of "Boat seining" this operates in open waters of the lakes and it also involves the use of a 'tycoon'. This method is dangerous especially in the case of shallow lakes because the net when set, spreads all the way from the top to the bottom of the lake, sweeping the entire water column. Nyeko 2000 confirms that most gillnets, boats and mosquito seines currently used by fishermen are of illegal sizes. However, fishermen prefer to use smaller or undersized mesh nets than those recommended by law because they are unable to catch adequate numbers of fish using the recommended mesh nets. Instead of the legal 125 mm (5 inches) gill nets, the mesh size being used on lake Victoria is of 87.5 mm (3.5 inches).[41]

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[40] Ministry of Agriculture Animal Industry and Fisheries, 124.
[41] Ibid., 125.

2.3.2 Mosquito Seine Nets

On the method of Mukene Mosquito Seine Nyeko 2000 said that these are nets that are supposed to be operated only during dark lunar phases (new moon period), but unfortunately they are illegally in use when there is full moonlight as a beach seine in inshore waters. Seines of 10mm mesh size meant to catch Mukene are no longer used; instead 5 mm and 3 mm sizes are used on lakes Victoria and Kyoga, respectively. Such smaller mesh sizes used in the Mukene fishery are dangerous to the juveniles of Nile perch and tilapiines.

Nyeko continues to say that beach seining was banned in Uganda, because of its destruction of the breeding nests of mainly tilapiines, haplochromines and Nile perch; it is still being practiced in some parts of the country especially on Lake Victoria. Beach seines are not sustainable since the most important means of ensuring the required replacement of fish stock is to protect the young and immature fish from being caught.[42]

2.3.3 Basket Method

On the use of basket method to catch fish, Nyeko 2000 said that, though outlawed by the Fisheries Department, the method is still being used on some lakes in the country including Lake Victoria. Basket method fishing involves the use of large wicker baskets, which are placed in suitable locations, mainly along rivers. There is a major concern that this method is harmful to the fish, because fish moving up the rivers to breed are the target of this practice.[43]

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[42] Ministry of Agriculture Animal Industry and Fisheries, 126.
[43] Ibid., 126.

2.3.4 Use of Poisons to catch fish

The use of poisons to catch fish is illegal and has been reported in Mukono, Nakasongola, Jinja, Busia and Mpigi Districts. Such poisonous chemicals kill fish and other aquatic organisms, as recently reported at Ggaba fish landing site. The residents of Mutungo, Kaazi and Kivubu landing sites on Lake Victoria also complained of stomach upset after eating poisoned fish.

Nyeko 2000 continues to warn the public by giving characteristics of the poisoned fish. The characteristic features of dead poisoned fish are a greenish colour, swollen stomach and body scales easily removed by hand. Endosulfan has been detected in poisoned fish but it is widely used by unscrupulous fishermen. Endosulfan is a broad-spectrum insecticide used to control pests in crops and is known to be highly poisonous. It is commonly marketed as Endotaf 35 EC or Thiodan 35 EC and is available in local shops selling agricultural inputs.[44] Plate 5 on page 56, gives an example of poisoned fish lying at the shore of Kigungu landing ste.

Hence Nyeko 2000 said that, its unfortunate because a number of fishermen are aware of the dangers of using destructive fishing equipments and methods. Although some of them try to avoid such illegal practices, their colleagues who use the prohibited equipments get better catches than they do. The fishermen therefore suggest that for any intervention to be meaningful, it should have a lake wide approach involving all districts around each lake.[45]

[44] Ministry of Agriculture Animal Industry and Fisheries, 127.
[45] Ibid., 127.

In addition, Josa 2003 stated that the fishers of Kenya accused their fellow fishers of Uganda over the use of illegal equipments for fishing.[46] This implies that a number of fishers are aware of the dangers of using destructive fishing gears and methods. Although some of them try to avoid such illegal practices, their colleagues who use the prohibited equipments get better catches than they do.

Similarly Ssebukeera 1998 observed that fishers at Kigungu landing site in Entebbe use beach seine and undersized mesh nets to catch fish. Since the beach seines are indiscriminative, they trap a lot of immature fish, some of which, because they are too tiny cannot be eaten, and are buried in the sand.[47] This is a waste of fish and a threat to food insecurity in the country.

2.3.5 Industrial Processing Demand

Underhill 2002 carried a study among the fish factories in Mauritania, with an aim of finding out the factories that deal with fish. He found out that among the ships on the waters of Mauritania, 250 factory ships came from Europe, where fish was in high demand. However, these factory ships operate daily, giving no time to fish families to multiply. Unfortunately, the factory ships were required to capture not less than 100 tones; so as to make up to the required tones, this would include even the young fish because they were boosting the tones that were needed in the factory.[48] In a similar study Nyeko 2000 said that a large number of boats were found on Lake Kyoga and Kwania and unfortunately, they were are not licensed. And all had excess nets per boat.

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[46] Why use illegal gears?, Daily Nation, 7.
[47] National Environment Management Authority, 145.
[48] Africa's lost Fish, 65.

However, this is reflection of high levels of fishing effort. On Lakes Kyoga and Kwania, Uganda while the number of fishing boats rose from 4045 in 1991 to 6501 in 1997. In the same way the catches and size of Nile perch and Nile tilapia also continued to decline since the 1980s. In addition on lake Victoria, there have been a drastic decrease in fish species diversity from 24 taxa (excluding haplochromines) in 1969 to 14 in 1995 (about 42% decrease). The decline was due to the use of illegal fishing equipments that catch premature fish before the attainment of their productive age and reasonable sizes.[49]

On the same point The Government of Uganda 2003, gave a Genesis of Illegal Fishing Methods. For it reported that these technologies were introduced into Uganda as early as the 1950s, although the early ventures failed due to various reasons.[50] The current industrial fish processing plants are new and modern, with operations even claiming 100% pollution operation. In the industrial plants, the fish is either transformed into fillets or chilled whole piece. All filleting plants have chilling and ice-making facilities so as to keep the products fresh. The Government of Uganda adds that, the current wave of unrest on Lakes, particularly on lake Victoria perhaps is an indication that there are weaknesses among the controllers of the natural resources.[51]

Today, fishers are using beach seine and undersized mesh nets to catch fish. Unfortunately, the beach seines are indiscriminative, as already noted above. They catch a lot of immature fish some of which cannot be eaten and end up being buried in the sand. This precisely tells of the dangers that are inflicted on our natural resources, especially in Africa.

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[49] Ministry of Agriculture Animal Industry and Fisheries, 129.
[50] Government of Uganda, 100.
[51] Ibid., 111.

Immature fishing is widely known as illegal that is why a lot of emphasis is put by various states on protecting the natural resource. Those who work in this industry know the dangers of practicing it.

The illegal practices made a noticeable change on the resources that is why The Uganda Constitution 1995 Fish Act, make emphasis on the dangers of immature fishing. And as a practice is a major cause of food insecurity within the country as it can be elsewhere in the world.1995 Fish Act states and prohibits the use of undersized nets:

> Most gill-nets, boats and mosquito seines currently used by fishers are of illegal size. Fishers prefer to use smaller mesh net sizes than those recommended by law, because they are unable to catch adequate numbers of fish using the recommended mesh nets. Instead of the legal 125 mm (5 inches) gill nets, mesh size being used on lake Victoria to catch Nile tilapia they use 87.5mm (3.5 inches).[52]

Finally, early this year Etengu Nathan 2004 said that, although some weaknesses are noticed among officials guarding the resource, some officials from the Kenyan District of Busia, Bondo and Suba together with their counterparts from Busia and Bugiri in Uganda resolved recently that the fishers and traders be sensitized on the laws relating to harvesting premature fish.

The resolutions were passed during a ceremony at the Bugiri District Administration Headquarters to hand over six boat engines confiscated by the Special Revenue Protection Services from illegal fishers on the Uganda side of lake Victoria.[53] Fortunately, this makes the work of protecting the resource easier because the authorities from Kenya and Uganda show much concern and, however, take part in disciplinary action towards the victims, which is a lesson to others.

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[52] Constitution of The Republic of Uganda 128.
[53] Lake Districts set fishing Protocol, The New Vision, 6.

2.4 A Prediction of Fish Deficit by 2015

Mukasa in his Report 2000 said that, there is an increase in the demand for fish worldwide and it is anticipated to continue to rise with increasing population growth. Medically proven benefits of fish consumption and the novel flexibility of markets have led to the opening up of markets to new products such as fish. Improved in-transit, packaging and new processing methods have further made it simpler to export fish, with 63% exported as processed fish in 1998[54].

In Uganda where fish contributes 50% of the total animal protein consumed, Ssebukera 1998 gave a comment that, a deficit in fish production has pushed the fishing industry into adopting crude fishing methods National Fishing, Policy, Uganda on the one hand, and expansion of fish farming on the other hand.[55] The potential of aquaculture for filling the demand-supply gap of fish is recognized worldwide with the industry already supplying one third of the world's fish.[56]

Though Aquaculture seems to be in its initial stages in Uganda, it is recognized by Mukwaya 1999, as the indispensable remedy to a forecast shortage of fish in Uganda, as revealed in the Fisheries policy statement issued by the Ministry in May 2000. According to this policy, a fish deficit of 160,000 tones is predicted by 2015 when the current rates of fish production are matched with population growth. [57]

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[54] World Planning, 87.
[55] Ministry of Agriculture Animal Industry and Fisheries, 64.
[56] Ibid., 65.

[57] "Fish Squad formed", The Monitor,7.

2.5 Conclusion

Besides fish's contribution to food security, it has various benefits for Ugandans for instance, revenue and medicinal. Unfortunately there are many issues, which hinder the resource to obscure the full protection on Ugandan Lakes. Therefore so as to make fish remain beneficial serious watch has to be made by all people in Uganda. This will make fish remain reliable food resource for the country an elsewhere in the world.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.0 Introduction

This chapter presents with the research design and methodology. The research design used was of a Descriptive type, while the methods of data collection used included Interviews, Questionnaires, Observations, and Measurements of some variables.

3.1 Sampling Procedure

Majanji landing site has a population of 29,230 people. A sample of 24 fishers (23.6%) out of 106 fishers was randomly interviewed and their views taken to be representative of 106 fishermen at the landing site. However, the researcher used 40 Questionnaires, 6 copies to Fisheries Department, 24 copies to Fishers, 5 to Local Council and 5 to Local People of Namunduri County, Busia District, where Majanji landing site is found.

TABLE 3.2 The Distribution of the Sample Strata of Study Population

Population Targeted	Number of questionnaire	Returned questionnaire	Lost questionnaire	Percentage
Fisheries Department	6	5	1	66.6
Fishers	24	24	0	100
Local Council	5	5	0	100
Local People	5	5	0	100

3.3 Distribution of Research Instruments

Four different types of questionnaires were prepared, that is, to Fishers, Local Council Local People representatives and Fisheries Department representatives. The Questionnaires were supplied to the respondents by hand. This made it easier for the research to meet all the respondents.

3.4 Data Collection Procedure

The researcher met with Mr.Makanga, the Head Officer of the Fisheries Department, Busia District. The researcher introduced the purpose of the visit to the officer and was provided with some oral information. Mr. Musana, The Beach Management Unit Officer (BMU) is the overall supervisor of the landing site. He organized some meetings, whereby the researcher met with the Local Councils representatives, Fishers and Local People representatives. However, for information concerning the yearly income of the country, references were made to the Ministry of Fisheries within the Country. To this, Majanji Landing Site contributes a certain percentage of money.

Open sharing was carried out with the interviewers and questionnaires were filled at each ones' own disposal. However, the fishers were ready to respond freely without any hesitation. But for the photograph taking some fishers could not stand it because of insecurity in the practice of illegal fishing. An example is on page 52, Plate 1. In adition, Frequency tables and Percentages were employed so as to investigate on some factors like age, sex, level of education and populations of the people who reside at the Majanji lading site.

Lastly, with the assistance of the Local Council representatives and the Beach Management Unit Officer, visits were made randomly to different homes. The BMU Officer is responsible for the beach control and management. However, The BMU Officer translated the Questionnaires to the respondents meanwhile the responses were recorded down.

CHAPTER FOUR

4.0 DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter includes presentation and interpretation of the data that was collected from the field. A total of 40 Questionnaires were administered to the four categories of people. The information in this chapter is presented in frequency tables and percentage.

4.2 Findings From the Fishers from Majanji Landing Site

Table 4.1 Frequency and Percentage Distributions of Age Patterns of the Fisher (respondents)

Age Groups	Number	Percentage
14 20	6	25
21 – 40	12	50
41 & above	6	25
Total	**24**	**100**

According to the Table 4.1, quite a few of the respondents were from 14 - 20 years of age, majority of the respondents ranged between years 21 · · 41. However, few respondents were of 41 years of age and above. This means that, the majority of the fishers are young men and women below 41 years of age.

Table 4.2 Distribution of Fisher Respondents by Sex

Sex	Number	Percentage
Male	16	66.7
Female	8	33.3
Total	**24**	**100**

According to Table 4.2, majority of the respondents are male and few female. The results suggest that the populations of fishers are mostly made up of men, who perhaps spend most of their time on fishing.

Table 4.3 Distribution of Fishers' Level of Education

Fishers (Level of Education)	Number	Percentage
Illiterate	10	41.7
Primary	10	41.7
Secondary	2	8.3
Tertiary & above	0	0
Any other (students)	2	8.3
Total	**24**	**100**

The results suggest that the largest number of the fishers is made up of illiterate and semi-illiterate men and women. These probably have no knowledge of the danger caused through the use of illegal fishing methods.

Table 4.4 Distribution of Fisheries Department Officer's Local Council and Local People respondents according to their Level of Education

Level of Educ. of Fisheries Department	No.	Percentage	Level of Educ. Local Council and People	No.	Percentage
Illiterate	-		Illiterate	4	40
Primary	-		Primary	3	30
Secondary	-		Secondary	2	20
Tertiary and above	2	100	Tertiary and above	1	10
Any other			Any other		
Total	**2**	**100**	**Total**	**10**	**100**

According to the above Table, majority of the respondents were illiterate. However some had attained primary education. This group is likely not to care much about following legal fishing methods. Since those who know the dangers of using illegal fishing methods are fewer as compared to those who are well informed of the dangers of these methods and probably are also weak in their leadership.

Table 4.5 The Fishers' Response on the Period Spent Fishing

Period spent (years)	Number	Percentage
1 –5	12	50
6 – 10	6	25
11 – 15	4	16.7
Over 15 years	2	8.3
Total	**24**	**100**

The results indicate that there have been alarming increases of the number of people who join the fishing activity at Majanji Landing Site every year. As the number of fishers increases year after year it is feared that even immature fishing practices may be on an increase.

Table 4.6 The Distribution of Fishing Frequency

Frequency	Number of People	Percentage
Once a month	2	8.3
Once a week	4	16.7
Twice a week	8	33.3
Everyday	10	41.7
Any other	0	0
Total	**24**	**100**

According to Table 4.6, the majority of the respondents practice fishing everyday, some practice fishing twice a week, a few fish once a week and others practice fishing at least once a month. The results suggest that most of the fishers practice fishing on a daily basis, thus if immature fishing practices, have to be carried but on daily basis there is a likely danger to the fish population and hence lead to food insecurity in Busia District and in Uganda.

Table 4.7 Distribution of Fishers' Involvement in Other Economic Activities

Whether fishers have other economic activities	Number	Percentage
Yes	6	25
No	18	75
Total	**24**	**100**

According to Table 4.7, majority of the respondents have no other economic activities other than fishing and only a few have other economic activities. The results suggest that fishing is the major source of livelihood for the people at this landing site. Therefore a high demand is expected on the resource.

Table 4.8 The Fishers' Response on Other Economic Activities

Other Economic Activities	Number	Percentage
Trader	4	66.7
Farmer	2	33.3
Any other	0	0
Total	**6**	**100**

According to the Table 4.8, majority of fishers on top of fishing they engage in trading and only a few engage in farming. This means that, the existence of traders and farmers among the respondents suggest that Majanji is a busy landing site with traders supplying goods that are essential to run the fishing business and farmers supplying foodstuffs to the fishers.

Table 4.9 The Distribution of Fishers' Response on Legal Fishing Nets

Whether they use legal nets	Number	Percentage
Yes	4	16.7
No	2	8.3
Sometimes	18	75
Total	**24**	**100**

According to Table 4.9, majority of the respondents sometimes use legally accepted nets. And only a few of the respondents use the legally accepted fishing nets. The results indicate that there are a lot of illegal fishing practices that take place at Majanji landing site.

Table 4.10 Fishers' Response as to Why They use Illegal fishing nets

Comments	Number	Percentage
Legal fish nets are expensive	1	50
Daily catch is higher with these nets	1	50
Total	**2**	**100**

According to Table 4.10, the respondents who uses illegal fish nets reasons that; daily catch is higher with illegal fishing nets than the legal ones. Probably the higher the catch the high the income. This may induce fishers to use the illegal fishnets with the hope of getting more income. Therefore they will keep on using illegal nets.

Table 4.11

Fishers' Response on the Existence of Law Enforcement Officers at the site

Whether they have law enforcement	Number	Percentage
Yes	24	100
No	0	0
Total	**24**	**100**

Table 4.11, indicate that the majority of the respondents are aware of the presence of the Law Enforcement Officers at the landing site. The results suggest that the fishers can either be capable of abiding with the laws out of the awareness given by the law enforcement officers or alternatively do away with the laws by dodging coming in contact with the law enforcement officers or by directly bribing them.

Table 4.12 Fishers' Observation on their Colleagues' Involvement in Catch of Immature Fish

Fishers' observation	Number	Percentage
Yes	24	100
No	0	0
Total	**24**	**100**

Table 4.12, indicate that, majority of fisher respondents agree that their fellow fishers catch immature fish. Therefore the results suggest that fishers do not mind catching immature fish for if the minded they would have reacted by sensitizing one another on the dangers they would soon face if they continued catching immature fish.

Table 4.13 Fishers' Response Towards the Disciplinary Action on their Fellow Illegal Fishers

Action to discipline victims	Number	Percentage
Yes	4	16.7
No	4	16.7
Sometimes	16	66.6
Total	**24**	**100**

According to the above Table 4.13, the majority of the fisher's respondents said that sometimes the Law Enforcement Officers take action on disciplining the victims of illegal fishing. While some reported that they had never seen any action taken to discipline victims and just a few accepted that there is an action taken by the Law Enforcement Officers to discipline the victims.

The results suggest that actually illegal fishing is taking place at Majanji Landing Site. However, the results further noted that a disciplinary action towards victims of illegal fishing is not done seriously. Perhaps the weakness among Law Enforcement Officers may encourage more illegal practices at the site

Table 4.14 Fisher's Observation on Noticed Incidents Where the Victims Try to Bribe the Law Enforcement Officers

Incidence	Number	Percentage
Observed	20	83.3
Not observed	4	16.7
Total	**24**	**100**

The results indicate that Table 4.14, indicate that immature fishing practices thrive at Majanji landing site despite the presence of the Law Enforcement Officers. The acceptance of bribes by Law Enforcement Officers is an indicator that immature fishing practices will continue to thrive at the landing site. Plate 2, on page 53, confirms this, as the mature fish are put in open the immature ones are kept in baskets until the known customers appear.

4.3 Findings from the Local Council and the Local People

Table 4.15 The Response of Local Council as to Whether Fish Destruction is a Threat to Food Security at Majanji Landing Site

Fish destruction is a threat to food security	Number	Percentage
Agree	3	60
Disagree	1	20
No opinion	1	20
Total	**5**	**100**

The results on Table 4.15 indicate that majority of the respondents agree that immature fishing is destruction of food. While a few the respondents disagree with the statement and some gave no opinion to this statement. The results give the implication that whereas many of the local council respondents agree that fish destruction is a threat to food security, some of the local council leaders do not take any fish destruction as a threat to food security. It is feared that such leaders cannot sensitize fishers on the threat to food security that would result from fish destruction.

Table 4.16 The Response of Local People as to Whether Fish Destruction is a Threat to Food Security at Majanji Landing Site

Fish Destruction is a Threat to Food Security	Number	Percentage
Agree	4	80
Disagree	1	20
No opinion	0	0
Total	**5**	**100**

According to the above Table, majority of the Local People interviewed agree that fish destruction is a threat to food security. While few of the respondents disagree with the statement. This suggests that the most Local People know that fish destruction is a threat to food security unfortunately there are also some respondents who disagree with this. Therefore a little more sensitization of the Local People about the threat to food security resulting from fish destruction can yield good results.

Table 4.17 Distribution of Rules and Regulations Governing Majanji Landing Site

Whether rules and regulations	**Number**	**Percentage**
Yes	8	80
No	2	20
Total	**10**	**100**

The results on Table 4.17, indicate that majority of the Local Councils and Local People respondents know that there are rules and regulations governing the landing site. Besides that there was also a percentage that had never heard of the existence of rules and regulations governing the landing site. Perhaps this percentage is are the one that encourages immature fishing at the landing site.

Table 4.18 The Response as to whether the Rules and Regulations are followed by Fishers at the Landing Site

Are Rules and Regulations Followed?	Number	Percentage
Yes	1	10
No	4	40
Sometimes	5	50
Total	**10**	**100**

The results on Table 4.18 indicate that the majority of the respondents gave the view that sometimes fishers follow rules and regulation. While a few of the respondents said that fishers do not follow rules and regulations. The results indicate that majority of the respondents do not respect the governing rules and regulations therefore fall victims of illegal fishing practices. Plate 1, on page 52; give proof to this because when the photographs were taken, the prominent fishers hid themselves, for fear of being victimized by the authority. That is why only the young fishers appeared in the photographs.

Table 4.19 The Distribution of Responses from Local People about the Effectiveness of their Law Enforcement Officers

Do Officers Work Effectively	Number	Percentage
Yes	2	10
No	3	40
Sometimes	5	50
Total	**10**	**100**

According to the above Table, majority of the respondents is of the view that Law Enforcement Officers sometimes do carry out their work effectively, while another percentage were of the view that Law Enforcement Officers do not carry out their work e effectively. The results suggest that Law Enforcement Officers do not carry out their work efficiently. Therefore this implies that immature fishing practices continue to thrive at the landing site despite the presence of Law Enforcement Officers.

Table 4.20 Distributions of Respondents Who are of the View of the use of Legal Fishing Nets

Legal Nets	Number	Percentage
Yes	3	30
No	6	60
I do not know	1	10
Total	**10**	**100**

The results on Table 4.20, indicate that majority of the fishers do not use legal fishing nets. Perhaps there is no doubt these fishers use illegal fishing nets. While just a few use legally accepted nets Majanji Landing Site. The results therefore suggest that most fish nets used at the landing site are the illegal ones. Plate 4, page 55 shows the fishing equipments locked together for security's sake, after harvesting exercise.

4.4 Findings From The Fisheries Department

Table 4.21 The Estimate of the Quality and Quantity of Fish Caught Daily at the Site

Quality	Number	Percentage	Quantity	Number	Percentage
Mature	2	30	No Idea	2	30
Immature	3	70	Many	3	70
Total	**5**	**100**		**5**	**100**

Table 4.21 indicates majority of the respondents are of the view that fish caught at the landing site is immature. About the quality that is caught at the landing site, still majority of the respondents are of the view that the quantities of immature fish caught daily at the landing site is higher than the quantities of mature ones. While just a few of the respondents had no idea of the quantities neither qualities of fish caught daily at the landing site. Perhaps these are the people who accept bribes from the fishers.

The results imply that, actual immature fishing habits thrive daily at Majanji Landing Site. Therefore the quantity and quality of immature fish is higher than of the mature ones. Unfortunately, this is a total waste of food and a threat to food security in the country and elsewhere in the world.

Table 4.22 The Responses from the Fisheries Department as to Whether There are been Seminars Organized to Educate the People

Whether fishers are offered seminars	Number	Percentage
Yes	2	40
No	0	0
Sometimes	3	60
Total	**5**	**100**

According to Table 4.22, majority of the respondents said that sometimes educative seminars are organized for the masses. While a few of the respondents alleged that seminars are given to the Local People of Namunduri County. The results suggest that there is need to organize more seminars aimed at sensitizing fishers about the dangers of immature fishing habits. The few seminars organized seem to be inadequate as far as the problems are concerned.

Table 4.23 Responses as to Whether the Fisheries Department Supply Fishing Equipments to the Fishers at Subsidized Prices

Equipments at subsidized prices	Number	Percentage
Yes	0	0
No	3	60
Sometimes	2	40
Total	**5**	**100**

According to Table 4.23, majority of the respondents alleged that the fishing equipments are not supplied to fishers at subsidized prices. While a few said that sometimes the fishing equipment are supplied at a subsidized prices. These results suggest that fishing equipments are highly sold in the country to fishers. Therefore there is a fear of thrive of illegal fishing equipments at the landing site.

Table 4.24 Responses from Fisheries Department Whether There is Enough Supervision Carried out at Majanji Landing Site

Whether fisheries has enough staff at the landing site	Number	Percentage
No	3	60
Yes	2	40
Total	**5**	**100**

According to Table 4.24, majority of the respondents were of the view that the Fisheries Department do not have enough staff to supervise the landing site. And just a few were of the view that the department had enough staff to supervise the landing site. The results suggest the need for the fisheries department to raise the number of staff to supervise the landing site.

4.5 Conclusion

The information gathered from the four categories of respondents indicates that there is a lot of illegal fishing is going on at Majanji Landing Site. This causes a lot of insecurity to the foodstuffs in Uganda. Perhaps such a problem may not be happening in Uganda alones. As the Literature Review on page 14 has already indicated, that such is happening elsewhere in the world. For instance, Mauritania and Kenya.

CHAPTER FIVE

2.0 SUMMARY, CONCLUSIONS, RECOMMENDATIONS AND RECOMMNDATIONS FOR FURTHER STUDY

5.1 Summary

This study undertook to investigate on immature fishing considered a threat to food security at Majanji Landing Site in Uganda. The research was based on three specific objectives namely: To investigate whether immature fishing is a threat to food security, whether the public and government are aware of the dangers immature fishing has on the lakes and rivers of Uganda, whether the government supply fishing equipments at subsidized prices to fishers in the coutry and finally give suggestions and recommendations that can assist the government and public to fight the practice and use of illegal fishing equipments on the lakes and rivers of Uganda.

The study sample was confined to Majanji Landing Site and it consisted of Fishers, Local Council, Local People Representatives and Fisheries Department Representatives. Questionnaires, Interviews, Observation and Measurements were employed in the collection of data that was later analyzed and interpreted.

The conclusions from Majanji landing site are as follows: 40% of the fishers are illiterate and 30% have attained education up to the primary level. While the number of people joining the fishing industry is on an increase. There is an increase of metric tones from 8.3% in 1998 to 50% in 2003. However, most of the fishers at the site have other economic activities other than fishing. 75% of the populations thrive on fishing alone, only 25% have alternative economic activities.

Fishers at the site continue to possess and use illegal fishnets of below 5 inches to catch Nile perch and below 4.5 inches to catch Tilapia. Through observations the catch is relatively higher when illegal fishing nets are used as compared to the legal ones, because undersized nets do not discriminate sizes.

A lot of immature fish caught is sold at the landing site very early in the morning before the Law Enforcement Officers report on duty or at very late hours when the Law Enforcement Officers have gone home. Most interviewers were low-income earners who found it cheaper to buy small or immature fish, which is less costly than the mature ones. These low-income earners tend to buy immature fish that they feel is affordable. As a result the fishers resort to illegal fishing methods that earns them (fishers) more money. Thus this encourages the use of illegal fishing methods, as the fishers tend to satisfy the prevailing demand.

Bribing among the Law Enforcement Officers unfortunately has brought an increase in the tonnage of immature fish caught from 21.6 tones or 18% in 2000 to 38.9 tones or 33% in 2003. In addition some Law Enforcement Officers encourage the practice through accepting bribes from the fishers who are in turn sell off the immature fish caught. Results also records that Legal fishnets are sold at relatively higher prices compared to the illegal ones. Therefore fishers preferably go for the cheaper fishnets.

In addition, so as for the resource to remain beneficial to all, the study encourages and recommends an increase in awareness and understanding among the Government Policy Makers, Schools and the General Public on sustainability of our Natural Recourses. This can be conducted through various seminars to different categories of people about the Environmental Management, in the country and elsewhere in the world.

Lastly, the Government through the concerned Ministry should make frequent visits to such areas because it has proved to be one of the highest generating revenue industries on the economy of the country. Therefore a serious check should be given it.

5.4 Recommendations for further research

This study does not claim to be an exhaustive one, among other things therefore, some areas are suggested which need further study and development: First, how much fish is there in Lake Victoria and how sustainable fishing is. Secondly, to investigate on how marketable fish from fish farms is both at locally and externally.

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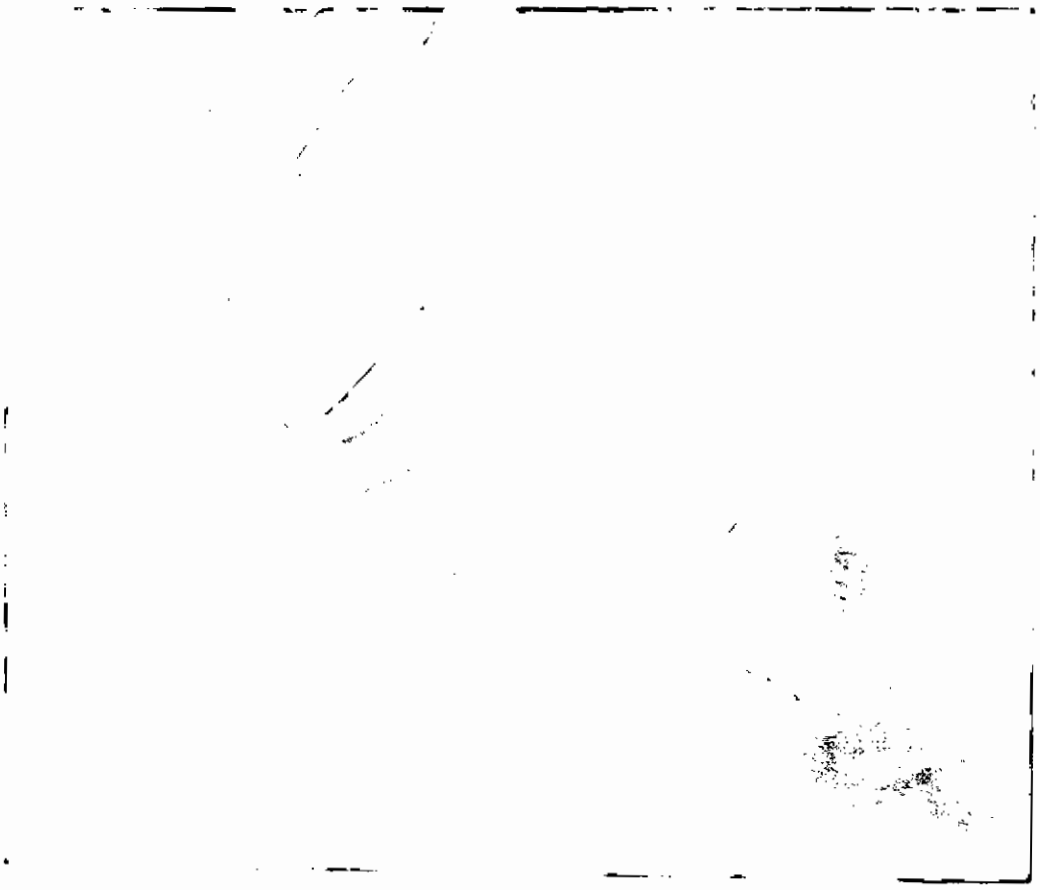
APPENDIX II

PHOTOGRAPHS SHOWING DIFFERENT ACTIVITIES
AT MAJANJI LANDING SITE

Plate 1

Young fishers pose for a photo with the researcher.

Plate 2



The researcher is taking a look at the harvested fish.
However the basket in the background contains immature fish.

Plate 3

The lady in the background offers different services e.g. cooking for the fishers.

Plate 4

The fishers after fishing lock their boats together for safety purposes.

Plate 5

MAAIF 1998

Poisoned fish lying at the land shore of Kigungu landing site.

APPENDIX II

SAINT MARY'S UNIVERSITY OF MINNESOTA NAIROBI CAMPUS

TOPI: IMMATURE FISHING, A THREAT TO FOOD SECURITY IN UGANDA

Questionnaire for Fishers at Majanji Landing Site

Dear Respondent,

My name is Maria Lourdes C. LSOSF. I am a student at the above named Institution in the Department of Education. I am carrying out a Research-based study on "Immature Fishing a Threat to food Security in Uganda." Kindly offer your assistance by filling in this Questionnaire to the best of your knowledge. The information provided is for learning purposes and will be treated with the utmost confidentiality.

Instructions: <u>Fill</u> in the provided Space or <u>Tick</u> where appropriate.

1. Age group (A) Below 18 years
   (B) 19 - 35 years
   (C) Over 35 years
2. Sex (A) Male
   (B) Female
3. Level of Education
   (A) Illiterate
   (B) Primary
   (C) Secondary
   (D) Tertiary

4. How long have you been involved in the fishing activities?

(A) Less than one year (B) Two to five years

(C) Six to ten years (C) Eleven to 15 years

(E) Over fifteen years

5. Do you have any other economic activities apart from fishing?

(A) Yes

(B) No

6. If Yes, which others activity

(C) Farming

(D) Trading

(E) Any other (specify)

7. What is the frequency of your fishing?

(F) Once a week

(G) Twice a week

(H) Every day

(I) Any other (specify)

8. Do you always use the legally accepted fishnets?

(A) Yes (B) No (C) Sometimes

9. If Yes how often?

(A) Always (B) Sometimes

(C) When forced by government officials.

10. If Not, Why?

(J) Legal fish are expensive

(K) Illegal fish nets daily catch is higher

(L) Any other (Specify)

11. Do you have any law enforcement officers at this landing site?

(A) Yes (B) No

12. As per your observations do any of your fellow fisher men ever catch Immature fish?

(A) Yes (B) No

13. If Yes, do the law enforcement offices take any action to discipline the Victims?

(A) Yes (B) No (C) only sometimes.

14. Have you ever noted any incidence where the Law Enforcement Officers accept bribes from some fishers?

(A) Yes (B) No

THE END

Thank you for your honesty and Time.

God bless you.

APPENDIX III

SAINT MARY'S UNIVERSITY OF MINNESOTA, NAIROBI CAMPUS

TOPIC: IMMATURE FISHING A THREAT TO FOOD SECRITY IN GANDA

Questionnaire for Local Council and People of Busia and Majanji locality.

Dear Respondent,

My name is Maria Lourdes C. LSOSF. I am a student at the above named Institution in the Department of Education. I am carrying out a Research based study on, " Immature Fishing as a Threat to Food Security in Uganda." Kindly offer your assistance by filling in this Questionnaire to the best of your knowledge. The information provided is for purposes of learning and will be treated with the utmost confidentiality.

Instructions: Fill in the provided space or Tick where necessary.

1.Fish is food therefore the destruction of fish populations by harvesting young fish leads to fish shortage hence food shortage in the country.

(A). Agree

(B) Disagree

(C). No opinion

2. Do you have any rules and regulations governing this landing site?

(A) Yes (B) No

3. If Yes are these rules and regulations fallowed by the fishermen.

(A) Yes (B) No

4. In your opinions do the Law Enforcement Officers do their work effectively?

(A) Yes (B) No

5. In your opinion are most fish caught at this landing site mature or immature?

(A) Mature (B) Immature (C) I do not know

6. According to your knowledge are the fish nets used at this land site of the legal size.

(A) Yes (B) No (C) I do not know.

END

Thank you for your Honesty and Time.

God bless you.

APPENDIX IV

SAINT MARY'S UNIVERSIT OF MINNESOTA, NAIROI CAMPUS

TOPIC: IMMATURE FISHING A THREAT TO FOOD SECURITY IN UGANDA

QUESTIONNAIRE FOR THE FISHERIES DEPARTMENT

Dear Respondent,

My name is Maria Lourdes C. LSOSF. I am a student at the above named Institution in the Department of Education. I am carrying out a Research based study on, "Immature Fishing, as a Threat to Food Security in Uganda." Kindly offer your assistance by filling in this Questionnaire to the best of your knowledge. The information provided is for the learning purposes and will be treated with the utmost confidentiality.

Instructions: Fill in the provided space or Tick where appropriate.

1. Does your Office organize Seminars to educate fishers and other people in the Fishing Industry (A) Yes (B) No (C) some

2. Does your Office make an effort to supply fishers with fishing equipments at a Subsidized prices? (A) Yes (B) No

3. Does your office have enough staff to supervise Majanji landing site?

   (A) Yes (B) No

4. What is the Quality and Quantity of the fish caught at Majanji Landing Site?

   Write your answer on the provide sheet of paper.

END

Thank you for your Honesty and Time.

God bless you.

APPENDIX V

Oral Interview

Introduction of the researcher to the respondents. I am a student from Tangaza College. The purpose of my coming here is to carry out a study on Immature Fishing in this area of Majanji, Busia District

Do you regard fish as food?

Have you ever experienced food shortage in this area?

Do you have Law Enforcement Officers in this area?

Are the natural resources in this area we protected?

Do you have illegal fishers at this landing site?

How often do they carry fishing?

What is the quality and quantity of fish from this landing site?

Do you know of some recommended methods of fishing?

Mention some……..2……3……..

Do you know some of the rule and regulations governing this beach?

Mention them 1……..2……3……..

Are fishing equipments brought to you at a subsidized price?

Do you ever receive seminars or any related courses on how to protect the environment?

Are there instances whereby the Law Enforcement Officers accept bribes from the lawbreakers at this landing site?

Is there any disciplinary action carried out towards the lawbreakers?

APPENDIX VI

Saint Mary's University of Minnesota/USA Nairobi Campus

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Tangaza College
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P.C. 00509 Langata
Nairobi, Kenya

011-254-2-89-0339 (Office)
011-254-2-89-1407 (Messages)
011-254-2-89-0018 (Fax)
xteach@kenyaweb.com (email)

8 December 2003

To Whom It May Concern:

This document will serve as evidence that Sr. Maria Lourdes, LSOSF, is a student of geography at Christ the Teacher Institute for Education. As part of her studies, she is investigating the ecology of fishing practices at the Majanji Landing Site, Busia, Uganda. Any and all assistance that you can give her would be most appreciated.

Sincerely yours,

Bro. Mark Ormrod, SM
Dean of Studies

APPENDIX VII

Figure 2.

Majanji Landing Site, Busia (Uganda).

KEY

X	Majanji Landing site
*	Busia Town