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SUSTAINABLE FISHERIES MANAGEMENT PROJECT (SFMP)

Resources for Revising Ghana's Fisheries Act

JUNE, 2021

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ACRONYMS

CIC	Canoe Identification Card
CEWEFIA	Central and Western Region Fishmongers Improvement Association
CLaT	Child Labor and Trafficking
COVID-19	Coronavirus Disease of 2019
CRC	Coastal Resources Center
CSOs	Civil Society Organizations
DAA	Development Action Association
DFTC	DAA Fisheries Training Center
FC	Fisheries Commission
FEU	Fisheries Enforcement Unit
FoN	Friends of Nation
FtF	Feed the Future
FY	Fiscal Year
GNCFC	Ghana National Canoe Fishermen's Council
GOG	Government of Ghana
HFIAS	Household Food Insecurity Access Score
HM	Hen Mpoano
IEC	Information Education and Communications
IR	Intermediate Results
MASLOC	Microfinance and Small Loans Centre
M&E	Monitoring and Evaluation
MOFAD	Ministry of Fisheries and Aquaculture Development
MOGCSP	Ministry of Gender, Children and Social Protection
MOU	Memorandum of Understanding
MDD-W	Minimum Dietary Diversity – Women
MMDAs	Metropolitan and Municipal Assemblies
NAFAG	National Fisheries Association of Ghana
NAFPTA	National Fish Processors and Traders Association
NMFMP	National Marine Fisheries Management Plan
NRM	Natural Resource Management
PA	Public Address
PPI	Poverty Probability Index
SBCC	Social and Behavior Change Communication
SFMP	Sustainable Fisheries Management Project
STC	Science and Technical Committee
STWG	Scientific and Technical Working Group
UCC	University of Cape Coast
URI	University of Rhode Island
USAID	United States Agency for International Development
USG	United States Government

Revising Ghana's Fisheries Act

Ministry of Fisheries and Aquaculture Development / Fisheries Commission

Home

The Ministry of Fisheries and Aquaculture Development and its Fisheries Commission is in the process of drafting a bill that will replace the current Fisheries Act of 2002 and its Amendments.

This site provides a repository of documents on Ghana's existing fisheries laws and regulations, as well as related documents that can aide individuals involved in drafting the new legislation. It also serves as an information portal for individuals or groups that wish to provide inputs to the Ministry and Commission as the process unfolds.

Documents can be viewed and downloaded by clicking on the links in the various pages (Existing Legislation, International Treaties and Agreements & Related Documents). It also provides a page (Comments) where individuals can provide comments and inputs for consideration as a new bill is drafted and as public meetings are held.

Revising Ghana's Fisheries Act

Ministry of Fisheries and Aquaculture Development / Fisheries Commission

Legislation and Regulations

This page provides links to the existing Fisheries Act, its amendment, related Legislative Instruments and Ministerial Directives and other past fisheries laws. It also contains other related legislation such as the Local Governance Act which contains provisions related to fisheries. A copy of Ghana's Constitution which contains provisions establishing the Fisheries Commission is also provided below.

Fisheries Legislation

- Ghana Fisheries Act of 2002 (No. 625)
- Ghana Fisheries (Amendment) Act of 2014 (No. 880)
- Ghana Fisheries Law of 1991 (PNDCL 256) This law has now been replaced by the 2002 Fisheries Act and 2014 Amendment but may be useful from a historical perspective.
- Ghana Wholesale Fish Marketing Act of 1963 (No. 156)

Regulations

- Ghana Fisheries Regulations 2010 (L.I. 1968)
- Ghana Fisheries (Amendment) Regulations 2015 (L.I. 2217)
- Fisheries Regulations of 1979
- Fishing Boats (Certificate of Competency First Class and Second-Class Engineers) Regulations of 1974
- Fishing Boats (Certificate of Competency as Skippers and Second Hands) Regulations of

1972

Ministerial Directives

- Ministerial Directive Trawler Closed Season (2016-17) 15-06-2016
- Ministerial Directive on Minimum Sanitary Requirements 31-5-2016

Related Legislation

- Ghana Local Governance Act of 2016 (No. 936) Ghana Local Government Act of 1993 (No. 462) which replaced Act 462.
- Ghana Local Government Act of 1993 (No. 462) replaced by Act 936.
- Ghana Shipping Act 2003 (Act 645) look to Section 13 in particular.
- Ghana Maritime Authority Act 2002 (Act 630) look to Sections 4 and 13 in particular.
- Maritime Zones Delimitation Law 1986 (P.N.D.C.L. 159)
- Ghana Ports and Harbours Authority Act of 1986 look to Section 24 in particular.
- Oil in Navigable Waters Act of 1964 (Act 235)

Ghana's Constitution

- Ghana's Constitution of 1992 Part V: Protecting Natural Resources, Section 269.1 provides for the establishment of a Fisheries Commission. Section 268 pertains to agreements granting rights or concessions to natural resources. Section 269.2. allows Parliament on the recommendation of the Commission to authorise another agency of government to grant rights with respect to exploitation of natural resources.

Revising Ghana's Fisheries Act

Ministry of Fisheries and Aquaculture Development / Fisheries Commission

Related Documents

This page provides links to documents that may have bearing on the contents of the bill for a new Fisheries Act that is being drafted by MOFAD/FC. It includes fisheries and aquaculture, as well as other relevant policies, plans and strategies that have been formally adopted by the Government of Ghana.

MOFAD Policies and Plans

- MOFAD Sector Medium Term Development Plan (2014-2017)
- Ghana Fisheries and Aquaculture Sector Development Plan 2011-2016
- Coastal and Marine Sector Action Plans MOFAD 2015
- Fisheries Management Plan of Ghana – Marine Sector (2015-2019)
- Ghana National Aquaculture Development Plan MOFAD-FC 2013
- Ghana National Plan of Action on IUU Fishing 2014
- National Gender Mainstreaming Strategy for the Fisheries Sector MOFAD 2016
- Strategy on Anti-Child Labour and Trafficking in Fisheries

Other Related Government of Ghana Polices and Strategies

- Ghana Food and Agriculture Sector Development Policy 2007, Section 4.8.4 Fisheries Policy, starts on page 38.
- Ghana Medium Term Agricultural Sector Investment Plan (METASIP) 2011-2015 See outputs 1.1.3, 2.1.3 , 2.4.2, 2.5.3 in particular.

- Ghana Shared Growth and Development Agenda (GSGDA), 2010-2013 See Sections 2.2.1, 4.1.7, and 4.2.3 in particular.
- National Climate-Smart Agriculture and Food Security Action Plan of Ghana (2016-2020) See Sections 3.4, 3.6, 3.9 in particular.
- National Nutrition Policy for Ghana 2013-2017 See Sections 2.2.1 and 5.3.

MOFAD Reports and Related Documents

- Guidelines for Acquiring a Fishing Licence in Ghana 2013
- Ghana Marine Canoe Frame Survey 2016
- Ghana Marine Canoe Frame Survey 2013

Other Background Documents on Ghana's Fisheries and Aquaculture Sector

- The Fishing Sub-Sector and Ghana's Economy-Bank of Ghana report 2008
- Guidelines for the Re-organization of Premix Fuel (http://mofa.gov.gh/site/?page_id=8910)

Other Resource Documents of Interest

- US Fishery Conservation and Management Act as amended through 2007
- EJF and Hen Mpoano Report on Transparency in Ghana's Fisheries Sector 2019
- EJF Report on Vessel Ownership in Ghana's Industrial Trawl Sector 2018
- Legal Opinion on Transshipment in Ghana, TaylorCrabbe, 2018
- Report of Roundtable on Implementation of the VGGT and SSF Guidelines 2018
- Assessment of Ghana's Fisheries Laws for Alignment with the VGGT and SSF Guidelines, TaylorCrabbe and EJF, 2019
- Issue Brief on the Principles of the VGG

Revising Ghana's Fisheries Act

Ministry of Fisheries and Aquaculture Development / Fisheries Commission

Treaties, Intl. Agreements & Guidelines

This page contains copies of international treaties and agreements that have been signed or ratified by The Government of Ghana.

Compulsory

- Agreement on Port State Measures to Deter IUU Fishing and Communication on Ghana Ratification of Agreement on Port State Measures on IUU Ghana Ratification on 29 November 2016
- UN Agreement for the implementation of UNCLOS relating to the conservation and management of straddling and highly migratory fish stocks (1994); Ghana ratification on 27 January 2017
- United Nations Convention on the Law of the Sea (UNCLOS) 1982; Ghana ratification on 7 June 1983
- Agreement relating to the implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982; (regarding the seabed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction) Ghana ratification on 23 September 2016
- Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas 1993
- International Convention-Commission for the Conservation of Atlantic Tunas of 1966 and updated through 2017; Ghana ratification on 17 April 1968, Paris Protocal ratified 12

December 1988, Madrid Protocol ratified 23 November 2001

Voluntary

- FAO Code of Conduct for Responsible Fisheries 2011
- Voluntary Guidelines for Securing Sustainable Small-scale Fisheries in the Context of Food Security and Poverty Eradication 2015, FAO
- Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security, 2012, FAO
- Voluntary Guidelines on Flag State Performance (VGFSP), FAO, 2015

Revising Ghana's Fisheries Act

Ministry of Fisheries and Aquaculture Development / Fisheries Commission

Draft Fisheries Act

This is the working draft of the new Ghana Fisheries Act. Comments are welcome below.

(document to be uploaded shortly)

Leave a Reply

You must be logged in to post a comment.

Revising Ghana's Fisheries Act

Ministry of Fisheries and Aquaculture Development / Fisheries Commission

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Republic of Ghana

Ministry of Fisheries and Aquaculture Development

FISHERIES COMMISSION

Fisheries Scientific Survey Division

REPORT ON THE 2016

GHANA MARINE CANOE FRAME SURVEY

BY

Dovlo E, Amador K, Nkrumah B et al

August 2016

TABLE OF CONTENTS

TABLE OF CONTENTS 2
LIST of Table and Figures 3
Tables 3
Figures 3
1.0 INTRODUCTION 4
1.1 BACKGROUND
1.2 AIM OF SURVEY 5
2.0 PROFILES OF MMDAs IN THE REGIONS 5
2.1 VOLTA REGION 6
2.2 GREATER ACCRA REGION 7
2.3 CENTRAL REGION 9
2.4 WESTERN REGION 12
3.0 METHODOLOGY 14
3.1 STUDY AREA 14
3.2 METHODS
4.0 RESULTS 16
4.1 TYPES OF CANOES 16
4.2 NUMBER OF CANOES ..... **Error! Bookmark not defined.**
4.3 Number and Type of Fishing Gears 18
4.4 Number and Types of Outboard Motors 18
4.5 Number of Fishing Villages and Landing Beaches 18
4.6 Number of Fishermen 19
4.7 Cost of Fishing Inputs 19
4.8 Fish Sharing Systems 19
4.9 Fishing Holidays 19
4.10 Migration Patterns 20
4.11 Comparison of Results with Previous Surveys 20
5.0 DISCUSSIONS 20
6.0 SOCIO-ECONOMIC STUDIES 23
ACKNOWLEDGEMENT 42
References 42
Appendices 43

LIST of Tables and Figures

Tables

Table 4.1(a -z): Results of 2016 Canoe Frame Survey showing number of fishing units by Gear for all Districts

Table 4.2: Districts and Regions Summaries of 2016 Canoe Frame Survey

Table 4.3: Summary of 2016 Canoe Frame Survey on Regional Level

Table 4.4: Mean Range of Price (Cost) of Fishing Gears, Canoes and Outboard motors in Regions – 2016

Table 4.5: Regional Summaries of 2001, 2004, 2013 and 2016 Canoe Frame Surveys.

Table 4.6: Distribution of Brands and Sizes of Outboard Motors in the Regions in 2016 Canoe Frame Survey

Table 4.7: Mean Dimensions/Ranges of Canoes along the Coast in Ghana

Table 4.8: Fish Sharing System within the Regions

Figures

Fig.1: Map of Coastline of Ghana showing majority of districts (2011)

Fig.2: Number of Fishing Villages and Landing Beaches in the Districts - 2016

Fig.3: Number of Fishing Villages and Landing Beaches in the Regions - 2016

Fig.4: Number of Canoes, Motors and Fishermen in the Regions - 2016

Fig.5: Relative Importance of Gears in the Regions - 2016

Fig.6: Relative Importance of Gears in 2016 Canoe Frame Survey

Fig.7: Number of Fishing Villages and Landing Beaches between 1969 and 2016

Fig.8: Total Number of Canoes from 1969 to 2016

Fig. 9: Number of Canoes, Motors and Fishermen from 1981 to 2016

Fig.10: Changes in Gear Use Pattern between 1989 and 2016

Fig. 11: Changes in Gear Use Pattern from 2001 to 2016

Fig. 12: Changes in Gear Use Pattern from 2001 to 2016 - Volta Region

Fig. 13: Changes in Gear Use Pattern from 2001 to 2016 - G/Accra Region

Fig. 14: Changes in Gear Use Pattern from 2001 to 2016 - Central Region

Fig. 15: Changes in Gear Use Pattern from 2001 to 2016 - Western Region

Fig.16: Relative Importance of Fishing Gear in some Coastal Districts

1.0 INTRODUCTION

1.1 BACKGROUND

The Ministry of Fisheries and Aquaculture Development (MOFAD) has the primary responsibility of ensuring the availability and affordability of fish and fisheries products within the country. Fish is the preferred source of protein and it accounts for about 60% of animal protein in most Ghanaian diets. About 75% of the total domestic production of fish is consumed locally with an average per capita consumption of 23.7 kg per annum (Anon; 2011). Through scientific research, MOFAD ensures the promotion of sustainable and thriving fisheries enterprises as well as providing extension and other support services to fishers.

Fishery products constitute the most important non-traditional export of Ghana, contributing 254.4 million dollars in 2011 (Ghana Export Promotion Authority). The sector contributes about 5 percent to Agricultural Gross Do mestic Product (GDP) and employs about 10% of the nation's economically active population. According to FAO (1991) assessment, out of 1.9 million people engaged in either full time, part time and seasonal fishing about 98% belongs to the artisanal sector. The artisanal fisheries is the most important fisheries sector in Ghana in terms of its great contribution to production and local fish supply. The sector contributes about 70 to 80% of the total marine fish production (Anon; 2011). It represents the main types of fishing carried out in all the twenty six coastal districts in Ghana.

The multiplicity and high numbers of gears and fishing crafts employed in the artisanal sector and the diversity and higher number of fish caught makes this sector quite complex. Fisheries Scientific Survey Division (FSSD) of the Ministry of Fisheries and Aquaculture Development has the mandate for conducting frame surveys of canoes and artisanal gears. The major use of the frame survey results is as basis for catch assessment surveys. The frame survey also collect socio-economic information from the landing sites which is important for determing the efficiency of the fisheries sector. and the results used as basis for catch assessment surveys and also to determine the strength of the sector and its needs.

A frame survey of canoes and fishing gears as well as the collection of socio-economic information on the artisanal fisheries was conducted in April 2016 to update the existing data on the sector. The last survey was conducted in 2013.

1.2 AIM OF SURVEY

- To assess the size, structure and distribution of artisanal marine canoes
- To collect basic data and information necessary for processing annual artisanal marine catch data
- To collect socio-economic information from the artisanal marine sector.
- To collect other information on the canoe fleet.

The frame survey focused on detailed count and measurement of canoes and fishing gears, number of outboard motors, number of fishing villages and landing beaches, number of fishermen. Other parameters that were also considered included the cost of fishing inputs, fish sharing system, migration patterns and other socio-economic information for the month of April 2016. The data and information collected on the fishing effort inventory covered all landing sites. Full enumeration was however not employed for the socio-economic data. The data was collected during period where there was less migration of canoe and fishermen between landing centers.

2.0 PROFILES OF MMDAs IN THE REGIONS

There are a total of 26 coastal metroplolitan, municipal and district assemblies (MMDAs) in the four regions along the coastline of Ghana: Two (2) in the Volta Region; Nine (9) in the Greater Accra Region; Nine (9) in the Central Region; and Six (6) in the Western Region.

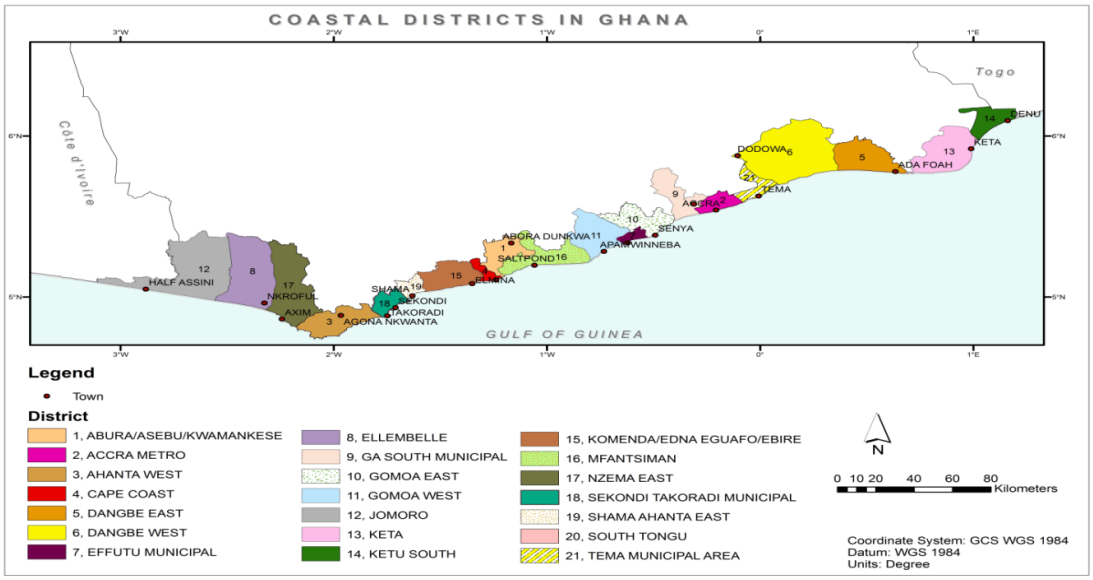


Fig.1: Map of coastline of Ghana showing majority of districts (2011)

2.1 VOLTA REGION

Volta Region is at the eastern border of Ghana with Togo and has two (2) coastal MMDAs; Ketu South Municipal Assembly and Keta Municipal Assembly.

2.1.1 *KETU SOUTH MUNICIPAL ASSEMBLY*

The Ketu South Municipality has its capital at Denu and it is bordered to the North by the Akatsi District, to the South by the Gulf of Guinea and to the East by the Republic of Togo, and to the West by the Keta Municipality. The district shares a border with the Republic of Togo where continuous cross-border trading activities occur. The main occupation of the people in this district is salt mining and fishing although some people engage in subsistence agriculture. Fish production in the district over the past five years has averaged 6,300 mt over the period. The main fish species caught are; Anchovy (*Engraulis encrasicolus*), Burrito (*Brachydeuterus auritus)*, Bumper (*Chloroscombrus chyrsurus*), Flat sardinella, (*Sardinella maderensis*), Round sardinella (*Sardinella aurita*) and Horse Mackerel (*Caranx hippos*).

2.1.2 *KETA MUNICIPAL ASSEMBLY*

The Keta Municipality was carved out of the former Anlo District and it is located east of the Volta estuary with Keta as its capital. It has a total land area of 1,086 km^2, with approximately 362km^2 (about 30 per cent) covered by water bodies, the largest of which is Keta Lagoon. Fishing and water transportation potentials exist in the district. The main occupation of the people in this municipality is salt mining and fishing. Fish production in the municipality over the past five years has averaged around 4,800 mt. However declining trends have been observed in recent years. The main fish species caught are Anchovy (*Engraulis encrasicolus*), Burrito (*Brachydeuterus auritus)*, Bumper (*Chloroscombrus chyrsurus*), Flat sardinella, (*Sardinella maderensis*), Round sardinella (*Sardinella aurita*) and Horse Mackerel (*Caranx hippos*).

2.2 GREATER ACCRA REGION

Greater Accra Region has nine (9) coastal MMDAs and they are Ada East District, Ada West District, Ningo–Prampram District, Kpone-Katamanso District, Tema Metropolitan Assembly, Ledzokuku-Krowor Municipal Assembly, La- Dadekotopon Municipal Assembly, Accra Metropolitan Assembly and Ga South Municipal Assembly.

2.2.1 ADA EAST DISTRICT

The Ada East District is carved out the defunct Dangme East District and has a land area of about 909 km . It is located at the estuary where the Volta River meets the sea with Ada Foah as the district capital. The main occupation of the local people is fishing. There are a significant number of people working in the salt mining industry. Fish production in the district over the past 5 years has averaged aroind 54,500 mt. Anchovy (*Engraulis encrasicolus*), Round Sardinella (*Sardinella aurita*), Frigate Mackerel (*Caranx hippos*) and Chub Mackerel (*Scomber colias*) are the main fish species caught in the district.

2.2.2 ADA WEST DISTRICT

The Ada West District is carved out the defunct Dangme East District and is one of the new 46 districts created in 2012 with Sege as its capital**.** It was carved from Dangme East District.

Majority of the populace engage in fish farming and agriculture as a source of income for their families. The main occupation of the people in this district is salt mining and fishing.

2.2.3 NINGO -PRAMPRAM DISTRICT

This new district was carved out of defunct Dangme West District. The Ningo Prampram District is the largest in the Greater Accra Region with a coastline stretching over 37 kilometers and a total land area of 1,442 square kilometers. The main occupation of the people in the district is salt mining and fishing. Fish production in the district over the past five years has averaged around 1,000 mt. Anchovy (*Engraulis encrasicolus)*, Sardinellas (*Sardinella spp*) and mackerels (*Caranx spp*) are the major fish species caught in this district.

2.2.4 KPONE-KATAMANSO DISTRICT

This new district was carved out of the Tema Municipal Assembly. Majority of the populace are mainly fishermen specialising in the hook and line method of harvesting large demersal species. Others are farmers on subsistence levels.

2.2.5 TEMA METROPOLITAN ASSEMBLY

Tema serves as the administrative capital of the Tema Metropolitan Assembly and is situated 25 kilometres east of Accra, the national capital. The metropolis shares common boundaries with the Accra Metropolis on the west, the Ga Municipality on the North West and the Dangme West District on the northern and eastern borders respectively. The main occupation of inhabitants varies from commerce, tourism, hoteliers and fishing. Within the metropolis, Tema fishing port lands annually over 4,000 mt in the past 5 years. This includes catches from the artisanal canoe fishermen. Over 40 fish species of fish belonging to various families such as the Anchovy (*Engraulis encrasicolus*), Sardinellas (*Sardinella spp)*, Bumper (*Chloroscombrus chrysurus*), Frigate Mackerel (*Caranx hippos)*, and Chub Mackerel (*Scomber colias*) are landed in Tema due to its major infrastructure and proximity to the capital.

2.2.6 LEDZOKUKU-KROWOR MUNICIPAL ASSEMBLY

Nungua is the capital with an estimated population of 261,571 people in the municipality. Fishing is one of the major occupations of the people in the district. Fish production in the district over the past five years has averaged aroud 2,500 mt. The main fish species caught are the Round Sardinella (*Sardinella aurita*), Bumper (*Chloroscombrus chrysurus*) and Frigate Mackerel (*Caranx hippos).*

2.2.7 LA DADEKOTOPON MUNICIPAL ASSEMBLY

This new municipalty was carved out of the Accra Metroplitan Assembly in 2011 with a large majority of its inhabitants into commercial ventures and tourism. Fishing is not a major economic activity in the municipality.

2.2.8 ACCRA METROPOLITAN ASSEMBLY

AMA has a total land size of 200 square kilometres and is made up of six sub metros namely Okaikoi, Ashiedu Keteke, Ayawaso, Kpeshie, Osu Klotey and Ablekuma. The total population of AMA is about 1,695,136 people (2000 National Population Census). Commerce, tourism, hoteliers and fishing are the main occupation of inhabitants in the district. The metropolis has quite a number of landing sites producing over 5,2902 mt in the past 5 years. Round Sardinella (*Sardinella aurita*), Bumper (*Chloroscombrus chrysurus*), Frigate Mackerel (*Caranx hippos)* and Flat Sardine (*Sardinella maderensis*) are the major species landed in the metropolis.

2.2.9 GA SOUTH MUNICIPAL ASSEMBLY

The Ga South Municipality has a number of fishing villages including Bortianor, Oshie, Kokrobite, Faana and Lanma. Fishing is one of the occupations of the people residing in the municipality. Mean fish production in the district in the past five years is around 6,600mt. Some of the most important fish species caught are Moon Fish (*Selene dorsalis*), Cassava fish (*Pseudotolithus senegalensis*), Burrito (*Brachydeuterus auritus*), Sea breams (*Sparus and Dentex spp*) and Round Sardinella (*Sardinella aurita)*.

2.3 CENTRAL REGION

Central Region has nine (9) coastal MMDAs and these are Awutu-Senya District, Effutu Municipality, Gomoa East District, Gomoa West District, Ekumfi District, Mfantseman Municipal Assembly, Cape Coast Metroplitan Assembly, Abura-Asebu-Kwamankese District and Komenda-Edina-Eguafo-Abrem Municipal Assemly.

2.3.1 AWUTU SENYA DISTRICT

The district capital is Senya-Beraku and the main occupation of the people in this district is agriculture and fishing. Fish production in the district over the past five years has averaged 3,500 mt over the period. Main species caught are the Sardinella (*Sardinella spp)*, Threadfin (*Galeoides decadactylus*), and Burrito (*Brachydeuterus auritus)* among others.

2.3.2 GOMOA EAST DISTRICT

This district was carved from the Gomoa West district with Afransi as its district capital in 2012. The Districts is bounded by Gomoa West to the South, to the North by Agona West

Municipal, Asikuma-Odoben-Brakwa District to the West and to the East by Awutu-Senya East District. The population of the district is 102,449. The main occupation of the people in this district is subsistence agriculture and fishing. The sardinellas are the major fish species landed.

2.3.3 GOMOA WEST DISTRICT

Gomoa West District has Apam as its administrative capital and covers a land area of 1,022 km^2 with a total population of 194,792. The main occupations of the people in the district are subsistence agriculture and fishing. Mean fish production in the district over the past five years was 6,300mt. A lot of fish species of commercial importance are caught in the district with the sardinellas being the dominant pelagic species. The rest includes Threadfin (*Galeoides decadactylus*) and Burrito (*Brachydeuterus auritus).*

2.3.4 EFFUTU MUNICIPAL ASSEMBLY

The Municipality covers an area of 417.3 km^2 with Winneba as its administrative capital. It is bordered to the north by Agona Municipal, east by Gomoa District, on the west by the Gomoa West District and the south by the Gulf of Guinea. The municipal has a population of 169,972 with 168 settlements. The main occupation of the people in this district is agriculture and fishing. The small pelagics (*Sardinella spp.*) are dominantly caught and landed but occasionally the billfishes are also landed by the drift gill operators.

2.3.5 EKUMFI DISTRICT

This new district was carved out of the Mfantseman Municipality from Otuam to Srafa with a population of less than 50,000 people with fishing as their predominant occupation. Sardinellas are the dominant pelagic species landed. This ocurrs during the peak fishing season.

2.3.6 MFANTSEMAN MUNICIPAL ASSEMBLY

Mfantseman Municipality occupies a total land area of approximately 612 km^2 stretching for about 21 km along the coastline and for about 13 kilometers inland. It has Saltpond as its capital. The municipality has a total population of 152,264 (2000 population and housing census) constituting almost 7% of the Central Region population. The main occupation of the people in the municipality is subsistence agriculture and fishing. Mean fish production in the district over the past five years averaged 10,000mt over the period. Major fish species caught are the Anchovy (*Engraulis encrasicolus*), Atlantic little tuna (*Euthynnus alleratus*), and, Scad Mackerel (*Caranx rhoncus*), Threadfin (*Galeoides decadactylus*), Chub Mackerel (*Scomber colias*) and Burrito (*Brachydeuterus auritus*)

2.3.7 ABURA ASEBU KWAMANKESE DISTRICT

Abura-Dunkwa is the administrative capital of the Abura-Asebu-Kwamankese District. The distict has a population size of 90,093 representing 5.6% share of the Regional Population and 0.47% of the National Population figure (2000 population census). The population density is consequently 277.2 per sq. km. The main occupation of the people in this district is agriculture and fishing. Fish production in the district over the past five years has been 74,200mt over the period. The main fish species caught are: Anchovy (*Engraulis encrasicolus)*, Atlantic little tuna (*Euthynnus alleratus*, Scad Mackerel (*Caranx rhoncus)*, Threadfin (*Galeoides decadactylus*), Chub Mackerel (*Scomber japonicus*) and Burrito (*Brachydeuterus auritus*).

2.3.8 CAPE COAST METROPOLITAN ASSEMBLY

Cape Coast is the administrative capital of Cape Coast Metropolitan Assembly and also the regional capital of the Central Region. The metropolis occupies an area of 122km^2. It's boundary to the West is Komenda-Edina-Eguafo-Abrem Municipality, to the East is Abura-Asebu-Kwamankese District and to the North, the Twifo-Hemang-Lower Denkyira District. The main occupation of the people in this metropolis is fishing. Fish production in the district over the past five years has on the average been 6,200mt over the period. The main fish species caught are the Threadfin (*Galeoides decadactylus*), Chub Mackerel (*Scomber colias*) and Burrito (*Brachydeuterus auritus*).

2.3.9 KOMENDA-EDINA EGUAFO-ABREM MUNICIPAL ASSEMBLY

Elmina is its administrative capital. It is situated between longitude 1° 20' West and 1° 40' West and latitude 5° 05' North and 5° North 15' North. The district covers an area of 1,372.45 km^2 The estimated population for the district is 112,435 people which is 7.1% of the regional population. The main occupation of the people in this municipality is subsistence agriculture and fishing. Fish production in the district over the past five years accounted for 10,571mt annually over the period. The main fish species caught are: Atlantic little tuna (*Euthynnus alleteratus)*Frigate mackerel (*Auxis thazard*) and Burrito (*Brachydeuterus auritus*).

2.4 WESTERN REGION

Western region is located in the south western part of Ghana and has six (6) coastal MMDAs.

2.4.1 SHAMA DISTRICT

The Shama District was carved out of the former Shama Ahanta East Metropolitan Assembly. It is bordered to the North by the Mpohor Wassa East District, to the South by the Gulf of Guinea, Sekondi-Takoradi Metropolitan Assembly to the West (all in the Western Region) and Komenda-Edina-Eguafo-Abirem District to the East in the Central Region. The District Capital is Shama. The District covers a land area of 215 km^2 and has a total of sixty seven (67) settlements with 366,579 population size. The predominant occupation of the people in the District is mainly farming, commerce and fishing. Fish production in the district over the past five years has averaged 43,500mt over the period. The main fish species caught are the Sardinellas, Frigate Mackerel (*Auxis thazard*) and Long-finned Herring (*Ilisha africana*).

2.4.2 SEKONDI TAKORADI METROPOLITAN ASSEMBLY

Sekondi is the administrative capital of the twin city comprising Sekondi and Takoradi. It lies within longitudes 4.92°N, and latitude 1.77°W. Sekondi-Takoradi is the Western Region's largest city and an industrial and commercial center, with a population of 445,205 people (2012). The chief industries in Sekondi-Takoradi are timber, plywood, shipbuilding and railroad repair and fishing. The main fish species caught are: Sardines (*Sardinella aurita and Sardinella maderensis*), frigate Mackerel, (*Auxis thazard*) and long-finned Herring (*Ilisha africana*).

2.4.3 AHANTA WEST DISTRICT

The Ahanta West District has a total land area of 591km^2 and according to the 2010 Population and Housing Census report it is occupied by 106,215 people. Agona Nkwanta is the district capital. The District lies between latitude 4°.45"N and longitude 1°.58"W and it is located at the southern most part of the country. The district is bounded on the East by the Sekondi Takoradi Metropolitan, on the West by the Nzema East Municipal, and the North by Mpohor Wassa East and Wassa Amenfi West Districts. The main occupation of the people in this district includes subsistence agriculture, rubber plantation which employs about 60% of the total population, the remaining engage in fishing, trading and the formal sectors. Mean annual fish production in the district over the past five years has been is 17,000mt. The main fish species caught are the Sardines (*Sardinella aurita and Sardinella maderensis*).

2.4.4 NZEMA EAST MUNICIPAL ASSEMBLY

The Nzema East Municipality is located on the southern end of the western region between longitude 2^{0}05" and 2^{0}35" West and latitude 4^{0}40 and 5^{0}20 North. The Nzema East Municipal covers 9.8 % (2,194km^2) of the total area of the Western Region It is bordered to the west by Ellembelle, north by Wassa Amenfi East District, and the east by Wassa Amenfi West and Ahanta West districts. On the south, it is bordered by the Gulf of Guinea with 70km stretch of sandy beaches. It is estimated that over 65% of the economically active population are engaged in fishing and farming. Mean annual fish production in the district over the past five years has been 6,200mt over the period. The main species caught are the sardinellas.

2.4.5 ELLEMBELLE DISTRICT

The Elembelle District was carved out of the Nzema East District in 2007 with Nkroful as its administrative capital. The Ellembelle District is located on the southern end of the region between longitudes 2º 05' and 2º 35' W and latitude 4º 40' and 5º 20' N. It covers a total area of about 1,468 km^2 which constitute about 6.8% (Percent) of the total land mass of the Western Region with a total population of 107,673 for the district (Ghana Statistical Service, 2010). Fishing and Cocoa growing is the main occupation of the people in the district. However, small scale mining, and trading is carried out in the middle and the northern zones. Processing and sale of copra oil is also carried out in certain parts of the district. Major fish species caught are Sardinellas.

2.4.6 JOMORO DISTRICT

Created by a Legislative Instrument 1394 in 1988, the Jomoro District used to be part of the then Nzema East Municipal. The size of the district is 1,344 km^2 and Half Assini is the District Capital. It lies between Latitudes 04° 55' – 05° 15' N and Longitudes 02° 15' – 02° 45' W and is bordered on the North by Wassa Amenfi West and Aowin Suaman districts, Ellembelle District on the East, La Cote d'Ivoire to the West and the Gulf of Guinea to the South. It is located in the Southwestern corner of the Western Region of Ghana. The population of the district is 150,107 with a density of 83 persons per km2 and an annual growth rate of 3%. (2000 PHC Census/2010). The population of the district is 5.8% of that of the region. The main occupation of the people in this district is subsistence agriculture and fishing. Mean Fish production in the district annually has been approximately 825mt over the period. Main species caught are the Atlantic little tuna (*Euthynnus alleteratus*) and the Round and Flat Sardinellas (*Sardinella aurita* and *S. madernsis*).

3.0 METHODOLOGY

3.1 STUDY AREA

The survey covered the entire marine coastline with approximately 550 km from Aflao in the Eastern border in the Republic of Togo side to Half-Assini (Newtown) in the western border with Cote d'Ivoire.

3.2 METHODS

The method of full coverage was used (Banerji, 1974) with the entire coastline of Ghana divided into four sectors corresponding to the four administrative regions bordering the sea (Fig.1). These are Volta, Greater-Accra, Central and Western regions. The Regions were subdivided into districts numbering 26 in total. These were Ketu South and Keta districts in the Volta Region; Ada East, Ada West, Ningo-Prampram, Kpone-Katamanso, Tema, Ledzokuku-Krowor, La-Dadekotopon, Accra and Ga South districts in the Greater Accra Region; Awutu-Senya, Effutu, Gomoa East, Gomoa West, Ekumfi, Mfantseman, Cape Coast, Abura-Asebu-Kwamankese, Komenda-Edina-Eguafo-Abrem districts in the Central Region; and Shama, Sekondi-Takoradi, Ahanta West, Nzema East, Ellembelle, Jomoro districts in the Western Region. Within each district, enumerators covered the full length of the coastline listing all fishing villages and associated landing beaches.

For the purpose of this survey, a fishing village is a village (town or city) where fishermen reside and have a chief fisherman. The chief fisherman is generally the head of the fishing

community. A landing beach on the other hand, is the stretch of coastline on which fish is typically landed and canoes are beached. Similarly, a number of villages that are governed by one chief fisherman are considered as landing beaches under the fishing village where the chief fisherman resides. Thus villages or beaches as used here may have been reassigned under newly created administrative areas/districts recently but however cover the sites and areas along the coastline.

The Survey team consisted of Fisheries Officers, Technical Officers, and Technical Assistants from the coastal regions/districts who all acted as enumerators during the period under review. The team numbering approximately 80 (grouped according to districts) went through a three day pre-survey training in April 2016 highlighting on the methodology to be used, identification of types of fishing gears, fishing crafts as well as administering of questionnaires.

At the fishing village, the enumerators enquired and established the number of landing beaches. The number and type of canoes at each landing beach were physically counted. A sample of each type of canoe was measured with a tape measure. The type of canoe is determined, generally by the kind of fishing method (prominent gear) carried out on it. The canoes were also examined for motorisation. A canoe is considered motorized if it carries a bracket or cradle on which an Canoes in estuaries, rivers and lagoons no matter how close they were to the open sea, were excluded in the count. outboard motor can be mounted.

All other information requested are indicated in the questionnaires (Appendices A & B). The findings of most questionnaire have not been put in this report but only summaries because they were put in to help design and monitor catch assessment surveys. However these results can be incorporated in a detailed register with detailed information on ownership, names of canoes, symbols, crew size per individual canoes etc.

New canoes which were being prepared to go to sea and old ones undergoing repairs were all counted and included in the database. Canoes that were seen broken beyond repairs or abandoned were not counted. In each canoe, the number of fishermen were also not sought.

The chief fisherman in each village was the first point of contact before the enumeration was done and they often delegated some trustworthy and experienced subordinates to help the enumerators do their job.

The rest of the survey was conducted by interviewing either the chief fisherman or other fishermen in the village. Some of the information demanded from them are on non-fishing

days, range of fishing operations, main species fished or sought, migration of fishermen within and out of the country etc.

All the information obtained were crosschecked and later entered into a database for further scrutiny.

The entire programme lasted for a month starting on the 9th April and ending on the 29th April 2016. A few retired officers were recruited to join the existing numbers of enumerators. A post census check was organized in the second week of May 2016 to visit some landing sites to ascertain the true numbers of canoes in some landing sites. Besides counting the numbers and types of canoes and gears associated, some aspects of the livelihoods (socio-economics) of fisher folks were sought such as their family size, educational backgrounds, and livelihoods among others. The respondents were mainly fishermen and fishmongers in the various fishing were interviewed in the communities. A sample size of 200 of fishers/fishmongers (respondents) were used. The results however should be taken as tentative and used with much caution.

Results using the Statistical Package for Social Sciences (SPSS v-16) was conducted to give us a fair idea of the social importance of fishers within our coastal communities.

4.0 RESULTS

4.1 Number anf Types of Canoes

Classification of canoes in the artisanal sector is based on the type of gear the canoes operate. The major gears operated by the canoes during the survey were Purse seine (Poli/Watsa), Hook & Line, Drift Gill Net, Beach Seine, Ali, Set Net and One Man Canoe. As one canoe can be used to operate more than one type of fishing gear, each canoe was put in the category of gear for which it is most often used. Doyi (1984) describes the various gears used in the artisanal fishery in Ghana.

Triplochiton scleroxylon and *Ceiba petandra* locally called Wawa and Onyina respectively are the main materials used for the manufacture of these canoes.

4.1.1 Ali and Poli/Watsa

A total of 3,346 pursing nets (Poli/Watsa) and 1,052 Ali net canoes were counted. These are large wooden canoes in the size range of 12.0 – 19.5m long x 1.2 – 2.4m wide that are used to operate the ali/poli/watsa nets. They are mainly propelled by 25 – 40 hp Outboard Motors with some also using electronic devices like the fish finders and echo sounders.

4.1.2 Beach Seine

During the survey, 1,084 beach seines canoes were recorded. In this category, some old "Ali/Poli/Watsa" canoes are converted for beach seining. Normally, the bow is raised to avoid taking water when crossing through the surf. Beach seine canoes are mostly propelled by paddles nevertheless outboard motors may be used as well. Their sizes range between 8.5-11.5m.

4.1.3 Set Net

During the survey, 3,729 Setnet canoes were counted. Setnet canoes are those that are used to operate small nets rigged to fish at bottoms or in midwaters depending on the strength of the floats and leadlines. They are used mainly on daily basis using paddles and sails or outboard motors. Their size ranges from about 7.0 – 9.5m long. Some Set nets are used to trap lobsters.

4.1.4 Line

The number of line canoes recorded were 1,344. Line canoes in Ghana also termed "Lagas" canoes (French word for ice, "la glace"), are canoes that specialize in hook and line fishing. Ice is used to preserve high value demersal fish at sea in insulated containers. They stay out at sea for 2 to 4 days targeting large demersals such as sparids, snappers and groupers within rocky bottoms. The size range is approximately 12.0 – 18.5m long.

4.1.5 Drift Gill Net

During the count, a total of 836 drift gill net canoes were recorded. Their size range is the same as that of "Ali/Poli/Watsa" and can only be identified with the gear on board. These are used to operate a drift gill net for large pelagic species such as the skipjack tuna, swordfish and sailfishes.

4.1.6 One Man Canoes

192 One Man canoes were counted. These are small canoes measuring up to 6 m. They are operated by one person either using a set net or small handline. They are usually too small to be operated by outboard engines.

4.1.7 Service canoes

Service canoes measure about 6.0 – 18m long and do not operate any fishing gear. They are mainly used to transport fish often termed as discards from industrial trawlers (system known as 'seiko') at Apam, Mumford, Elmina and Sekondi. There are over 50 of such canoes currently operating from mainly the Central rgion.

During the survey, a total of 11,583 canoes were recorded of which 3,346 of the number was pursing net canoes, 1,084 beach seine canoes, 1344 line canoes, 3,729 set nets canoes, 1,052 ali net canoes, 836 drifting net canoes and 192 one man canoes. The number of canoes for the different categories of gears operated at the landing beaches in each district is presented in Tables 1.1(a) - (z).

Table 4.2 contains the summary of the various numbers of canoes for each district and region.

4.2 Number and Type of Fishing Gears

The six different gears widely in use during the survey were the Pursing Nets, Beach Seines, Line, Set Net, Ali and Drift Gill Net.

Except for canoes that operated line, and set net gears, every other canoe operated one unit of fishing gear.

4.3 Number and Types of Outboard Motors

A total of 9,122 outboard engines of various brands and capacity were recorded. Seven (7) brands of various capacities ranging from 4hp to 40hp were identified during the survey. The Yamaha brand of 40hp dominated the motor types by 64.4%. Other brands were Johnson, Suzuki, Marina and Tohatsu which had capacities between 4 and 9hp .

Engines with such small capacities were common in the Central and Western regions, where they are used to propel small set net canoes which are common in these areas.

The regional distribution of outboard motors is presented in Tables 4.2 and 4.6. The level of motorization for each region is also presented in Table 4.3.

4.4 Number of Fishing Villages and Landing Beaches

A total of 186 fishing villages and 292 landing beaches were recorded during the survey. Names of the various fishing villages and landing beaches are in Tables 1.1(a) - (z).

At the regional level, there were 28, 44, 42 and 72 fishing villages in the Volta, Greater Accra, Central and Western regions respectively. The highest number of landing beaches (97) was recorded in the Central Region with the lowest number (47) in the Volta Region. Table 4.2 shows the breakdown of numbers of fishing villages and landing beaches by districts and regions.

4.5 Number of Fishermen

The number of fishermen recorded during the survey was 107,518 (Table 4.3). The total number for each landing beach is presented in Tables 1.1(a) – (z). Presented also in Table 4.2 are the number of fishermen in each district and region.

4.6 Cost of Fishing Inputs

It was observed that a 40hp Yamaha outboard engine was the most popular and sold between Gh¢11,000 and Gh¢15,000. Engines of lower capacities (15hp, 20hp, 25hp, 30hp) sold between GH¢4,500 and GH¢8,000. The very small motors (4 hp and 9 hp) also cost between GH¢2,000 and Gh¢3,500.

The large size nets for Watsa, Drift Gill nets and Beach Seines sold between Gh¢15,000 and Gh¢40,000. Medium size set nets cost GH¢1,000 and Gh¢3,000 and small set nets for One Man canoes also sold between Gh¢500 and Gh¢1,500.

Canoes for large heavy gears such as the big Beach Seines, Watsa and Drift Gill nets cost between Gh¢10,000 and Gh¢28,000 whilst canoes for lighter gears like the Set nets sold between Gh¢750 and Gh¢8,000. One Man Canoes were also sold between GH¢750 and GH¢1,500.

Table 4.4 shows mean ranges of price of canoes, fishing gears and outboard motors.

4.7 Fish Sharing Systems

In the marine artisanal fisheries in Ghana, the daily catches by each fishing unit are usually shared according to laid down ratios. A percentage of the catch goes to the crew on one side and the owner of the craft, gear (net) and outboard motor. The sharing system from village to village is more or less similar within the regions and does not differ much from year to year. Table 4.8 shows the various sharing systems within the regions.

4.8 Fishing Holidays

Along the coast of Ghana, at least one day in a week is observed as a fishing holiday by the various fishing communities. The day usually varies in the various communities along the coast. However, a few communities in the Volta Region were noted of not having any fishing holiday. A summary of the various days observed as fishing holidays by different regions are presented below:

Region	Fishing Holiday
Volta Region	Tuesday, Wednesday, Thursday and Sunday

Greater Accra Region	Tuesday
Central Region	Tuesday
Western Region	Tuesday, Thursday and Sunday

4.9 Migration Patterns

Based on information collected during the survey, two types of migration patterns were observed. These were migrations within or outside the country.

Often, the Ghanaian fisherman migrates beyond Ghana's territorial waters and can be found as far as Mauritania to the north and Angola to the south. They are known to stay away for a few months to several years.

4.10 Comparison of Results with Previous Surveys

4.10.1 Canoes

Table 4.5 shows comparison of the 2016 survey with the 3 previous surveys conducted in 2001, 2004 and 2013. There is seen an increase in the number of canoes from the 2001 survey to 2013 survey. A decrease of 9.0 % is however seen from the 2013 numbers of 12,728 to the current 11,583 canoes counted in 2016.

4.10.2 Outboard Motors

With regards to outboard motors since 1981 there has been increasing trends in the numbers until in 1992 when there was an 8 percent decrease. The current survey registered 9,122 motors which represented a decrease of 2.0 % from the 2013. The level of motorization was however higher from a level of 73.2 percent in 2013 to 78.8 percent in 2016.

4.10.3 Fishermen

Historically the number of fishermen population have increased over the years except between 1986 and 1989 when there was a 12.7 percent decrease. However in 2016 survey, 107,518 fishermen were recorded giving a 22.7 percent decrease from the previous survey.

5.0 DISCUSSIONS

5.1 Number and Type of Canoes

Total enumeration of canoes, gears and fishing inputs in all the fishing districts along the coast to evaluate the status of the marine artisanal fisheries sector has been a periodic exercise. The previous and present surveys incorporated some socio-economic aspects of the artisanal fishery

to ascertain changing livelihoods in the communities as a result of varying factors such as access to the resources and changes in socio-economic trends within the environment.

The total number of active canoes in comparison to that of 2013 recorded a decrease of 9.0% nationally. The general pattern has been an increase in the number of canes as shown by the results from Koranteng *et al* (1987; 1992) who recorded an increase in the number of canoes during those surveys. However, there were surveys with recorded decrease in the number of canoes (for example, Quaatey *et al* , 1997). Despite the recorded decreased number of canoes in the current survey, a trend line shows the general pattern of increasing number of canoes form 1969.

The decrease in the number of canoes from the current survey is not equally distributed among the three regions (Volta, Greater Accra and Western) with recorded decrease in the number of canoes. The greatest decrease in the number of canoes (19.3%) occurred in the Western Region. Volta Region, however, showed a remarkably increase of 15.6%.

5.2 Number of Types of Fishing Gear

In the canoe categories, of the four types of canoes that decreased in numbers (Set net, Ali, DGN and One Man canoe), Set net and Ali showed 9.0 percent and 43.8 percent down on 2013 respectively. The dramatic decrease in Ali is due to the fact that catches of the major species (*Sardinella aurita*) that the gea exploits have gone down significantly and the gear is becoming less prominent in operation. The use of One Man canoes is also becoming less significant.

5.3 Number of Types of Outboard Motors

9,122 outboard engines were recorded in the survey depicting a high percentage of 78.8 percent level of motorization. There has been an increment of 7.7 percent level of motorization over the 2013 survey. Over 85 percent of these motors were of the Yamaha brand because it is a dominant brand in the market and mostly preferred by fisher folks. Other brands encountered were of lower capacities of Yamaha, Johnson, and Suzuki etc.

On regional basis, Western Region had the highest number of outboard motors of 3,305 which constitutes 36.2 percent of the national total. This could possibly be due to the increase of Purse seine net canoes in the region.

Number of motors recorded in the Central, Greater Accra and Volta regions were 2,994, 2,234 and 589 respectively. The highest percentage of canoes with motors comes from the Greater

Accra Region with a level of motorization of 84.8 percent of crafts followed by Western Region (81.7 percent), Central Region (77.7 percent) and Volta Region (56.0 percent) respectively. In norminal terms, the number of canoes in the Western Region are far more than that of the Greater Accra Region but the number of canoes with motors in Greater Accra by gear type are more than that in the Western Region. This accounted for the higher level of motorization in Greatter Accra Region.

There have been increases in sizes of canoes in recent times. Pursing nets and Drifting Gill nets canoes were planked up to increase height and width to carry more fish. Powerful outboard motors are used to propel these planked up heavy canoes.

5.4 Number of Fishing Villages and Landing Beaches

Compared with the previous survey in 2013, the number of fishing villages throughout the four regions decreased by 4 during the current survey. The lost of landing beaches can be attributed to coastal erosion taking place in some coastal areas of the country. Migrations of canoes within the fishing villages as well to nearby fishing countries have led to some fishing villages and landing beaches in the Central Region and the Western Region to be inactive.

5.5 Number of Fishermen

The total number of fishermen enumerated in the current survey was 107,518. This showed a 22.7 percent decrease from the 2013 survey which recorded 139,115 fishermen. From the regional breakdown, 13.7 percent of all the fishermen were in the Volta Region, 24.0 percent in the Greater Accra Region, 31.0 percent in the Central Region and 31.3 percent of fishermen were recorded in the Western Region.

5.6 Cost of Fishing Input

The cost of fishing inputs depends on location, sizes and ages of equipment. The most expensive artisanal fishing nets is the Poli/Watsa net which costs between Gh¢15,000 and Gh¢40,000 This was followed by large beach seine nets between Gh¢10,000 and Gh¢32,000. The Drift Gill Net is also sold between Gh¢15,000 and Gh¢20,000. The gear for line fishing was the cheapest and they cost between Gh¢850 and Gh¢1,800. With respect to canoes, those for Drift Gill nets, Pursing nets and Beach Seine operations were the most expensive; costing between Gh¢10, 000 and Gh¢40, 000.

The cost of inputs has gone up in recent years since the last survey due to inflationary trend and high cost of borrowing.

5.7 Fishing Sharing System

The sharing system from village to village are more or less similar within the regions and according to laid down rations. These do not differ from year to year (Koranteng and Nmashie, 1987).

5.8 Fishing Holidays

Fishing holidays or non-fishing days are usually on Tuesdays however in some villages especially in the Volta and Western regions they differ due to traditional and customary norms. These days are usually used to repair nets.

5.9 Migration Patterns

Fishermen still migrate to other villages or out of the country for several reasons. Usually within the country its mainly due to rough beaches and chasing fish which are more abundant in a particular locality. Others migrate to seek greener pastures all along the western African coast and beyond.

6.0 SOCIO-ECONOMIC STUDIES

Fisheries development aims at improving the socio-economic conditions of the fisher folks and the nation as a whole. Their social systems can play an important role in the local ecosystem hence these systems must be studied and understood clearly to help policy makers to bring to the fishers acceptable and beneficial innovations to improve their living standards.

In order to have an idea of the socio economic conditions of the fisher folks along the coastal districts of Ghana, a primary data was collected as part of the canoe frame survey. Socio-economic parameters such as family size, age structure, education etc. were collected from various sample centres in the coastal regions of the Volta, Greater Accra, Central and the Western regions.

This study is aimed at presenting the socio-economic situation of the Ghanaian fisher folk. In all two hundred (200) fishers were interviewed; 100 fishermen and 100 fish mongers using the semi-structured interview method.

6.1 The Fishing Workforce

In fishing communities, family sizes are large, ranging from 6-20 per household. This is largely determined by the high demands for labour force for the key stages of pre- and post-harvest activities. A typical fishing unit comprises a canoe owner and his immediate family members made up of one or several wives and children. This core family is in turn supported by external relations such as nieces, nephews and cousins, who may constitute the crew members of a canoe, or help in fish processing. Such an arrangement has provided the needed workforce and employment in the artisanal fishery industry over the years.

Children are not left out of the fishing business as they form an integral part of the community structure. They learn on the job and through that gain experience and knowledge in fishing and fish processing.

6.2 Gender in Marine Artisanal Fisheries

Gender roles in the artisanal marine fishery sector have been clearly defined for years. The marine canoe fishery involves intensive labour. Fishermen can be as young as 7 years or as old as 70 years. The male youths perform the hard tasks ranging from pushing the canoe to and from the beach, casting, setting, dragging nets and often carrying fish. The elderly are usually involved in the management and supervisory roles, providing logistics for crew members, net mending and facilitating arrangements for fishing expeditions.

The essential role played by women is well defined. Women contribute significantly in activities such as processing and distribution of landed fish. Most women depend on individuals, financial and non-financial institutions with high interest rates for their fish mongering business.

6.3 Socioeconomic Issues Concerning Fishers

Fishermen

Hundred fishermen were interviewed on various issues and the results are presented below.

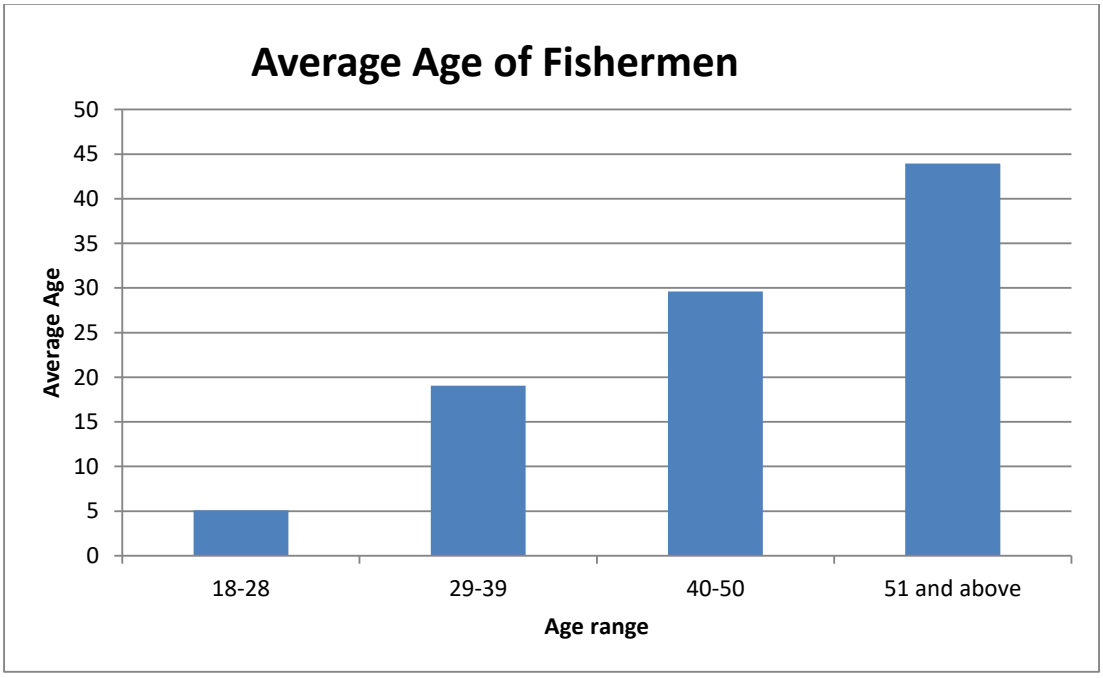
6.3.1 Age distribution

Results revealed that, the age group 51 and above constituted the majority of fishermen. Where 50% of this age group were obtained in the Volta Region. 43.3%, 42.4% and 40%were obtained

in Central, Western and Greater Accra regions respectively. Age-group 18 - 28 was the least among the fishermen across the regions. This suggests a gradual reduction in the entry of the youth into fishing activities. Perhaps they are more interested in other professions, and have varied aspirations other than to labour as fishermen in this era of declining fish catches and exorbitantly high input costs.

Table 1. Age range of fishermen

	PERCENTAGE				
Age range of fishermen	Greater Accra	Volta region	Central region	Western region	Average age
18-28	5	9	3.3	3	5
29-39	25	9	30	12	19
40-50	30	32	23	33	30
51 and above	40	50	43	42	44
Total	100	100	100	100	100



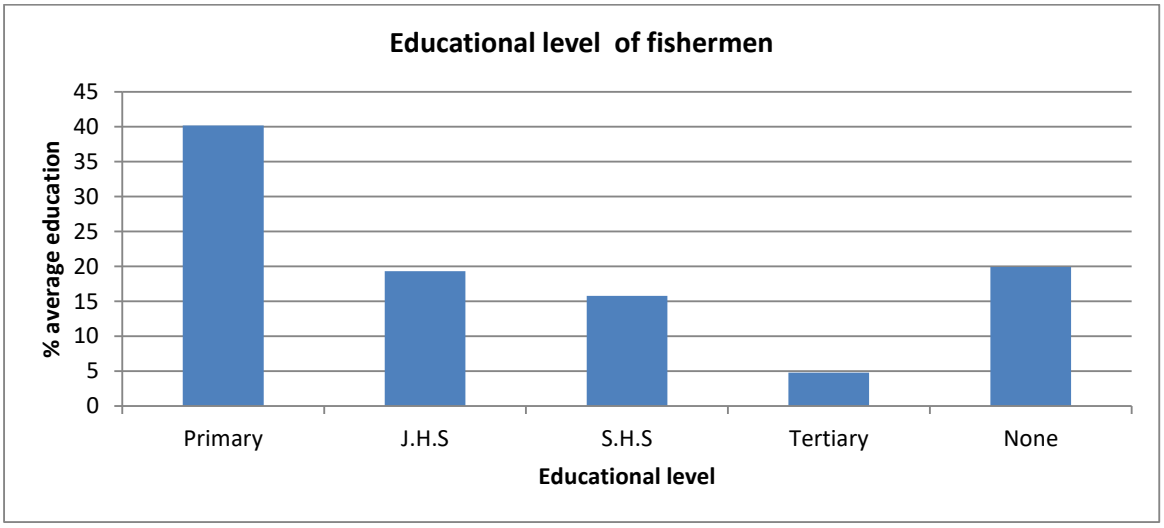
6.3.2 Education

The educational background of fishers was ascertained during the interview. Table 2 shows that 55% of the fishermen in the Greater Accra region, 36.4% in Volta region, 39.4% in Western

region and 30% in Central region had attained primary level education. The Greater Accra Region had the highest (30%) number of fishermen attaining J.H.S level of education. With respect to fishermen who had attained S.H.S level of education, Volta Region recorded the highest (22.7%). In terms of tertiary education, Central Region recorded the highest (10%) number of fishermen.

Table 2. Educational level of fishermen

	PERCENTAGE				
Educational background of fishermen	Greater Accra	Volta region	Central region	Western region	Average Education
Primary	55	36	30	39	40
J.H.S	30	9	20	18	19
S.H.S	15	22	13	12	16
Tertiary	0	9	10	0	5
None	0	22	26	30	20
Total	100	100	100	100	100

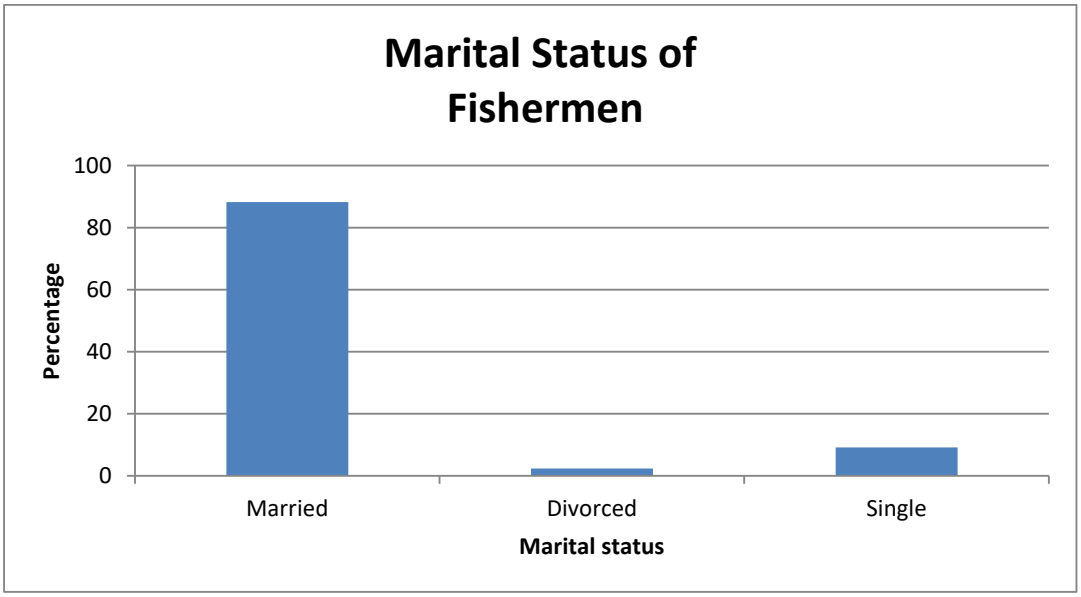


6.3.3 Marital status

In response to their marital status, 95% of the fishermen in Greater Accra Region, 86% in the Volta Region, 90% in the Central Region and 82% in the Western Region said they are married, as shown in Table 3.

Table 3. Marital status of fishermen

	PERCENTAGE				
Marital status of fishermen	Greater Accra	Volta region	Central region	Western region	Average marital status
Married	95	86	90	82	88
Divorced	0	0	3	6	2
Single	5	13	7	12	9
Total	100	100	100	100	100



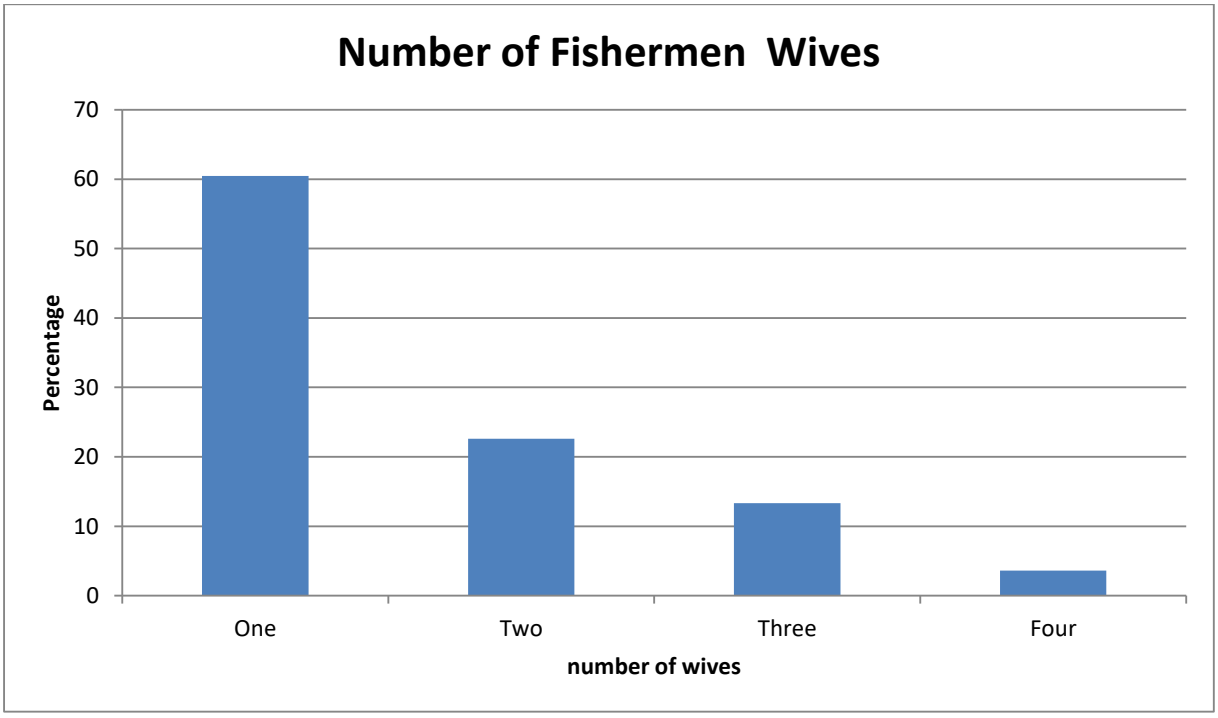
6.3.4 Wives of fishermen

Out of the married fishermen, 69.7% of them in Western Region had one wife. 66.7% in Central region, 60% in the Greater Accra Region and 45.5% in Volta Region had also one wife each as shown in table 4. In terms of multiple wives, 31.9% of fishermen in the Volta Region had two wives, 18.1% had three wives and 4.5% had four wives. In the Greater Region 20% had two,

10% three wives and 10% had four wives. However, in the Western and Central Region there were no fishermen who had four wives.

Table 4. No. of wives of fishermen

	PERCENTAGE				
Number of wives	Greater Accra	Volta region	Central region	Western region	Average
One	60	46	67	70	60
Two	20	32	23	15	23
Three	10	18	10	15	13
Four	10	6	0	0	4
Total	100	100	100	100	100

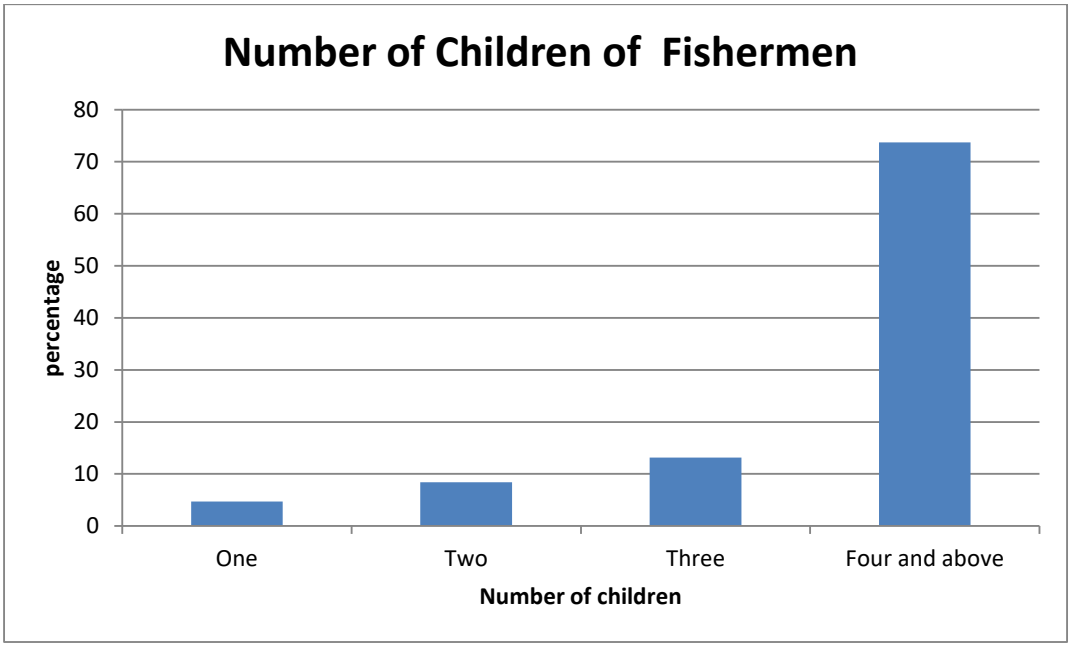


6.3.5 Children of fishermen

In relation to the number of children of fishermen, between 65% and 81% had more than four children as shown table 5. This confirms the notion that fishermen have plenty children.

Table 5.Number of Children of fishermen

	PERCENTAGE				
Number of children of fishermen	Greater Accra	Volta region	Central region	Western region	Average Children
One	5	5	3	6	5
Two	10	5	10	9	8
Three	20	23	8	3	13
Four and above	65	68	80	82	74
Total	100	100	100	100	100



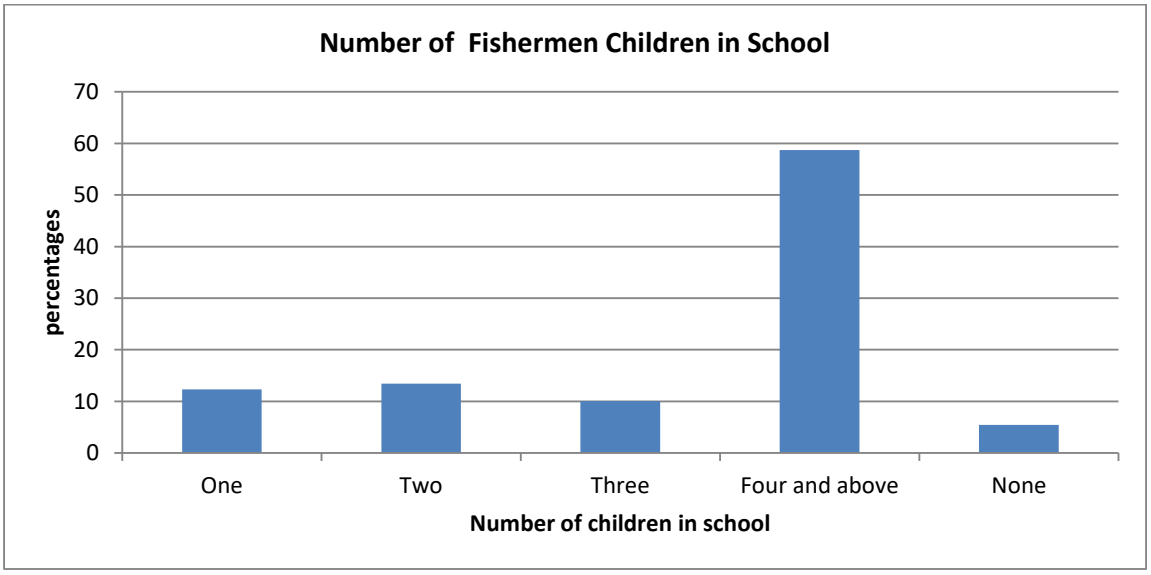
6.3.6 Number of children in School

Table 6 shows that, majority of fishermen across the region has seen the importance of formal education. 55% in Greater Accra region, 59% in Volta region, 60% in Central region and 61% in Western region of fishermen had more than four of their children in school. Very few had no children in the Volta, Central and Western regions,

Table 6. Number of fishermen children in school

	PERCENTAGE

Number of children in School	Greater Accra	Volta region	Central region	Western region	Average Children
One	20	14	7	9	12
Two	15	14	10	15	13
Three	10	6	17	9	10
Four and above	55	59	60	61	59
None	0	9	7	6	5
Total	100	100	100	100	100



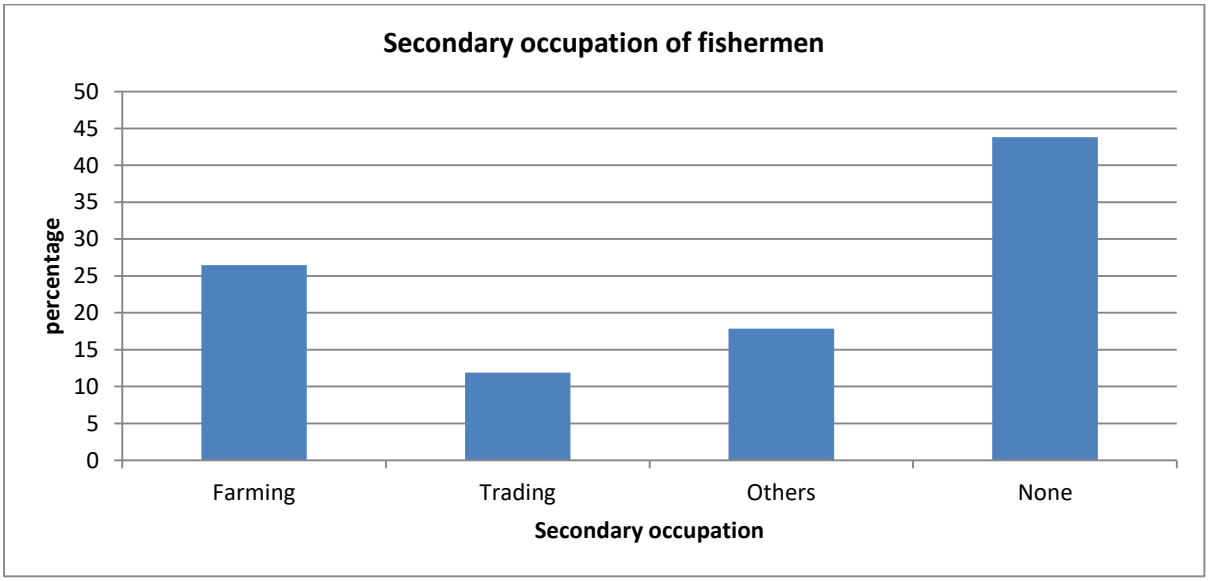
6.3.7 Other Occupation

Fishermen were engaged in other income generating activities apart from fishing. Some of these activities are farming, trading, masonry, carpentry, driving and basket weaving. 35% of fishermen in the Greater Accra Region, 29.5% in the Volta Region, 21.3% in the Western Region and 20% in Central Region were engaged in farming. However, 56.7% and 54.5% from the Central and the Western Region respectively depended solely fishing as shown in table 7.

Table 7. Other economic activities of fishermen

	PERCENTAGE

Secondary occupation	Greater Accra	Volta region	Central region	Western region	Average Occupation
Farming	35	30	20	21	26
Trading	15	14	7	12	12
Others	20	23	17	12	18
None	30	34	57	55	44
Total	100	100	100	100	100



6.3.8 Concerns of fishermen

During the interview, fishermen express their concerns on subsidy from Government, financial support and loans and implementation of fisheries laws. Table 8 shows the response of fishermen on the above issues. 65% of fishermen in Greater Accra Region were of the notion that MOFAD (Ministry of Fisheries and Aquaculture Development) laws and regulations should be implemented. 46.6% from the Central Region and 27.3% each from the Volta and Western region were also of the same view. In the Volta Region 50% of the fishermen were of the view that, the Government should subsidise fishing inputs such as premix fuel, outboard motor, nets etc. whereas in the Western region 39.4% of the fishermen suggested that the Government should support them with loans.

Table 8. Suggestions of fishermen

	PERCENTAGE				
Suggestions of fishermen	Greater Accra	Volta region	Central region	Western region	Average
Gov't Subsidy On Fishing Inputs(Premix Fuel, Outboard Motor and Net)	30	50	40	33	38
Financial support/Loans	5	23	13	39	2
Implementation Of Fisheries Laws and regulations	65	27	47	27	42
Total	100	100	100	100	100

6.3.9 FISH PROCESSORS AND TRADERS

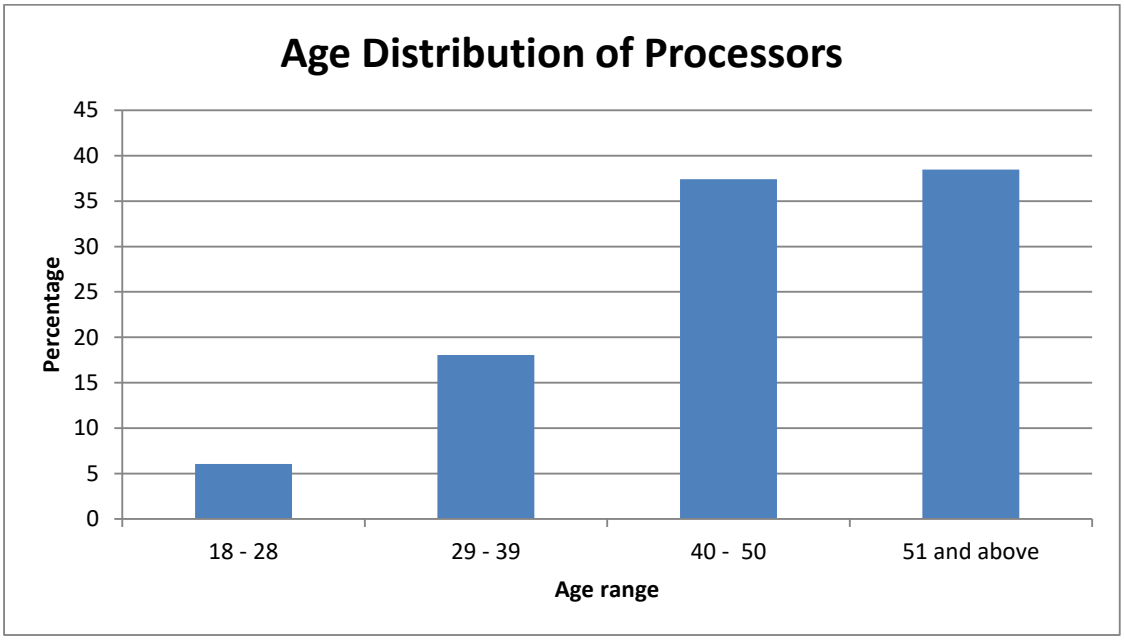
All processors and traders interviewed were women. Hundred (100) fish processors and traders were interviewed through questionnaire across the coastal regions on parameters such as age, marital status, number of children, processing and preservation methods, other post-harvest issues and avenues they perceive as sources for enhancing their business etc.

6.3.10 Age distribution of fish processors and traders

With regard to the age of fish processors and traders majority were forty years old and above (60%).

Table 9. Age distribution of fish processors and traders

	PERCENTAGE				
Age of fish processors and traders	Greater Accra	Volta region	Central region	Western region	Average Age
18 – 28	10	6	7	3	6
29 – 39	5	14	23	30	18
40 - 50	30	50	33	36	37
51 and above	55	32	37	30	38
Total	100	100	100	100	100

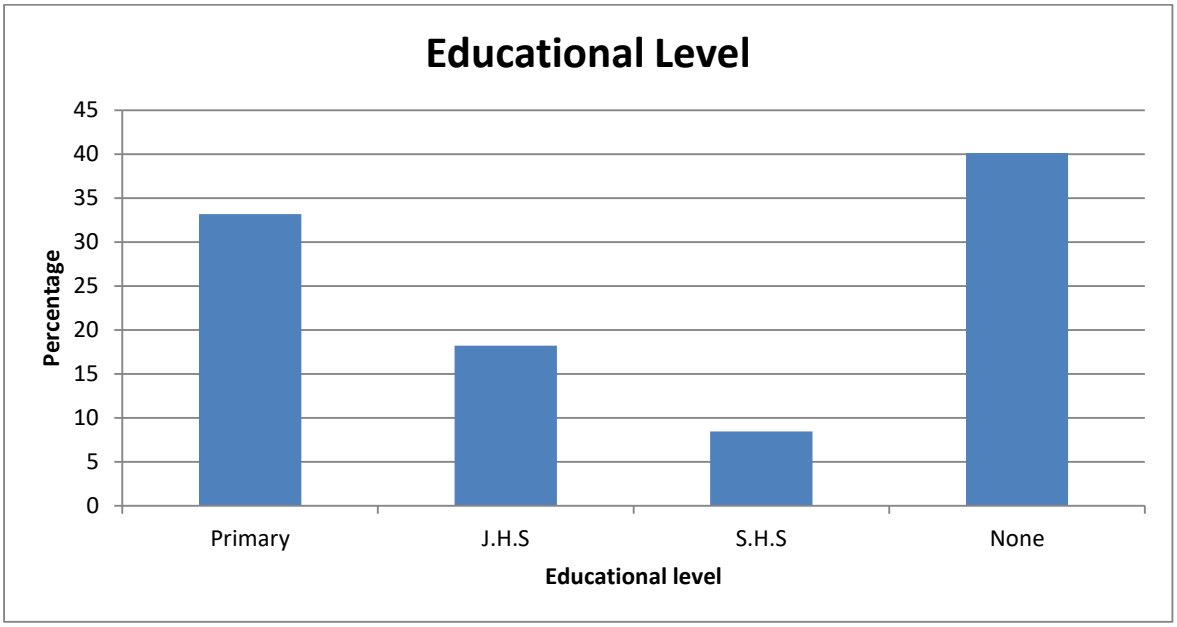


6.3.11 Formal Education

From table 10, it was realised that generally women in the Central region had little or no formal education. Very few women attained the SHS level of education as compared to the rest of the regions.

Table 10. Educational background of fishmongers

	PERCENTAGE				
Educational background	Greater Accra	Volta region	Central region	Western region	Average
Primary	45	32	17	39	33
J.H.S	15	27	3	27	18
S.H.S	15	9	7	3	8
None	25	32	73	30	40
Total	100	100	100	100	100

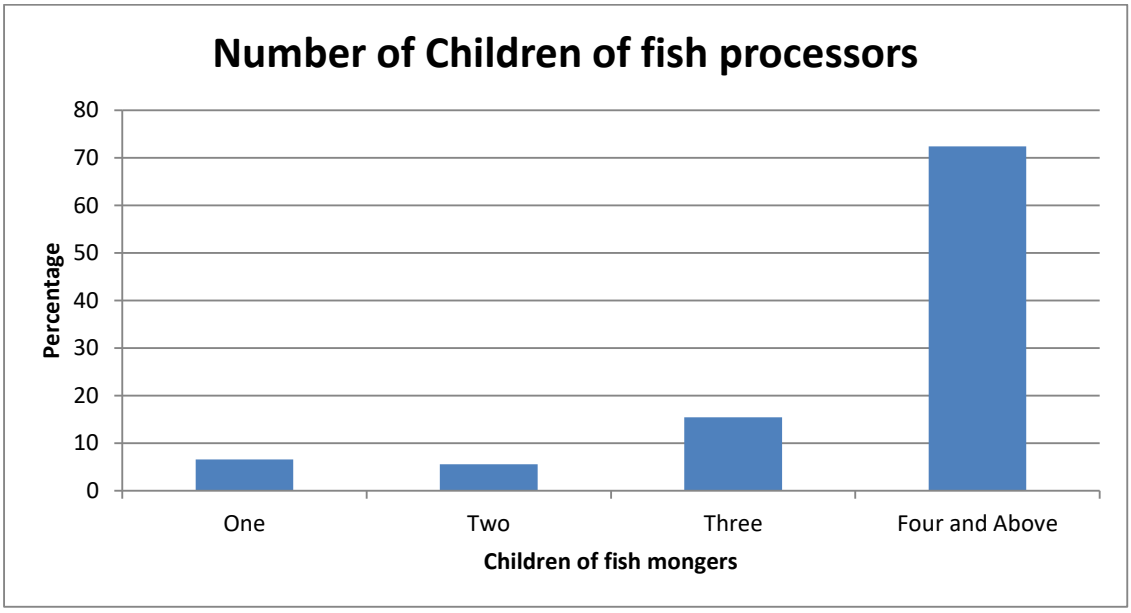


6.3.12 Number of children

Table 11 shows that between 68.2% and 76.7% of the women processors and traders had four or more children across the regions.

Table 11. Number of children of fish processors and traders

	PERCENTAGE				
Number of children	Greater Accra	Volta region	Central region	Western region	Average
One	5	9	3	9	7
Two	5	5	7	6	6
Three	15	18	13	15	15
Four and Above	75	68	76	70	72
Total	100	100	100	100	100



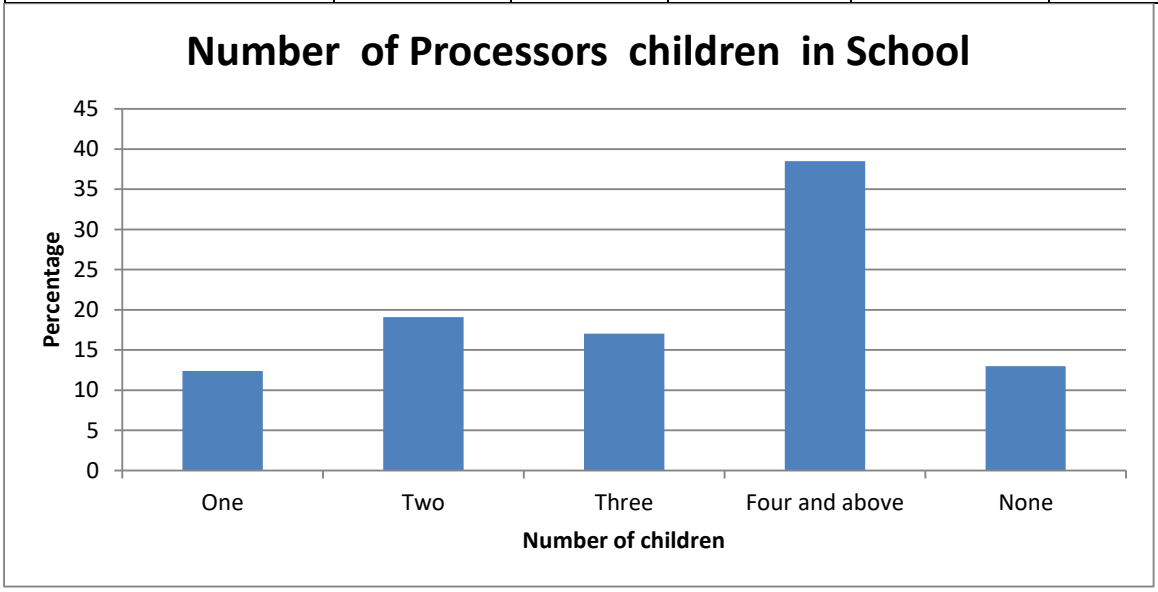
6.3.13 Number of children in school

When asked to indicate the number of their children in school, it was realised thst over 365 of the women had up to 4 children in school. 13 % did not have any of their children in school with the highest from the Volta region, followed by the Greater-Accra and Western regions.

Table 12. Number of children in school

PERCENTAGE					
Number of children in school	Greater Accra	Volta region	Central region	Western region	Average
One	15	18	13	3	12
Two	30	18	10	18	19
Three	5	18	27	18	17

Four and above	35	27	43	47	36
None	15	18	7	12	13
Total	100	100	100	100	100



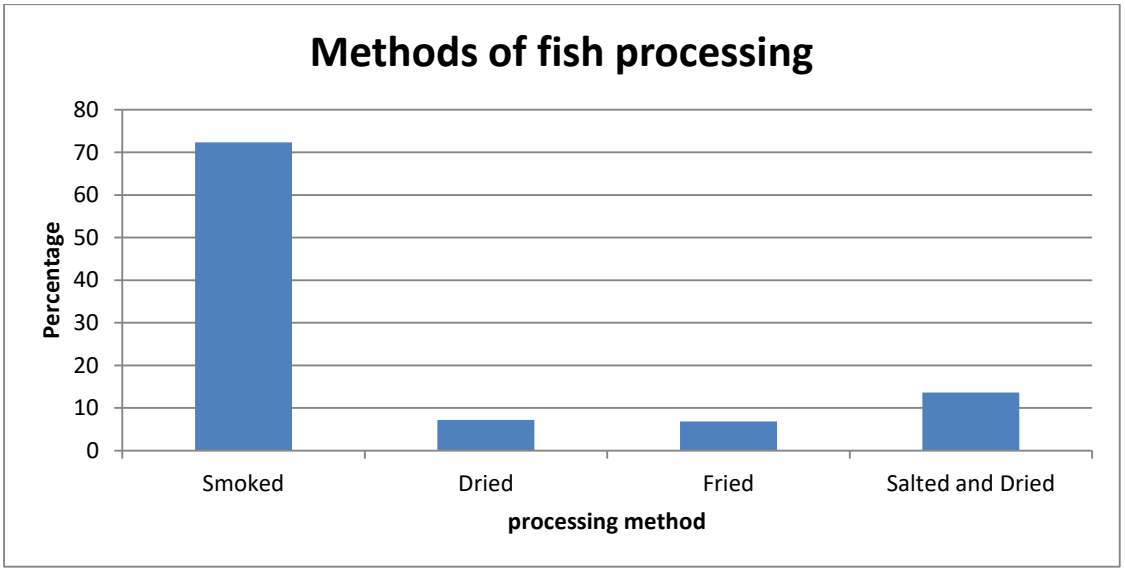
6.3.14 Fish processing methods

The main method of processing fish in Ghana is smoking (Kegan, 2001). As presented in table 24, it is confirmed that most of the fishmongers smoke their fish before selling. 87.9% and 83.3% of processors from the Western and Central regions respectively smoked their fish. In the Volta Region 68.1% and in the Greater Accra Region 60% of processors of smoked fish. 10% or less of processors across the regions dried or fried fish. In the Greater Accra 30% of processors and in the Volta region 18.2% of processors salted and dried fish. In the Central and the Western regions 3.4% or less of processors salted and dried fish

Table 13. Processing methods

	PERCENTAGE				
Processing methods	Greater Accra	Volta region	Central region	Western region	Average
Smoked	60	68	83	78	72
Dried	5	5	10	9	7
Fried	5	9	3	10	7

Salted and Dried	30	18	3	3	14
Total	100	100	100	100	100



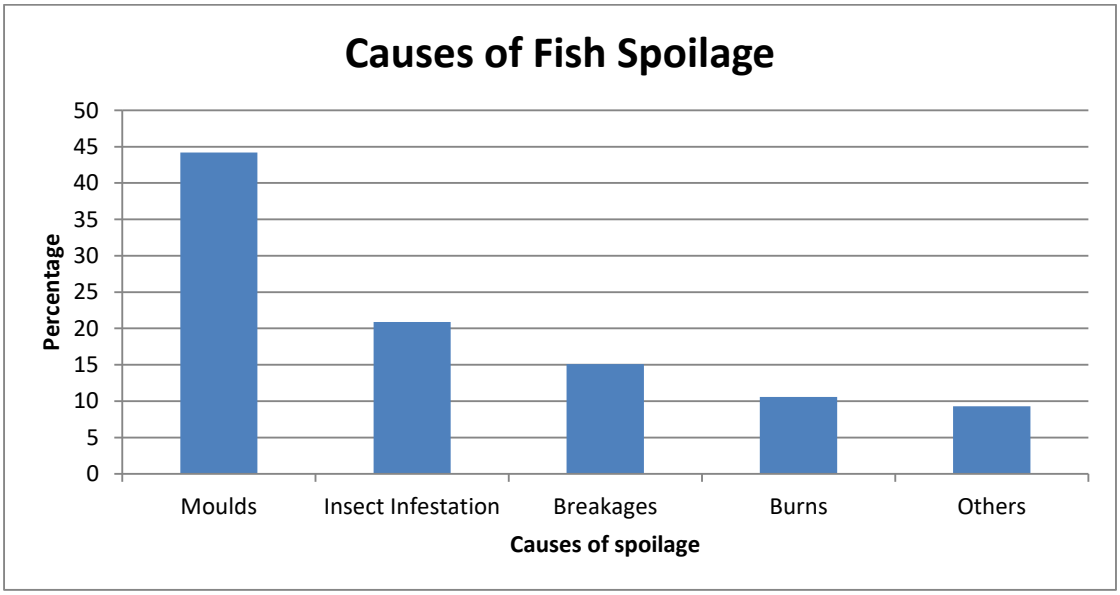
6.3.15 Causes of fish spoilage

Majority of the fish processors interviewed in the various regions acknowledged that they experience fish spoilage at times. Such situations are a source of income loss to them. Table 25 shows that33.8% to 54.6% of fish processors reported of fish spoilage through moulds. 39% of processors in the Volta Region indicated that insect infestation reduce fish quality. In the Central Region 36.6% of processors claimed that fish is lost or reduce quality as a result of breakages in transit. In the Greater Accra Region 25% of processors said that fish is lost through other means such as improper storage facilities, poor ventilation and high humidity resulted in fish spoilage. In the rest of the regions 9.1% or less of processors lost fish through aforementioned means.

Table 14. Causes of fish spoilage

	PERCENTAGE				
Causes of fish spoilage	Greater Accra	Volta region	Central region	Western region	Average

Moulds	45	34	43	55	44
Insect Infestation	10	39	13	21	21
Breakages	10	5	37	9	15
Burns	10	14	7	12	11
Others	25	9	0	3	9
Total	100	100	100	100	100

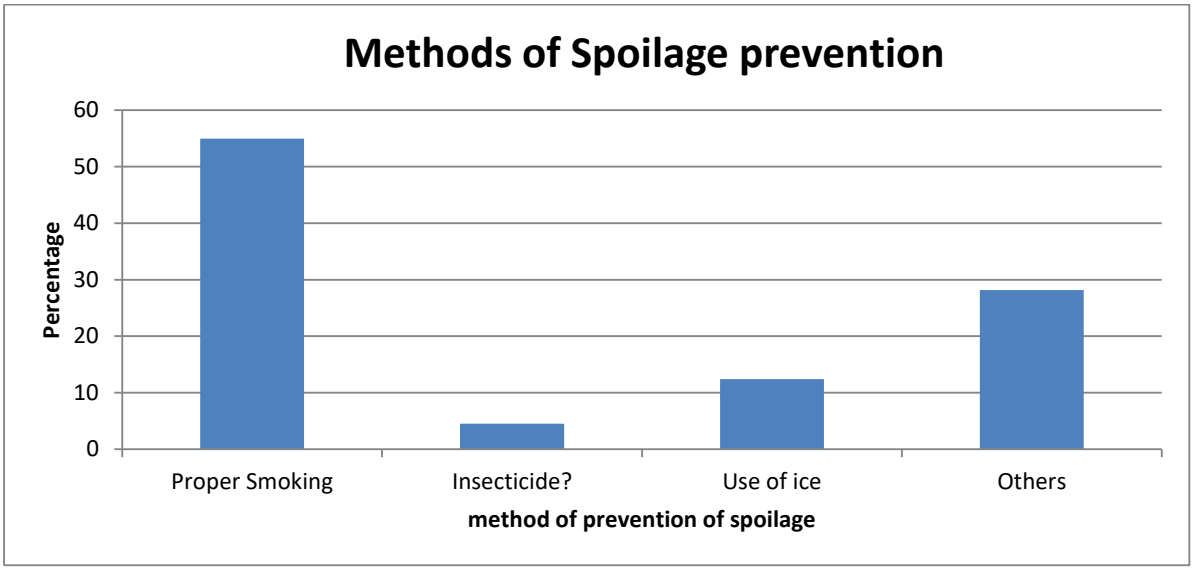


6.3.15 Prevention of fish spoilage

Table 15 indicates how fish processors prevent or reduce spoilage. Between 50% and 60.6% of respondents claimed that with very good smoking practices to prevent or reduce fish spoilage in smoked fish. In the Greeter Accra, Volta and Central regions between 12.5% 17.3% of processors use ice to prevent of spoilage in fresh fish. However only 3% of processors in the Western Region preserve fish with ice. Between 3.3% and 6.1% of processors claimed they use insecticides to prolong the shelf life of processed fish. Between 25% and 30% of fish processors use other means to prevent fish spoilage. Some of these other methods are neem tree *Azadirachta indica* extracts, powder pepper, alum (Aluminium sulphate) etc.

Table 15. Prevention of fish spoilage

	PERCENTAGE				
Prevention of fish spoilage	Greater Accra	Volta region	Central region	Western region	Average
Proper Smoking	58	52	50	60	55
Insecticide	5	3.6	3	6	6
Use of ice	13	17	2	3	12
Others	25	27	30	30	28
Total	100	100	100	100	100

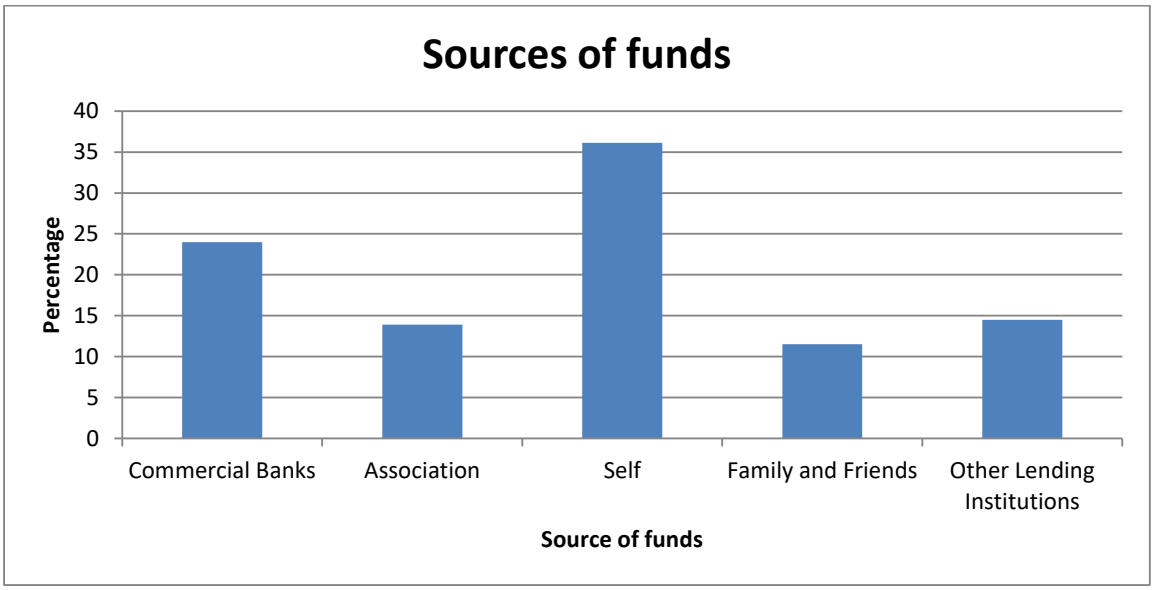


6.3.16 Source funds

Table 16 summarizes sources of funding of fish processors and traders.22.7% and 48.5% of respondents indicated that they self-sponsored their business. In the Greater Accra and Western Region, 40% and 21.2% respectively borrow money from the commercial banks to support their business. In the Volta Region 18.2% of processors borrow from the banks whilst 16.6% from the Central Region took credit from the banks for their business activities. In the Volta region 31.8% of processors are supported by association they belong to whereas in the Greater Accra, Central and Western regions 5%, 6.7% and 12% respectively had credits from associations for their business. Processor also borrow from other institutions. In the Central and Volta regions, 26.7% and 18.2% respectively borrow from other lending institutions. In the Greater Accra and Western region between 3% and 10% respectively procure credit from other institutions.

Table 16. Sources of funds

	PERCENTAGE				
Source of funds	Greater Accra	Volta region	Central region	Western region	Average
Commercial Banks	40	18	17	21	24
Association	5	32	7	12	14
Self –financed	30	23	43	49	36
Family and Friends	15	9	7	15	12
Other Lending Institutions	10	18	27	3	14
Total	100	100	100	100	100



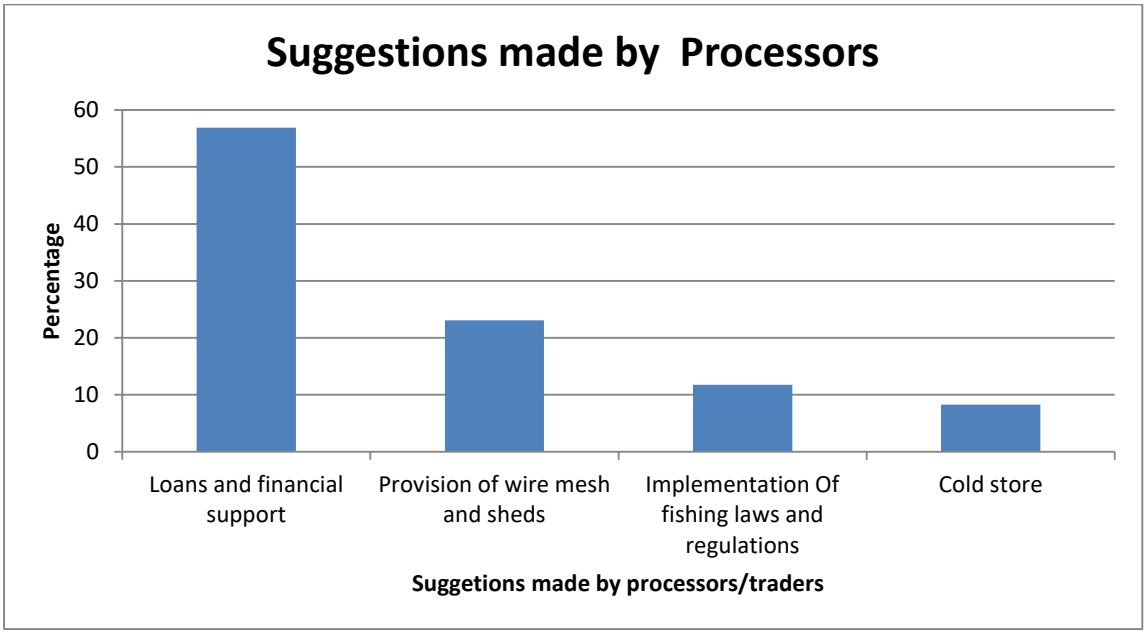
6.3.17 Concerns of fish processors and traders

Majority of the fish processor and traders across the regions wanted loans and financial assistance from Government to improve their business as shown in table 17. Between 40% and 69.3% of processors across the regions wanted loans and financial support from Government. 31.8%, 25% and 23.3% of processor from Volta, Greater Accra and Central regions respectively wanted Government to provide them with wire mesh and sheds to enhance their processing

activities. However, only 12.1% of processors in the Western Region wanted this support. With regards to the implementation of the fisheries laws, 30% of processors wanted these laws to be rigidly implemented. Whilst 9.1% and less of processors from the other regions, showed concerns in implementation of the fisheries laws. 5% to 10% of processors across the regions wanted provision of cold stores by Government.

Table 17. Suggestions of fish processors

	PERCENTAGE				
Suggestions of fish processors	Greater Accra	Volta region	Central region	Western region	Average
Loans and financial support	40	55	63	70	57
Provision of wire mesh and sheds	25	32	23	12	23
Implementation Of fishing laws and regulations	30	5	3	9	12
Cold store	5	9	10	9	8
Total	100	100	100	100	100



7.0 CONCLUSION AND RECOMMENDATIONS

Overall, the results of the survey indicate that the number of canoes decreased by 9.0 % from the previous survey in 2013. Over 78.8 % of canoes were motorized about 7.7 % up from the 2013 survey. Number of fishermen in the sector has decreased by 31,637 people from 139,155 in 2013 to 107,518 in 2016. Decrease in the number of gears was in mainly the Ali (43.8%) and Drift Gill Nets (14.3%) and Set Nets (9.0%). Pursing Nets and Line increased by 8.5% and 17.7% respectively. Four fishing villages were lost in the period between the current and the last survey in 2013.

Given the changes observed in the numbers of canoes, gears, motors and fishermen, and also of the socio-economic status of the fisher folks over period during the survey, it is necessary to monitor the effect these changes have on the status of the artisanal marine sector by updating the canoe frame surveys periodically.

ACKNOWLEDGEMENT

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We also thank all the retired technical officers who even out of retirement came to train the young and upcoming officers and also for their assistance.

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Appendices

Tables 4.1 – 4.8

Figures 1- 16

Questionaires Form A and Form B

TABLES AND FIGURES

Table 1.1(a -z): Results of 2016 Canoe Frame Survey showing number of Fishing units by Gear for all Districts

TABLES 4.1(a) FISHING UNIT BY GEAR - KETU SOUTH MUNICIPAL ASSEMBLY (VOLTA REGION)

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
AFLAO	ABELIAKOPE		5	40	0				45	26	130
AFLAO	AKLIGOKOPE	1	4		0				5	5	55
AVOEME	ATORKUKOPE	1	6		0				7	7	75
VIEPE	VIEPE	1	11		2				14	13	194
DENU	DENU	14	4		4				22	22	418
HEDZRANAWO	HEDZRANAWO	30	9		0				39	37	670
ADAFIENU	DZEGAKOPE	4	6		0				10	7	190
ADAFIENU	DAVORKOPE	1	3		0				4	3	70
AGORKO	DAVIDKOPE	3	7		1				11	10	182
AGORKO	AGORKO	4	13		1				18	18	297
ADINA	ADINA	51	16		16	14			97	91	1493
AMUTINU	AMUTINU	5	21		1				27	19	344
SALAKOPE	SALAKOPE	3			1	2			6	5	47
AGAVEDZI	AGAVEDZI	24	14		6	10			54	36	744
BLEKUSU	BLEKUSU	5	31		0				36	20	388
	TOTAL	**147**	**150**	**40**	**32**	**26**	**0**	**0**	**395**	**319**	**5297**

TABLES 4.1(b) FISHING UNIT BY GEAR - KETA MUNICIPAL ASSEMBLY (VOLTA REGION)

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
KEDZI	AGORTA	2	15	2	16				35	34	523
KEDZI	HORVI		12		4				16	4	424
VODZA	VODZA	15	11	21	0				47	17	800
ADZIDO	ADZIDO	8	8	6	11		1		34	2	329
KEDZIKOPE	KEDZIKOPE	1	17	8	1				27	11	442
ABUTIAKOPE	ABUTIAKOPE	2	26	1	104		8		141	25	689
DZELUKPE	DZELUKOPE	1	36		30				67	19	572
VUI	NUKPESEKOPE		6		2				8	3	132
VUI	TETEVIKOPE		16		8				24	9	400
TEGBI	HEKPA		20		0				20	9	25
TEGBI	ADZIAKPOR		6		0				6	6	120
TEGBI	DEKPEKOPE		4		0				4	2	80
TEGBI	AMERIKOPE		4		0				4	2	115
TEGBI	KLAMATSI		4		0				4	2	100
TEGBI	HELOGLOKOPE		2		0				2	1	44
TEGBI	WORGANA		4		1				5	2	85
TEGBI	ASHIATA		3		1				4	1	80
WOE	LIGHTHOUSE		11		0				11	8	224
WOE	DEKPEKOPE		3		0				3	3	105
WOE	AKLUBORORDZI		4		18				22	17	211
ANLOGA	ATIEFE		18		0				18	18	500
ANLOGA	CAPE COAST		8		0				8	8	500
SROGBE	WHUTI		10		0				10	3	250
WHUTI	WHUTI		10		0				10	3	250
SROGBE	SROGBE		4		3				7	6	130
ATORKOR	ATORKOR		5		5				10	6	130
ATORKOR	DAKORDZI		8		0				8	2	200
ATORKOR	AKPLOWOTORKOR		11		0				11		198
DZITA	DZITA		17		0				17		425
DZITA	AGBLEDOME		27		0				27	2	756
ATITETI	ATITETI		8		12				20	20	220
ATITETI	FUVEME		5		20	1			26	25	343
	TOTAL	**29**	**343**	**38**	**236**	**1**	**9**	**0**	**656**	**270**	**9402**

TABLE 4.1(c) FISHING UNIT BY GEAR - ADA EAST DISTRICT (GREATER ACCRA REGION)

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
AZIZANYA	MATAHEKO	34	1		2		5		42	41	808
AZIZANYA	ADJIVONPANYA	8	2		0		1		11	11	225
KEWUNOR	KEWUNOR	5	6		0				11	7	360
LOLONYAKOPE	LOLONYAKOPE	3	3		1				7	5	170
OTROKPE	KPONKPO	7			0		2		9	9	128
OTROKPE	MANKPETI	7	1		1				9	8	153
OTROKPE	DOEMEKOPE	3	4		0				7	7	188
OCANSEYKOPE	OCANSEYKOPE		6		0				6	5	240
ANYAKPOR	ANYAKPOR	21	3		8				32	30	240
SONGNTSOKPA	SONGNTSOKPA	2			0				2	2	30
PATUKOPE	PATUKOPE	3	1		0				4	4	80
ELAVANYO	ELAVANYO	3	10		0				13	13	410
PUTE	PUTE	9	4		0				13	12	320
TOTOPE	TOTOPE	8	1		6				15	13	209
	TOTAL	**113**	**42**	**0**	**18**	**0**	**8**	**0**	**181**	**167**	**3561**

TABLE 4.1(d) FISHING UNIT BY GEAR - ADA WEST DISTRICT (GREATER ACCRA REGION)

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
KABLEVU	KABLEVU	1	6		0				7	7	162
KABLEVU	KPOTITSEKOPE		4		0				4	4	160
LOLONYA	LOLONYA	5	3		9				17	17	276
GOI	GOI	9	5		11		1		26	23	406
ANYAMAM	ANYAMAM	35	5	2	4		2		48	48	859
AKPLABANYA	AKPLABANYA	109			1				110	109	1422
WEKUMAGBE	WEKUMAGBE	16	5		0				21	20	390
	TOTAL	**175**	**28**	**2**	**25**	**0**	**3**	**0**	**233**	**228**	**3675**

TABLE 4.1(e) FISHING UNIT BY GEAR - NINGO-PRAMPRAM DISTRICT (GREATER ACCRA REGION)

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
LEKPONGUNOR	ZONGO/ANASI	30			2				32	32	610
LEKPONGUNOR	NMETSOKOPE	8	4	4	6			1	23	17	190
LEWEM	LEWEM	15		14	16				45	36	358
KPONGUNOR	KPONGUNOR		7	7	0				14	1	84
AYETEPAH	AYETEPAH		1		5				6	3	37
MANGOTOSNYA	MANGOTSOPANYA				4				4	3	16
AHWIAM	AHWIAM	32		52	5		35		124	124	894
OLD NINGO	OLD NINGO	15		14	16				45	36	358
NEW NINGO	TOZAH	30		34	0				64	64	898
ABIA	ABIA			11	1			8	20		54
KPONKPO	KPONKPO	12			2				14	14	162
U/PRAMPRAM	FUKUDORNYA	5		24	0				29	29	264
L/PRAMPRAM	LIGHTHOUSE	109		19	7				135	120	1514
	TOTAL	**256**	**12**	**179**	**64**	**0**	**35**	**9**	**555**	**479**	**5439**

TABLE 4.1(f) FISHING UNIT BY GEAR - KPONE-KATAMANSO DISTRICT (GREATER ACCRA REGION)

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
KPONE	LAA LOI NAA	7		6	8		8	1	30	25	202
KPONE	ODUNYAONMA	4		40	24		7	7	82	66	341
KPONE	SEGA	4		77	5		10	38	134	65	470
	TOTAL	**15**	**0**	**123**	**37**	**0**	**25**	**46**	**246**	**156**	**1013**

TABLE 1.1(g) FISHING UNIT BY GEAR - TEMA METROPOLITAN ASSEMBLY (GREATER ACCRA REGION)

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
TEMA	ASHAMANG	64		41	29	11	71	2	218	198	1186
TEMA	AWUDUN	295		26	6	4		7	338	316	3981
SAKUMONO	SAKUMONO		5	7	6				18	17	173
	TOTAL	**359**	**5**	**74**	**41**	**15**	**71**	**9**	**574**	**531**	**5340**

TABLE 4.1(h) FISHING UNIT BY GEAR - LEDZOKUKU-KROWOR MUNICIPAL ASSEMBLY (GREATER ACCRA REGION)

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
NUNGUA	TSIENAA	22		1	26	9			58	51	529
TESHIE	SANGONAA	65	1		6				72	111	1044
	TOTAL	**87**	**1**	**1**	**32**	**9**	**0**	**0**	**130**	**162**	**1573**

TABLE 4.1(i) FISHING UNIT BY GEAR - LA - DADE KOTOPON MUNICIPAL ASSEMBLY (GREATER ACCRA REGION)

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
LA	PLEASURE BEACH		4		0				4		26
LA	ABESE		3	2	10				15	6	56
	TOTAL		**7**	**2**	**10**				**19**	**6**	**82**

TABLE 4.1(j) FISHING UNIT BY GEAR - ACCRA METROPOLITAN ASSEMBLY (GREATER ACCRA REGION)

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
OSU	ALATA			35	1				36	29	177
ACCRA	GA MASHIE	116		32	97		34		279	208	1515
ACCRA	KORLEY NAA	31	6		0				37	32	334
ACCRA	MENSAH GUINEA		4		0				4		32
CHORKOR	WOLEI AMLI	35	3		0	1			39	36	302
CHORKOR	MANTSURU	14			0				14	14	126
CHORKOR	LANTEMAN	10			0				10	10	100
CHORKOR	CHEMU NAA	22			0				22	22	220
GBEGBEYISEE	GBEGBEYISEE	10	6		13				29	19	175
	TOTAL	**238**	**19**	**67**	**111**	**1**	**34**	**0**	**470**	**370**	**2981**

TABLE 4.1(k) FISHING UNIT BY GEAR - GA SOUTH MUNICIPAL ASSEMBLY (GREATER ACCRA REGION)

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
BORTIANOR	TSOKOME	6	2		0				8	6	156
BORTIANOR	BORTIANOR	52	7	62	0	1			122	57	1240
OSHIE	OSHIE	3	2		30				35	28	181
KOKROBITE	KOKROBITE	10	2		31				43	34	314
LANMA	LANMA	1	8		1				10	3	79
FAANAA	FAANAA		7		0				7	7	210
	TOTAL	**72**	**28**	**62**	**62**	**1**	**0**	**0**	**225**	**135**	**2180**

TABLE 4.1(l) FISHING UNIT BY GEAR - AWUTU SENYA DISTRICT (CENTRAL REGION)

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
SENYA BERAKU	MBANYINMPOANO	52	13	77	26	2			170	136	1952
	TOTAL	**52**	**13**	**77**	**26**	**2**	**0**	**0**	**170**	**136**	**1952**

TABLE 4.1(m) FISHING UNIT BY GEAR - EFFUTU MUNICIPAL ASSEMBLY (CENTRAL REGION)

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
WINNEBA	AYIPEY	68		41	104	27			240	240	2205
WINNEBA	ABOADZE	26		20	33	1			80	80	678
WINNEBA	PENKYI	22		7	56	3			88	88	755
WINNEBA	AKOSUA VILLAGE		19		0				19	15	380
WINNEBA	WARABEBA		9		0				9	9	252
	TOTAL	**116**	**28**	**68**	**193**	**31**	**0**	**0**	**436**	**432**	**4270**

TABLE 4.1(n) FISHING UNIT BY GEAR - GOMOA EAST DISTRICT (CENTRAL REGION)

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
NYANYANO	NYANYANO	105		7	48	25	5		190	189	1920
FETTEH	MBANYINMPOANO	1	2		71	26			100	86	476
FETTEH	MBAA MPOANO		1	5	22	4			32	16	167
FETTEH	AKYIRESUADZE				15	2			17	14	59
DAMPAASE	DAMPAASE	1	4		0				5	1	105
	TOTAL	**107**	**7**	**12**	**156**	**57**	**5**	**0**	**344**	**306**	**2727**

TABLE 4.1(o) FISHING UNIT BY GEAR - GOMOA WEST DISTRICT (CENTRAL REGION)

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
ABREKUM	ABREKUM	1	6		48				55	5	164
APAM	APAM MAIN	38		21	18	3	12		92	73	741
APAM	ALATA	30		47	4	2	15	1	99	79	694
APAM	ABURA			2	0				2	1	2
MUMFORD	AYESEWANO		20		2				22	3	240
MUMFORD	AKYENFOMPOANO	1		71	10				82	14	246
MUMFORD	MUMFORD MAIN			29	1				30	1	91
DAGO	AKOBERIAM	3		6	21	18		1	49	36	299
DAGO	DAGO MAIN	5		2	20	53		1	81	63	1399

MANKOADZE	MANKOADZE	8		1	37			2	48	23	186
	TOTAL	**86**	**26**	**179**	**161**	**76**	**27**	**5**	**560**	**298**	**4062**

TABLE 4.1(p) FISHING UNIT BY GEAR - EKUMFI DISTIRCT (CENTRAL REGION)

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
OTUAM	ASESEM	3			18	3			24	19	150
OTUAM	OBOM/ETUEI				23				23	19	92
OTUAM	KROWEKTIR		7		0				7	4	189
OTUAM	NTETREMU	1	5		7	3			16	16	162
KOTANKORE	KOTANKORE		10		0				10	6	270
SRAFA	SRAFA MPOANO		4		0				4	4	148
SRAFA	ABO ANO		1		1				2	2	34
	TOTAL	**4**	**27**	**0**	**49**	**6**	**0**	**0**	**86**	**70**	**1045**

TABLE 4.1(q) FISHING UNIT BY GEAR - MFANTSIMAN MUNICIPAL ASSEMBLY (CENTRAL REGION)

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
IMMUNA	IMMUNA		3		8				11	11	128
AKRA	AKRA MPOANO		7		12	1			20	18	312
EKUMPOANO	EKUMPOANO	4	5		8				17	8	245
NARKWA	BRUMASSE	16			2	9			27	27	434
NARKWA	ESIKADO	12			1	1			14	15	274
NARKWA	ADUKROM				18				18	16	72
EDUMAFA	ADOEGYIR				8				8	1	32
EDUMAFA	SOMA		2		19				21	6	120
EDUMAFA	SAMENANA				20				20	3	60
ASAAFA	OHIABA		2		13				15	3	109
ASAAFA	OBROMUA		5		23	3			31	5	188
AMISSANO	AMISSANO				1				1	1	3
HINYI	HINIYI	11			6			11	28	12	288
KUNTU	PEBI		4		0				4	4	84
ANKAFUL	HASOWODZE	1		3	22				26	3	117
ANKAFUL	ASSIM	35		3	9	1			48	38	833
ANKAFUL	NANKESIDO-ANWONA	3		2	0	2			7	5	109
ANKAFUL	ABOANYIM	27	2	9	26				64	37	739
NANKESEDO	NANKESEDO	16			0	1			17	17	324
SALTPOND	SALTPOND		4		0				4	4	84
KROMANTSE 1	KROMANTSE 1	10			2				12	12	258
KROMANTSE 1	YARD	11			0				11	11	242
KROMANTSE 1	ABRESIRENNU	5			0				5	5	110
KROMANTSE 1	EKURABADZE	7			0				7	7	175
KROMANTSE 2	HASOWODZE	7	4		0				11	11	226
ABANDZE	ABANDZE	37		2	114	8			161	161	586
EGYA	EGYA NO. 1 BEACH				44	1	1	1	47	44	150
EGYA	EGYA NO. 2 BEACH			1	21	2			24	29	82
EGYA	EGYA NO. 3 BEACH				14			1	15	4	43
ANOMABO	KROM MPOANO	7			39	7			53	48	352
ANOMABO	ATSIWA	3			37	5			45	47	211
ANOMABO	ABAN EKYIR	6			37	5			48	4	278
ANOMABO	AFARI KUMAWU	2			24	2			28	21	122
ANOMABO	AHWEANO	25			20	1			46	47	559

ANOMABO	BAKA ANO	25	7		9				41	41	611
BIRIWA	SAMAN BREANYIM				7				7	0	14
BIRIWA	ABREANYIM	22			60	4		2	88	58	642
BIRIWA	ABAKA EKYIR	36			55	1			92	92	836
	TOTAL	**328**	**45**	**20**	**679**	**54**	**1**	**15**	**1142**	**876**	**10052**

TABLE 4.1(r) FISHING UNIT BY GEAR - CAPE COAST METROPOLITAN ASSEMBLY (CENTRAL REGION)

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
EKON	MPOANOKESEM/BOEMIS			2	26				28	12	82
EKON	ANAFO/AKUBUREM				11	4			15	12	120
EKON	AHWIADO		2		1	1			4	2	27
CAPE COAST	ASEKAM	2		3	30	1			36	34	144
CAPE COAST	ABROFO MPOANO	4		4	15	48			71	67	284
CAPE COAST	VICTORIA PARK		8		0	1			9	9	144
CAPE COAST	BAKA ANO	2	6		0				8	8	122
CAPE COAST	OLA		16		0				16	16	256
CAPE COAST	DUAKOR		16		0				16	16	272
	TOTAL	**8**	**48**	**9**	**83**	**55**	**0**	**0**	**203**	**176**	**1451**

TABLE 4.1(s) FISHING UNIT BY GEAR - ABURA-ASEBU-KWAMANKESE DISTRICT (CENTRAL REGION)

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
MOREE	ASEKYEREBEDZI		12		1				13	13	187
MOREE	APESA MPOANO	1			4	7			12	12	155
MOREE	ENFA ANO	1			7	65			73	73	846
MOREE	BENTSIN	2			1	26			29	29	366
MOREE	NKUM ABROFO	1			0	45			46	46	563
MOREE	COTONOU				1	16			17	17	200
MOREE	ETUEI	3			4	76			83	83	997
MOREE	ABOKUM ANO				2	39			41	41	490
	TOTAL	**8**	**12**	**0**	**20**	**274**	**0**	**0**	**314**	**314**	**3804**

TABLE 4.1(t) FISHING UNIT BY GEAR - KOMENDA-EDINA-EGUAFO-ABREM DISTRICT (CENTRAL REGION)

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
ELMINA	ASAMANPOWMU	16	1	13	30				60	56	494
ELMINA	ELMINA MAIN	81		9	13	3			106	101	1512
ANKWANDA	ANKWANDA MPON				29	3		2	34	3	116
BREMU AKYINMU	DOGOFOMU				19	1			20	18	65
BREMU AKYINMU	MOWUREFOM		1		44	3		1	49	35	115
BREMU AKYINMU	BROFO MPOANO		1		19			1	21	15	73
AMPENYIN	ANAFO				30	3			33	3	114
AMPENYIN	ABAKAM				15				15	0	30
AMPENYIN	BENTSIR				14				14	0	42
AMPENYIN	BEREKESEMU				16	1			17	0	56
ABROBEANO	ABROBEANO				35				35	14	105
KAFODZIDZI	KAFODZIDZI				58	11			69	22	350
BRI. KOMENDA	BRI. KOMENDA	42			31	4			77	71	760
DUT. KOMENDA	DUT. KOMENDA	5			43	2			50	48	178
	TOTAL	**144**	**3**	**22**	**396**	**31**	**0**	**4**	**600**	**386**	**4010**

TABLE 4.1(u) FISHING UNIT BY GEAR - SHAMA DISTRICT (WESTERN REGION)

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
SHAMA	AWUNAKROM		32		0				32	0	320
SHAMA	APO	7			45	8	135		195	191	948
SHAMA	BENTSIR			2	20	6	135		163	155	769
SHAMA	AMENA-ANO	13		1	14	1	13		42	39	295
ABUESI	ABUESI	66			19	12			97	97	1041
ABUESI	SAMAN-ADZE	40			5	3			48	48	590
ABUESI	COMPOUND	18		1	4	2			25	24	275
ABUESI	KESEWOKAN	49			12	12			73	72	782
ABOADZE	BRONYI-BOMA	87			93	99			279	279	1992
ABOADZE	EKROABEM	27			46	59			132	132	698
	TOTAL	**307**	**32**	**4**	**258**	**202**	**283**	**0**	**1086**	**1037**	**7710**

TABLE 4.1(v) FISHING UNIT BY GEAR - SEKONDI-TAKORADI METROPLITAN ASSEMBLY (WESTERN REGION)

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
NGYIRESIA	NGYIRESIA	13			133	26			172	161	776
SEKONDI	SEKONDI	138		134	0		5		277	277	3038
ESSAMAN	EGYINAMBOA BAKAM		2		1				3	2	27
NKONTOMPO	NKONTOMPO	1			32	1			34	31	119
POASE	POASE				53				53	50	159
NEW TAKORADI	NEW TAKORADI	3			120	2			125	125	423
	TOTAL	**155**	**2**	**134**	**339**	**29**	**5**	**0**	**664**	**646**	**4542**

TABLE 4.1(w) FISHING UNIT BY GEAR - AHANTA WEST DISTRICT (WESTERN REGION)

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
NEW AMANFUL	AMANFU-KUMAN		2		20	3			25	20	98
FUNKO	BENTIN BEACH	33			78	4			115	96	712
ADJOA	UPPER BEACH		4		22	23	9		58	44	292
ENYIMA EHU	ENYIMA EHU				13	6			19	10	63
PUNPUNI	PUNPUNI BEACH				27				27	3	84
AMPATANO	AMPATANO		1		59				60	14	182
ASEMKOW	ASEMKOW	2	1		48				51	19	251
BUTRE	BUTRE ETROM	20	1	1	37	15	3		77	70	585
BUSUA	BUSUA BEACH	2	1		34		14		51	44	239
UPPER DIXCOVE	UPPER DIXCOVE			3	1		82		86	85	179
LOWER DIXCOVE	LOWER DIXCOVE	3			4	1	112		120	110	712
DIXCOVE	TUROM				0		38		38	38	190
ACHOWA	ACHOWA				0			22	22	1	22
AKWADAE	AKWADAE	45	1	15	18		4	11	94	82	527
KETAKOR	KETAKOR			15	0				15	6	60
CAPE-3-POINTS	ATENKYEN	4		30	3	16	1	30	84	54	176
AKITAKYI	AKITAYI MPOANO	25	9	15	10				59	31	743
PRINCESS TOWN	PRINCESS TOWN	1	6	12	6				25	8	186
MIEMIA	MIEMIA	39		4	19		1		63	59	710
AGYAMBRA	ELAZULEYNU			17	1				18	0	20
	TOTAL	**174**	**26**	**112**	**400**	**68**	**264**	**63**	**1107**	**794**	**6031**

TABLE 4.1(x) FISHING UNIT BY GEAR - NZEMA EAST DISTRICT (WESTERN REGION)

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
EGHAN	EGHAN			70	11	1			82	7	133
DOMULI	AKONU			8	0				8	1	8
DOMULI	DOMULI/TAHELAH		2	11	2				15	0	45
LOWER AXIM	NKAKEMU	76			24	3	3		106	106	1472
LOWER AXIM	SIKA SANTEWASE	10			15				25	25	255
LOWER AXIM	SIKA ABWIADO	27			21				48	35	561
LOWER AXIM	ANTOAPEWUSIKA	8			26	5	1		40	40	348
LOWER AXIM	FANTI-LINE	22			10	9	45	11	97	84	853
LOWER AXIM	BOAT-ASE	12			20	2	16		50	30	404
LOWER AXIM	SUKPOM	4		27	3				34	6	130
UPPER AXIM	SOWLO	9	2	3	35	2		22	73	51	391
UPPER AXIM	ANTO BREWERE	8	1		57		1	4	71	66	485
UPPER AXIM	AKYINIM		8		0				8	1	320
	TOTAL	**176**	**13**	**119**	**224**	**22**	**66**	**37**	**657**	**452**	**5405**

TABLE 4.1(y) FISHING UNIT BY GEAR - ELLEMBELLE DISTRICT (WESTERN REGION)

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
ANKOBRA	ANKOBRA		7		0				7	0	347
ASANTA	ASANTA		12		0				12	0	420
KIKAM	KIKAM		4		0			4	8	0	148
ESSIAMA	ESSIAMA		15		11				26	12	546
AMPAIN	AMPAIN		3		0				3	0	111
BAKANTA	BAKANTA		7		0				7	0	287
SANZULE	SANZULE	1	8		2				11	3	334
KRISTIAN	KRISTIAN		3		12				15	6	171
EIKWE	EIKWE		3		0				3	0	120
NGALEKPOLE	NGALEKPOLE		3		0				3	0	120
NGALEKYI	NGALEKYI		4		0				4	0	180
BAKU	BAKU		3		11				14	1	156
ANOKYI	ANOKYI		6		0				6	0	150
ATUABO	ATUABO		6		0				6	1	210
	TOTAL	**1**	**84**	**0**	**36**	**0**	**0**	**4**	**125**	**23**	**3300**

TABLE 4.1(z) FISHING UNIT BY GEAR - JOMORO DISTRICT (WESTERN REGION)

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
AKABAKU	AKABAKU		2		0				2	0	20
BENYIN	BENYIN		3		4				7	4	50
ELLOYIN	ELLOYIN		10		0				10	0	100
KANGEN	KANGEN		9		0				9	2	100
TWENE	TWENE		2		0				2	0	20
AGYEZA	AGYEZA	2	5		12				19	14	140
EZINLEBO	EZINLEBO	1	6		1	5			13	13	120
BONYERE	BONYERE		4		0	3			7	0	58
EGBAZO	EGBAZO		4		0				4	0	40
NEW AHOBRE	AHOBRE KAKRABA	4	2		7	7			20	14	145
OLD AHOBRE	AHOBRE KESE	30			2				32	32	640
OLD EDOBO	OLD EDOBO		2		0				2	2	60
NEW EDOBO	NEW EDOBO		2		0				2	2	40
ANTWEBANSO	ANTWEBANSO		3		0				3	2	120
EKPU	EKPU	32	2		2	15			51	51	765
HALF ASSINI	FANTI-LINE	47			0				47	47	1222
HALF ASSINI	EWE-LINE		8		0				8	8	80
METIKA	METIKA	7			0	3			10	10	102
ANOMATUAPE-EWE	ANOMATUAPE-EWE		5		0				5	0	50
ANOMATUAPE-FANTI	ANOMATUAPE-FANTI	11			2	15			28	28	577
BUAKWA	BUAKWA		7		0				7	7	105
MPAASEM	MPAASEM	2	3		0	2			7	7	68
NZIMITIAN	NZIMITIAN		4		0				4	4	56
MANGYEA	MANGYEA	24			0	10			34	34	738
EFFASU	EFFASU	22			3	7			32	32	569
NEW TOWN	NEW TOWN	7			8	25			40	40	629
	TOTAL	**189**	**83**	**0**	**41**	**92**	**0**	**0**	**405**	**353**	**6614**

Table 4.2: Districts and Regions Summaries of 2016 Canoe Frame Survey

DISTRICT	FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
KETU SOUTH	12	15	147	150	40	32	26	0	0	395	319	5297
KETA	16	32	29	343	38	236	1	9	0	656	270	9402
SUB-TOTAL V/R	**28**	**47**	**176**	**493**	**78**	**268**	**27**	**9**	**0**	**1051**	**589**	**14699**
ADA EAST	11	14	113	42	0	18	0	8	0	181	167	3561
ADA WEST	6	7	175	28	2	25	0	3	0	233	228	3675
NINGO PRAMPRAM	12	13	256	12	179	64	0	35	9	555	479	5439
KPONE KATAMANSO	1	3	15	0	123	37	0	25	46	246	156	1013
TMA	2	3	359	5	74	41	15	71	9	574	531	5340
LEDZOKUKU-KROWOR	2	2	87	1	1	32	9	0	0	130	162	1573
LA DADEKOTOPON	1	2		7	2	10				19	6	82
AMA	4	9	238	19	67	111	1	34	0	470	370	2981
GA SOUTH	5	6	72	28	62	62	1	0	0	225	135	2180
SUB-TOTAL G/R	**44**	**59**	**1315**	**142**	**510**	**400**	**26**	**176**	**64**	**2633**	**2234**	**25844**
AWUTA SENYA	1	1	52	13	77	26	2	0	0	170	136	1952
EFUTU MUNICIPAL	1	5	116	28	68	193	31	0	0	436	432	4270
GOMOA EAST	3	5	107	7	12	156	57	5	0	344	306	2727
GOMOA WEST	5	10	86	26	179	161	76	27	5	560	298	4062
EKUMFI	3	7	4	27	0	49	6	0	0	86	70	1045
MFANTSEMAN	18	38	328	45	20	679	54	1	15	1142	876	10052
CAPE COAST	2	9	8	48	9	83	55	0	0	203	176	1451
ABURA-ASEBU-KWAMANKESE	1	8	8	12	0	20	274	0	0	314	314	3804
KOMENDA-EDINA-EGUAFO-ABREM	8	14	144	3	22	396	31	0	4	600	386	4010
SUB-TOTAL C/R	**42**	**97**	**853**	**209**	**387**	**1763**	**586**	**33**	**24**	**3855**	**2994**	**33373**
SHAMA	3	10	307	32	4	258	202	283	0	1086	1037	7710
SEKONDI-TAKORADI	6	6	155	2	134	339	29	5	0	664	646	4542
AHANTA WEST	20	20	174	26	112	400	68	264	63	1107	794	6031
NZEMA EAST	4	13	176	13	119	224	22	66	37	657	452	5405
ELLEMBELLE	14	14	1	84	0	36	0	0	4	125	23	3300
JOMORO	25	26	189	83	0	41	92	0	0	405	353	6614
SUB-TOTAL W/R	**72**	**89**	**1002**	**240**	**369**	**1298**	**413**	**618**	**104**	**4044**	**3305**	**33602**
GRAND TOTAL	**186**	**292**	**3346**	**1084**	**1344**	**3729**	**1052**	**836**	**192**	**11583**	**9122**	**107518**

Table 4.3: Summary of 2016 Canoe Frame Survey on Regional Level

NUMBERS OF	VOLTA	G/ACCRA	CENTRAL	WESTERN	NATIONAL
Fishing Villages	28	44	42	72	186
Landing Beaches	47	59	97	89	292
Canoes	1051	2633	3855	4044	11583
Outboard Motors	589	2234	2994	3305	9122
Levels of Motorization (%)	56	85	78	82	79
Fishermen	14699	25844	33373	33602	107518

Table 2.4: Mean Range of Price (Cost) of Fishing Gears, Canoes and Outboard motors in the Regions - 2016

PRICES/COST (GH Cedis)				
	VOLTA	GREATER ACCRA	CENTRAL	WESTERN
GEAR				
Ali	8,000 - 11,000	10,000 - 17,000	8,000 - 12,000	9,000 - 14,000
Poli/Watsa	14,000 - 41,000	14,00 - 41,000	14,000 - 40,000	15,000 - 40,000
Beach Seine (big)	17,000 - 25,000	16,000 - 22,000	11,000 -32,000	10,000 - 32,000
Beach Seine (small)	13,000 - 15,000	6,000 - 11,000	7,500 - 12,000	7,000 - 18,000
Set Net	3,000 - 5,000	2,000 - 4,000	1,000 - 4,0000	1,000 - 4,000
Line	1,000 - 2,000	900 - 2,000	850 - 1,800	1,200 - 1,800
Drift Gill Net	20,000 - 25,000	17,000 - 26,000	15,000 - 23,000	15,000 - 22,000
Lobster	750 - 2,000	750 - 2,000	1,200 - 2,800	600 - 1,800
CANOES				
Ali	15,000 - 21,000	15,000 - 22,000	12,000 - 22,000	9,000 - 12,000
Poli/Watsa	21,000 - 26,000	22,000 - 28,000	22,000 - 28,000	15,000 - 25,000
One-man canoe	1,000 - 1,500	1,200 - 1,700	800 - 1,000	700 - 1,000
MOTORS				
YAMAHA 40hp	11,000 - 15,000	12,000 - 14,000	13,000 - 15,000	12,500 - 15,000
YAMAHA 30hp	7,000 - 8,000	7,000 - 8,000	7,000 - 8,000	7,500 - 8,000
YAMAHA 25hp	6,000 -6,500	6,000 -6,500	6,000 -6,500	6,500 -7,000
YAMAHA 15hp	5,500 - 6,000	5,000 - 6,000	5,500 - 6,000	5,500 - 6,000
YAMAHA 9hp	4,500 - 5,000	4,500 - 5,000	4,500 - 5,000	4,500 - 5,000
YAMAHA 8hp	2,500 - 3,000	2,000 - 3,000	2,500 - 3,500	2,500 - 3,500

Table 4.5: Regional Summaries of 2001, 2004, 2013 and 2016 Canoe Frame Surveys.

Numbers of	Volta Region				Greater Accra Region				Central Region				Western Region				Total			
	2001	2004	2013	2016	2001	2004	2013	2016	2001	2004	2013	2016	2001	2004	2013	2016	2001	2004	2013	2016
Fishing Villages	23	29	26	28	48	48	44	44	42	43	44	42	72	75	76	72	185	195	190	186
Landing Beaches	42	63	49	47	67	68	59	59	101	103	106	97	94	100	100	89	304	334	314	292
Motors	242	323	394	589	1921	2144	2449	2234	1547	2097	3016	2994	1546	1841	3454	3305	5256	6405	9313	9122
Fishermen	11863	17382	18150	14699	41026	35168	39737	25844	45909	44303	40563	33373	24358	27366	40705	33602	123156	124219	139155	107518
Pursing Nets	62	99	123	176	1164	1185	1410	1315	848	931	975	853	365	382	577	1002	2439	2597	3085	3346
Beach Seines	294	384	423	493	184	158	194	142	195	198	221	209	140	163	236	240	813	903	1074	1084
Line	23	0	30	78	790	586	600	510	235	280	349	387	86	67	163	369	1134	933	1142	1344
Set Nets	88	230	274	268	384	386	372	400	1544	2084	1768	1763	857	1175	1683	1298	2873	3875	4097	3729
Ali	48	20	18	27	351	364	244	26	657	710	527	586	562	761	1084	413	1618	1855	1873	1052
Drifting Nets	3	3	13	9	53	81	112	176	274	63	32	33	444	373	819	618	774	520	976	836
One Man Canoe	0	0	6	0	31	21	0	64	22	184	23	24	277	325	452	104	330	530	481	192
Total Canoes	518	736	887	1051	2957	2781	2932	2633	3775	4450	3895	3855	2731	3264	5014	4044	9981	11231	12728	11583

Table 4.6: Distribution of Brands and Sizes of Outboard Motors in the Regions in 2016 Canoe Frame Survey

	YAMAHA											JOHNSON	SUZUKI				MARINA		TOHATSUA
	4HP	5HP	6HP	8HP	9HP	10HP	15HP	20HP	25HP	30HP	40HP	25HP	4HP	5HP	8HP	9HP	15HP	4HP	8HP
VOLTA REGION				5	2	5	23	1	33	9	350	110		11			40		
GREATER ACCRA						15	46	4	51	7	1951	131	1	2	3		7	1	4
CENTRAL REGION					428		337	9	170	40	1541	284		52	37			92	
WESTERN REGION	21	0	0	160	414	4	312	1	127	39	2037	181			5			4	
TOTAL	**21**	**0**	**0**	**165**	**844**	**24**	**718**	**15**	**381**	**95**	**5879**	**706**	**1**	**65**	**45**	**0**	**47**	**97**	**4**

Table 4.7: Mean Dimensions/Ranges of Canoes along the Coast in Ghana

CANOES	LENGTH (M)	WIDTH (M)
Ali/Poli/watsa	13.0 - 20.5	1.6 - 2.8
Line	15.0	2.0
Beach Seine (Large)	11.5	1.2
Beach Seine (Small)	8.6	1.3
Set Net	7.1 -9.2	1.2 - 2.0
One Man Canoe	4.5 - 4.8	0.5 - 0.6
DGN	12.0 - 19.0	1.6 - 2.9

Table 4.8: Fish Sharing System within the Regions

	VOLTA					GREATER ACCRA			
	NET	**CANOE**	**OUTBOARD MOTOR**	**CREW**		**NET**	**CANOE**	**OUTBOARD MOTOR**	**CREW**
Ali	50%			50%		50%			50%
Poli	50%			50%		50%			50%
Watsa	50%			50%		50%			50%
Beach Seine	20%	30%		50%		50%			50%
Set Net (Toga)	50%			50%		50%			50%
Set Net (Lobster)	50%			50%		50%			50%
Drift Gill Net	50%			50%		50%			50%
Line	50%			50%		50%			50%
CENTRAL						**WESTERN**			
	NET	**CANOE**	**OUTBOARD MOTOR**	**CREW**		**NET**	**CANOE**	**OUTBOARD MOTOR**	**CREW**
Ali	50%			50%		50%			50%
Poli	50%			50%		50%			50%
Watsa	50%			50%		50%			50%
Beach Seine	50%			50%		50%			50%
Set Net (Toga)	50%			50%		50%			50%
Set Net (Lobster)	50%			50%		50%			50%
Drift Gill Net	50%			50%		50%			50%
Line	50%			50%		50%			50%

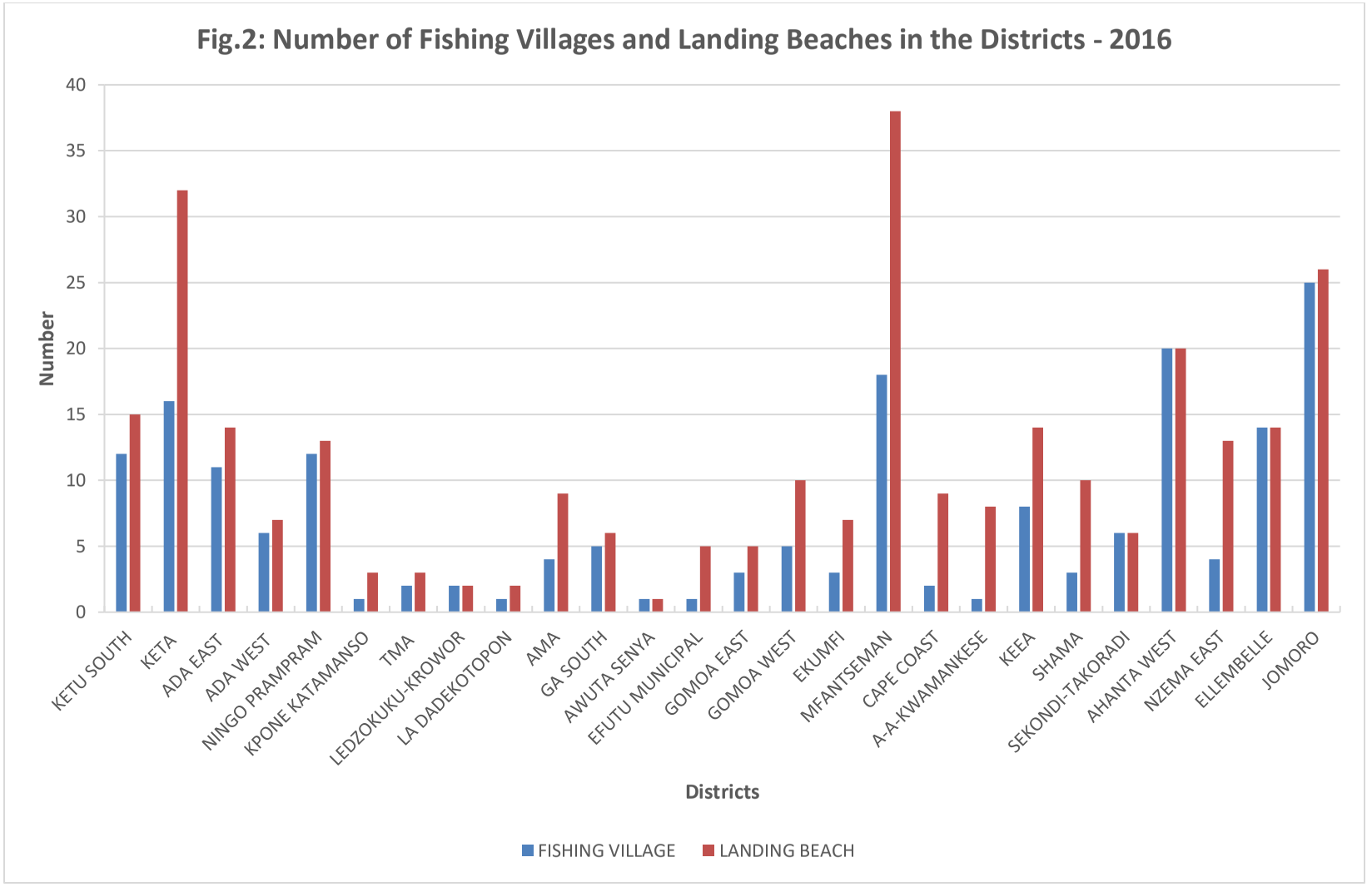


Fig.2: Number of Fishing Villages and Landing Beaches in the Districts - 2016
Number
40
35
30
25
20
15
10
5
0
KETU SOUTH
KETA
ADA EAST
ADA WEST
NINGO PRAMPRAM
KPONE KATAMANSO
TMA
LEDZOKUKU-KROWOR
LA DADEKOTOPON
AMA
GA SOUTH
AWUTA SENYA
EFUTU MUNICIPAL
GOMOA EAST
GOMOA WEST
EKUMFI
MFANTSEMAN
CAPE COAST
A-A-KWAMANKESE
KEEA
SHAMA
SEKONDI-TAKORADI
AHANTA WEST
NZEMA EAST
ELLEMBELLE
JOMORO
Districts
FISHING VILLAGE
LANDING BEACH

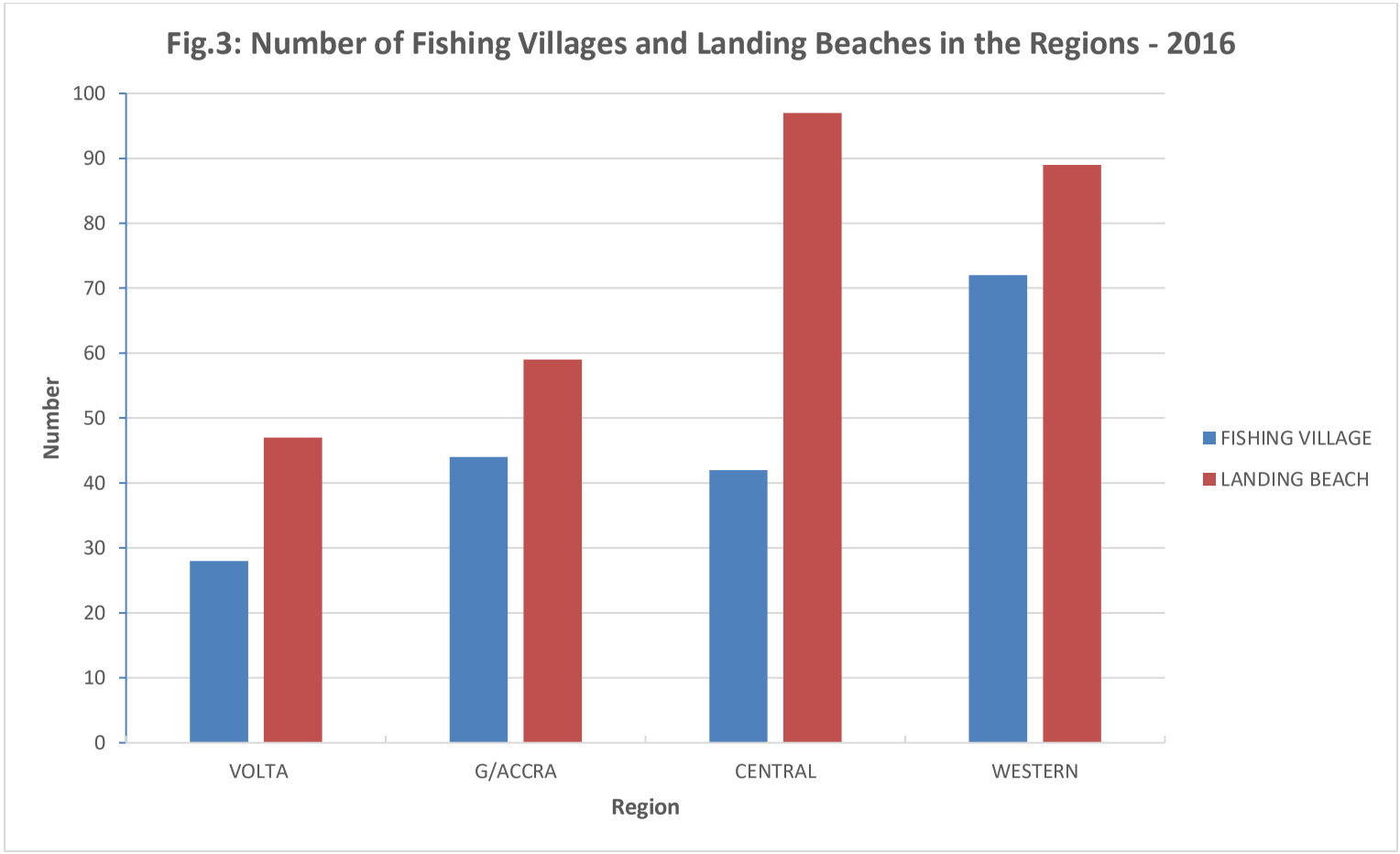


Fig.3: Number of Fishing Villages and Landing Beaches in the Regions - 2016
100
90
80
70
60
50
40
30
20
10
0
Number
VOLTA
G/ACCRA
CENTRAL
WESTERN
Region
FISHING VILLAGE
LANDING BEACH

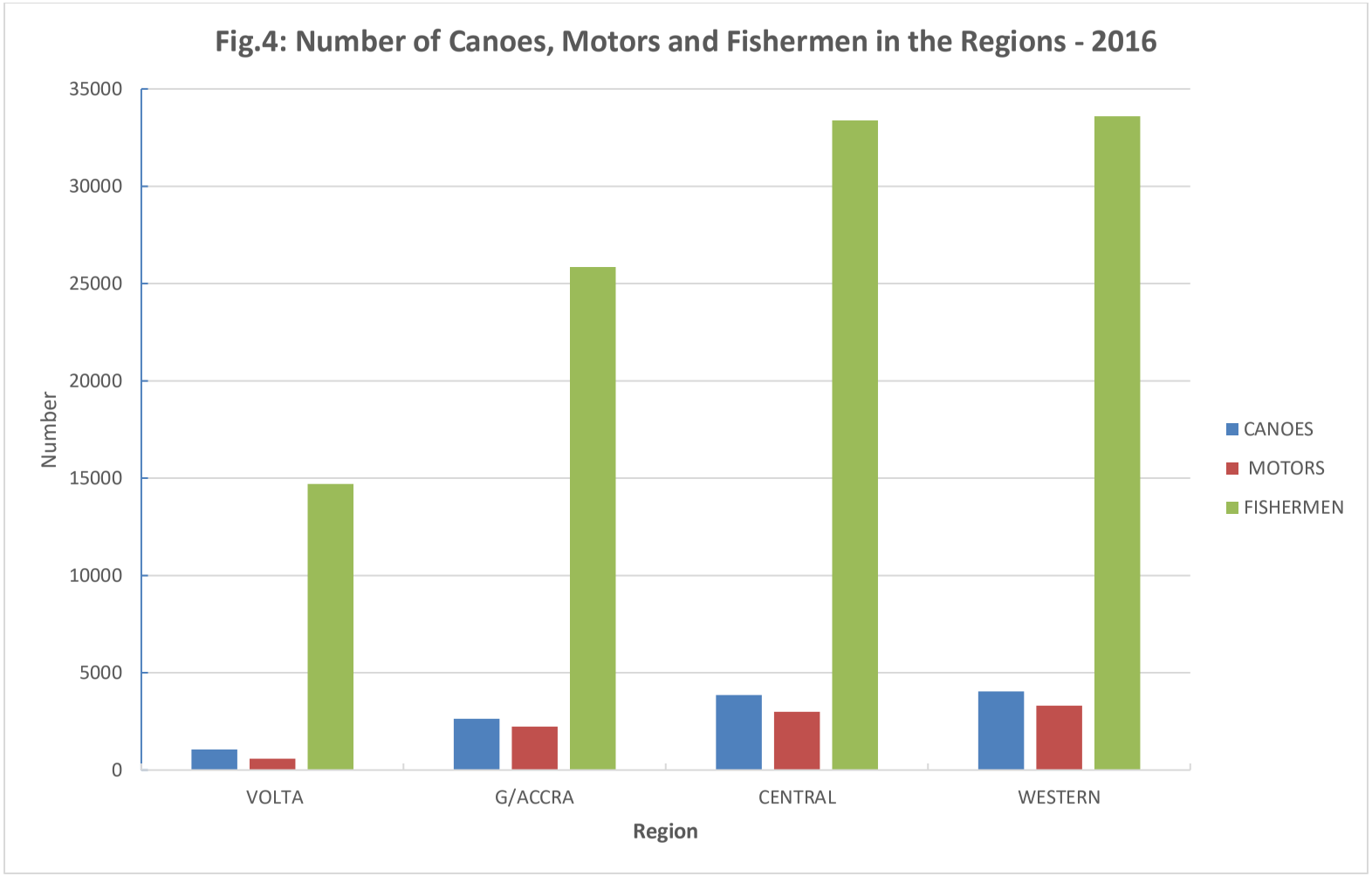


Fig.4: Number of Canoes, Motors and Fishermen in the Regions - 2016
35000
30000
25000
20000
15000
10000
5000
0
Number
VOLTA
G/ACCRA
CENTRAL
WESTERN
Region
CANOES
MOTORS
FISHERMEN

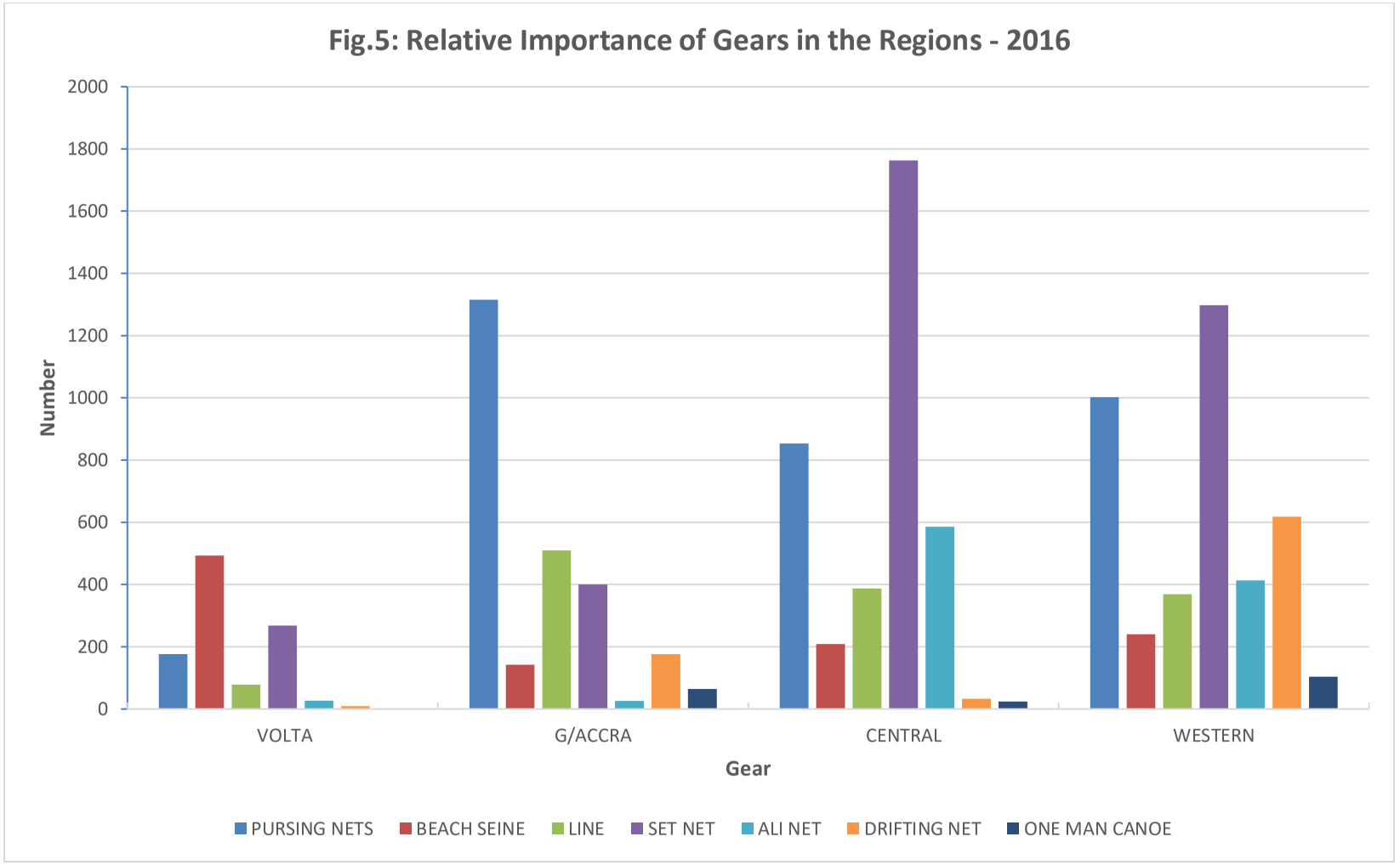


Fig.5: Relative Importance of Gears in the Regions - 2016
2000
1800
1600
1400
1200
1000
800
600
400
200
0
Number
VOLTA
G/ACCRA
CENTRAL
WESTERN
Gear
PURSING NETS
BEACH SEINE
LINE
SET NET
ALI NET
DRIFTING NET
ONE MAN CANOE

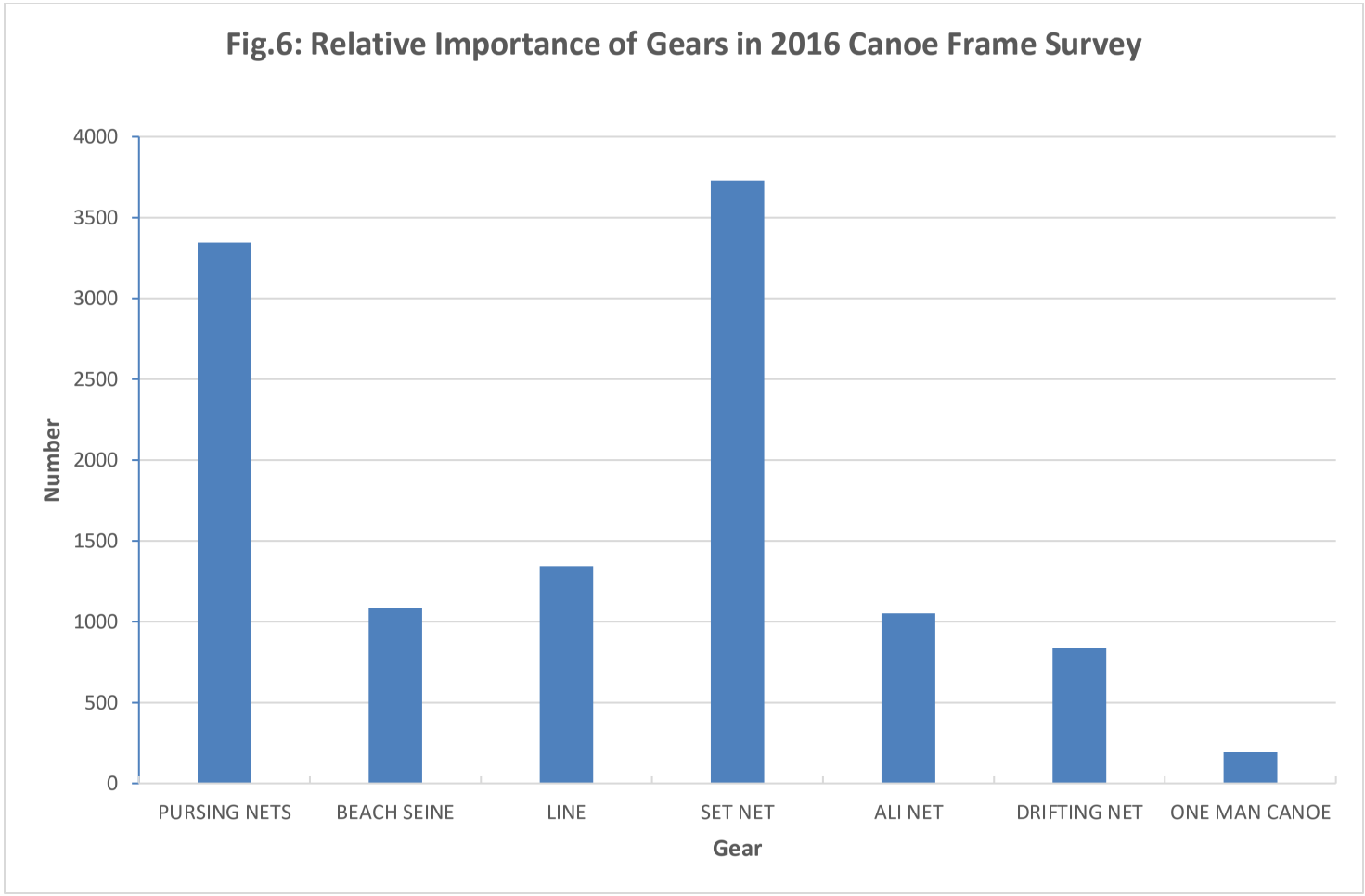


Fig.6: Relative Importance of Gears in 2016 Canoe Frame Survey
4000
3500
3000
2500
2000
1500
1000
500
0
Number
PURSING NETS
BEACH SEINE
LINE
SET NET
ALI NET
DRIFTING NET
ONE MAN CANOE
Gear

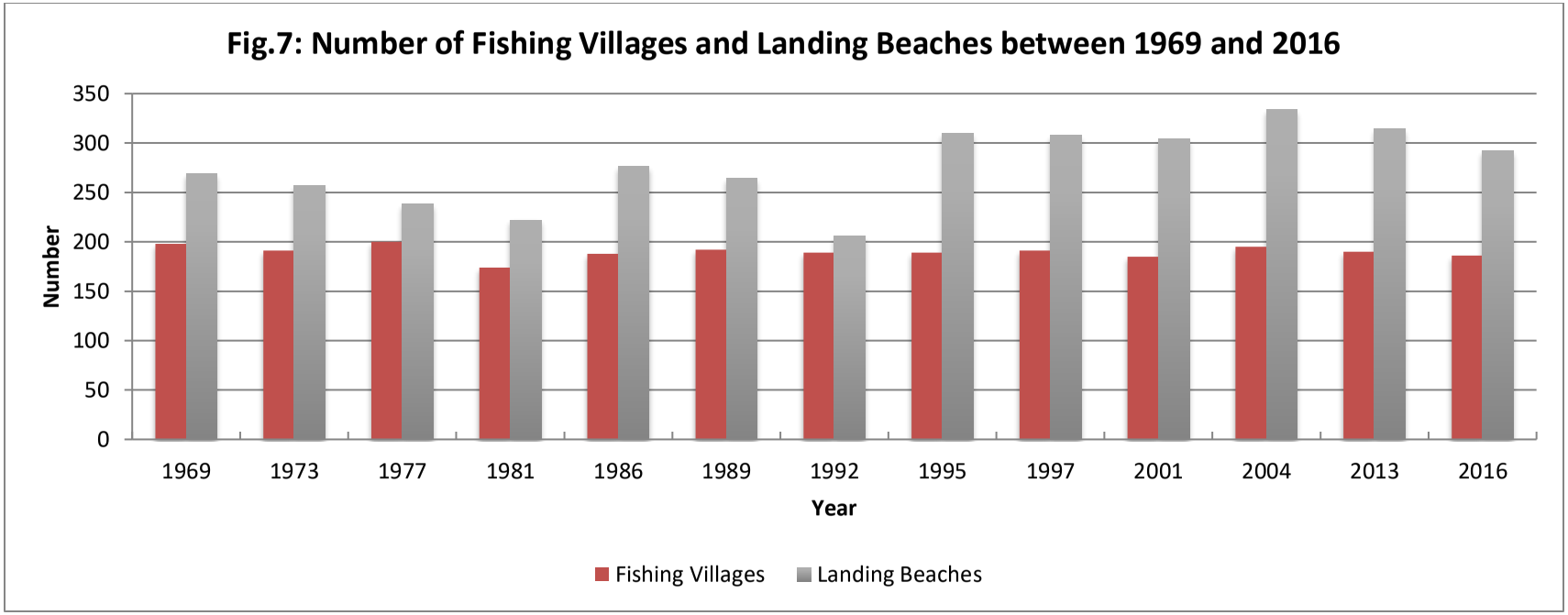


Fig.7: Number of Fishing Villages and Landing Beaches between 1969 and 2016
350
300
250
200
150
100
50
0
Number
1969
1973
1977
1981
1986
1989
1992
1995
1997
2001
2004
2013
2016
Year
Fishing Villages
Landing Beaches

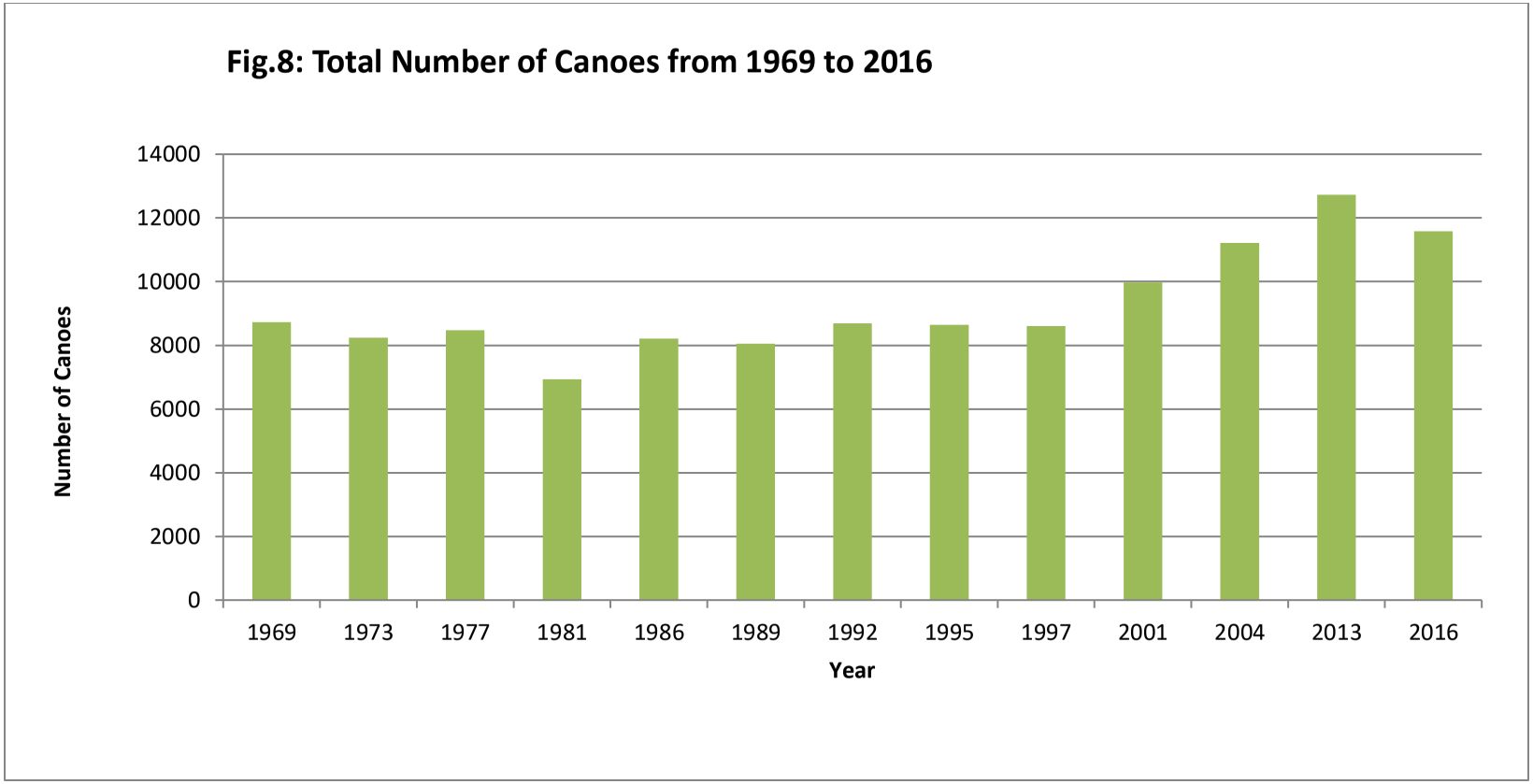


Fig.8: Total Number of Canoes from 1969 to 2016
Number of Canoes
14000
12000
10000
8000
6000
4000
2000
0
1969
1973
1977
1981
1986
1989
1992
1995
1997
2001
2004
2013
2016
Year

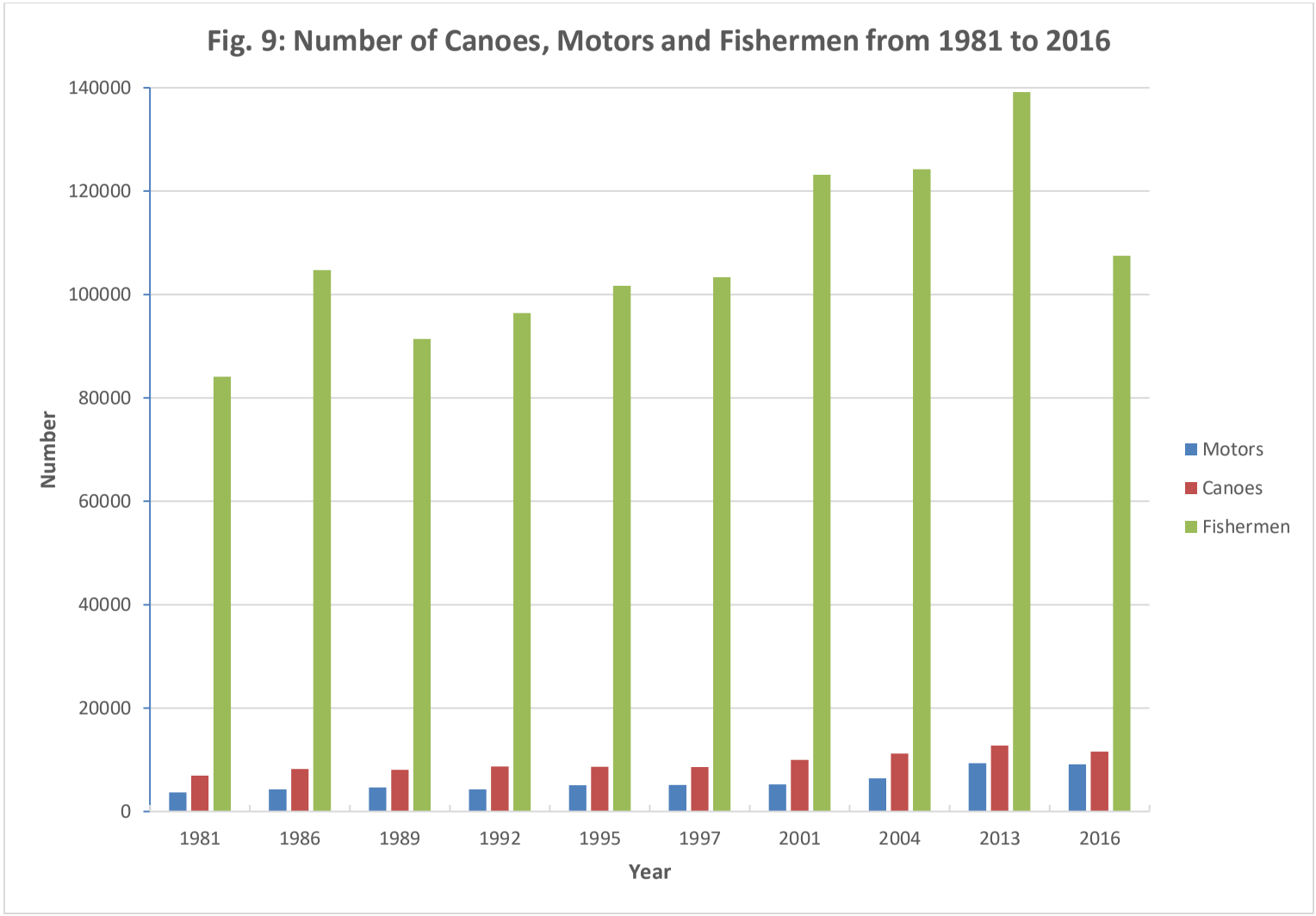


Fig. 9: Number of Canoes, Motors and Fishermen from 1981 to 2016
140000
120000
100000
80000
60000
40000
20000
0
Number
1981
1986
1989
1992
1995
1997
2001
2004
2013
2016
Year
Motors
Canoes
Fishermen

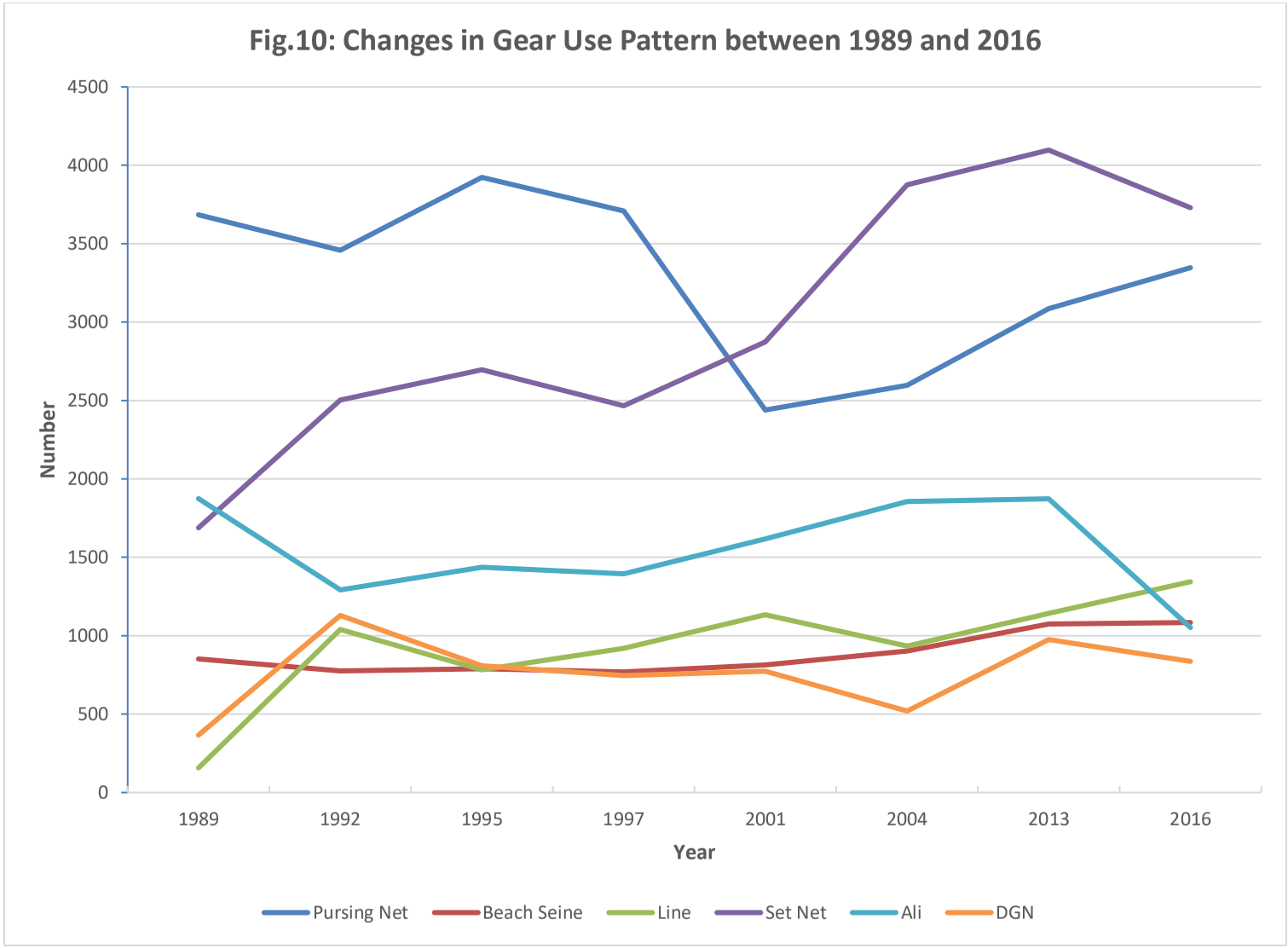


Fig.10: Changes in Gear Use Pattern between 1989 and 2016
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Number
1989
1992
1995
1997
2001
2004
2013
2016
Year
Pursing Net
Beach Seine
Line
Set Net
Ali
DGN

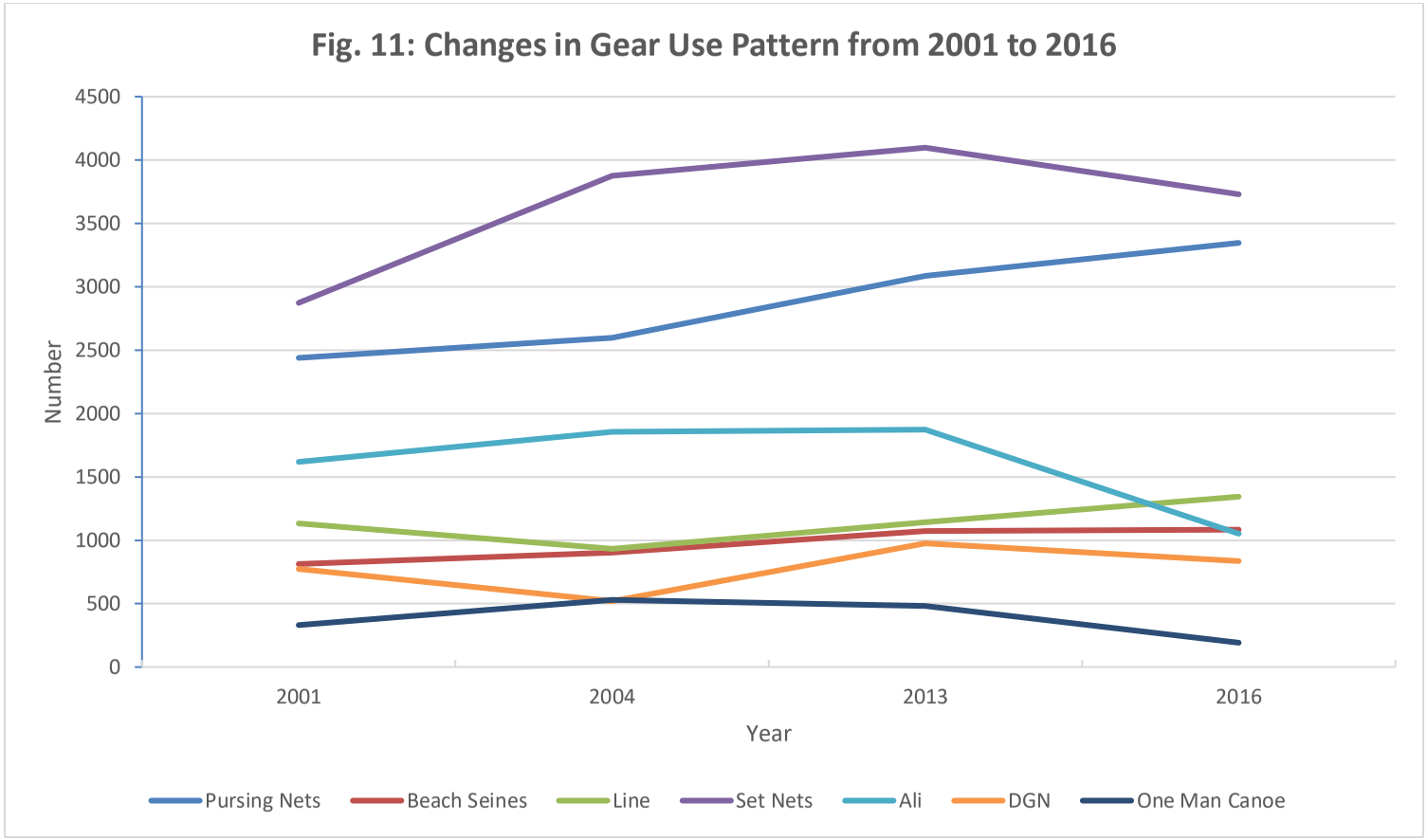


Fig. 11: Changes in Gear Use Pattern from 2001 to 2016
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Number
2001
2004
2013
2016
Year
Pursing Nets
Beach Seines
Line
Set Nets
Ali
DGN
One Man Canoe

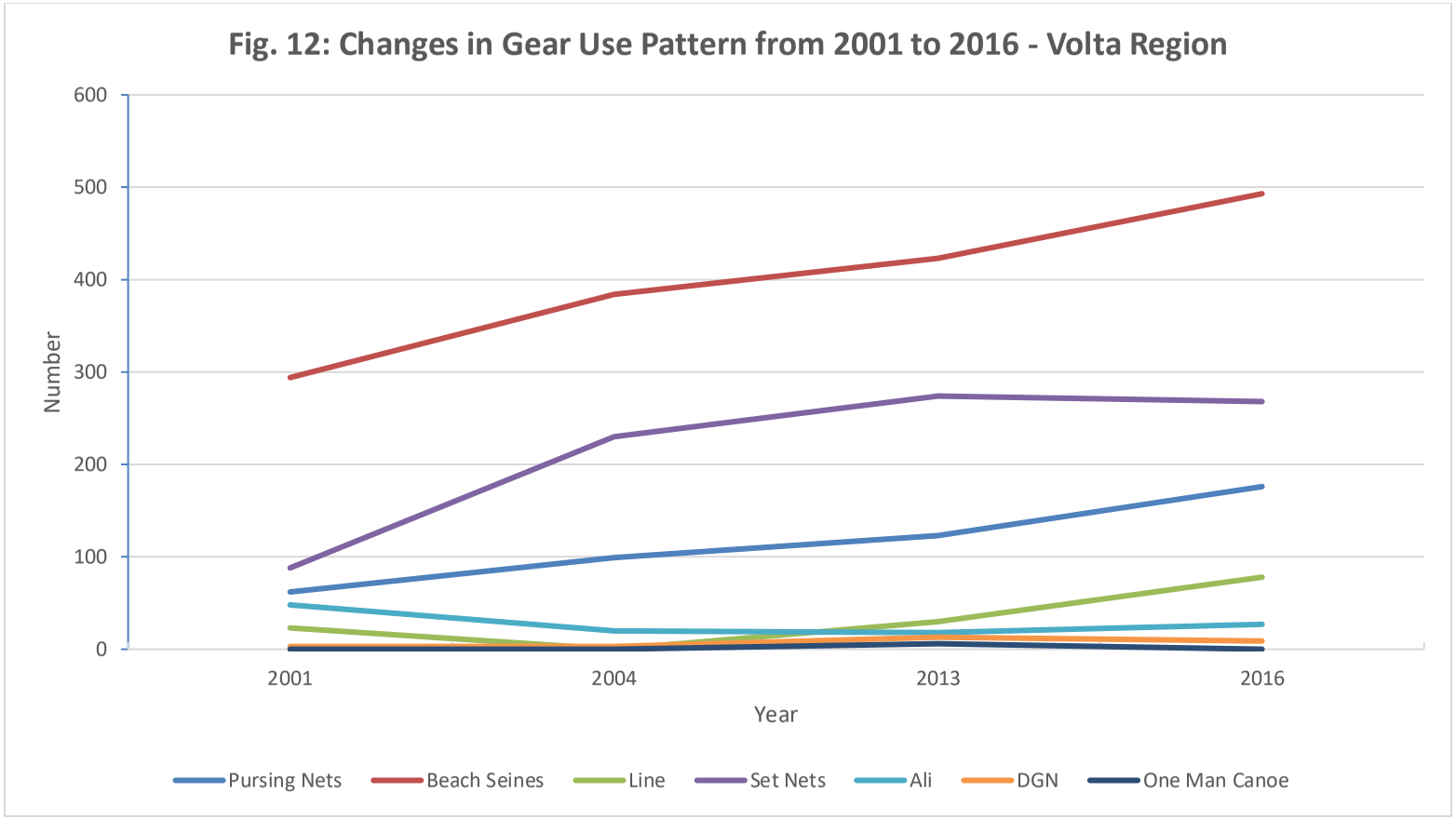


Fig. 12: Changes in Gear Use Pattern from 2001 to 2016 - Volta Region
600
500
400
300
200
100
0
Number
2001
2004
2013
2016
Year
Pursing Nets
Beach Seines
Line
Set Nets
Ali
DGN
One Man Canoe

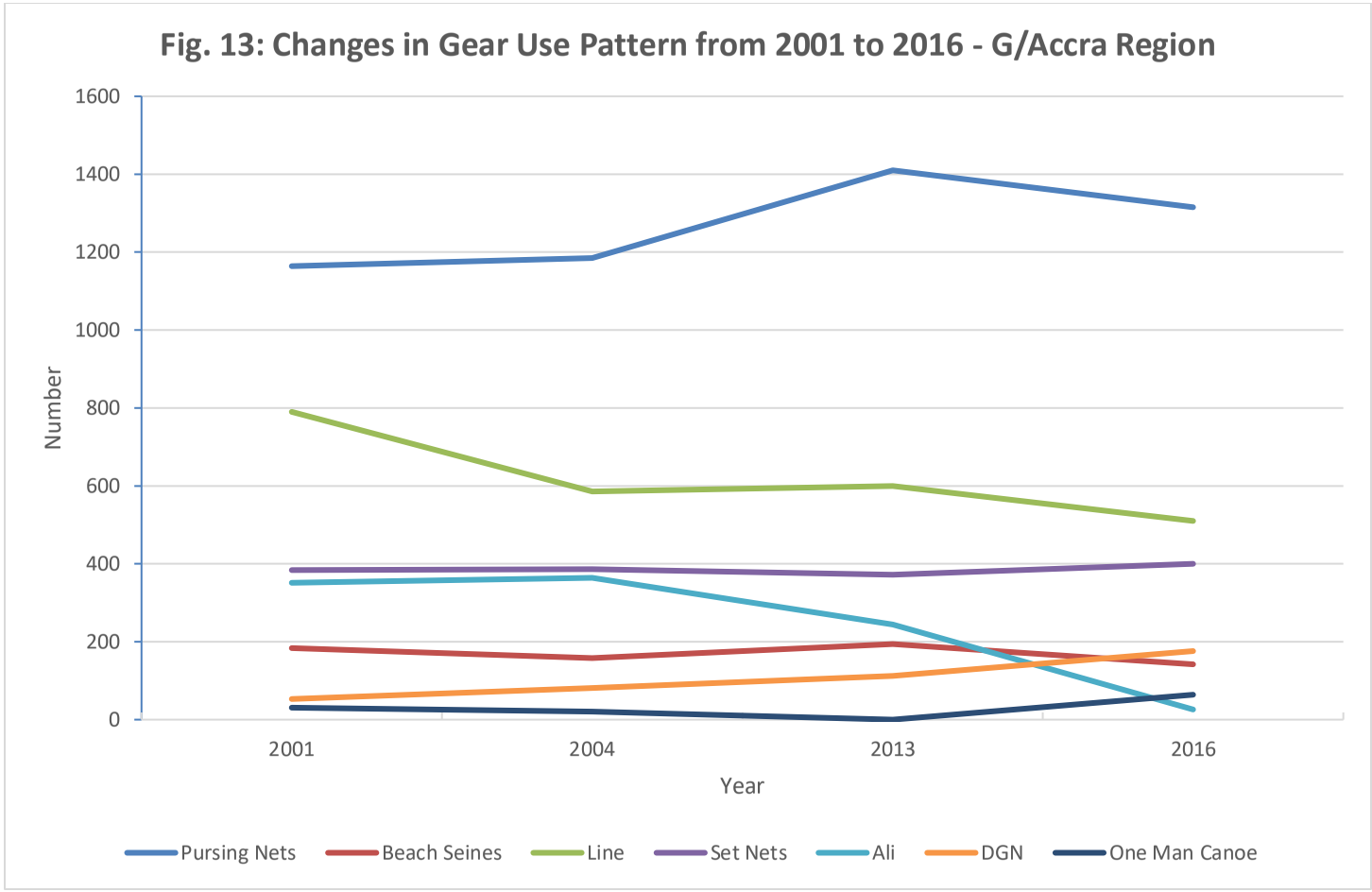


Fig. 13: Changes in Gear Use Pattern from 2001 to 2016 - G/Accra Region
1600
1400
1200
1000
800
600
400
200
0
Number
2001
2004
2013
2016
Year
Pursing Nets
Beach Seines
Line
Set Nets
Ali
DGN
One Man Canoe

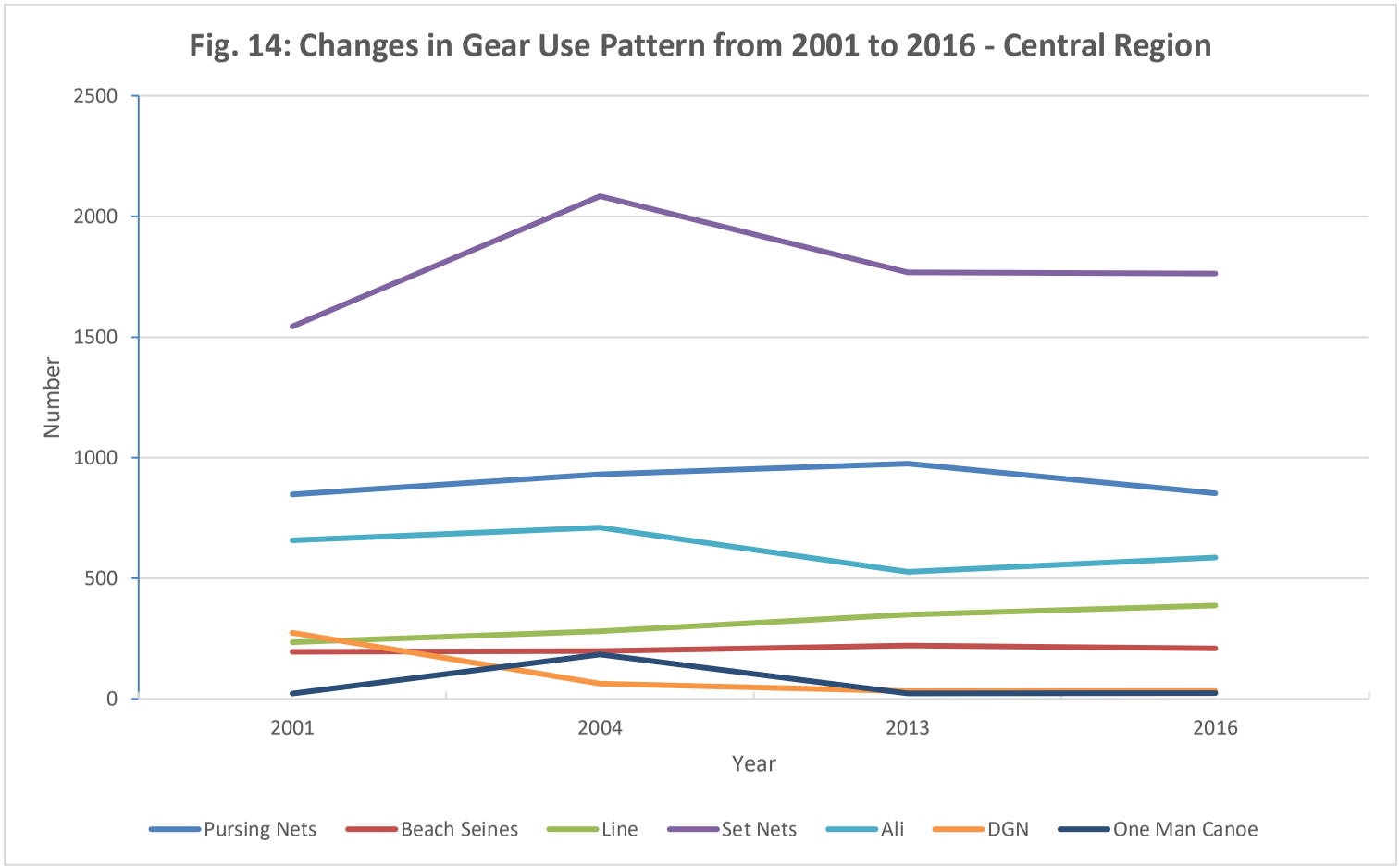


Fig. 14: Changes in Gear Use Pattern from 2001 to 2016 - Central Region
2500
2000
1500
1000
500
0
Number
2001
2004
2013
2016
Year
Pursing Nets
Beach Seines
Line
Set Nets
Ali
DGN
One Man Canoe

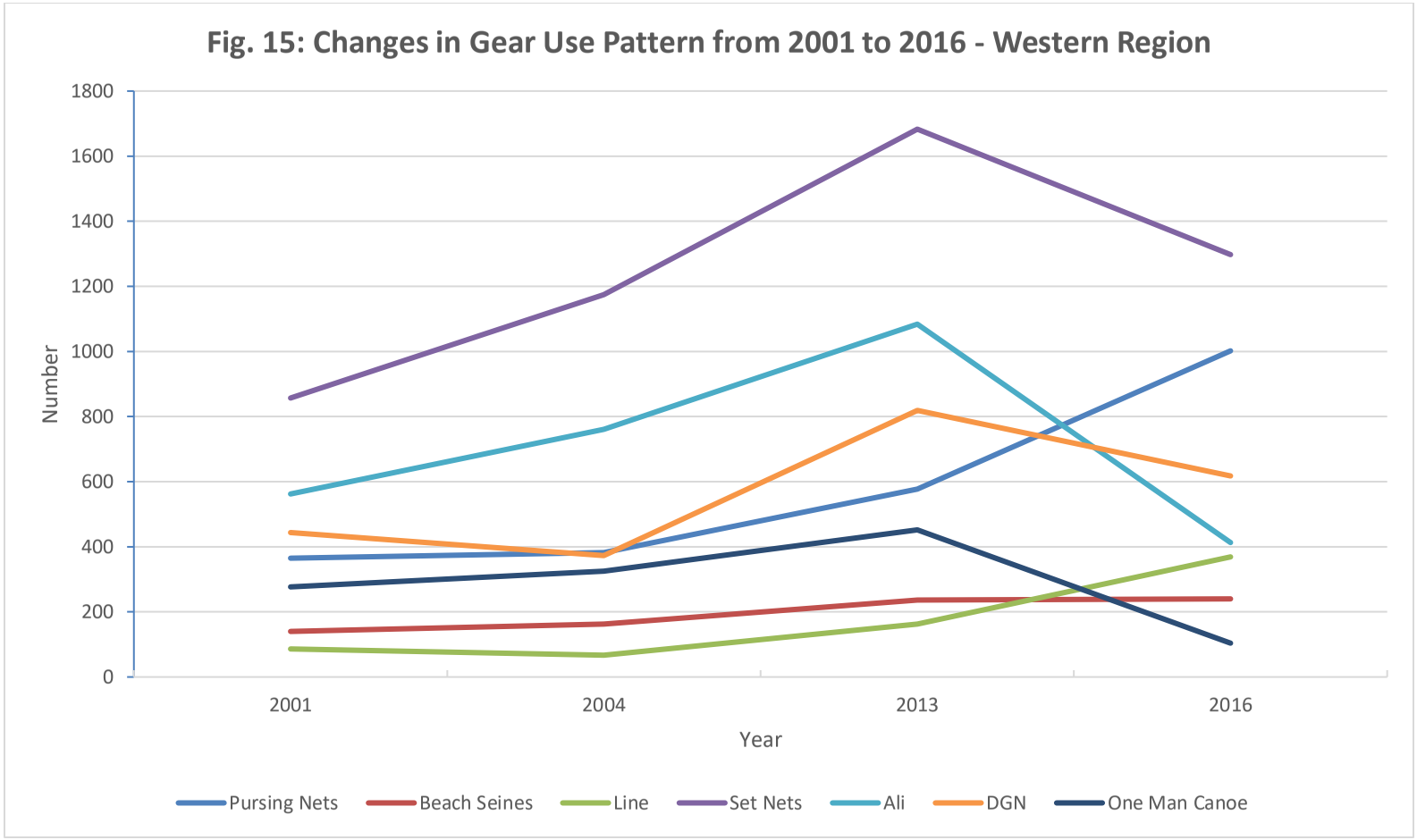
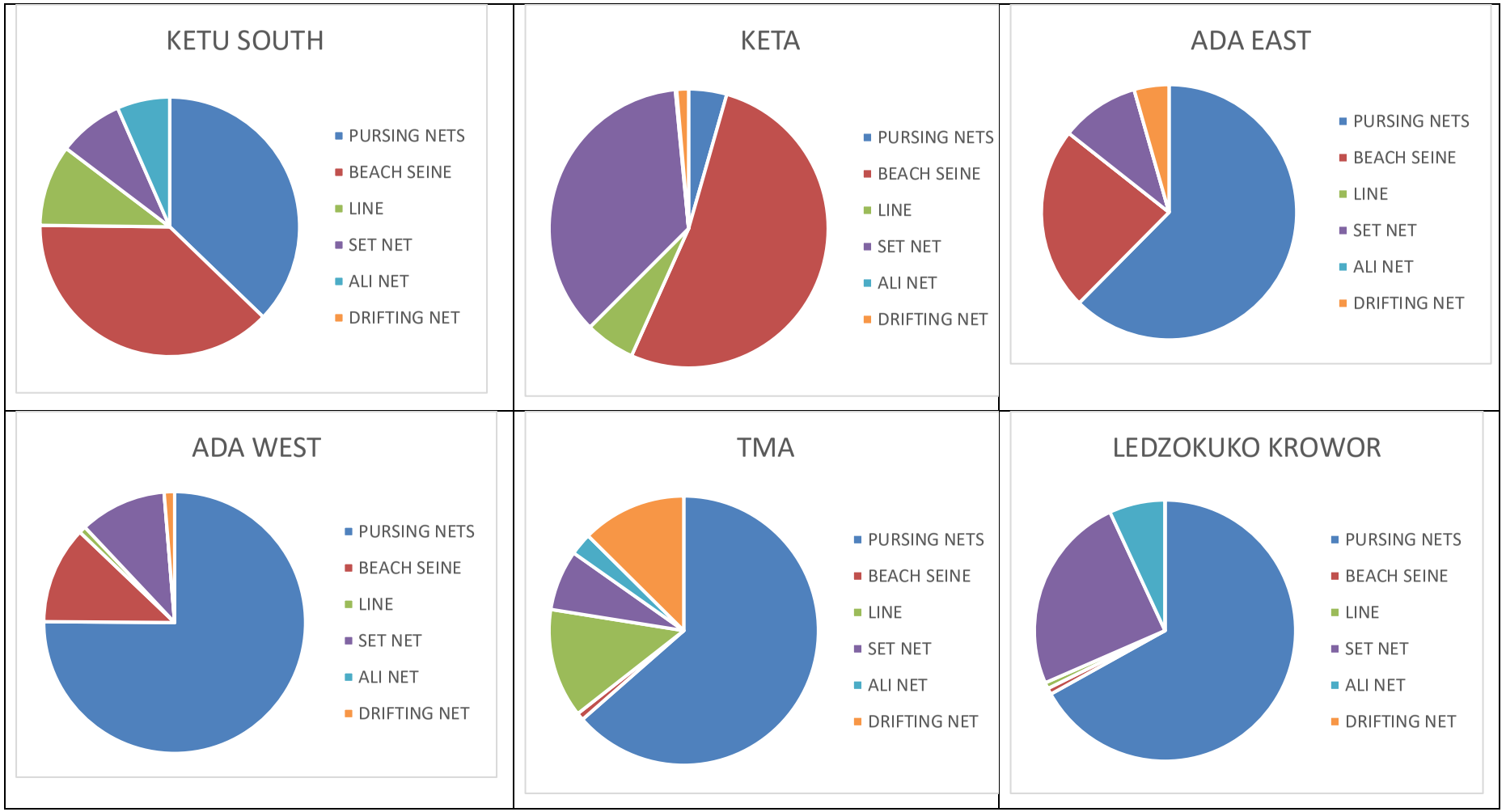
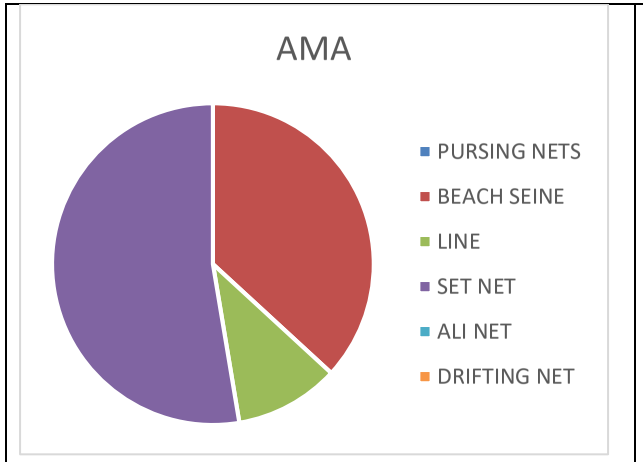


Fig. 15: Changes in Gear Use Pattern from 2001 to 2016 - Western Region
1800
1600
1400
1200
1000
800
600
400
200
0
Number
2001
2004
2013
2016
Year
Pursing Nets
Beach Seines
Line
Set Nets
Ali
DGN
One Man Canoe

Fig.16: Relative Importance of Fishing gear in some Coastal districts

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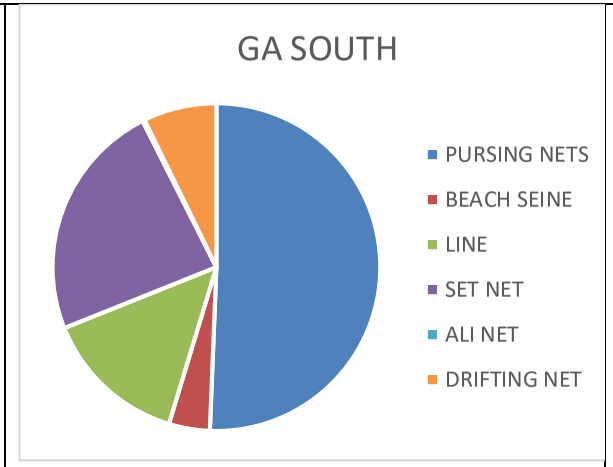
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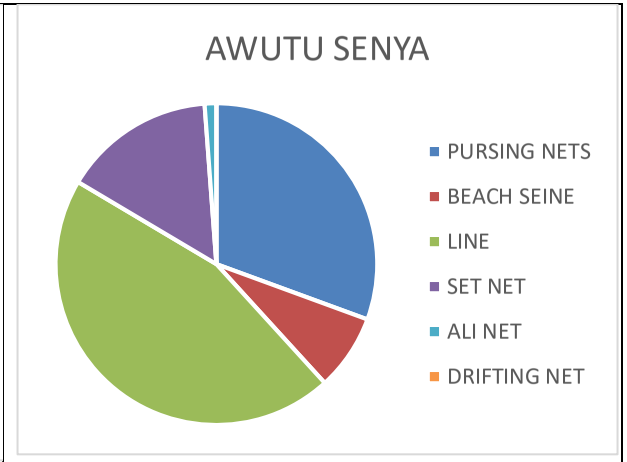
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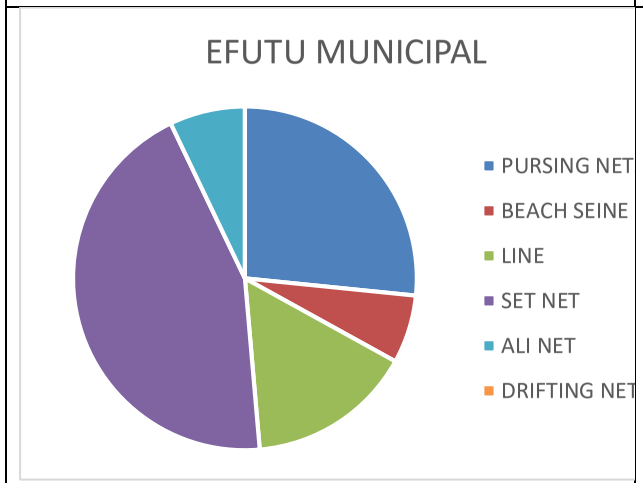
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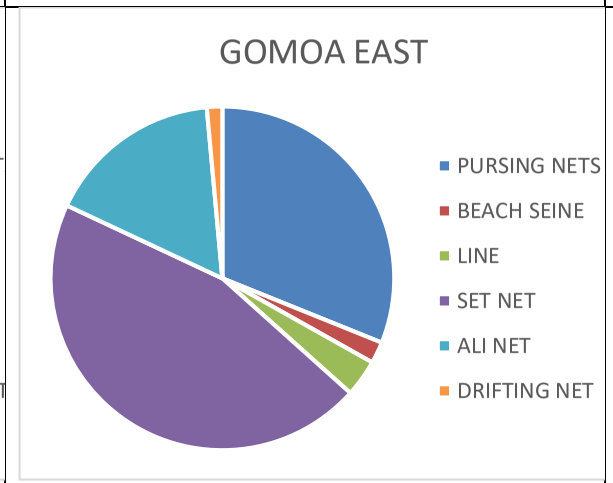
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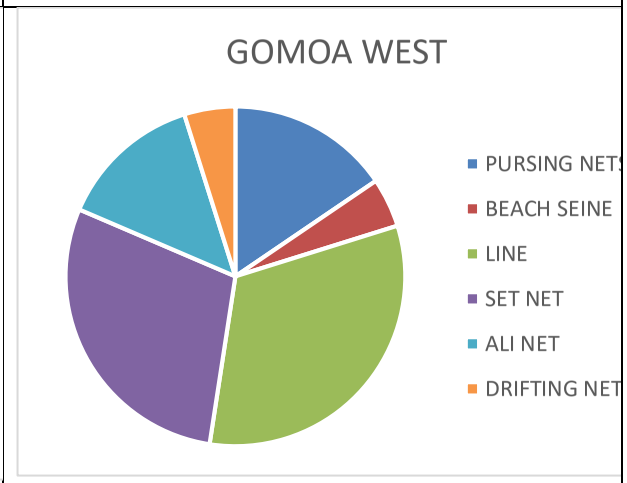
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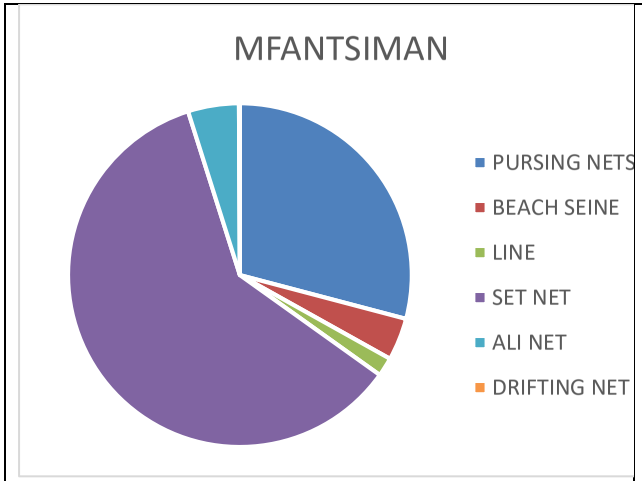
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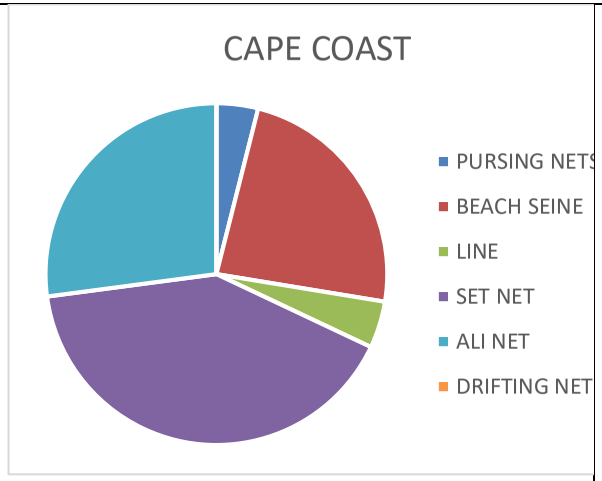
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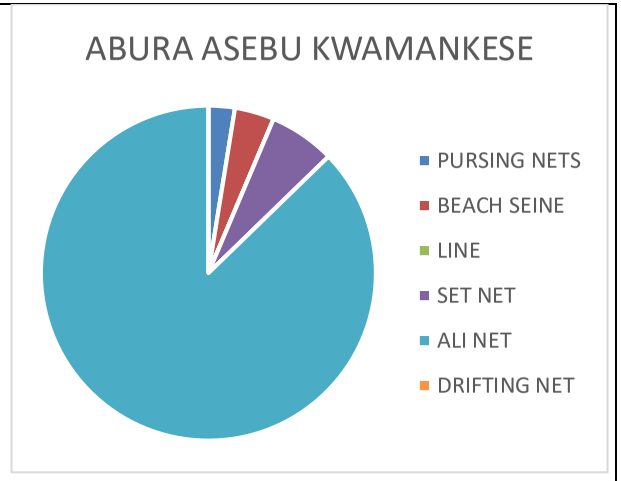
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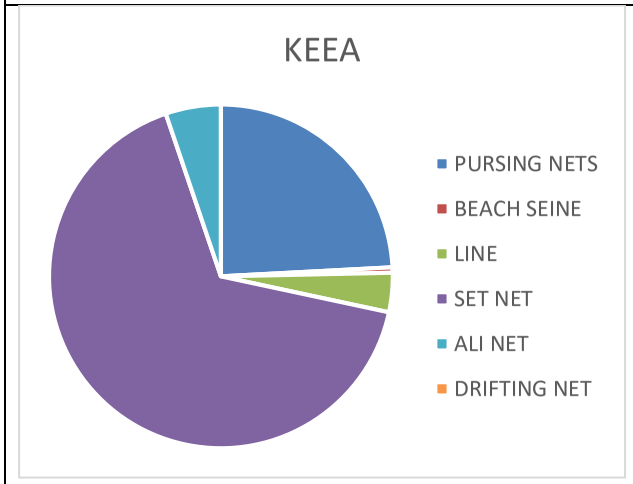
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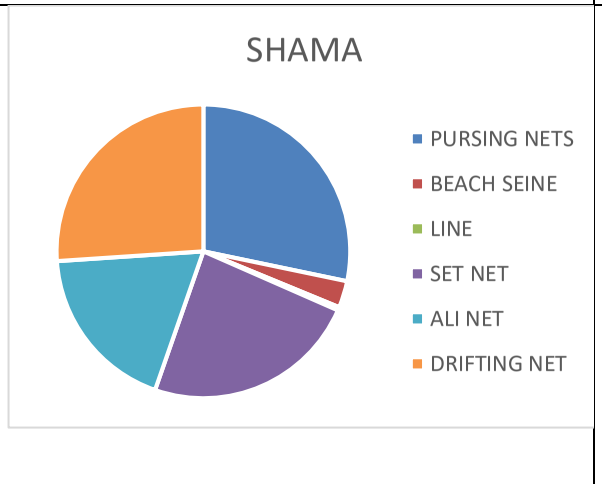
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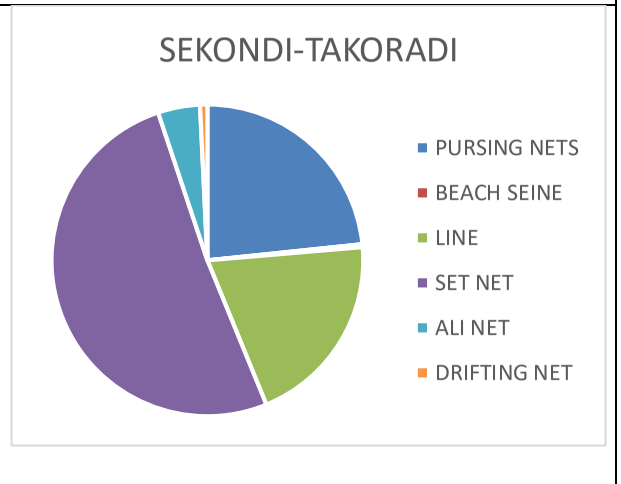
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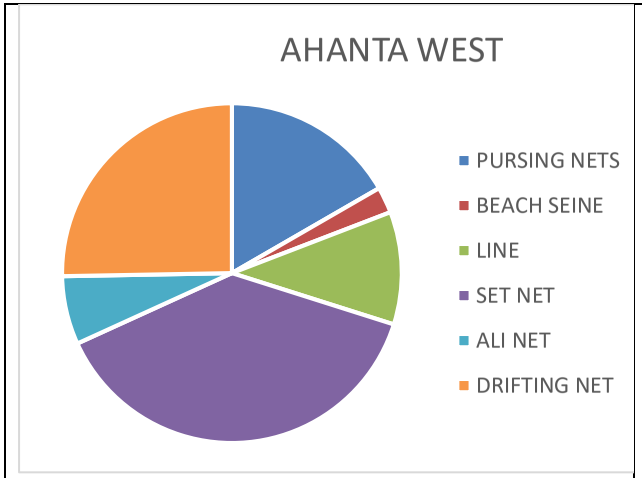
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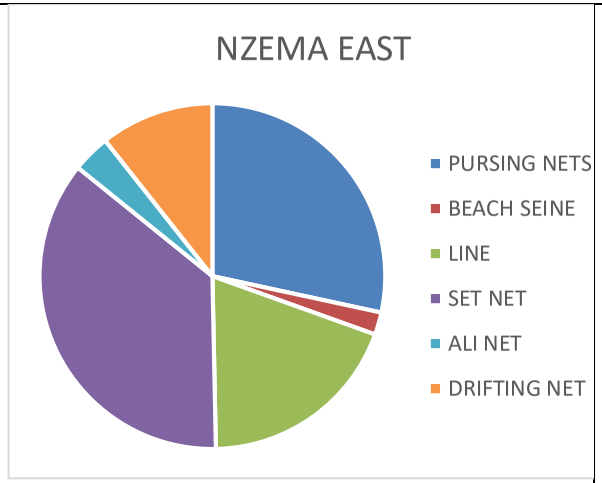
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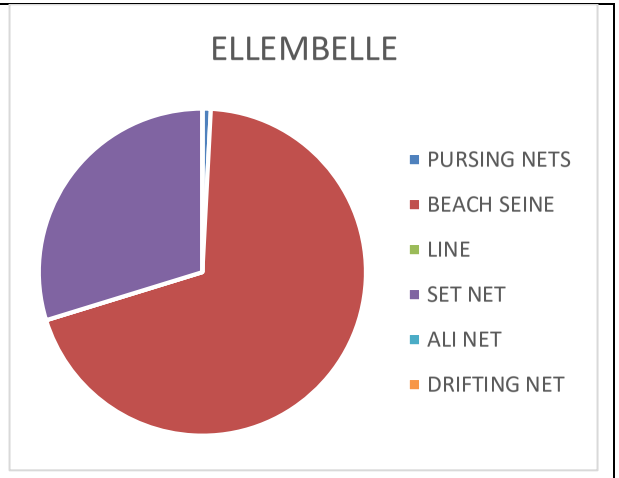
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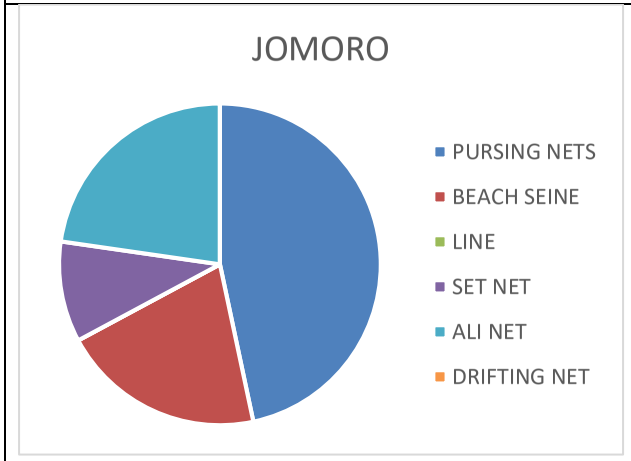
JOMORO
PURSING NETS
BEACH SEINE
LINE
SET NET
ALI NET
DRIFTING NET

Pic 1. Officers interviewing fishermen

Pic 2. Landing Beach

Pic 3.Officers measuring canoes

Pic 4. Officers en-route to a fishing village

APPENDIX 1 FORM A FRAME SURVEY (CANOE REGISTRATION)

REGION…… DATE…… ENUMERATOR……

FISHING VILLAGE…….. LANDING BEACH…….. CHIEF FISHERMAN……..

SERIAL NO.	REGISTRATION NO.	NAME OF CANOE SYMBOL	NAME OF OWNER	NO. OF CREW	TYPES OF GEAR	OUTBOARD MOTOR					REMARKS
						DO YOU HAVE		IF YES			
1						YES	NO	NO	TYPE	HP	
2											
3											
4											
5											
6											
7											
8											
9											
0											
1											
2											

APPENDIX 2

FORM B FRAME SURVEY CANOE FISHERY STATISTICS

REGION…… …….. DATE……

DISTRICT ……

FISHING VILLAGE…….. ENUMERATOR……

LANDING BEACH……

WHERE DOES THE CHIEF FISHERMAN LIVE (VILLAGE):……

GEAR		CANOE			AVERAGE NO. OF FISHERMEN		
NAME	NO.	TOTAL	MOTORS	ACTIVE	AVE. NO. OF CREW ON CANOE	FULL TIME	TOTAL
ALI							
POLI							
WASTA							
BEACH SEINE							
S/N LOBSTER							
LINE							
DGN/NIFA-NIFA							
ONE MAN CANOE							
TOTAL							

2. For one man canoe, what gears are usually used?

……

3. Does fishing go on all the year around? Yes/No

4. If “No” state the period of operation……

5. Range of fishing grounds……

6. Do the canoes here migrate to other centers within Ghana? Yes/No

(i) If “Yes”, where do they go mainly to:……..

(ii) State the usual period that they migrate from the center?.....

(iii) What type of gear do they mainly migrate to operate?.....

8. Do canoes at other centers migrate into this center? Yes/No

(i) If “Yes” where do they mainly come from?.....

(ii) State the usual period that they migrate from this center:……

(iii) The canoes that migrate into this center operate what main gear……

9. Do canoes at this center migrate outside the country? Yes/No

If “Yes

(i) Where do they usually migrate to?.....

(ii) How long do they stay?.....

(iii) State the usual period they migrate from this center……

(iv) Do they register with Ghana Embassy Abroad?.....

(v) What do they usually migrate with?.....

10. Do non-Ghanaians canoes migrate to this center? Yes/No If yes

(i) Where do they usually migrate to this center from……

(ii) How long do they stay?.....

(iii) What period do they usually migrate from this center……..

11. Are there conflicts between Ghanaian and Fisherman at this center? Yes/No

(i) If yes, what is the nature of the conflicts……

12. Are there conflicts between Ghanaian and Non Ghanaian Fishermen at this center? Yes/No

(i) If Yes, what is the nature of the conflicts……

13. What condition does migrant fisherman have to satisfy at this center?

(a) Ghanaian

(b) Non-Ghanaian

14. Does this fishing village observe non-fishing days? (Fishing holiday) Yes/No If Yes, State the Day(s) ……..

15. How are the proceeds from Fishing shared? Give the percentage/Fractions for the input

GEAR	NET	CANOE	OUTBOARD MOTOR	CREW
ALI				
POLI				
WASTA				
BEACH SEINE				
S/N TOGA				
S/N LOBSTER				
LINE				
D.G.N/NIFA-NIFA				
O.M.C				

INFORMATION REPORT NO 35

Republic of Ghana

Ministry of Fisheries and Aquaculture Development

FISHERIES COMMISSION

Fisheries Scientific Survey Division

REPORT ON THE 2013

GHANA MARINE CANOE FRAME SURVEY

BY

SAMANTHA AKYEAMPONG, KOFI AMADOR, BAETA NKRUMAH *et al*

July 2013

TABLE OF CONTENTS

TABLE OF CONTENTS 2

LIST of Table and Figures 3

Tables 3

Figures 3

1.0 INTRODUCTION 4

1.1 AIM OF SURVEY 5

2.0 DISTRICT PROFILES 6

2.1 VOLTA REGION 6

2.2 GREATER ACCRA REGION 7

2.3 CENTRAL REGION 9

2.4 WESTERN REGION 12

3.0 METHODOLOGY 15

3.1 STUDY AREA 15

4.0 RESULTS 17

4.1 TYPES OF CANOES 17

4.2 NUMBER OF CANOES ..... **Error! Bookmark not defined.**

4.3 Number and Type of Fishing Gears 19

4.4 Number and Types of Outboard Motors 19

4.5 Number of Fishing Villages and Landing Beaches 19

4.6 Number of Fishermen 19

4.7 Cost of Fishing Inputs 20

4.8 Fish Sharing Systems 20

4.9 Fishing Holidays 20

4.10 Migration Patterns 21

4.11 Comparison of Results with Previous Surveys 21

5.0 DISCUSSIONS 22

6.0 SOCIO-ECONOMIC STUDIES 24

ACKNOWLEDGEMENT 35

References 35

Appendices 36

LIST of Table and Figures

Tables

Table 1.1a -1z Results of Frame Survey showing number of fishing units by gear for all districts 37

Table 2 Fishing villages and landing sites .....**Error! Bookmark not defined.**

Table 3 Regional Summaries 55

Table 4 Mean rangeof price/cost of Canoes, Fishing gear and Outboard motors in the Regions 56

Table 5 Summary of Results of Canoe Frame Survey conducted between 1972 - 2013 57

Table 6 Regional Summaries 1997, 2001, 2004, 2013..... 58

Table 7 Brand and Size of Outboard Motors..... 59

Table 8 Mean Dimensions/Ranges of Canoes along the Coast in Ghana..... 60

Table 9 Fish Sharing System within the Region..... 61

Figures

Figure 1 Map of coastline of Ghana showing majority of districts (2011).....6

Figure 2 Fishing villages and landing sites 62

Figure 3 Total number of canoes 1969 - 2013..... 64

Figure 4 Fishermen and Motors..... 65

Figure 5 Comparison of Fishing villages to landing sites between 1969 - 2013..... 66

Figure 6 Canoes and Fishermen in the Regions 2013..... 67

Figure 7 Relative importance of Fishing gear in each coastal districts..... 70

1.0 INTRODUCTION

The Ministry of Fisheries and Aquaculture Development has the primary responsibility of ensuring the availability and affordability of fish and fisheries products within the country. Through research, it also ensures the promotion of sustainable and thriving fisheries enterprises as well as providing extension and other support services to fishers.

Fish is the preferred source of protein and it accounts for about 60% of animal protein in most Ghanaian diets. About 75% of the total domestic production of fish is consumed locally with an average per capita consumption of 23.7 kg per annum (Anon; 2011).

Fishery products constitute the most important non-traditional export of Ghana, contributing 254.4 million dollars in 2011 (Ghana Export Promotion Authority). The sector contributes about 5 percent to Agricultural Gross Domestic Product (GDP) and employs about 10% of the nation's economically active population.

According to FAO (1991) assessment, out of 1.9 million people who engaged in either full time, part time and seasonal fishing, about 98% belongs to the artisanal sector. The artisanal sector is the most important sector in the categories of the fisheries sector in Ghana. Artisanal fishing is the main type of fishing carried out in all the twenty three coastal districts of Ghana. The sector contributes about 70 to 80% of the total marine fish production (Anon; 2011).

Due to the diversity of fish caught and the multiplicity of gears and fishing crafts used as well as the increasing prices of premix fuel and gears they employ in their fishing activities, artisanal fishing is considered complex. Hence the Fisheries Scientific Survey Division (FSSD) of the Ministry of Fisheries and Aquaculture Development also known as the Research Division conducts frame surveys of canoes and artisanal gears and also collects socio-economic information regularly in all canoe landing sites and the results are used as basis for catch assessment surveys and also to determine the strength of the sector and its needs.

A frame survey of canoes and fishing gears as well as the collection of socio-economic information on the artisanal fisheries was conducted in May 2013 to update the existing data on the sector. The last survey was conducted in 2004.

1.1 AIM OF SURVEY

- To assess the size, structure and distribution of canoes in the marine artisanal sector
- To collect the basic data and information necessary for the processing of the marine annual artisanal fish production
- To collect socio-economic information on the marine artisanal sector.
- To collect other information on the canoe fleet.

The frame survey focused on detailed count and measurement of canoes and fishing gears, number of outboard motors, number of fishing villages and landing beaches, number of fishermen. Other parameters that were also considered included the cost of fishing inputs, fish sharing system, migration patterns and other socio-economic information for the month of May 2013 in all landing sites when there was less migration of canoe and fishermen between landing centers.

2.0 DISTRICT PROFILES

There are a total of 26 coastal districts in the four regions along the coast line in Ghana; (2) two in the Volta region, (9) nine in the Greater Accra region, (9) nine in the Central Region and (6) six in the Western region.

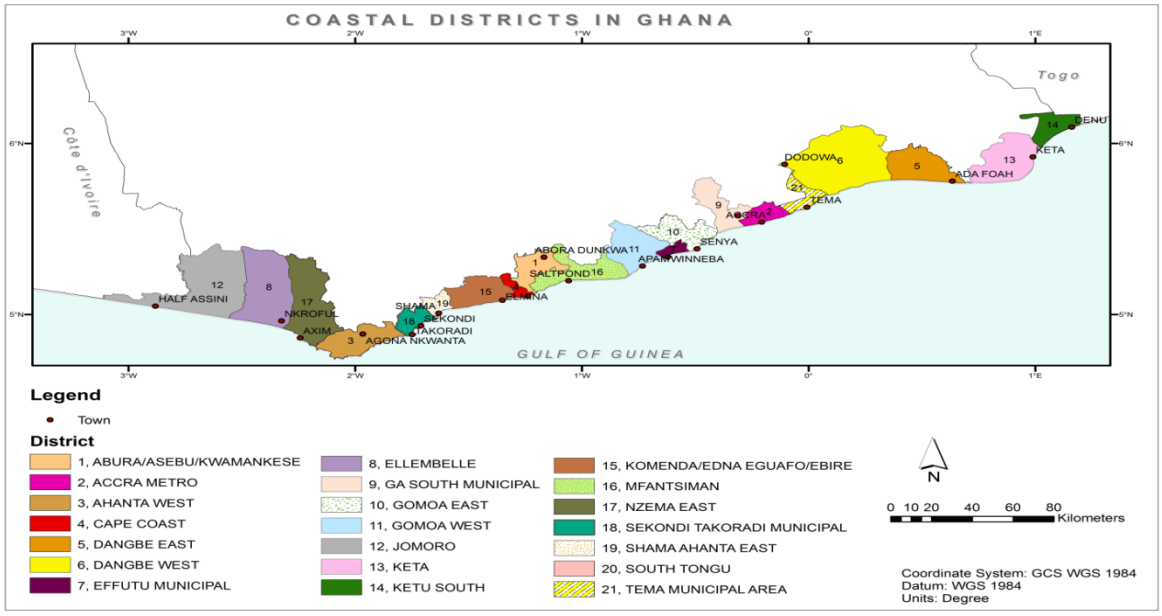

Figure 1Map of coastline of Ghana showing majority of districts (2011)

2.1 VOLTA REGION

Volta region is at the eastern coast of Ghana and has two coastal districts namely Ketu South Municipality and Keta district.

2.1. 1 KETU SOUTH MUNICIPALITY

The Ketu South Municipality has its capital at Denu and it is bordered to the North by the Akatsi District, to the South by the Gulf of Guinea and to the East by the Republic of Togo, and to the West by the Keta Municipality. The district shares a border with the republic of Togo where continuous cross-border trading activities occur. The main occupation of the people in this district is salt mining and fishing although some people engage in subsistence agriculture. Fish production in the district over the past five years has averaged 6336 mt over the period. The main fish species caught are; Anchovy (*Engraulis encrasicolus*), Burrito

(*Brachydeuterus auritus)*, Bumper (*chlroscombrus chyrsurus*), Flat sardinella, (*Sardinella maderensis*), Round sardinella (*Sardinella aurita*) and Horse Mackerel (*Caranx hippos*).

2.1.2 KETA DISTRICT

The district was carved out of the former Anlo District and it is located east of the Volta estuary with Keta as its district capital. It lies within Longitudes 0.30E and 1.05E and Latitudes 5.45N and 6.005N. It is found within a total surface area of 1,086km^2, with approximately 362km^2 (about 30 per cent) covered by water bodies, the largest of which is Keta Lagoon. Fishing and water transportation potentials exist in the district. The main occupation of the people in this district is salt mining and fishing. Fish production in the district over the past five years has averaged approximately 4800mt. However declining trends have been observed in recent years. The main fish species caught are: Anchovy (*Engraulis encrasicolus*), Burrito (*Brachydeuterus auritus)*, Bumper (*chlroscombrus chyrsurus*), Flat sardinella, (*Sardinella maderensis*), Round sardinella (*Sardinella aurita*) and Horse Mackerel (*Caranx hippos*).

2.2 GREATER ACCRA REGION

Districts in the greater Accra region, the regional capital of Ghana include Ada West, Dangme East, Dangme West, Kpone katamanso, tema Municipal Assembly, Ledzokuku-Krowor Municipal, La Dadekotopon Municipal, Accra Metropolitan Assembly and Ga South.

2.2.1 ADA WEST

Ada West District is one of the new 46 districts created in 2012 under the Executive Instrument (E.I) with Sege as its capital**.** It was carved from Dangme East district. Majority of the populace engage in fish farming and agriculture as a source of income for their families. The main occupation of the people in this district is salt mining and fishing.

2.2.2 DANGME EAST

The Dangme East District is one of the seventeen (17) districts in the Greater Accra Region of Ghana, and covers a surface of about 909 km². It is located at the estuary where the Volta

River meets the sea with Ada Foah as the district capital. The main occupation of the local people is fishing and others also work in the salt mining sector. The mean fish production in the district over the past 5 years has been 54500mt one of the highest among the districts. Anchovy (*Engraulis encrasicolus*), Round Sardinella (Sardinella aurita), Frigate Mackerel (*Caranx hippos*) and Chub Mackerel (*Scomber japonicus*) are the main fish species caught in this district.

2.5 DANGME WEST

The Dangme West District lies between latitude 5° 45' south and 6° 05' North and Longitude 0° 05' East and 0° 20' West in the South eastern part of Ghana. The District is the largest in the Greater Accra Region with a coastline stretching over 37 kilometers and a total land area of 1,442 square kilometers. The main occupation of the people in this district is salt mining and fishing. Fish production in the district over the past five years has averaged approximately 1023 mt .Anchovy (*Engraulis encrasicolus),* Sardines (*Sardinella spp*) and mackerels (*Caranx spp*) are the major fish species caught in this district.

2.6 KPONE-KATAMANSO

This new district was carved oit of the Tema Municipal assembly. Majority of the populace are mainly fishermen specialising in the hook and line method of harvesting large demersals. Others are farmers on subsistence levels.

2.7 TEMA MUNICIPAL ASSEMBLY

Tema serves as the administrative capital of the Tema Metropolitan Assembly. It is a coastal city situated 25 kilometres east of Accra, the national capital. The Greenwich Meridian (00 Longitude) passes through the city of Tema. The metropolis shares common boundaries with the Accra Metropolis on the west, the Ga Municipality on the North West and the Dangme West District on the northern and eastern borders respectively.

The main occupation of inhabitants varies from commerce, tourism, hoteliers and fishing. Within the district the Tema fishing port lands over including the artisanal canoe fishermen producing an average of 4100mt in the past 5 years. Over 40 fish species of fish belonging to various families such as the Anchovy (*Engraulis encrasicolus*), Sardinellas (*Sardinella spp),* Bumper (*Chlroscombrus chrysurus*), Frigate Mackerel (*Caranx hippos),* and Chub Mackerel (*Scomber japonicus*) are landed in Tema due to its major infrastructure and proximity to the capital.

2.2.3 LEDZOKUKU-KROWOR MUNICIPAL

Nungua is the district capital with an estimated population of 261,571 people in the Municipality. Fishing is one of the occupations of the people. Fish production in the district over the past five years is shown below showing an average of 2,500 mt over the period. The main fish species caught are the Round Sardinella (*Sardinella aurita*), Bumper (*Chlroscombrus chrysurus*) and Frigate Mackerel (*Caranx hippos).*

2.2.4 LA DADEKOTOPON MUNICIPAL

This new district was carved out of the AMA in 2011 with a large majority of its inhabitants into commercial ventures and tourism. Fishing is on the low ebb with a handful of canoes

2.2.5 ACCRA METROPOLITAN ASSEMBLY

AMA has a total land size of 200 square kilometres and is made up of six sub metros namely Okaikoi, Ashiedu Keteke, Ayawaso, Kpeshie, Osu Klotey and Ablekuma. The total population of AMA is about 1,695,136 people (2000 National Population Census).Commerce, tourism, hoteliers and fishing are the main occupation of inhabitants in the district. The district has quite a number of landing sites producing over 52901.52 mt in the past 5 years. Round Sardinella (*Sardinella aurita*), Bumper (*Chlroscombrus chrysurus*), Frigate Mackerel (*Caranx hippos)* and Flat Sardine (*Sardinella maderensis*) are the major species landed in this district.

2.2.6 GA SOUTH

The Ga district is one of the districts in the Greater Accra Region. Fishing villages in this district includes Bortianor, Oshie, Kokrobite, Lanma and Faanaa.

Fishing is one of the occupations of the people. Fish production in the district in the past five years is 6627mt. Some of the most important fish species caught are Moon Fish (*Selene dorsalis*), Cassava fish (*Pseudotolithus senegalensis*), Burrito (*Brachydeuterus auritus*), sea breams (*Sparus and Dentex spp*) and Round Sardinella (*Sardinella aurita).*

2.3 CENTRAL REGION

Central region is one of the ten administrative regions in Ghana and it is sandwiched by two coastal regions to the south, Western and Greater Accra regions. The region has nine coastal districts out of the seventeen districts.

2.3.1 AWUTU SENYA

This is one of the major districts in the Central region with the district capital being Senya-Beraku. The main occupation of the people in this district is agriculture and fishing. Fish

production in the district over the past five years has averaged 3500 mt over the period. Main species caught are the Sardines (*Sardinella spp)*, Threadfin (*Galeoides decadactylus*), and Burrito (*Brachydeuterus auritus)* among others.

2.3.2 GOMOA EAST

This district was carved from the Gomoa West district with Afransi as its district capital in 2012. The Districts is bounded by Gomoa West to the South, to the North by Agona West Municipal, Assikuma-Odoben-Brakwa District to the West and to the East by Awutu-Senya East District. The population of the district is 102,449 and it is estimated to be 6.4% of the regional population.

The main occupation of the people in this district is subsistence agriculture and fishing. The sardinellas are the major fish species landed.

2.3.3 GOMOA WEST

Covering a land area of 1,022.0 km^2 with a total population of 194,792 (i.e. 12.23% of regional population), the Gomoa District has Apam as its administrative capital. The District lies within latitude 5° 14 north and 5°35 north and longitude °22 west and °54 west on the eastern part of the Central Region of Ghana.

The main occupations of the people in this district are subsistence agriculture and fishing. Mean Fish production in the district over the past five years was 6308. A lot of fish species of commercial importance are caught in the district with thesardinellas being the dominant pelagic species. Others are the Threadfin (*Galeoides decadactylus*), and Burrito (*Brachydeuterus auritus).*

2.3.4 EFFUTU MUNICIPAL

The Municipality covers an area of 417.3 km^2 (163 sq miles) with Winneba as its administrative capital. It is bordered to the north by Agona Municipal, east by Gomoa District, on the west by the Gomoa West District and the south the Gulf of Guinea. The municipal had a population of 169,972, which represent 10.7% of the population of the Central region (According to Population and Housing Census of 2000) with 168 settlements.

The main occupation of the people in this district is agriculture and fishing. The small pelagics (*Sarinellas*) are dominantly caught and landed but occasionally the billfishes are also landed by the drift gill operators.

2.3.5 EKUMFI DISTRICT

This new district was carved out of the Mfantseman distinct from Otuam to Srafa with a population of less than 50,000 people with fishing as their predominant occupation. Sardinellas are the dominant species landed more especially during the peak fishing season.

2.3.6 MFANTSEMAN MUNICIPAL

The Municipal capital is Saltpond. It occupies a total land area of approximately 612 km^2 stretching for about 21 km along the coastline and for about 13 kilometers inland. The municipality has a total of 152,264 people (2000 population and housing census) constituting almost 7% of the Central Region population.

The main occupation of the people in this district is subsistence agriculture and fishing. Mean fish production in the district over the past five years averaged 10,000 mt over the period. Major fish species caught are the Anchovy (*Engraulis encrasicolus)*, Atlantic little tuna, and (Euthynnus alleratus, Scad Mackerel (Caranx rhoncus), Threadfin (Galeoides decadactylus), Chub Mackerel (Scomber japonicus) and Burrito (Brachydeuterus auritus)

2.3.7 ABURA ASEBU KWAMANKESE

Abura-Dunkwa is the administrative capital of the Abura-Asebu-Kwamankese District. It is bordered by Cape Coast Municipality and Lower Denkyira District to the west, Assin South District to the north, Mfantseman Municipal to the south and the east. Abura-Asebu-Kwamankese District has a population size of 90,093 representing 5.6% share of the Regional Population and 0.47% of the National Population figure (2000 population census). The population density is consequently 277.2 per sq. km.

The main occupation of the people in this district is agriculture and fishing. Fish production in the district over the past five years has been 74162 mt over the period. The main fish species caught are: Anchovy (*Engraulis encrasicolus)*, Atlantic little tuna (*Euthynnus alleratus*, Scad Mackerel (*Caranx rhoncus)*, Threadfin (*Galeoides decadactylus*), Chub Mackerel (*Scomber japonicus*) and Burrito (*Brachydeuterus auritus*).

2.3.8 CAPE COAST MUNICIPAL

Cape Coast is the administrative capital of Cape Coast Metropolitan Assembly and also the regional capital of the Central Region. The metropolis occupies an area of 122km^2. It's boundary to the West is Komenda/Edina/Eguafo/Abrem District, to the East is Abura-/Asebu/Kwamankese District and to the North the Twifo Hemang Lower Denkyira District.

The main occupation of the people in this district is fishing. Fish production in the district over the past five years has on the average been 6160mt over the period. The main fish species caught are the Threadfin (*Galeoides decadactylus*), Chub Mackerel (*Scomber japonicus*) and Burrito (*Brachydeuterus auritus*).

2.3.9 KOMENDA-EDINA EGUAFO-ABREM

Elmina is its administrative capital. It is situated between longitude 1° 20' West and 1° 40' West and latitude 5° 05' North and 5° North 15' North. The district covers an area of 1'372.45 km^2 The estimated population for the district is 112,435 people which is 7.1% of the regional population.

The main occupation of the people in this district is subsistence agriculture and fishing. Fish production in the district over the past five years accounted for 10571 mt annually over the period. The main fish species caught are: Atlantic little tuna (*Euthynnus alleteratus)*Frigate mackerel (*Auxis thazard*) and Burrito (*Brachydeuterus auritus*).

2.4 WESTERN REGION

Western region is located in the south western part of Ghana and has six coastal regions.

2.4.1 SHAMA

The Shama District was carved out of the former Shama Ahanta East Metropolitan Assembly. It is bordered to the North by the Mpohor Wassa East District, to the South by the Gulf of Guinea, Sekondi-Takoradi Metropolitan Assembly to the West (all in the Western Region) and Komenda Edina Eguafo-Abirem District to the East in Central Region. The District Capital is Shama. The District covers a land area of 215 km^2 and has a total of sixty seven (67) settlements with 366,579 population size. The predominant occupation of the people in the District is mainly farming, minning, commerce and fishing. Fish production in the district over the past five years has averaged 43488mt over the period. The main fish species caught are the Sardinellas, Frigate Mackerel (*Auxis thazard*) and Long -finned Herring (*Ilisha africana*).

2.4.2 SEKONDI TAKORADI METROPOLITAN

Sekondi is the administrative capital of the twin city comprising Sekondi and Takoradi. It lies within longitudes 4.9167°N, and latitude 1.7667°W. Sekondi-Takoradi is the Western Region's largest city and an industrial and commercial center, with a population of 445,205 people (2012). The chief industries in Sekondi-Takoradi are timber, plywood, shipbuilding and railroad repair and recently, Sweet crude oil as well as fishing

The main fish species caught are: Sardines (*Sardinella aurita and Sardinella maderensis*), frigate Mackerel, (*Auxis thazard*) and long-finned Herring (*Ilisha africana*).

2.4.3 AHANTA WEST

The Ahanta West District has a total land area of 591 km^2 and according to the 2000 Population and Housing Census report it is occupied by 95,140 people. Agona Nkwanta is the district capital. The District lies between latitude 4°.45"N and longitude 1°.58"W and it is located at the southern most part of the country. The district is bounded on the East by the Sekondi Takoradi Metropolitan, on the West by the Nzema East Municipal, and the North by Mpohor Wassa East and Wassa Amenfi West Districts.

The main occupation of the people in this district includes subsistence agriculture which employs about 60% of the total population, the remaining engage in fishing, trading and the formal sectors. Mean annual Fish production in the district over the past five years has been is 16977mt. The main fish species caught are the Sardines (*Sardinella aurita and Sardinella maderensis*).

2.4.4 NZEMA EAST

The Nzema East district is located on the southern end of the western region between longitude $2^0$05" and $2^0$35" West and latitude $4^0$40 and $5^0$20 North. The Nzema East Municipal covers 9.8 % of the total area of the Western Region, thus an area of about 2194 km^2. It is bound on the west by Jomoro, north by Wassa Amenfi East, and the east by Wassa Amenfi West and Ahanta West District. On the south, it is bounded by the Gulf of Guinea with 70 kilometres stretch of sandy beaches

It is estimated that over 65% of the economically active population are engaged in fishing and farming. Mean annual fish production in the district over the past five years has been 6191 mt over the period. Main species caught are the sardinellas.

2.4.5 ELEMBELE

The Elembelle District was carved out of the Nzema East District in 2007 with Nkroful as its administrative capital. The Ellembelle District is located on the southern end of the region between longitudes 2º05' and 2º35' West and latitude 4º40 and 5º20 N. It covers a total area of about 1,468 km^2 which constitute about 6.8% (Percent) of the total land mass of the Western Region with a total population of 107,673 for the district (Ghana Statistical Service, 2010).

Fishing and Cocoa growing is the main occupation of the people in the district. However, small scale mining, and trading is carried out in the middle and the northern zones. Processing and sale of copra oil is also carried out in certain parts of the district. Major fish species caught are Sardinellas.

2.4.6 JOMORO DISTRICT

Created by a Legislative Instrument 1394 in 1988, the Jomoro District used to be part of the then Nzema East Municipal. The size of the district is 1344 km^2 and Half Assini is District Capital. It lies between Latitudes 04° 55' – 05° 15' N and Longitudes 02° 15' – 02° 45' W and is bordered on the North by Wassa Amenfi West and Aowin Suaman districts, Nzema East Municipal on the East, La Cote d'ivoire to the West and the gulf of Guinea to the South. It is located in the Southwestern corner of the Western Region of Ghana. The population of the district is 111,348 with a density of 83 persons per km2 and an annual growth rate of 3%. (2000 PHC Census). The population of the district is 5.8% of that of the region.

The main occupation of the people in this district is subsistence agriculture and fishing. Mean Fish production in the district annually has been approximately 825mt over the period. Main species caught are the Atlantic little tuna (*Euthynnus alleteratus*) and the Round and Flat Sardines (*Sardinella aurita & Sardinella madernsis*).

3.0 METHODOLOGY

3.1 STUDY AREA

The survey covered the entire marine coastline with approximately 550 km from Aflao in the Eastern border in the republic of Togo side to Half-Assini (Newtown) in the western border with Cote d'Ivoire.

The method of full coverage was used (Banerji, 1974) with the entire coastline of Ghana divided into four sectors corresponding to the four administrative regions bordering the sea (Fig.1). These are Volta, Greater-Accra, Central and Western regions. The Regions were subdivided into districts numbering 26 in total. These were Ketu south and Keta districts in the Volta region, Dangme East, Ada West, Dangme West, Kpone-Katamanso, Tema, Ledzokuku-Krowor, La-Dadekotopon, AMA and Ga-South districts in the Greater Accra region, Awutu-Senya, Effutu Municipality, Gomoa East, Gomoa West, Ekumfi, Mfantseman, Cape Coast, Abura-Asebu-Kwamankese, Komenda-Edina-Eguafo-Abrew districts and Shama, Sekondi-Takoradi, Ahanta West, Nzema East, Ellembelle, Jomoro districts in the Central and Western Regions.. Within each district enumerators covered the full length of the coastline listing all fishing villages and associated landing beaches.

For the purpose of this survey, a fishing village is a village (town or city) where fishermen reside and have a chief fisherman. The chief fisherman is generally the head of the fishing community. A landing beach on the other hand, is the stretch of coastline on which fish is typically landed and canoes are beached. Similarly, a number of villages that are governed by one chief fisherman are considered as landing beaches under the fishing village where the chief fisherman resides. Thus villages or beaches as used here may have been reassigned under newly created administrative areas/districts recently but however cover the sites and areas along the coastline.

The Survey team consisted of Fisheries Officers, Technical Officers, and Technical Assistants from the coastal regions/districts who all acted as enumerators during the period under review. The team numbering approximately 80 (grouped according to districts) went through a three day pre-survey training in March 2013 highlighting on the methodology to be used, identification of types of fishing gears, fishing crafts as well as administering of questionnaires.

At the fishing village, the enumerators enquire and establish the number of landing beaches. The number and type of canoes at each landing beach were physically counted. A sample of

each type of canoe was measured with a tape measure. The type of canoe is determined, generally by the kind of fishing method carried out on it. The canoes were also examined for motorisation. A canoe is considered motorized if it carries a bracket or cradle on which an outboard motor can be mounted.

All other information requested are indicated in the questionnaires (Appendices A & B). The findings of most questionnaire have not been put in this report but only summaries because they were put in to help design and monitor catch assessment surveys. However these results can be incorporated in a detailed register with detailed information on ownership, names of canoes, symbols, crew size per individual canoes etc.

Canoes in estuaries, rivers and lagoons no matter how close they were to the open sea, were excluded in the count. New canoes which were being prepared to go to sea and old ones undergoing repairs were all counted and included in the database. Canoes that were seen broken beyond repairs or abandoned were not counted. In each canoe, the number of fishermen were also sought.

The chief fisherman in each village was the first point of contact before the enumeration was done and they often delegated some trustworthy and experienced subordinates to help the enumerators do their job.

The rest of the survey was conducted by interviewing either the chief fisherman or other fishermen in the village. Some of the information demanded from them are on non-fishing days, range of fishing operations, main species fished or sought, migration of fishermen within and out of the country etc.

All the information obtained were crosschecked and later entered into a database for further scrutiny.

The entire programme lasted for a month starting on the 2nd March and endeing on the 29th March 2013 and was undertaken by - technical assistants n some districts due to the lack of field staff a few retired officers were recruited to join the existing numbers of enumerators. Most of them had taken part in previous surveys with the content of recording schedules not substantially changed.

A post census check was organized in the first week of April 2013 where four officers from the Fisheries Scientific Survey Division (also known as Research) were tasked to visit some

landing sites to ascertain the true numbers of canoes there, ascertain boundaries of newly created districts and recommend sampling sites for catch assessment surveys among others.

Besides counting the numbers and types of canoes and gears associated, some aspects of the livelihoods of fisher folks were sought. The aim was to find out some socio-economic conditions of the fisher folks along the coastal districts of Ghana such as their family size, educational backgrounds, and livelihoods among others. The respondents were mainly fishermen and fishmongers in the various fishing communities. A sample size of 500 per region of fishers/fishmongers (respondents) were used though low in relation to the total number of respondents in the fishery. Results using the Statistical Package for Social Sciences (SPSS v-16) was conducted to give us a fair idea of the social importance of fishers within our coastal communities. Results however should be taken as tentative and used with much caution.

4.0 RESULTS

4.1 Number anf Types of Canoes

Classification of canoes in the artisanal sector is based on the type of gear the canoes operate. The major gears operated by the canoes during the survey were Purse seine, Hook & Line, Drifting Gill Net (Nifa-Nifa was also categorize as Drifting Gill Net), Beach Seine, Ali, Lobster Set Net and One Man Canoe. As one canoe can be used to operate more than one type of fishing gear, each canoe was put in the category of gear for which it is most often used. Doyi 1984 describes the various gears used in the artisanal fishery in Ghana.

Triplochiton scleroxylon and *Ceiba petandra* locally called Wawa and Onyina respectively are the main materials used for the manufacturing of these canoes.

4.1.1 Ali/Poli/Watsa

A total of 3085 pursing nets (Poli/Watsa) and 1873 Ali net canoes were counted. These are large wooden canoes in the size range of 12.0 – 19.5m long x 1.2 – 2.4m wide that are used to operate the ali/poli/watsa nets. They are mainly propelled by 25 – 40 hp Outboard Motors with some also using electronic devices like the fish finders and echo sounders.

4.1.2 Beach Seine

During the survey 1074 beach seines were recorded. In this category, old "Ali/Poli/Watsa" canoes are converted for beach seining. Normally, the bow is raised to avoid taking water when crossing through the surf. Beach seine canoes are mostly propelled by paddles nevertheless outboard motors may be used as well. Their sizes range between 8.5-11.5m.

4.1.3 Setnet

Setnet canoes are those that are used to operate small nets rigged to fish at bottoms or in midwaters depending on the strength of the floats and leadlines. They are used mainly on daily basis using paddles and sails or outboard motors. Their size ranges from about 7.0 – 9.5m long.

4.1.4 Line

The number of line canoes recorded were 1142. Line canoes in Ghana also termed "Lagas" canoes (French word for ice, "la glace"), are canoes that specialize in hook and line fishing. Ice is used at sea to preserve high value demersal fish at sea in insulated containers. They stay out at sea for 2 to 4 days targeting large demersals such as sparids, snappers and groupers within rocky bottoms. The size range is approximately 12.0 – 18.5m long.

4.1.5 Drift Gill Net

During the count, a total of 976 drifting net canoes were recorded. Their size range is the same as that of "Ali/Poli/Watsa" and can only be identified with the gear on board. These are used to operate a drifting gillnet for large pelagic species such as the skipjack tuna, swordfish and sailfishes.

4.1.6 One Man Canoes

481 canoes were counted. These are small canoes measuring up to 6 m. They are operated by one person either using a set net or small handline. They are usually too small to be operated by outboard engines.

4.1.7 Service canoes

Service canoes measure about 6.0 – 18m long and do not operate any fishing gear. They are mainly used to transport fish often termed as discards from industrial trawlers (system known as 'seiko') at Apam, Mumford, Elmina and Sekondi.

During the survey a total of 12,728 canoes were recorded of which 3,085 of the number was pursing net canoes, 1,074 beach seine canoes, 1142 line canoes, 1,236 lobster set net canoes, 2861 other set net canoes, 1,873 ali net canoes, 976 drifting net canoes and 481 one man canoes. The number of canoes for the different categories of gears operated at the landing beaches in each district is presented in table 1.1 to table 1.26

Table 2 contains the summary of the various numbers of canoes for each district and region .

4.2 Number and Type of Fishing Gears

were The seven different gears widely in use during the survey were the Pursing Nets, Beach Seines, Line, Lobster Set Net, Ali, Other Set Nets and Drifting Gill Net.

Except for canoes that operated line, lobster net and other set net gears, every other canoe operated one unit of fishing gear. On the average, a lobster net or set net canoe operated up to18 units of fishing gear.

4.3 Number and Types of Outboard Motors

A total of 9,313 outboard engines of various brands and capacity were recorded. Seven brands of various capacities ranging from 4hp to 40hp were identified during the survey. The Yamaha brand of 40hp dominated the motor types by 66%. Other brands were Johnson, Suzuki, Marina, Tohatsu, Mercury and Towakyo which had capacities between 4 and 9hp .

Engines with such small capacities were common in the Central and Western regions, where they are used to propel small set net canoes which are common in these areas.

The regional distribution of outboard motors is presented in tables 2 and 3. The level of motorization for each region is also presented in table 3.

4.4 Number of Fishing Villages and Landing Beaches

A total of 186 fishing villages and 302 landing beaches were recorded during the survey. Names of the various fishing villages and landing beaches are in Tables 1.1 to Ttable 1.26

At the regional level, there were 26, 44, 44 and 76 fishing villages in the Volta, Greater Accra, Central and Western regions respectively. The highest number of landing beaches (106) was recorded in the Central Region with the lowest number (44) in the Volta Region. In table 2 shows the breakdown of numbers of fishing villages and landing beaches by districts and regions.

4.5 Number of Fishermen

The number of fishermen recorded during the survey was 139,155 (Table 3). The total number for each landing beach is presented in table 1.1 to 1.26. Presented also in table 3 are the number of fishermen in each district and region. Percentage of fishermen in the Volta region is less 13.4% compared to that of the Greater Accra, Central and Western regions. The total numbers in each region is presented below;

Table 1 Number of Fishermen in the Regions

Region	Number of Fishermen	Percentage (%)
Volta	18,150	13.4
Greater Accra	39,737	28.56
Central	40,563	29.15
Western	40,705	29.25

4.6 Cost of Fishing Inputs

It was realized that a 40hp Yamaha outboard engine which is the most popular sold between Gh¢7,200 and Gh¢8,500 depending on the location of the coast it was bought. Engines of lower capacities sold between GH¢3,200 and GH¢6,000. The very small motors like the 4 hp and 9 hp also cost between GH¢1,500 and Gh¢3,000.

The large size nets for Watsa, Drift Gill nets and Beach Seines sold between Gh¢15,000 and Gh¢40,000. Medium size set nets cost GH¢800 and Gh¢3,000 and small set nets for One Man canoes also sold between Gh¢500 and Gh¢1,500.

Canoes for large heavy gears such as the big Beach Seines, Watsa and Drift Gill nets cost between Gh¢10,000 and Gh¢26,000 whilst canoes for lighter gears like the Set nets sold between Gh¢500 and Gh¢8,000. One Man Canoes were also sold between GH¢500 and GH¢1,500.

Table 5 shows mean ranges of price of canoes, fishing gears and outboard motors.

4.7 Fish Sharing Systems

In the marine artisanal fisheries in Ghana, the daily catches by each fishing unit are usually shared according to laid down ratios. A percentage of the catch goes to the crew on one side and the owner of the craft, gear (net) and outboard motor. The sharing system from village to village is more or less similar within the regions and does not differ much from year to year. Table 10 shows the various sharing systems within the regions.

4.8 Fishing Holidays

Along the coast of Ghana, at least one day in a week is observed as a fishing holiday by the various fishing communities. The day usually varies in the various communities along the coast. However, a few communities in the Volta Region were noted of not having any fishing holiday. A summary of the various days observed as fishing holidays by different regions are presented below:

Region	Fishing Holiday
Volta Region	Tuesday, Wednesday, Thursday and Sunday
Greater Accra Region	Tuesday
Central Region	Tuesday
Western Region	Tuesday, Thursday and Sunday

4.9 Migration Patterns

Based on information collected during the survey, two types of migration patterns were detected. These were migrations within or outside the country.

Often, the Ghanaian fisherman migrates beyond Ghana's territorial waters and can be found as far as Mauritania to the north and Angola to the south. They could stay away for a few months to several years. There were a few reported cases of canoes coming from neighbouring countries around the eastern border especially from the Republic of Togo and Republic of Benin. Immigrant fishers pay a token fee "drink" to the chief fisherman of the landing village they take sojourn. They normally stay for a few months and get back to their home countries.

4.10 Comparison of Results with Previous Surveys

4.10.1 Canoes

Table 5 shows comparison of the 2013 survey with the previous surveys. There is seen an increase in the number of canoes since the 1997 survey. A 13.5% increment is seen from the 2004 numbers of 11,213 to the current 12,728 canoes registered.

4.10.2 Outboard Motors

With regards to outboard motors since 1981 there has been increasing trends in the numbers until in 1992 when there was an 8 percent decrease. The current survey registered 9,313 motors giving a high motorization level of 73.2 percent.

4.10.3 Fishermen

Historically the number of fishermen population have increased over the years except between 1986 and 1989 when there was a 12.7 percent decrease. However in 2013 survey, 139,155 fishermen were recorded giving a 12 percentage increase from the previous survey.

5.0 DISCUSSIONS

5.1 Number and type of canoes

Total enumeration of canoes, gears and fishing inputs in all the fishing districts along the coast to evaluate the status of the marine artisanal fisheries sector has being a periodic exercise. This present survey incorporated some socio-economic aspects of the artisanal fishery and where livelihoods are changing rapidly due to varying factors such as access to the resources and changes in socio-economic trends within the environment.

The total number of active canoes in comparison to that of 2004 recorded an increment of 13.5% nationally. It is consistent with the results from Koranteng et al 1987, 1992 who also recorded an increase in the number of canoes during those surveys. This increase is not equally distributed among the regions; Central Region shows a decrease of 12.5% opposite to the Volta, Greater Accra and western regions that had an increase in the number of canoes.

5.2 Number of Types of Fishing Gear

In the canoe categories, of the five types of canoes that increased in numbers, the Drifting Gill Net canoe is 87.7 percent up on 2004. Other Set nets and One Man canoes have however decreased in numbers by 143 and 49 respectively since the last survey in 2004. This is because Set nets are becoming less profitably to operate and the use of One Man canoes also of less significance.

5.3 Number of Types of Outboard Motors

9,313 outboard engines were recorded in the survey depicting a high percentage of 73.2 percent level of motorization. There has been an increment of 45.4 percent level of motorization since the 2004 survey. Over 80 percent of these motors were of the Yamaha brand because it is a dominant brand in the market and mostly preferred by fisher folks. Other brands encountered were of lower capacities of Yamaha, Johnson, and Suzuki etc.

On regional basis the Western Region had the highest number of motors of 3,454 which constitutes some 37 percent of the national total. This could possibly be due to the dominance of Drift Gill net canoes in the region whose operations fishing offshore require the use of motors. Investment in motors in this fishery is worthwhile and it is therefore not uncommon to see some of these canoes using two motors for a trip.

Number of motors recorded in the Central, Greater Accra and Volta regions were 3016, 2449 and 426 respectively. The highest percentage of crafts with engines comes from the Greater Region. 83.5 percent of crafts in this region were motorized. Central region follows with 77.4 percent, Western Region comes next with 68.9 percent and Volta Region comes last with the least level of motorization (47.3 percent).

There have been increases in sizes of canoes in recent times. Large canoes like those that operate the Pursing nets and Drifting Gill nets were planked up to increase height and width to carry heavier gears. Without powerful motors to propel them, operations would be difficult if not impossible.

The increases in the number of canoes and gears over the years could possibly be due to open access in the artisanal sector, subsidy packages and tax wavers on imported fishing inputs and also because there are few alternative source of employment in the coastal areas.

5.4 Number of Fishing Villages and Landing Beaches

Compared with the previous survey in 2004, the number of fishing villages throughout the four regions had decreased by 9 during the count. These were noticed especially in the Volta and Greater Accra regions. The number of landing beaches also decreased by 32 in the current enumeration, as only 302 landing sites were recorded as against 334 in the 2004 survey.

Although the construction of a sea defense wall at Keta in 2004 effectively stopped the erosion and reclaimed land that were submerged the numbers nevertheless of landing beaches decreased again because of the resurgence of the coastal erosion in the area over the period 2004-2013. Beside Keta, the coastal erosion is taking its toll in other coastal areas of the country especially the sand beaches in the Greater Accra region Glefe and some parts of Central region. Migrations of canoes to nearby fishing countries have led to some fishing villages and landing beaches in the Greater Accra Region and the Western Region to be inactive.

5.5 Number of Fishermen

The total number of fishermen enumerated in the survey was 139,155. This showed a 12 percent increase from the 2004 survey which recorded 124,219 fishermen. From the regional breakdown, 13 percent of all the fishermen were in the Volta Region, 28.6 percent in the

Greater Accra Region, 29.1 percent in the Central Region and 29.3 percent of fishermen or were recorded in the Western Region.

5.6 Cost of Fishing Input

The cost of fishing input depends on location, sizes and ages of equipment. The most expensive artisanal fishing net is the Poli/Watsa net which costs between Gh¢15,000 and Gh¢30,000 This was followed by large beach seine nets between Gh¢7,000 and Gh¢30,000 Drift Gill Net is also sold between Gh¢7,000 and Gh¢15,000. The gear for line fishing was the cheapest and they cost between Gh¢750 and Gh¢1, 500. With respect to canoes, those for Drift Gill nets, Pursing nets and Beach Seine operations were the most expensive; costing between Gh¢10, 000 and Gh¢20, 000.

The artisanal fishing fleet is self-financing as canoe fishermen virtually have no access to institutionalized form of credit. They depend on local money lenders and traders when it becomes necessary to raise funds to replace their fishing gear.

5.7 Fishing Sharing System

The sharing system from village to village are more or less similar with in the regions and according to laid down rations. These do not diferr from year to year (Koranteng and Nmashie, 1987).

5.8 Fishing Holidays

Fishinh holidays or non-fishing days are usually on Tuesdays however in some villages especially in the volta and western regions they differ. Thses days are usually used to repaur nets .

5.9 Migration Patterns

Fishermen still migrate to other villabes or out of the country for several reasons. Usually within the country its mainly due to rough beaches and chasing fish which are more abundant in a particular locality. Others migrate to seek greener pastures all along the western African coast and beyond.

6.0 SOCIO-ECONOMIC STUDIES

Fisheries development aims at improving the socio-economic conditions of the fisher folks. Their social systems can play an important role in the local ecosystem hence these systems

must be studied and understood clearly to help policy makers to bring to the fishers acceptable and beneficial innovations to improve their living standards.

In order to have an idea of the socio economic conditions of the fisher folks along the coastal districts of Ghana, a primary data was collected as part of the canoe frame survey. Socio-economic parameters such as family size, age structure, education etc. was collected from various sample centres in the Volta, Greater Accra, Central regions and the Western region.

This study aimed at presenting a semblance of the socio-economic situation of the fisher folk. 110 fishers; 70 fishermen and 40 fish mongers were interviewed using the semi-structured interview method. A more in depth study is required to confirm or reject the findings presented here.

The fishing workforce

In fishing communities family sizes are large, ranging from 6-20 per household. This is largely informed by the high demands for labour for the key stages of pre and post-harvest activities. A typical fish-family comprises of a canoe owner and his immediate family members, made up of one or several wives and children. This core family is in turn supported by external relations such as nieces, nephew and cousins, who may constitute the crew members of a canoe, or help in fish processing. Such an arrangement has provided the needed workforce and employment in the artisanal fishery industry over the years.

Children are not left out of the fishing business as they form an integral part of the community structure. They learn on the job and through that gain experience and knowledge in fishing and other management practices.

Gender in marine artisanal fisheries

Gender roles in the artisanal marine fishery sector have been clearly defined for years. The marine canoe fishery involves intensive labour. Fishermen can be as young as 7 years or as old as 70 years. The male youths perform the hard tasks ranging from pushing the canoe to and from the beach, casting, setting, dragging nets and often carrying fish. The elderly are usually involved in the management and supervisory roles, providing logistics for crew member's net mending and facilitating arrangements for fishing expeditions.

The intrinsic role played by women is well defined. Women contribute significantly in activities such as processing and distribution of fish landed. Most women lack the needed

capital to engage in fish processing and access to loans from financial and non-financial institutions are hard to come by.

Socioeconomic issues concerning fishers

FISHERMEN

Seventy fishermen were interviewed on various issues and the results are presented below.

Age Distribution

With respect to the age structure of the fishermen, results revealed that a greater number of the fishermen (40%) were in the age distribution of 40-50 years as shown in Table 10.1. The 18-28 age-group indicated the least number of fishermen (3%).

Respondents' Age-Group/years	***Frequency***	***Percentage***
18-28	2	2.9
29-39	15	21.4
40-50	28	40.0
51+	25	35.7

Table 10. 1 Frequency table showing age distribution of fishermen

The 51-and-above age group constituted about 36%. This suggests a gradual reduction in the entry of the youth into fishing activities. Various reasons may be attributed to this trend, and one main reason may be because a lot more children are going to school, because of the Free Compulsory Universal Basic Education policy. Hence they are exposed to a lot more professions/vocations to choose from, and have varied aspirations other than to labour as fishermen in this era of declining fish catches and exorbitantly high input cost of fishing.

Other Economic Activities

The fishermen were asked if they engaged in other income generating activities. 56% engaged in other activities and 44% did not; they were solely fishermen.

Table 10.2 shows that majority (60%) of those who engaged in other ventures preferred to farm, while only a few (10%) were involved in vocations such as masonry, carpentry, basket weaving, etc.

Other Economic Activities	***Frequency***	***Percentage (%)***
Farming	42	60
Trading	10	14.3
Others	7	10
No Response	11	15.7

Table 10. 2 Other economic activities of fishermen

It is interesting to note that quite a number of the fishers would not tell what other jobs they were into.

The interview also revealed that most of the fishermen's wives are involved in some income earning activity. Majority (66%) of the wives of the fishermen are fish mongers as shown in Table 10.3.

Profession	***Frequency***	***Percentage (%)***
Fish Monger	46	66
Trader	10	14
Farmer	6	9
No Response	4	6
Unemployed	4	6

Table 10. 3 Fishermen's Wives Major Professions

Only a few (6%) were not employed. Here again some would not tell whether they were employed, or what they were into. Reasons were not given for their non-response, though.

Marital Status

In response to their marital status, about 96% of the fishermen said they are married, 2% were single. Widowers constituted about 1% of the respondents, as shown in Table 10.4.

Marital Status of Fishermen	*Frequency*	*Percentage*
Married	67	95.7
Single	2	2.8
Widowed	1	0.7

Table 10.4 Marital status of fishermen

Out of the married, most (70%) percent of them have one wife, about one in five have two wives and less than 10% married to three or more women.

The average family size is seven.

Number Of Wives	*Frequency*	*Percentage (%)*
1	49	70.0
2	13	19.0
3	4	6.0
4	1	1.0
NO RESPONSE	3	4.0

Table 10. 5 No. of wives of fishermen

Educational Background

The educational background of fishers was ascertained during the interview. Table 10.6 shows that 40% of the respondents had attained primary level of education. Less than one in 20 fishermen had attained the Junior High School certificate, 2% of the respondents having Senior High School certificate. 2% of the respondents had tertiary education

Educational Level	*Frequency*	*Percentage (%)*
None	36	52

Primary	28	40
JHS/Middle Sch.	3	4
SHS./Diploma	1	2
Tertiary	1	2

Table 10.6 Educational level of fishermen

It is disheartening to note that majority of the fishermen (52%) had no education; and a large number (40%) also do not have complete basic education, i.e. JHS or Middle School. The high number of primary school leavers, but very few JHS graduates also suggests a high school dropout rate among the respondents.

RELIGION

Table 10.6 points out that majority of the respondents are Christians, 16% are traditional believers, 2% of the respondents are Muslims and the remaining 6% of the respondents are believers of other religions such as Buddhism, Hare Krishna and so on.

Religion of Fishermen	***Frequency***	***Percentage***
Christian	53	76.0
Islam	1	2.0
Traditional	11	16.0
Others	4	6.0

Table 10.7 Religion of Fishermen

FISH MONGERS

Forty fish mongers were interviewed on issues such as how long they had been in their business, the type of processing and/or preservation they are engaged in, other post-harvest issues and what avenues they perceive as sources for enhancing their business.

Marital Status

Four-fifths of the women interviewed were married, as depicted in table 10.7

Marital status	*Frequency*	*Percentage*
Married	32	80
Not married	8	20

Table 10.7 Marital status of respondents (Fishmongers)

When asked who offered child support to their children, majority (52%) of the fishmongers said that they were solely responsible for their children's upkeep as shown in Table 10.8. This is interesting and yet discouraging, granted that an overwhelming majority of these women are married. However no further probing was done to find out the reason for this trend.

Provider of child support	*Frequency*	*Percentage(%)*
Self	21	52
Husband	17	42
Extended Family	2	6

Table 10.8 Provider of fishmongers' children support

Length of time as a fishmonger

Although the ages of the respondents were not ascertained, fish mongers with over 40 years in the business can be fairly said to be in the older age group and from Table 10.9 it can be seen that that fishmongers in this group were more, concluding that more of the older generation are in the business.

Length of time as a fish monger/years	*Frequency*	*Percentage(%)*
40 +	12	30
21-30	11	28
11-20	7	18
1-10	5	12
31-40	5	12

10.9 Length of time as a fishmonger

This assertion notwithstanding, it is evident that fish mongers who have been in the business from 31 to 40 years are the least. Reasons were not found out, and it is believed that an extensive survey with a representative sample size might give a clearer trend. Five respondents each have been in business for up to 10 years and from 31 to 40 years.

Fish processing/preservation

The main method of processing fish in Ghana is smoking (Kegan, 2001). Most of the respondents confirmed this, as 76% of them said they smoke their fish before they sell. 4% salt their fish, 4% fry their fish and 16% of the respondents either dry or salt their fish before they sell, presented in Table 10.10.

Fish processing method	***Frequency***	***percentage***
Smoked	30	76.0
Salted	2	4.0
Fried	2	4.0
Salted & dried	6	16.0

Table 10.10 Fish processing methods among fish mongers

Post-harvest loss

Majority of the respondents (70%) acknowledged that they experience fish spoilage at times. Such situations are a source of income loss to them. Table 10.11 shows that more than half (58%) of them attributed the fish spoilage they experience to the presence of moulds.

Perceived causes of post-harvest losses	***Frequency***	***Percentage***
Moulds	23	58.0
Insect Infestation	12	30.0

Others	5	12.0

Table 10.11 Fishmongers' perceived causes of post-harvest losses

Thirty percent (30%) blamed insect infestation while others said the absence of, and improper storage facilities results in poor humidity/ventilation, which in turn caused their fish to spoil.

Finance

Financing fishing ventures comes from their own initial savings and contributions from family members. Women agents serve as a major source of interest free loans for the fishermen to ensure that when fish are landed, they would be the first to receive their supply.

Table 10.12 shows how much fishmongers spend in their various processing methods.

Oil (for frying)	70.00 – 90.00
Salt (salting)	10.00 – 30.00
Charcoal (smoking)	100.00 and above
Chorkor smoker	100.00 and above
Firewood	100.00 and above

Table 10.12 Costs associated with various fish processing methods

Income derived from fishing is shared among the household and the crew at the end of each fishing trip or season, after some amount has been set aside for daily operational costs. Other expenses such as the repayment of loans for purchasing canoes, out-board motor and gears to their respective owners are also set aside.

Operational costs fishermen incur are as shown in Table 10.13

Input	**Price range (GH¢)**
Premix	
Food	100.00 – 200.00
Communication	5.00
Trip maintenance i.e. carting fish, minor net mending, carburetor servicing, etc.	200.00 – 300.00

Table 10.13 Operational costs incurred by fishermen

Costs of purchasing canoes and gear are presented in Table 4

Fishmongers were asked where they obtain funds for their business. From Table 10.14 summarises their sources of funding. 2% of the respondents fund their business from associations, 46% of the respondents admitted that they borrow money from the bank, 16% of the respondents get some help from government and 34% finance their business from their own money.

Source of funds	Frequency	Percentage (%)
Associations Funds	2	4.0
Microfinance loan	18	46.0
Government assistance	6	16.0
Self	14	34.0

Table 10.14 Sources of funding of fishmongers' business

Fishers' Suggestions on Ways of Enhancing their Work

On suggestions for the improvement and enhancement of the fisheries sector, the fisher folks, both fishermen and fishmongers, made very important inputs.

Fishmongers

A large majority of the fishmongers (76%) wanted loans from government to improve their business. About a tenth of them wanted financial assistance in the provision of Chorkor smokers.

Improvement of the fisheries sector	***Frequency***	***Percentage***
Loans from gov't	30	76
Assistance in the provision of Chorkor smokers	5	12
Infrastructure	2	4
Transportation	3	8

Table 10.15 Fishmongers' suggestions on improvement of the fisheries sector

Fishermen

42% of the fishermen were of the view that loans from Government will go a long way to enhance their work. 24% suggested the regular supply of premix fuel since unavailability of the fuel delays their fishing (Table 10.16).

Fishers' suggestions on ways to improve the fisheries sector	***Frequency***	***Percentage***
Loans from government	29	42.0
Regular supply of inputs especially premix fuel	17	24.0
Free education of children	4	5.0
Infrastructural development e.g. cold stores	3	4.0
Education on fisheries laws	1	2.0
Others	16	23.0

Table 10.16 Suggestions on way to improve the fisheries sector

In the 'Others' category, suggestions made included free education of their children and transportation (motorized tricycles from government).

7.0 CONCLUSION AND RECOMMENDATIONS

Overall, the results of the survey indicate that the number of canoes increased by 13.1% from the previous survey of 2004. Over 73.17% of canoes were motorized about 16.1% up from the 2004 survey. Number of fishermen in the sector has increase by 14936 people from 124219 in 2004 to 139155 in 2013. Increase in the number of gears was in mainly the Drift Gill Nets (87.7%) and not other Set Nets which had the highest increase in numbers in 2004 but has decreased by 143 in the current survey. From the last survey, a total of five fishing villages

and twenty landing beaches have been lost with the majority from the Volta region followed by Greater Accra region.

Given the changes observed in the numbers of canoes, fishermen, gears, new landing sites etc. and also of the socio-economic status of the fisher folks over period during the survey, it is necessary to monitor the effect these changes have on the status of the artisanal marine sector by updating the canoe frame surveys periodically.

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Appendices

Tables 1-26

Figures 1-7

Questionaires

Table 2.1a -1z Results of Frame Survey showing number of fishing units by gear for all districts

TABLES 1.1a FISHING UNIT BY GEAR - KETU SOUTH DISTRICT (VOLTA REGION												
FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	LOBSTER NETS	OTHER SET NETS	ATSI NETS	DRIFT GILL NET	DUG-OUT CANOE	ONE MAN CANOES	TOTAL MOTORS	FISHERMEN
AFLAO	ABELIAKOPE		2	18		20				40	2	329
AFLAO	SAPENUKOPE		1							1	1	30
AFLAO	AKLIGOKOPE	1	5							6		170
DENU	DENU	11	2			3				16	16	332
HEDRANAWO	HEDRANAWO	10	7							17	17	456
ADAFIENU	DZEGAKOPE	2	4							6	4	115
ADAFIENU	ABGADZIKOPE	4	2			1				7	6	103
ADAFIENU	DAVORKOPE		2							2	2	41
AGORKO	TETEKOPE		1			2				3		16
AGORKO	DAVIDKOPE	1	4							5	3	142
AGORKO	AGORKO		13			2				15	11	389
ADINA	ADINA	41	16			26				83	53	1328
AMUTINU	AMUTINU	3	17			1	1			22	15	467
SALAKOPE	SALAKOPE	5	3			3				11	7	212
AGAVEDZI	AGAVEDZI	21	16							37	29	967
BLEKUSU	BLEKUSU		28			4				32	12	664
HORVIE	HORVIE		8							8	8	380
	TOTAL	**99**	**131**	**18**	**0**	**62**	**1**	**0**	**0**	**311**	**186**	**6141**

TABLES 1.1b FISHING UNIT BY GEAR - KETA DISTRICT (VOLTA REGION)

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	LOBSTER NETS	OTHER SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
KEDZI	AGORTA		11	2			16			29		440
KEDZI	HORVI		8							8	8	380
VODZA	VODZA	13	12						4	29	10	500
ADZIDO	ADZIDO	8	14	5		5			1	33	8	200
KEDZIKOPE	KEDZIKOPE	1	5	3						9	5	118
ABUTIAKOPE	ABUTIAKOPE	2	21	1		70		12		106	32	860
DZELUKPE	DZELUKOPE		17			21			1	39	3	450
VUI	NUKPESEKOPE		8			9				17	2	157
VUI	TETEVIKOPE		26			24				50	14	644
TEGBI	HEKPA		12			1				13	5	433
TEGBI	ADZIAKPOR		4							4	2	170
TEGBI	DEKPORKOPE		10			4				14	5	410
TEGBI	AMERIKOPE		4							4	2	115
TEGBI	KLAMATSI		6			1				7	5	275
TEGBI	HELOGLOKOPE		3			6				9	1	95
TEGBI	WOYANA		5			3				8	4	230
TEGBI	ASHIATA		4			1				5	3	195
WOE	LIGHTHOUSE		7							7	6	320
WOE	DEKPEKOPE		5							5	2	140
WOE	AKLUBORORDZI		6							6	5	205
WOE	AKROBODZI					10				10	3	69
ANLOGA	ATIEFE		16							16	8	880
ANLOGA	CAPECOAST		11							11	2	440
ATORKOR	WHUTI		13							13	4	550
SROGBE	SROGBE		7			1				8	2	330
ATORKOR	ATORKOR		8			6				14	5	432
ATORKOR	DAKORDZI		2							2		100
AKPLORTORKOR	AKPLORTORKOR		3							3		150
DZITA	DZITA		16					1		17	3	776
DZITA	AGBEDOME		16	1						17	4	855
ATITETI	ATITETI		8			13				21	13	571
ATITETI	FUVEME		4			37	1			42	42	519
	TOTAL	**24**	**292**	**12**	**0**	**212**	**17**	**13**	**6**	**576**	**208**	**12009**

Table 1.1c FISHING UNIT BY GEAR - DANGME EAST(GREATER ACCRA REGION

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	LOBSTER NETS	OTHER SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
AZIZANYA	MATAHEKO	24	1			1				26	23	636
AZIZANYA	ADJIVONPANYA	12	2					1		15	10	371
KEWUNOR	KEWUNOR	5	8							13	6	405
LOLONYAKOPE	LOLONYAKOPE	2	3			1				6	2	183
OTROKPE	KPONKPO	13					2			15	15	474
OTROKPE	MANKPETI	10	3			1		1		15	14	175
OTROKPE	DOEMEKOPE	5	3					2		10	10	349
TOTIMEKOPE	TOTIMEKOPE	1								1	1	25
OCANSEYKOPE	OCANSEYKOPE	1	4			1				6	3	139
ANYAKPOR	ANYAKPOR	5	5			16	15			41	38	549
SONGNTSOKPA	SONGNTSOKPA	11					2			13	13	271
PATUKOPE	PATUKOPE	7	2							9	7	240
ELAVANYO	ELAVANYO	1	11							12	8	688
PUTE	PUTE	35	8							43	43	1170
TOTOPE	TOTOPE	14								14	8	269
	TOTAL	**146**	**50**	**0**	**0**	**20**	**19**	**4**	**0**	**239**	**201**	**5944**

Table 1.1d FISHING UNIT BY GEAR - ADA WEST DISTRICT – GREATERA(ACCRA REGION)

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	LOBSTER NETS	OTHER SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
KABLEVU	KABLEVU	1	5							6	6	265
KABLEVU	KPOTITSEKOPE		4							4	4	200
LOLONYA	LOLONYA	19	5			1		1		26	26	748
GOI	GOI	10	4		6	12				32	32	516
ANYAMAM	ANYAMAM	66	42			1		1		110	110	3678
AKPLABANYA	AKPLABANYA	161	4							165	165	4199
WEKUMAGBE	WEKUMAGBE	15	5	1	3					24	24	598
	TOTAL	**272**	**69**	**1**	**9**	**14**	**0**	**2**	**0**	**367**	**367**	**10204**

Table 1.5 DANGMBE WEST DISTRICT - GREATER-ACCRA REGION

FISHING VILLAGE	LANDING BEACH	PURSE SEINE	BEACH SEINE	LINE	LOBSTER NETS	OTHER SET NETS	DRIFT NETS	CANOES	MAN CANOES	TOTAL MOTORS	FISHERMEN
LEKPONGZONGO/ANASI	ZONGO/ANASI	16					5		21	15	318
LEKPONG	NUMETSOKOPE	09	4	3		4			30	3	567
LEWEM	LEWEM	7	3	3	4		1	1	19	12	328
KPONGUNOR	KPONYA	1	4	6					11	5	168
AYETEPA	AYETEPAH		1	1		6			8	1	67
MANGOTSO	MANGOTSO	4				5	6		15	12	141
AHWIAM	AHWIAM	7		70		48			125	113	881
OLD NINGO	OLD NINGO	04		2	3	1			20		538
NEW NINGO	NEW NINGO	1		37		3			41	38	434
ABIA	ABIA			9					9	9	135
U/PRAMPRAM	PRAMUDORM	1		24					25	23	325
L/PRAMPRAM	PRAMTHOUSE	46		1		4	2		55	55	787
	TOTAL	**118**	**12**	**156**	**7**	**71**	**1**	**14**	**0**	**379**	**286**	**4689**

Table 1.6 KPONE-KATAMANSO DISTRICT - GREATER-ACCRA REGION

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	LOBSTER NETS	OTHER SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
KPONE	LAA LOI NAA	8		19			7	6		40	37	487
KPONE	ODUNYAONMA			56		14	6	10		86	51	658
KPONE	SEGA	3		114		8	4	10		139	76	1151
	TOTAL	**11**	**0**	**189**	**0**	**22**	**17**	**26**	**0**	**265**	**164**	**2296**

Table 1.7 TEMA MUNICIPAL ASSEMLY - GREATER-ACCRA REGION

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	LOBSTER NETS	OTHER SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
TEMA	ASHAMANG			53		49	18	66		186	137	870
TEMA	AWUDUN	308			4					312	308	6789
SAKUMONO	SAKUMONO		5	15		3				23	2	254
	TOTAL	308	5	68	4	52	18	66	0	521	447	7913

TABLE 1.8 LEDZOKUKU - KROWOR MUNICIPAL ASSEMBLY DISTRICT - GREATER-ACCRA REGION

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	LOBSTER NETS	OTHER SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
NUNGUA	TSIENAA	21		1		22	18			62	42	579
TESHIE	SANGONAA	54	3	7		9	83			156	149	1264
	TOTAL	75	3	8	0	31	101	0	0	218	191	1843

TABLE 1.9 LA-DADEKOTOPON MUNICIPAL DISTRICT -GREATER-ACCRA REGION

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	LOBSTER NETS	OTHER SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
LA	PLEASURE BEACH		4							4		26
LA	ABESE	2	1	2		16				21	12	86
	TOTAL	**2**	**5**	**2**	**0**	**16**	**0**	**0**	**0**	**25**	**12**	**112**

TABLE 1.10 ACCRA METROPOLITAN ASSEMBLY DISTRICT -GREATER-ACCRA REGION

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	LOBSTER NETS	OTHER SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
OSU	ALATA	2		97						99	78	735
ACCRA	GA MASHIE	122		32	7	40	45			246	237	1375
ACCRA	KORLEY NAA		5							5		28
ACCRA	MENSAH GUINEA		5							5		27
CHORKOR	WOLEI AMLI	105	7				14			126	119	1065
CHORKOR	MANTSURU	72					5			77	77	634
CHORKOR	LANTEMAN	49					4			53	53	448
CHORKOR	CHEMU NAA	34					12			46	46	336
GBEGBEYISEE	GBEGBEYISEE	40	11			19	3			73	61	470
	TOTAL	**424**	**28**	**129**	**7**	**59**	**83**	**0**	**0**	**730**	**671**	**5118**

TABLE 1.11 GA SOUTH DISTRICT - GREATER-ACCRA REGION												
FISHING VILLAGE	**LANDING BEACH**	**PURSING NETS**	**BEACH SEINE**	**LINE**	**LOBSTER NETS**	**OTHER SET NETS**	**ALI NET**	**DRIFTING NET**	**ONE MAN CANOE**	**CANOES**	**TOTAL MOTORS**	**FISHERMEN**
BORTIANOR	TSOKOME	5	3							8	3	163
BORTIANOR	BORTIANOR	28		47	2	2	4			83	65	571
OSHIE	OSHIE	7	1		11	16				35	15	218
KOKROBITE	KOKROBITE	12	4		2	27	1			46	22	392
LANMA	LANMA	2	7							9	1	178
FAANAA	FAANAA		7							7	4	96
	TOTAL	**54**	**22**	**47**	**15**	**45**	**5**	**0**	**0**	**188**	**110**	**1618**

TABLE 1.12 AWUTU-SENYA DISTRICT - CENTRAL REGION												
FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	LOBSTER NETS	OTHER SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
SENYA BERAKU	MBANYINMPOANO	28	1	59	9	21	2			120	79	1067
SENYA BERAKU	ODUMSANO	20	3							23	18	484
SENYA BERAKU	AHWIASO		5							5	5	180
	TOTAL	**48**	**9**	**59**	**9**	**21**	**2**	**0**	**0**	**148**	**102**	**1731**

TABLE 1.13 GOMOA EAST DISTRICT CENTRAL REGION

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	LOBSTER NETS	OTHER SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
NYANYANO	NYANYANO	106			3	14	7	2		132	129	2165
FETTEH	MBANYINMPOANO		2			27	74			103	87	565
FETTEH	MBAA MPOANO	1		4		3	3			11	5	47
FETTEH	AKYIRESUADZE				5		5			10	4	25
MANKOADZE	ETSEWADA	5		2		23	1			31	11	158
MANKOADZE	EWURABA NTEM	2				12	5			19	12	66
MANKOADZE	KOFIKROM	2	4			29				35	21	262
DAMPAASE	DAMPAASE	1	7							8	1	230
	TOTAL	**117**	**13**	**6**	**8**	**108**	**95**	**2**		**349**	**270**	**3518**

TABLE 1.14 GOMOA WEST DISTRICT – CENTRAL REGION

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	LOBSTER NETS	OTHER SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
ABREKUM	ABREKUM		7			53				60	0	123
APAM	APAM MAIN	38		3		66	10	10		127	125	796
APAM	ALATA	23		40		34	5	15		117	109	914
APAM	ABURA			10		4	1	3		18	14	63
APAM	AKWABIREM	2		5		4		2		13	11	73
MUMFORD	AYESEWANO		15							15	3	300
MUMFORD	AKYENFOMPOANO			70		9				79	0	316
MUMFORD	MUMFORD MAIN			24						24	0	96
DAGO	AKOBERIAM	2		12		13	23			50	39	438
DAGO	DAGO MAIN	1		1		38	14			54	43	355
	TOTAL	66	22	165		221	53	30		557	344	3474

TABLE 1.15 EFFUTU MUNICIPAL – CENTRAL REGION												
FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	LOBSTER NETS	OTHER SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
WINNEBA	AYIPEY	56		35		25	27			143	108	1539
WINNEBA	ABOADZE	24		5			19			48	43	498
WINNEBA	PENKYI	12				16	33			61	61	494
WINNEBA	AKOSUA VILLAGE		10							10	5	212
WINNEBA	WARABEBA		5							5	5	198
	TOTAL	**92**	**15**	**40**	**0**	**41**	**79**	**0**	**0**	267	**222**	**2941**

TABLE 1.16 EKUMFI DISTRICT – CENTRAL REGION												
FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	LOBSTER NETS	OTHER SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
OTUAM	SASANO/NTSE									0		
OTUAM	ASESEM	11				22	13			46	42	378
OTUAM	OBOM/ETUEI		16			52	7			75	69	600
KOTANKORE	KOTANKORE		10							10	1	134
SRAFA	SRAFA MPOANO		2							2	0	50
SRAFA	**ABO ANO**		**2**							**2**	**2**	**80**
	TOTAL	**11**	**30**	**0**	**0**	**74**	**20**	**0**	**0**	**135**	**114**	**1242**

TABLE 1.17 MFANTSEMAN DISTRICT – CENTRAL REGION												
FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	LOBSTER NETS	OTHER SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
IMMUNA	AMANSAFO		4							4	4	90
AKRA	AKRA MPOANO		5			10				15	4	233
EKUMPOANO	EKUMPOANO		5			7				12	11	201
NARKWA	NARKWA MPOANO	32	2			3				37	37	838
ASAAFA	EKUMFI ASAAFA		9		3	33				45	5	701
HINYI	HINIYI	11								11	11	330
KUNTU	PEBI	7								7	7	110
ANKAFUL	ANKAFUL	70				4				74	74	1840
NANKESEDO	NANKESEDO	15	4			1				20	20	284
SALTPOND	SALTPOND		7							7	7	81
KROMANTSE 1	KROMANTSE 1	45				6				51	47	1110
KROMANTSE 2	KROMANTSE 2	8	2			1				11	10	178
ABANDZE	ABANDZE	23		2		69				94	94	736
EGYA	EGYA NO. 1 BEACH				29	6	2			37	31	131
EGYA	EGYA NO. 2 BEACH				20	1				21	21	63
EGYA	EGYA NO. 3 BEACH				4	6				10	2	25
ANOMABO	KROM MPOANO	3				20	3			26	20	17
ANOMABO	ATSIWA	4		3	4	64	13			88	76	387
ANOMABO	AFARI KUMAWU	8		6		74	19			107	103	482
ANOMABO	AHWEANO	25				14	12			51	51	691
ANOMABO	BAKA ANO	14	10			5	1			30	30	409
BIRIWA	ABAKA EKYIR	30				79				109	80	980
BIRIWA	SIMA BREMU	4			2	26				32	14	233
BIRIWA	OBER ENYIM	17			18	55				90	55	773
	TOTAL	**316**	**48**	**11**	**80**	**484**	**50**	**0**	**0**	**989**	**814**	**10923**

TABLE 1.18 ABURA-ASEBU-KWAMANKESE DISTRICT – CENTRAL REGION

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	LOBSTER NETS	OTHER SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
MOREE	ASEKYEREBEDZI		10							10	0	61
MOREE	APESA MPOANO						23			23	23	300
MOREE	ENFA ANO					50	77			127	127	1578
MOREE	BENTSIN	6				13	11			30	25	325
MOREE	NKUM ABROFO	9				46	14			69	64	505
MOREE	COTONOU					9	7			16	16	212
MOREE	ETUEI					25	57			82	82	1062
MOREE	ABOKUM ANO					15	8			23	23	254
	TOTAL	**15**	**10**	**0**	**0**	**158**	**197**	**0**	**0**	**380**	**360**	**4297**

TABLE 1.19 CAPE COAST DISTRICT – CENTRAL REGION

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	LOBSTER NETS	OTHER SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
EKON	MPOANOKESEM/BOEMIS					39				39	34	156
EKON	ANAFO/AKUBUREM					10				10	7	40
EKON	AHWIADO	12	19			12				43	41	811
CAPE COAST	BROFOYEDUR	2								2	2	12
CAPE COAST	AMANFUL		2							2	2	60
CAPE COAST	ASEKAM	5				13				18	18	72
CAPE COAST	ABROFO MPOANO	2		12		58				72	72	280
CAPE COAST	VICTORIA PARK		6							6	6	180
CAPE COAST	BAKA ANO		2							2	2	60
CAPE COAST	OLA		5							5	5	150
CAPE COAST	DUAKOR		8							8	6	240
CAPE COAST	AHEBOBOE		4							4	0	48
CAPE COAST	ABAKAM		11			1				12	0	224
	TOTAL	**21**	**57**	**12**	**0**	**133**	**0**	**0**	**0**	**223**	**195**	**2333**

TABLE 1.20 KOMENDA EDINA EGUAFO ABREW DIASTRICT – CENTRAL REGION

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	LOBSTER NETS	OTHER SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
ELMINA	ESSUAKYIR	70		16		31				117	117	1834
ELMINA	ASAMANPOWMU	18		3	23	40				84	64	693
ELMINA	ELMINA MAIN	112		30		68				210	210	3363
BANTAMA	DETSEDO	19		4		7				30	25	393
AKYINIM	AKYINIM		14							14	0	392
ANKWANDA	ANKWANDA MPON				10	14	3		10	37	8	150
BREMU AKYINMU	DOGOFOMU					6				6	2	30
BREMU AKYINMU	MOWUREFOM					1	1		1	3	1	17
BREMU AKYINMU	BROFO MPOANO			3		12	3			18	3	90
AMPENYIN	ANAFO	1				20	1			22	8	134
AMPENYIN	ABAKAM					18				18	4	73
AMPENYIN	BENTSIR					10			1	11	3	41
AMPENYIN	BEREKESEMU	1				13	13		5	32	14	207
DUT. KOMENDA	AWONA BEACH		3							3	0	72
DUT. KOMENDA	KANKAM ANHWEADO	2			13	26			4	45	12	225
DUT. KOMENDA	EWUGYAN					3				3	0	12
BRI. KOMENDA	BAKA ANO	57			16	26	2			101	91	1688
BRI. KOMENDA	SESAM	9								9	9	234
ABROBEANO	ABROBEANO				9	13	2			24	2	103
KAFODZIDZI	KAFODZIDZI				22	30			2	54	13	218
KAFODZIDZI	ABAN ENYIM	3					6			9	9	135
	TOTAL	**289**	**17**	**56**	**93**	**338**	**31**	**0**	**23**	**7**	**595**	**10104**

TABLE 1.21 SHAMA DISTRICT WESTERN REGION

	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	LOBSTER NETS	OTHER SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
SHAMA	AWUNAKROM		33							33	0	1188
SHAMA	APO	2		6	68		39	107		222	207	1287
SHAMA	BENTSIR				29		36	187		252	252	1720
SHAMA	AMENA-ANO	5			12		5	6		28	28	203
ABUESI	ABUESI	47					13			60	60	950
ABUESI	SAMAN-ADZE	15					10			25	25	350
ABUESI	COMPOUND	32			3		10			45	45	665
ABOADZE	BRONYI-BOMA	72			184		119			375	367	3232
ABOADZE	EKROABEM	16			140		84			240	213	1380
ABUESI	KESEWOKAN	27			7		44			78	78	903
	TOTAL	**216**	**33**	**6**	**443**		**360**	**300**		**1358**	**1275**	**11878**

TABLE 1.22 SEKONDI TAKORADI METROPOLITAN ASSEMBLY - WESTERN REGION												
FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	LOBSTER NETS	OTHER SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
NGYIRESIA	NGYIRESIA	21			91	45	161	4		130	118	752
SEKONDI	SEKONDI	80		69		6	155			155	155	1737
ESSAMAN	EGYINAMBOA BAKAM		3				3			3	0	20
NKONTOMPO	NKONTOMPO				28	3	35		4	35	19	84
POASE	POASE			1	24		25			25	11	62
NEW TAKORADI	NEW TAKORADI				49		49			49	33	131
	TOTAL	**101**	**3**	**70**	**192**	**54**	**428**	**4**	**4**	**397**	**336**	**2786**

TABLE 1.23 AHANTA WEST												
FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	LOBSTER NETS	OTHER SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
NEW AMANFUL	AMANFU-KUMAN		1		15	25	15			62	62	388
FUNKO	BENTIN BEACH	2				150	25			177	177	782
ADJOA	UPPER BEACH			2	20		20	3	1	46	44	268
ADJOA	LOWER BEACH		4							4	0	45
ENYIMA EHU	ENYIMA EHU				2	14	1			17	3	74
PUNPUNI	PUNPUNI BEACH				5	35				40	6	125
AMPATANO	AMPATANO		1		100	100	4		4	209	23	830
ASEMKOW	ASEMKOW	1	1		30	30	5			67	26	317
BUTRE	AWUNA BEACH		4							4	0	144
BUTRE	BUTRE ETROM	9	1		32	32	42	2	2	120	75	749
BUSUA	BUSUA BEACH		2		20	20	6	14	1	63	63	509
UPPER DIXCOVE	UPPER DIXCOVE			2	10			100		112	106	838
LOWER DIXCOVE	LOWER DIXCOVE	4		2	6		4	320	2	338	336	2662
DIXCOVE	TUROM			4	3			35	4	46	42	514
ACHOWA	ACHOWA		1		10		1		15	27	2	80
AKWADAE	AKWADAE	21	2		15	25	22		100	185	83	873
KETAKOR	KETAKOR				10	2			15	27	5	63
CAPE-3-POINTS	ATENKYEN	2		18	8	8		1	50	87	30	164
AKITAKYI	AKITAYI MPOANO	25	6		8	15	15		20	89	63	947
PRINCESS TOWN	PRINCESS TOWN		4		8	3	1		12	28	5	101
MIEMIA	MIEMIA	23			25				10	58	38	524
AGYAMBRA	ELAZULEYNU								20	20	0	20
	TOTAL	**87**	**27**	**28**	**327**	**459**	**161**	**475**	**256**	**1826**	**1189**	**11017**

TABLE 1.24 NZEMA EAST DISTRICT – WESTERN REGION												
FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	LOBSTER NETS	OTHER SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
EGHAN	EGHAN			8					50	58	8	58
DOMULI	ADJEI-SUAZO								10	10	0	10
DOMULI	AKONU								10	10	0	10
DOMULI	DOMULI/TAHELAH		1							1	0	43
LOWER AXIM	NKAKEMU	34				25	1	2		62	62	844
LOWER AXIM	SIKA SANTEWASE	5				7				12	12	138
LOWER AXIM	SIKA ABWIADO	21				7				28	28	488
LOWER AXIM	ANTOAPEWUSIKA	6					2	1	28	37	9	259
LOWER AXIM	FANTI-LINE	9		1		1	26	25		62	62	559
LOWER AXIM	BOAT-ASE	10					2	12	16	40	24	334
LOWER AXIM	SUKPOM								43	43	0	43
UPPER AXIM	SOLO	2		4					23	29	6	71
UPPER AXIM	AMANFOKUMANU	2				29				31	31	160
UPPER AXIM	BRAWERE					20				20	20	400
UPPER AXIM	ANTO BREWERE			38						38	38	560
UPPER AXIM	AKYINIM			8						8	8	160
UPPER AXIM	AWUNA-KROM		5							5	0	125
	TOTAL	**89**	**6**	**59**	**0**	**89**	**31**	**40**	**180**	**494**	**308**	**4262**

TABLE 1.25 ELLEMBELE DISTRICT – WESTERN REGION

FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	LOBSTER NETS	OTHER SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
ANKOBRA	ANKOBRA		7							7	0	280
ASANTA	ASANTA		9							9	3	300
KIKAM	KIKAM	6	2				4			12	11	160
ESSIAMA	ESSIAMA		11		6					17	6	730
AZULELUNUANU	AZULELUNUANU		4		20				12	36	20	352
AMPAIN	AMPAIN		3							3	0	136
BAKANTA	BAKANTA		5							5	0	240
SANZULE	SANZULE		4							4	0	160
KRISTIAN	KRISTIAN		5							5	3	200
EIKWE	EIKWE		3							3	0	120
NGALEKPOLE	NGALEKPOLE		2							2	0	138
NGALEKYI	NGALEKYI		5							5	0	200
BAKU	BAKU		9		7					16	7	672
ANOKYI	ANOKYI		3							3	0	120
ATUABO	ATUABO		4				4			8	4	360
	TOTAL	**6**	**76**	**0**	**33**	**0**	**8**	**0**	**12**	**135**	**54**	**4168**

TABLE 1.26 JOMORO DISTRICT – WESTERN REGION												
FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	LOBSTER NETS	OTHER SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
AKABAKU	AKABAKU		2							2	0	60
BENYIN	BENYIN		3		4					7	4	140
ELLOYIN	ELLOYIN	1	6							7	1	200
KANGEN	KANGEN	3	9							12	3	183
TWENE	TWENE		2							2	0	152
AGYEZA	AGYEZA	2	3			5	3			13	7	260
EZINLEBO	EZINLEBO		3			6				9	0	120
BONYERE	BONYERE		7			2				9	0	73
EGBAZO	EGBAZO		4							4	0	120
NEW AHOBRE	AHOBRE KAKRABA	20	1				2			23	23	551
OLD AHOBRE	AHOBRE KESE	1	2		1	5	1			10	8	120
OLD EDOBO	OLD EDOBO		2							2	0	60
NEW EDOBO	NEW EDOBO		2							2	0	60
ANTWEBANSO	ANTWEBANSO		3							3	1	105
EKPU	EKPU	7	1		4	14	8			34	34	397
HALF ASSINI	FANTI-LINE	36	1							37	37	935
HALF ASSINI	EWE-LINE		4							4	4	120
METIKA	METIKA	4	3							7	7	220
ANOMATUAPE-EWE	ANOMATUAPE-EWE		6							6	6	210
ANOMATUAPE-FANTI	ANOMATUAPE-FANTI					5				5	5	35
BUAKWA	BUAKWA		8							8	8	240
MPAASEM	MPAASEM		6			2				8	7	190
NZIMITIAN	NZIMITIAN		3			1				4	4	140
MANGYEA	MANGYEA		3			7	13			23	23	360
EFFASU	EFFASU	4	2			10	9			25	25	368
NEW TOWN	NEW TOWN		5			20	60			85	85	1175
	TOTAL	**78**	**91**	**0**	**9**	**77**	**96**	**0**	**0**	**351**	**292**	**6594**

Table 2. CANOE FRAME SURVEY 2013 REGIONAL / DISTRICT SUMMARIES

DISTRICT	FISHING VILLAGE	LANDING BEACH	PURSING NETS	BEACH SEINE	LINE	LOBSTER NETS	OTHER SET NETS	ALI NET	DRIFTING NET	ONE MAN CANOE	CANOES	TOTAL MOTORS	FISHERMEN
KETU	11	17	99	131	18	0	62	1	0	0	311	186	6141
KETA	15	32	24	292	12	0	212	17	13	6	576	208	12009
SUB-TOTAL V/R	26	49	123	423	30	0	274	18	13	6	887	394	18150
DANGBE EAST	12	15	146	50	0	0	20	19	4	0	239	201	5944
ADA WEST	6	7	272	69	1	9	14	0	2	0	367	367	10204
DANGBE WEST	11	12	118	12	156	7	71	1	14	0	379	286	4689
KPONE-KATAMANSO	1	3	11	0	189	0	22	17	26	0	265	164	2296
TEMA	2	3	308	5	68	4	52	18	66	0	521	447	7913
LEDZOKUKU-KROWOR	2	2	75	3	8	0	31	101	0	0	218	191	1843
LA DADEKOTOPON	1	2	2	5	2	0	16	0	0	0	25	12	112
AMA	4	9	424	28	129	7	59	83	0	0	730	671	5118
GA SOUTH	5	6	54	22	47	15	45	5	0	0	188	110	1618
SUB-TOTAL G/R	44	59	1410	194	600	42	330	244	112	0	2932	2449	39737
AWUTU-SENYA	1	3	48	9	59	9	21	2	0	0	148	102	1731
EFFUTU MUNICIPAL	1	5	92	15	40	0	41	79	0	0	267	222	2941
GOMOA EAST	4	8	117	13	6	8	108	95	2	0	349	270	3518
GOMOA WEST	4	10	66	22	165		221	53	30	0	557	344	3474
EKUMFI	3	6	11	30	0	0	74	20	0	0	135	114	1242
MFANTSEMAN	16	24	316	48	11	80	484	50	0	0	989	814	10923
CAPECOAST	2	13	21	57	12	0	133	0	0	0	223	195	2333
A-A-KWAMANKESE	1	8	15	10	0	0	158	197	0	0	380	360	4297
KEEA	10	21	289	17	56	93	338	31	0	23	847	595	10104
SUB5-TOTAL C/R	42	98	975	221	349	190	1578	527	32	23	3895	3016	40563
SHAMA	4	10	216	33	6	443	0	360	300	0	1358	1275	11878
SEKONDI-TAKORADI	6	6	101	3	70	192	54	428	4	4	856	336	2786
AHANTA WEST	20	22	87	27	28	327	459	161	475	256	1820	1189	11017
NZEMA EAST	4	17	89	6	59	0	89	31	40	180	494	308	4262
ELLEMBELLE	15	15	6	76	0	33	0	8	0	12	135	54	4168
JOMORO	25	26	78	91	0	9	77	96	0	0	351	292	6594
SUB-TOTAL W/R	74	96	577	236	163	1004	679	1084	819	452	5014	3454	40705
GRAND TOTAL	186	302	3085	1074	1142	1236	2861	1873	976	481	12728	9313	139155

Table 3 Regional Summaries

Table 3	REGIONAL SUMMARIES				
NUMBERS OF	**VOLTA**	**G/ACCRA**	**CENTRAL**	**WESTERN**	**NATIONAL**
Fishing Villages	26	44	42	74	186
Landing Beaches	49	59	98	96	302
Canoes	887	2932	3895	5014	12728
Outboard Motors	394	2449	3016	3454	9313
Levels of Motorization (%)	44	84	77	69	73
Fishermen	18150	39737	40563	40705	139155

Table 4 Mean rangeof price/cost of Canoes, Fishing gear and Outboard motors in the Regions

Table 4	**MEAN RANGE OF PRICES/COST OF CANOES, FISHING GEARS AND OUTBOARD MOTORS (GHS)**			
GEARS	**VOLTA**	**GT. ACCRA**	**CENTRAL**	**WESTERN**
Ali	7,000-10,000	7,500 - 15,000	5,000 - 8,000	6,000 - 12,000
Poli/Watsa	15,000 - 30,000	15,000 - 30,000	15,000 - 30,000	15,000 - 30,000
Beach Seine (Big)	25,000 - 80,000	15,000 - 20,000	8,000 - 30,000	7,000 - 30,000
Beach Seine (Small)	10,000-50,000	4,000 - 80,000	6,000 - 20,000	5,000 - 15,000
Set Net	1,000-4,000	1,500 - 3,000	800 - 1,600	1,000 - 3,000
Line	750-1,500	750 - 1,500	750 - 1,500	1000 - 1,500
Drift Gill Net	15,000-30,000	20,000 - 30,000	15,000 - 20,000	15,000 - 18,000
Lobster Net	500-2,000	500 - 1,600	1,000 - 2,500	400 - 1,500
CANOES				
Ali	15,000-20,000	15,000 - 20,000	10,000 - 20,000	8,000 - 10,000
Poli/Watsa	20,000-25,000	20,000 - 25,000	20,000 - 26,000	14,000
One Man Canoe	500-800	1,000 - 1,500	500-800	500-700
MOTORS				
YAMAHA 40hp	7,200-8,000	7,200 - 8,000	8,000 - 8,500	7,200 - 8,500
YAMAHA 30hp	5,000-6,000	5,000 - 6,000	5,000 - 6,000	5,000 - 6,000
YAMAHA 25hp	4,000-5,000	4,000 - 5,000	4,800 - 5,000	4,200 - 4,800
YAMAHA 15hp	4,000-5,000	4,000 - 4,500	3,800 - 4,200	3, 500-4,000
YAMAHA 9hp	3,500-4,000	3,500 - 4,000	3,000 - 4,000	3, 000 - 4,000
YAMAHA 8hp	1,300-3,000	1,300 - 2,500	2,500- 3,000	2,500 - 3,000

Table 5 Summary of Results of Canoe Frame Survey conducted between 1972 - 2013

Table 5 SUMMARY OF RESULTS OF CANOE FRAME SURVEYS CONDUCTED BETWEEN 1969 AND 2013												
Number of	**1969**	**1973**	**1977**	**1981**	**1986**	**1989**	**1992**	**1995**	**1997**	**2001**	**2004**	**2013**
Fishing Villages	198	191	200	174	188	192	189	189	191	185	195	186
Landing Beaches	269	257	238	222	276	264	206	310	308	304	334	302
Outboard Motors				3698	4250	4631	4262	5076	5139	5256	6405	9313
Fishermen			81000	84100	104700	91400	96400	101700	103340	123156	124219	139155
Number of Canoes for												
Poli/Watsa	3215	2244	3005	3359	3969	3684	3458	3923	3709	2439	2597	3085
Beach Seine	1587	1081	761	833	797	852	775	790	769	813	903	1074
Line	734	676	1174	661	1004	157	1040	782	920	1134	933	1142
Lobster Set Net						1114	547	402	430	549	871	1236
Set Net	3347	2973	3532	1734	1852	574	1955	2294	2036	2324	3004	2861
Ali						1874	1292	1437	1394	1618	1855	1873
Poli												
Watsa												
Nifa Nifa							249	333	332	462		
Drifting Nets				351	450	366	880	476	414	312	520	976
One Man Canoe					142	162	580	327	332	330	530	481
Total Canoes	8728	8238	8472	6938	8214	8052	8688	8641	8610	9981	11213	12728
% Motorized				53.3	51.7	57.5	49.1	58.7	61.2	52.6	57.1	73.17

Table 6 Regional Summaries 1997, 2001, 2004, 2013

Table 6 COMPARISON OF THE RESULTS OF THE 1997, 2001, 2004 AND 2013 CANOE FRAME SURVEYS																				
Numbers of	**Volta Region**				**Greater Accra Region**				**Central Region**				**Western Region**				**Total**			
	1997	**2001**	**2004**	**2013**	**1997**	**2001**	**2004**	**2013**	**1997**	**2001**	**2004**	**2013**	**1997**	**2001**	**2004**	**2013**	**1997**	**2001**	**2004**	**2013**
Fishing Villages	27	23	29	26	47	48	48	44	42	42	43	42	75	72	75	74	191	185	195	186
Landing Beaches	50	42	63	49	64	67	68	59	99	101	103	98	95	94	100	96	308	304	334	302
Motors	278	242	323	394	1974	1921	2144	2449	1797	1547	2097	3016	1090	1546	1841	3454	5139	5256	6405	9313
Fishermen	10987	11863	17382	18150	35921	41026	35168	39737	38741	45909	44303	40563	17691	24358	27366	40705	103340	123156	124219	139155
Pursing Nets	75	62	99	123	1029	1164	1185	1410	860	848	931	975	351	365	382	577	2315	2439	2597	3085
Beach Seines	291	294	384	423	168	184	158	194	187	195	198	221	123	140	163	236	769	813	903	1074
Line	0	23	0	30	657	790	586	600	234	235	280	349	29	86	67	163	920	1134	933	1142
Lobster Set Nets	0	0	0	0	80	121	168	42	148	206	296	190	202	222	407	1004	430	549	871	1236
Other Set Nets	51	88	230	274	149	263	218	330	1317	1338	1788	1578	519	635	768	679	2036	2324	3004	2861
Ali	3	48	20	18	469	351	364	244	595	657	710	527	327	562	761	1084	1394	1618	1855	1873
Nifa nifa	4	3			46	13			18	2			264	444			332	462		
Other Drifting Nets	0	0	3	13	16	40	81	112	31	272	63	32	35	0	373	819	82	312	520	976
One Man Canoe	0	0	0	6	16	31	21	0	102	22	184	23	214	277	325	452	332	330	530	481
Total Canoes	424	518	736	887	2630	2957	2781	2932	3492	3775	4450	3895	2064	2731	3264	5014	8610	9981	11231	12728

Table 7 Brand and Size of Outboard Motors

Table 7 BRANDS AND SIZE OF OUTBOARD MOTORS -BY REGION 2013																			
	YAMAHA											JOHNSON	SUZUKI				MARINA		TOHATSUA
	4HP	5HP	6HP	8HP	9HP	10HP	15HP	20HP	25HP	30HP	40HP	25HP	4HP	5HP	8HP	15HP	4HP	8HP	9HP
VOLTA REGION		2		18			91	1	46		151	49		2		34			
GREATER ACCRA	2	3	0	7	146	1	149	3	146	4	1784	111	2	10	1	73	2	0	5
CENTRAL REGION	1	1			331	0	326	9	157	29	1681	277	0	62	42	4	88	0	8
WESTERN REGION	2	1	1		385	0	206	0	120	0	2533	198	0	0	2	0	5	0	1
TOTAL	5	7	1	25	862	1	772	13	469	33	6149	635	2	74	45	111	95	0	14

Table 8 Mean Dimensions/Ranges of Canoes along the Coast in Ghana

Table 8 MEAN DIMENSIONS /RANGES OF CANOES ALONG THE COAST IN GHANA-2013		
CANOES	**LENGTH (M)**	**WIDTH (M)**
Ali/Poli/watsa	12–19.5	1.57 - 2.8
Line	14.9	2.0
Beach Seine (Large)	11.04	1.06
Beach Seine (Small)	8.6	1.25
Set Net	7.05 - 9.1	1.06 - 1.98
One Man Canoe	4.45- 4.8	0.5 - 0.6
DGN	12-19	1.6-2.85

Table 9 Fish Sharing System within the Region

TABLE 9 FISH SHARING SYSTEM WITHIN THE REGIONS									
	VOLTA					**GREATER ACCRA**			
	NET	**CANOE**	**OUTBOARD MOTOR**	**CREW**		**NET**	**CANOE**	**OUTBOARD MOTOR**	**CREW**
Ali	50%			50%		50%			50%
Poli	50%			50%		50%			50%
Watsa	50%			50%		50%			50%
Beach Seine	20%	30%		50%		50%			50%
Set Net (Toga)	50%			50%		50%			50%
Set Net (Lobster)	50%			50%		50%			50%
Drift Gill Net	50%			50%		50%			50%
Line	50%			50%		50%			50%
CENTRAL						**WESTERN**			
	NET	**CANOE**	**OUTBOARD MOTOR**	**CREW**		**NET**	**CANOE**	**OUTBOARD MOTOR**	**CREW**
Ali	50%			50%		50%			50%
Poli	50%			50%		50%			50%
Watsa	50%			50%		50%			50%
Beach Seine	50%			50%		50%			50%
Set Net (Toga)	50%			50%		50%			50%
Set Net (Lobster)	50%			50%		50%			50%
Drift Gill Net	50%			50%		50%			50%

Line	50%	50%	50%	50%

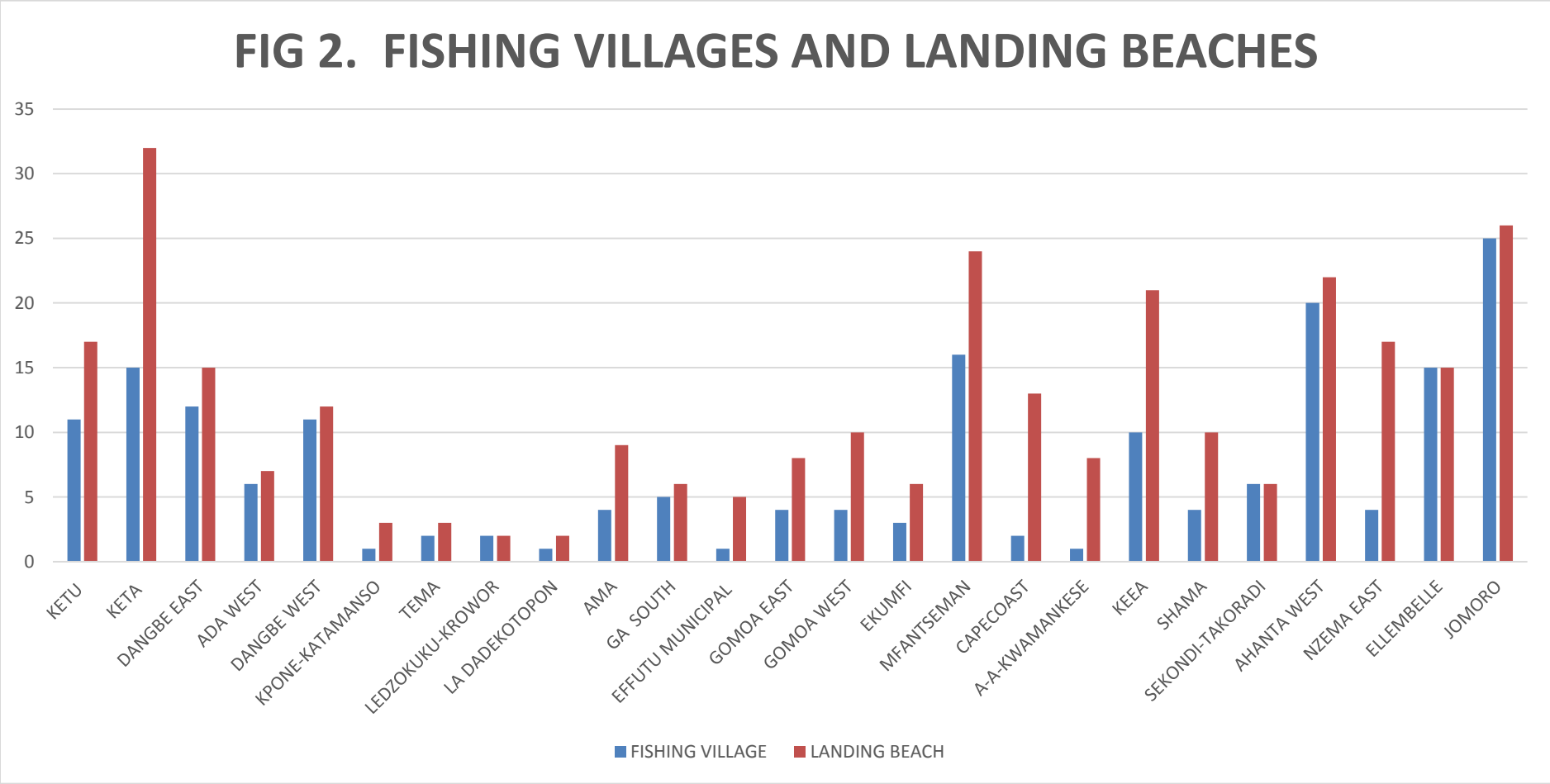


Figure 2 Fishing villages and landing sites

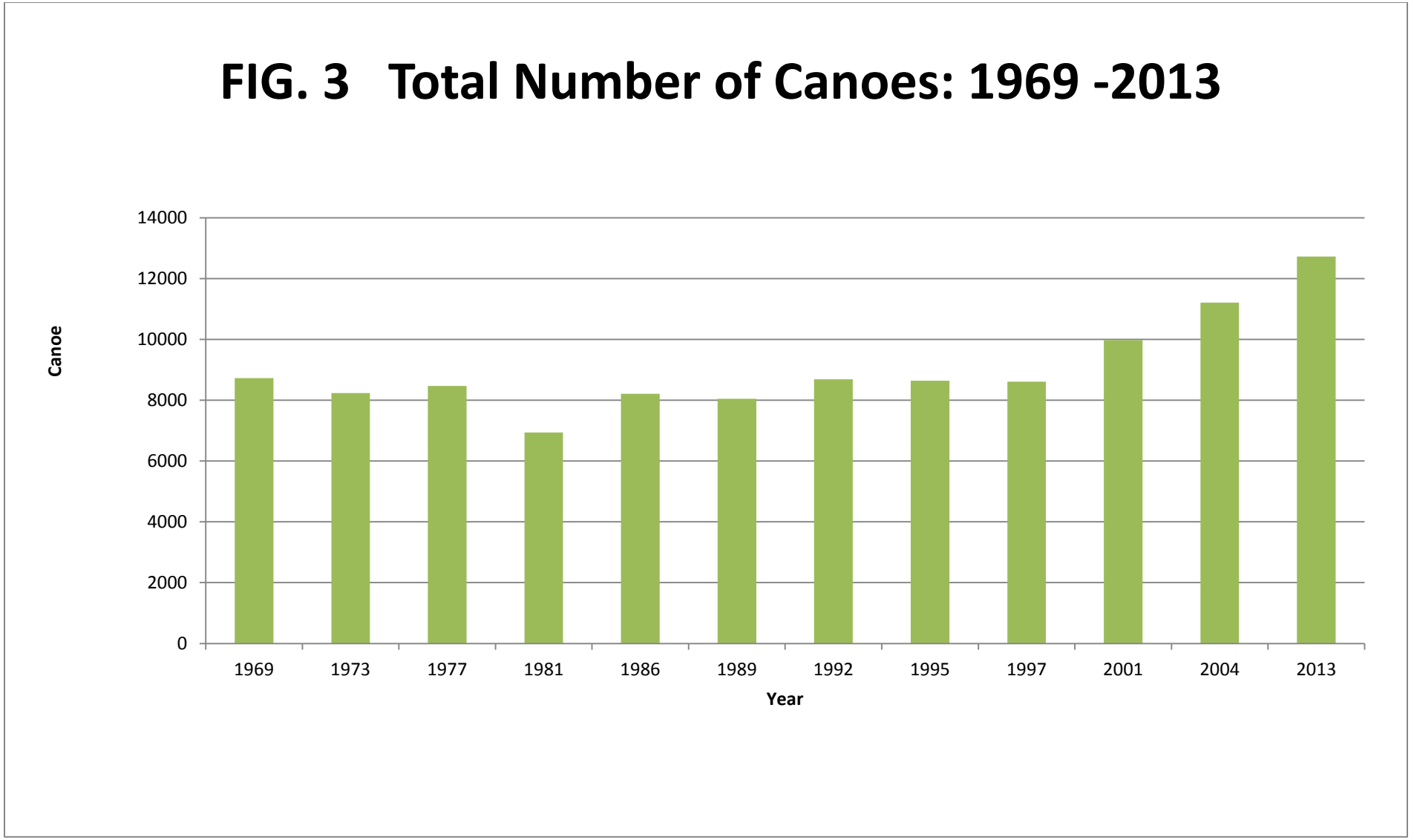


Figure 3 Total number of canoes 1969 - 2013

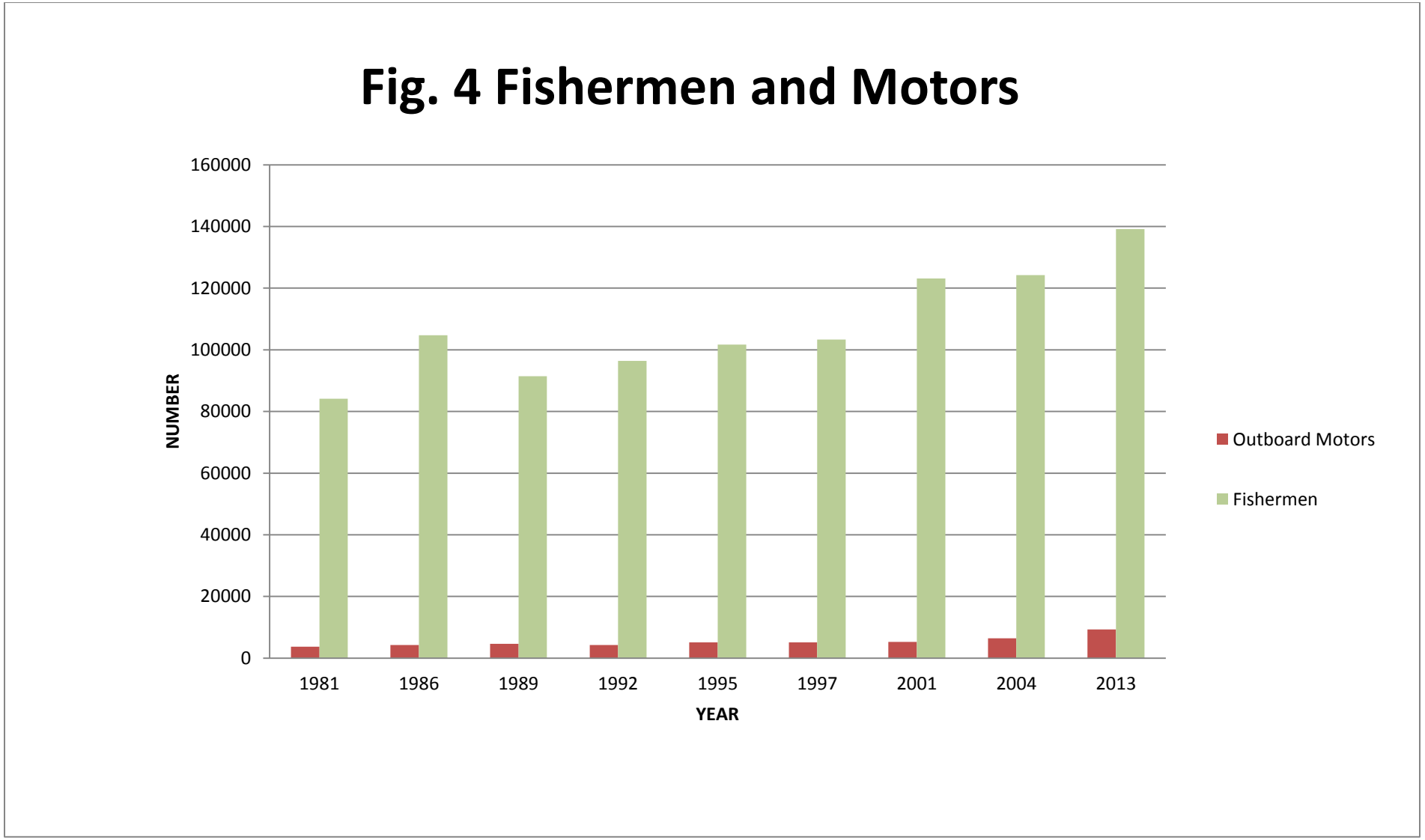


Figure 4 Fishermen and Motors

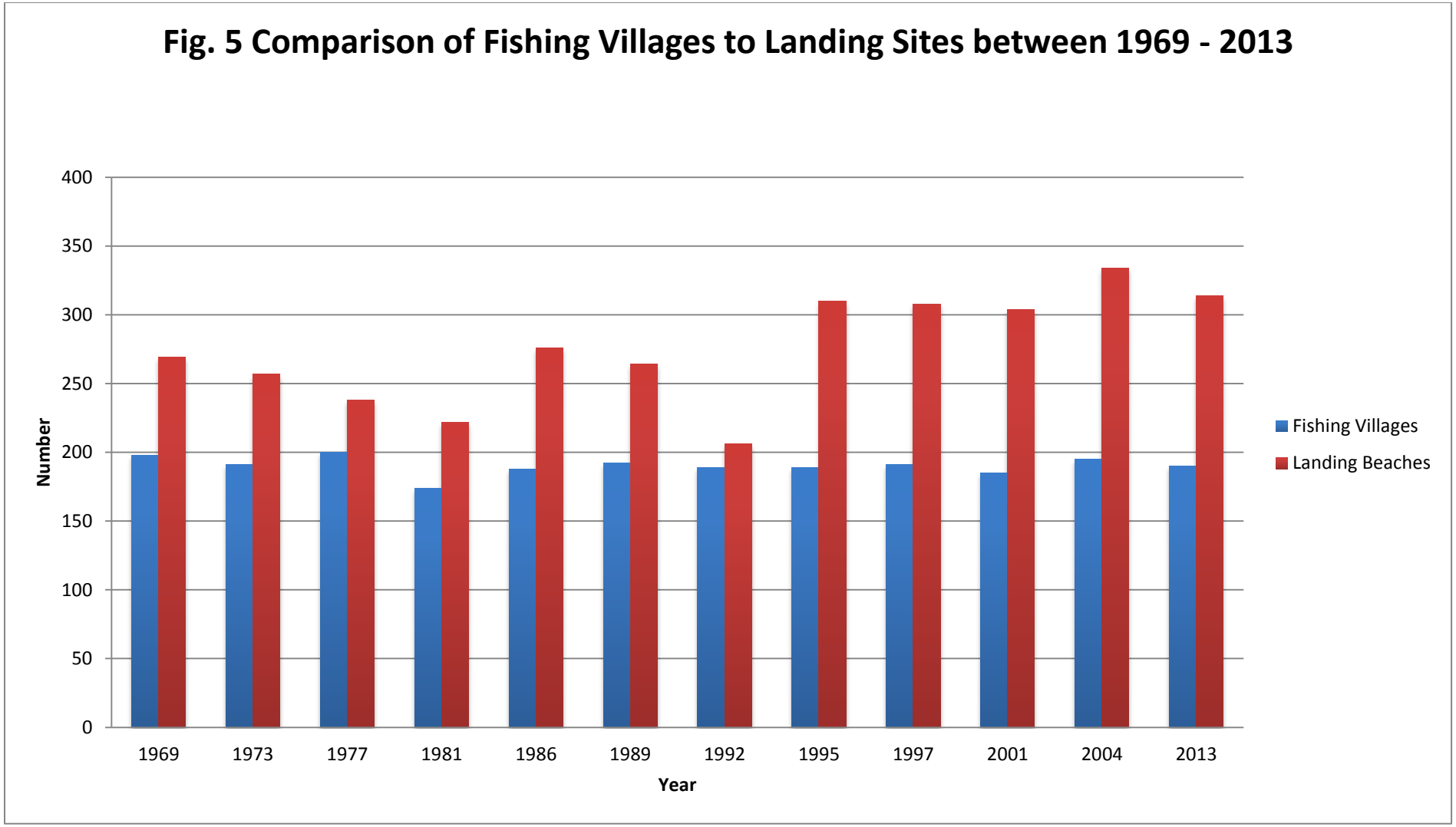


Figure 5 Comparison of Fishing villages to landing sites between 1969 - 2013

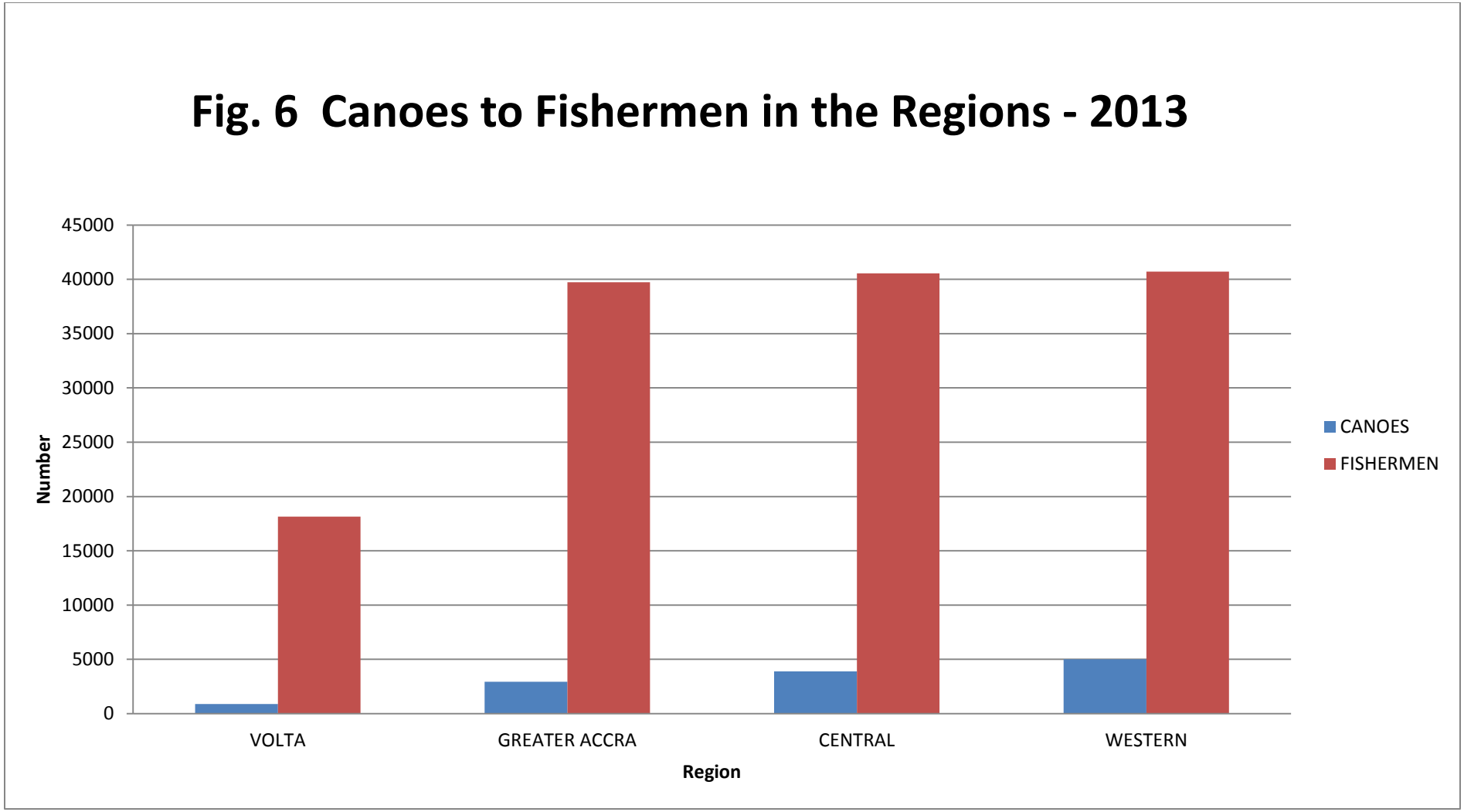
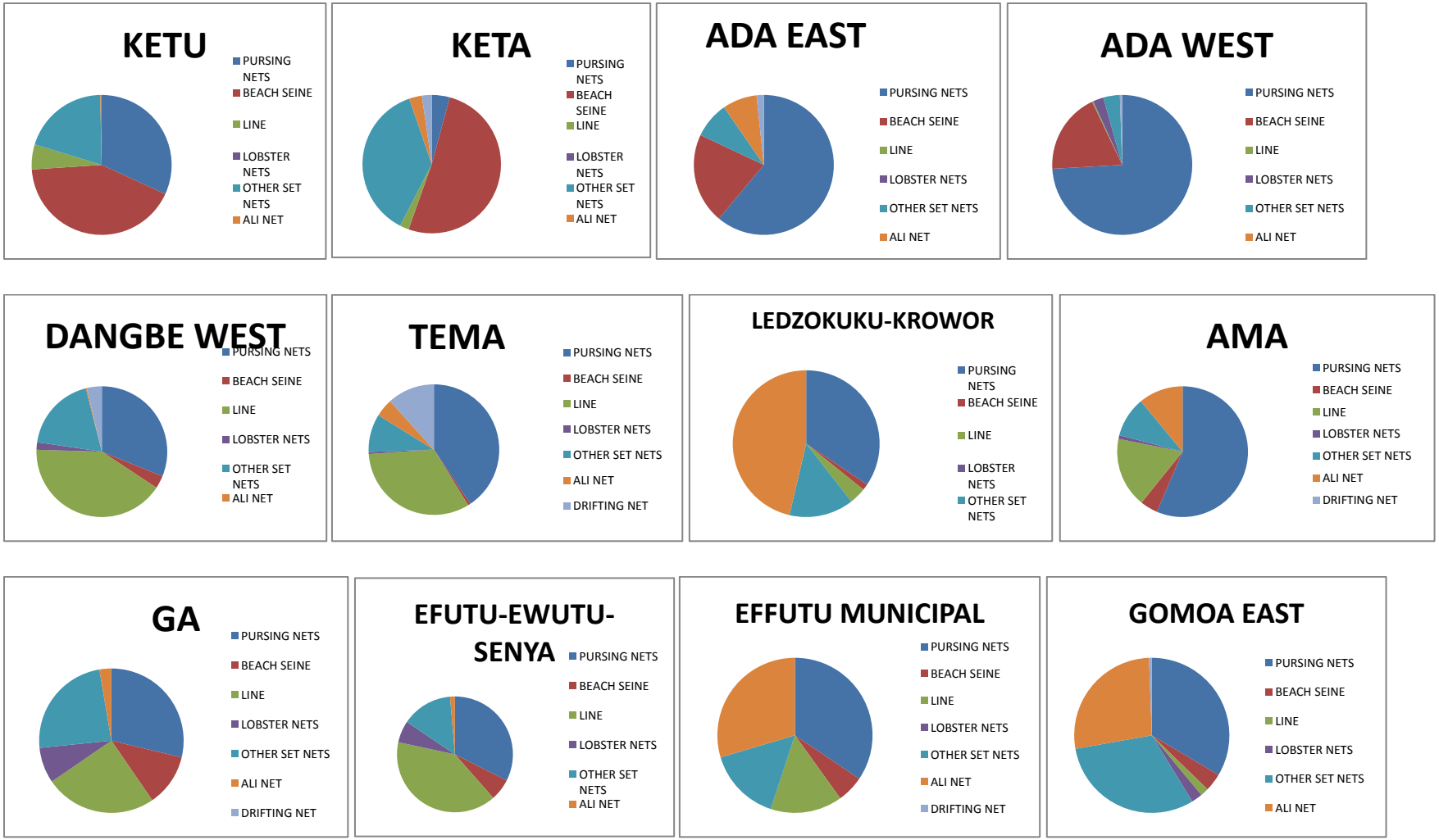
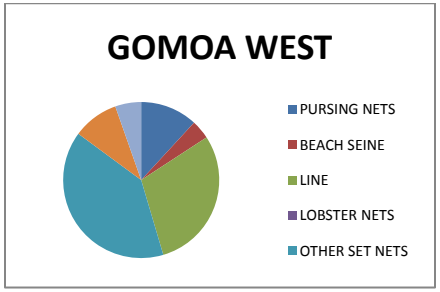
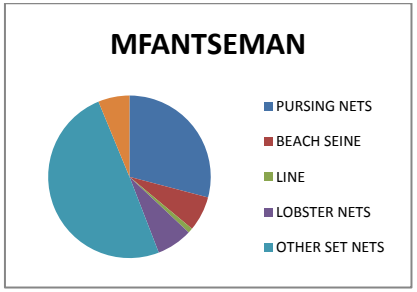


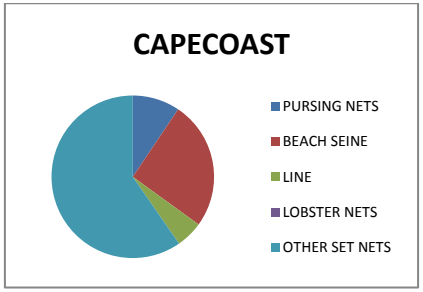
Figure 6 Canoes and Fishermen in the Regions 2013

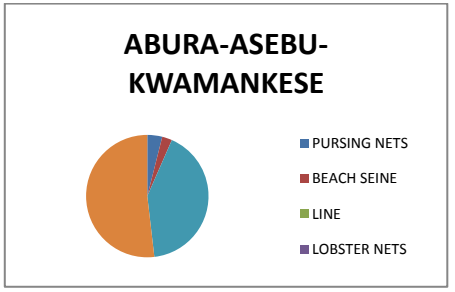
Figure 7: RELATIVE IMPORTANCE OF FISHING GEAR IN SOME COASTAL DISTRICTS

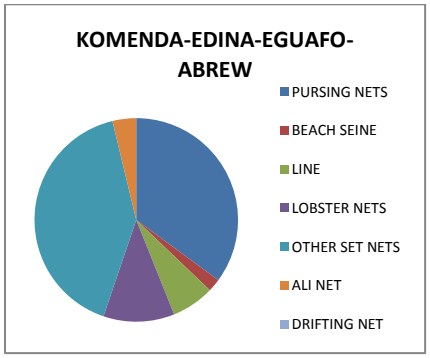


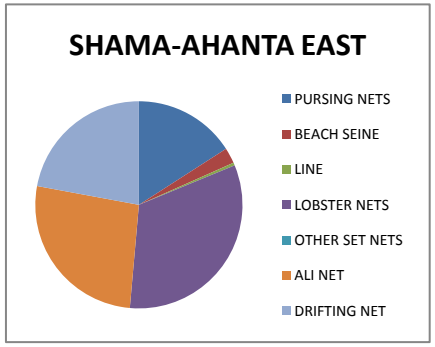

GOMOA WEST
PURSING NETS
BEACH SEINE
LINE
LOBSTER NETS
OTHER SET NETS

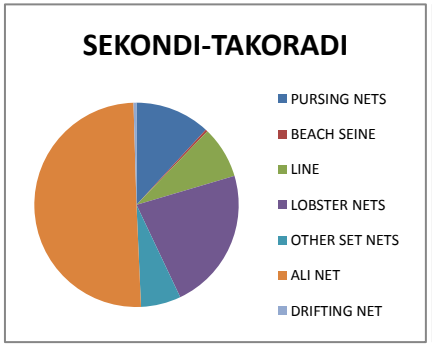

MFANTSEMAN
PURSING NETS
BEACH SEINE
LINE
LOBSTER NETS
OTHER SET NETS

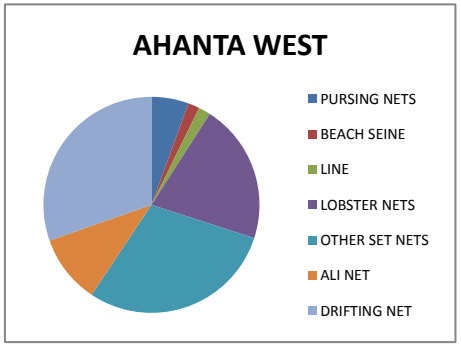

CAPECOAST
PURSING NETS
BEACH SEINE
LINE
LOBSTER NETS
OTHER SET NETS


ABURA-ASEBU-KWAMANKESE
PURSING NETS
BEACH SEINE
LINE
LOBSTER NETS


KOMENDA-EDINA-EGUAFO-ABREW
PURSING NETS
BEACH SEINE
LINE
LOBSTER NETS
OTHER SET NETS
ALI NET
DRIFTING NET


SHAMA-AHANTA EAST
PURSING NETS
BEACH SEINE
LINE
LOBSTER NETS
OTHER SET NETS
ALI NET
DRIFTING NET


SEKONDI-TAKORADI
PURSING NETS
BEACH SEINE
LINE
LOBSTER NETS
OTHER SET NETS
ALI NET
DRIFTING NET


AHANTA WEST
PURSING NETS
BEACH SEINE
LINE
LOBSTER NETS
OTHER SET NETS
ALI NET
DRIFTING NET

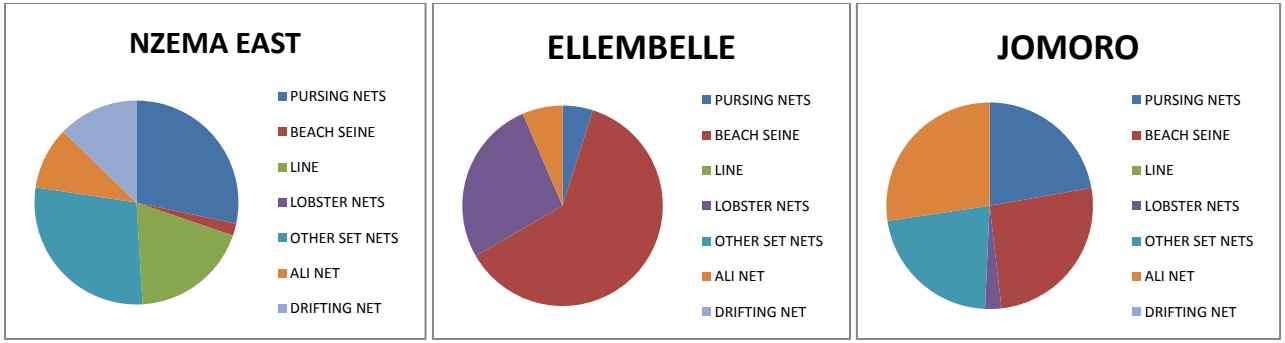


Figure 7 Relative importance of Fishing gear in each coastal districts

Pic 1. Officers interviewing fishermen

Pic 2. Landing Beach

Pic 3.Officers measuring canoes

Pic 4. Officers en-route to a fishing village

APPENDIX 1 FORM A FRAME SURVEY (CANOE REGISTRATION)

REGION……. DATE……. ENUMERATOR…….

FISHING VILLAGE…….. LANDING BEACH…….. CHIEF FISHERMAN……..

SERIAL NO.	REGISTRATION NO.	NAME OF CANOE SYMBOL	NAME OF OWNER	NO. OF CREW	TYPES OF GEAR	OUTBOARD MOTOR					REMARKS
						DO YOU HAVE		IF YES			
1						YES	NO	NO	TYPE	HP	
2											
3											
4											
5											
6											
7											
8											
9											
0											
1											
2											

APPENDIX 2

FORM B FRAME SURVEY CANOE FISHERY STATISTICS

REGION…… …….. DATE……

DISTRICT ……

FISHING VILLAGE…….. ENUMERATOR……

LANDING BEACH……

WHERE DOES THE CHIEF FISHERMAN LIVE (VILLAGE):……

GEAR		CANOE			AVERAGE NO. OF FISHERMEN		
NAME	NO.	TOTAL	MOTORS	ACTIVE	AVE. NO. OF CREW ON CANOE	FULL TIME	TOTAL
ALI							
POLI							
WASTA							
BEACH SEINE							
S/N LOBSTER							
LINE							
DGN/NIFA-NIFA							
ONE MAN CANOE							
TOTAL							

2. For one man canoe, what gears are usually used?

……

3. Does fishing go on all the year around? Yes/No

4. If “No” state the period of operation……..

5. Range of fishing grounds……

6. Do the canoes here migrate to other centers within Ghana? Yes/No

(i) If “Yes”, where do they go mainly to:……..

(ii) State the usual period that they migrate from the center?.....

(iii) What type of gear do they mainly migrate to operate?.....

8. Do canoes at other centers migrate into this center? Yes/No

(i) If “Yes” where do they mainly come from?.....

(ii) State the usual period that they migrate from this center:……

(iii) The canoes that migrate into this center operate what main gear……..

9. Do canoes at this center migrate outside the country? Yes/No

If “Yes

(i) Where do they usually migrate to?.....

(ii) How long do they stay?.....

(iii) State the usual period they migrate from this center……..

(iv) Do they register with Ghana Embassy Abroad?.....

(v) What do they usually migrate with?.....

10. Do non-Ghanaians canoes migrate to this center? Yes/No If yes

(i) Where do they usually migrate to this center from……

(ii) How long do they stay?.....

(iii) What period do they usually migrate from this center……..

11. Are there conflicts between Ghanaian and Fisherman at this center? Yes/No

(i) If yes, what is the nature of the conflicts……

12. Are there conflicts between Ghanaian and Non Ghanaian Fishermen at this center? Yes/No

(i) If Yes, what is the nature of the conflicts…….

13. What condition does migrant fisherman have to satisfy at this center?

(a) Ghanaian

(b) Non-Ghanaian

14. Does this fishing village observe non-fishing days? (Fishing holiday) Yes/No If Yes, State the Day(s) ……..

15. How are the proceeds from Fishing shared? Give the percentage/Fractions for the input

GEAR	NET	CANOE	OUTBOARD MOTOR	CREW
ALI				
POLI				
WASTA				
BEACH SEINE				
S/N TOGA				
S/N LOBSTER				
LINE				
D.G.N/NIFA-NIFA				
O.M.C				

FINAL NARRATIVE REPORT

ON

ASSESSMENT OF GHANA'S FISHERIES LAWS FOR ALIGNMENT WITH THE VOLUNTARY GUIDELINES ON THE RESPONSIBLE GOVERNANCE OF TENURE AND SUSTAINABLE SMALL-SCALE FISHERIES

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Pawpaw Street, East Legon

Submitted to

Environmental Justice Foundation (EJF)
Ghana Office, Cape Coast
Ghana

May 2019.

CHAPTER ONE – BACKGROUND TO THE STUDY

1. ASSIGNMENT BACKGROUND

This report forms part of the Environmental Justice Foundation (EJF) and Hen Mpoano's implementation of a three-year fisheries management project in Ghana, with funding from the European Union (EU). The project forms part of the EU's Land Governance Programme, and aims to ensure greater environmental sustainability and social equity in Ghana's fishing sector by reducing illegal fishing, building local capacity to secure legal and sustainable fisheries, and promoting implementation of the FAO Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the context of National Food Security (VGGT).

The overarching goals of the VGGT are to achieve food security for all and support the progressive realization of the right to adequate food in the context of national food security. The VGGT were unanimously endorsed on 11 May 2012 by the top UN body responsible for food security issues – the Committee on World Food Security (CFS). Together with the Voluntary Guidelines for Securing Small-scale Fisheries in the Context of Food Security and Poverty Eradication (SSFG), the VGGT provide comprehensive guidance to governments, civil society and the private sector, on how to promote responsible governance of tenure of fisheries resources in line with internationally accepted standards. The VGGT, in particular, provide an authoritative point of reference for states amending or adopting laws on the tenure of land, fisheries and forests.

Within the framework of the Far Dwuma Nkɔdo project, EJF and Hen Mpoano are undertaking an assessment of Ghana's current fisheries law framework and related legislation for alignment with the principles of the VGGT and the SSFG. The guiding principles of the VGGT and SSFG include equity and equality; consultation and participation; transparency; accountability; economic, social and environmental sustainability, including the precautionary approach; and the ecosystem approach to fisheries.

2. PROJECT OBJECTIVE

The aim of the assessment is to identify the most appropriate means by which key principles of the VGGT and SSFG can be implemented, and provide concrete recommendations that may be considered in the process to amend the 2002 Fisheries Act, Act 625, initiated by the Ministry of Fisheries and Aquaculture Development (MoFAD) and anticipated to be completed in 2019.

EJF and Hen Mpoano have already completed a preliminary assessment of Ghana's 2002 Fisheries Act, Act 625 and 2010 Fisheries Regulations, LI 1968, for alignment with the VGGT and SSFG, following the methodology used in the FAO's analytical assessment of the fisheries and aquaculture legislation of Sierra Leone undertaken in 2015 and the FAO's Technical Guide on Responsible Governance of Tenure and the Law. EJF and Hen Mpoano have engaged the TaylorCrabbe Innitiative (TCi) to peer review and complete this assessment.

3. SCOPE OF REPORT

This report details the results of the legal assessment and suggested amendments to Ghana's fisheries law framework by TCi. It highlights the institutional, legal, policy and licensing framework for fisheries and presents key findings of the preliminary assessment of alignment of Ghana's national fisheries law framework with the VGGT and SSFG. This is followed with a list of recommendations for improving the legal framework. The report ends with suggested amendments to the 2002 Fisheries Act and 2010 Fisheries Regulations.

4. METHODOLOGY

The consultants undertook this assignment deploying a five--step methodology. First was a collation of legislation, regulation and substantive policy relevant to fisheries in Ghana. The list of collated legislation, regulations and policy are found in Appendix 1. The second step was a desk review of all the identified laws and policy relevant to fisheries and the Review of the fisheries law framework produced by Poseidon under the West Africa Regional Fisheries Programme[1] to tease out the institutional, legal and policy framework. The identified laws and policy were then benchmarked against the VGGT and SSFG to determine their alignment with the voluntary principles, identify gaps and propose recommendations on changes to the legislation.

The next step was to present the findings of the assessment and recommendations to relevant stakeholders with an interest in Ghana's small-scale fisheries sector, i.e. small-scale fisher associations (GNCFC, NAFPTA) and civil society organizations (CEWEFIA, DAA, EJF, Hen Mpoano, Friends of the Nation, Oilwatch Ghana) for their review and comments. The list of consulted stakeholders is found in Appendix 2. The Consultants then proceeded to draft suggested amendments to the 2002 Fisheries Act and 2010 Fisheries Regulations based on the recommendations adopted at the multi-stakeholder consultations. These amendments were then circulated with the stakeholders consulted for further feedback to produce a final report.

CHAPTER TWO - INSTITUTIONAL FRAMEWORK FOR FISHERIES

1. Ministry of Fisheries and Aquaculture Development (MoFAD)

The Ministry of Fisheries and Aquaculture Development is the leading state institution responsible for fisheries in Ghana. MoFAD is headed by a Minister of State and assisted by a deputy minister. It has a chief director who is the administrative head of the ministry and advisor to the Minister. MoFAD has the following units/ directorates: Finance and Administration, Human Resource, Research, Statistics, and Information Management (RSIM), Policy Planning, Monitoring, and Evaluation (PPMED).

[1] Cacaud, P. and Sekor, E. (2015). Legal Framework Review: Final Report. Produced for the Minister of Fisheries and Aquaculture Development by a consortium of Poseidon, Innovative Services and GIMPA Consulting as part of the Legal, Operational & Organizational Framework to Enable Implementation of the Ghana Fisheries and Aquaculture Sector Development Plans component of the 'West Africa Regional Fisheries Project (WARFP)

MoFAD's mandate entails producing and supervising government's policy on fisheries and aquaculture. The Minister for Fisheries has ministerial responsibility for the Fisheries Commission and a duty to give general directions in writing on matters of policy to the Fisheries Commission.[2]

2. Fisheries Commission

The Fisheries Commission is one of the natural resources commissions provided for by the constitution[3]. It was established to regulate and manage the utilization of the fishery resources of Ghana and co-ordinate the policies in relation to them[4]. FC has a governing Council[5] composed of 11 members including representatives from relevant line ministries, the industry and scientific research. It also has a secretariat headed by a director for the day-to-day management of the FC. FC has the following divisions: Marine Fisheries Management Division, Inland Fisheries Division, Fisheries Scientific Survey Division, Monitoring, Control and Surveillance Division and Finance and Administration Division.[6]

Specifically, FC's duties include: preparing plans for the management and development of fisheries; establishing priorities for the utilization of fishery resources; ensuring the proper conservation of the fishery resources; striving to minimize fishery gear conflict among users; ensuring the monitoring, control and surveillance of the fishery waters; promoting sub regional, regional and international co-operation in fisheries management; promoting co-operation among local fishermen and advancing development of artisanal fishing; making recommendations to the Minister on granting of licences for fishing and establishing requirements for manning fishing vessels and boats, safety for crew and vessels and for fishing gears in use to avoid damage by other vessels.

Act 625 sets up a number of committees to be appointed by the governing Council of the FC for the effective performance of its functions. Some key committees are briefly considered below:

2.1. Fisheries Licence Evaluation Committee

This committee is set up by the Act[7] for the purpose of evaluating applications for fishery licences. The committee is made up of technical officers of the commission. It consists of five members of the Council, the secretary to the commission and one head of division. It meets as required to review applications lodged by fishing vessels.[8]

2.2. Fisheries Settlement Committee (FSC)

The fisheries settlement committee is made up of not less than three and not more than five members of the governing Council of the FC[9]. In practice, its membership extends beyond the

[2] Section 3 of the Fisheries Act, 2002 (Act 625)
[3] Article 269 of the 1992 Constitution of Ghana
[4] Section 2 of Act 625
[5] While the Act makes reference to in Council, in practice it is called a Board.
[6] Section 15 of Act 625
[7] Section 11 of Act 625
[8] Cacaud, P. and Sekor, E. (2015). Legal Framework Review: Final Report
[9] Section 10 of Act 625

scope of the Commission's membership and includes representatives of the marine police and a representative of the Attorney General's Office.[10] Its duty is to hear and settle complaints from persons aggrieved in respect of any matter related to the fishing industry. In practice, the FSC also compounds offences under Act 625.[11] Two committees have been established, one in Tema and the other in Takoradi, to handle fisheries offences in the Eastern and Western parts of Ghana respectively.[12]

2.3. Fisheries Monitoring, Control, Surveillance and Enforcement Unit

Act 625 also sets up a Fisheries Monitoring, Control, Surveillance and Enforcement Unit (MCSE) unit. In law, MCSE is to be responsible for monitoring, control and surveillance of all fishing operations within the fishery waters and for the enforcement of legislation relating to fishing activities.[13] MCSE is to comprise personnel from the Ghana Navy, Ghana Air Force, an attorney from the Ministry of Justice and the secretariat of the FC and other members as determined by the Minister for Fisheries. Despite this arrangement in law, no action was taken for many years after coming into force of the Act to set up the MSCE.[14] In 2013, however, a committee comprising the Navy, the Marine Police, the Attorney Generals Office and the Fisheries Commission was formed to provide for the establishment of the MCSE Unit.[15] The committee decided to form a Fisheries Enforcement Unit (FEU), which focuses primarily on enforcement actions[16]. The FEU is not an administrative unit of the Monitoring, Control and Surveillance Division of the Fisheries Commission and therefore not under its authority. Also, unlike as envisaged in Act 625 for the MCSE, FEU includes the marine police and does not include the Air force.

3. Environmental Protection Agency

The Environmental Protection Agency (EPA) has the primary duty of regulating the environment and ensuring the implementation of government policies on the environment, including the marine environment. EPA consists of three divisions: Operations, Technical Services and General Services which are further sub-divided into departments. The Environmental Assessment and Audit Department of the Environmental Compliance and Enforcement Division is mainly responsible for the EA–related functions.

EPA advises the Minister of Environment, Science, Technology and Innovation on the formulation of policies on all aspects of the environment including Ghana's marine and inland

[10] Cacaud, P. and Sekor, E. (2015). Legal Framework Review: Final Report. Produced for the Minister of Fisheries and Aquaculture Development by a consortium of Poseidon, Innovative Services and GIMPA Consulting as part of the Legal, Operational & Organizational Framework to Enable Implementation of the Ghana Fisheries and Aquaculture Sector Development Plans component of the 'West Africa Regional Fisheries Project (WARFP)
[11] Cacaud, P. and Sekor, E. (2015). Legal Framework Review: Final Report.
[12] Cacaud, P. and Sekor, E. (2015). Legal Framework Review: Final Report.
[13] Section 94 of Act 625
[14] Cacaud, P. and Sekor, E. (2015). Legal Framework Review: Final Report
[15] Cacaud, P. and Sekor, E. (2015). Legal Framework Review: Final Report.
[16] Cacaud, P. and Sekor, E. (2015). Legal Framework Review: Final Report.

waters. It is EPA's duty to issue environmental permits and pollution abatement notices for controlling the volume, types, constituents and effects of waste discharges, emissions, deposits or other source of pollutants and of substances which are hazardous or potentially dangerous to the quality of the environment or any segment of the environment and ensuring compliance with any legislated Environmental Impact Assessment (EIA) procedures in the planning and execution of development projects, including compliance in the respect of existing projects.

4. District Assemblies

Ghana is divided administratively to 254 districts. The districts are governed by the District Assemblies (DA) which are established by the Minister for Local Government. DA are the highest political authority in each district. The primary function of DAs is to promote local economic development. Though management of fisheries is not mentioned expressly as one of the functions of the District Assembly in the Local Governance Act, 2016 (Act 936) perhaps because fisheries management in Ghana is largely centralized, District Assemblies play an important role particularly in the management and regulation of artisanal fishing. Legislation[17] gives the District Assemblies the mandate to register artisanal fishing vessels (canoes) but in practice, this mandate is not being performed by the DA. Currently, the Fisheries Commission is about to complete the registration of marine canoes and will commence licensing thereafter.[18] Also the law requires that the Commission shall not issue a license unless the canoe has been registered through the relevant District Assembly[19].

5. Ghana Standards Authority

The Ghana Standards Authority (GSA) is an Agency of Government responsible for developing, publishing and promoting standards in the country[20]. The Ghana Standards Authority was enlisted on 1 July, 1998, as the Competent Authority to oversee the export of fish and fishery products to the European Union (EU).[21]

The Authority has a Fish Inspection Department with the primary focus on the registration of exporters of fish and fishery products and the inspection and approval of fishing vessels (demersal trawlers, tuna bait boats, purse seiners and reefers), fish processing plants, cold stores, ice making plants and landing sites.

Exporters intending to export fish and fishery products to the EU and other countries must register with the Department by completing a registration form and complying with the requirements of the Fishery Products Regulations obtainable from the GSA.

CHAPTER THREE - LEGAL FRAMEWORK FOR FISHERIES

1. Source of Law in Ghana

[17] Section 55 of Act 625.
[18] Cacaud, P. and Sekor, E. (2015). Legal Framework Review: Final Report.
[19] Section 52 of Act 625.
[20] Standards Authority Act, 1973 (NRCD 173)
[21] https://www.gsa.gov.gh/fish-inspection/

The 1992 Constitution of Ghana emphatically provides in its first article its supremacy. All Acts of Parliament and laws inconsistent with the Constitution are to the extent of the inconsistency a nullity. Article 11 of the Constitution sums up the sources of law in Ghana as: The Constitution; enactments made by or under the authority of Parliament; any Orders, Rules and Regulations made by any person or authority under a power conferred by the Constitution (subsidiary legislation); customary law; the existing law; and the common law.

Article 11 suggests the hierarchy of laws in Ghana. As indicated earlier, the Constitution is the supreme law of the land and operates as the pantheon of Authority. Article 1(2) of the 1992 Constitution emphasizes this where it states that any law found to be inconsistent with the Constitution will be declared void (paraphrased). Any law here being the other sources of law provided under Article 11, be they orders, rules, regulations, customs, international law or the common law.

Next in order of authority after the Constitution are the Acts of Parliament. Parliament plays the role of making legislation subject to the Constitution. These enactments further expound on the Constitutional provisions and provide regulations that govern the functioning of some governmental bodies. Subsidiary legislation falls next in line where the Constitution, and in some instances Parliament, delegates its function of law making to external bodies.

Ghanaian customary laws are not uniform. They are far spread and distinguishable from one part of the country to another. Ultimately these forms of law are regulated by the customary heads of the various ethnic groups or traditional area. They do not have as much force as enactment, however, and where they are found to be inconsistent or conflicting with the Constitution or other laws they are held as void.

Ghana identifies as a Commonwealth country and a dualist state in terms of its incorporation of international law. In this regard, Ghana is bound only by international laws and dictates that it has ratified, through the ratification process provided under article 75 of the Constitution.

For the purposes of this report, however, only the more concrete sources of law, that is the sources of law that can be readily identified in writing were utilized by the consultants. The consultants limited the scope of law to the 1992 Constitution, Acts of Parliament, subsidiary legislation and International laws ratified by Ghana. Customary law was excluded primarily because of its complex nature and its particularity to communities.

In Ghana, policies provide the framework through which the executive branch of Government indicates its intention in a particular area of national life. As they are merely guides to the actions of Government, they are generally not enforceable. For this work, the national policies in the three sectors of agriculture, protected areas and environmental assessment were identified but not assessed. However, in some instances, the existence of policies is used to explain some of the conclusions arrived at by the consultants.

2. International Instruments

Ghana is a signatory to the following international treaties: the International Convention for The Conservation of Atlantic Tunas (ICCAT), United Nations Convention on the Law of the Sea (UNCLOS),

the Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels On the High Seas (FAO Compliance Agreement), the Agreement for the Implementation of the Provisions of UNCLOS relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (UNFSA) and the Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (PSMA).

Ghana is also a member of the United Nations (UN), the UN Food and Agriculture Organization (FAO), the African Union (AU), the Economic Community of West African States (ECOWAS), the Committee for Inland Fisheries and Aquaculture of Africa (CIFAA), the Fisheries Committee for West Central Gulf of Guinea (FCWC) and the Committee for Eastern Central Atlantic Fisheries (CECAF)

3. Domestic Legal Framework

As noted above, the sources of law in Ghana range from the 1992 Constitution, to Acts of Parliament and Legislative Instruments. A brief description of the existing local legislation for fisheries and related laws are given below:

3.1. The 1992 Constitution

The 1992 Constitution provides broadly for Ghana's legal regime and sets out the framework for government. Specifically, it provides for fisheries in Article 269 where Parliament is given a duty to, through an Act of Parliament, establish natural resources commissions including a Fisheries Commission. These natural resource commissions are to be responsible for the regulation and management of the utilization of the natural resources concerned and they are to co-ordinate policies that relate to them.

3.2. The Fisheries Act, 2002 (Act 625)

The Fisheries Act, 2002 (Act 625) came into force on 16th January, 2002. It has been amended by the Fisheries (Amendment) Act, 2014 (Act 880). Act 625 establishes the Fisheries Commission (FC) and provides for its structure, governance and mandates. It provides for the establishment of a Fisheries Development Fund, the licensing regime for fishing and fishing vessels, fishery plans, permitted fishing methods and conservation measures. It also provides for the detention, sale, release and forfeiture of the property of resource users and monitoring, control, surveillance and enforcement of the provisions of the Act.

Act 880 amends Act 625 to give effect to Ghana's international fisheries conservation and management obligations. It also empowers the Minister to make Regulations to combat illegal, unreported and unregulated (IUU) fishing in accordance with Ghana's international obligations and provides for related matters.

3.2.1. Fisheries Regulations, 2010 (L.I. 1968)

L.I 1968 was made pursuant to Act 625. It sets out the regulations and modalities for fishery plans, vessels, fishing nets, fishing devices and fishing. It also provides details for the process of acquiring licences for fishing and aquaculture.

L.I 1968 has been amended by the Fisheries (Amendment) Regulations, 2015 (L.I. 2217). The amendment introduces additional requirements and the procedure for the registration of fishing vessels as Ghanaian Fishing Vessels; the need for Ghanaian Vessels to notify the FC of any acquisition of a foreign fishing licence; the authorization of fishing vessels to fish outside of Ghana's waters; and verification of catch landing to combat IUU fishing. It also introduces the requirement for vessel owners to install and operate a vessel monitoring system. The amendment finally addresses Ghana's commitment for international cooperation to combat IUU fishing.

3.3. Environmental Protection Agency Act, 1994 (Act 490)

Act 490 establishes the Environmental Protection Agency (EPA), provides for its structure and functions. It gives EPA the primary mandate to protect and regulate activities in the environment. The Act sets up a framework for environmental impact assessments and gives the EPA the authority to demand impact assessments, issue environmental permits and certificates and enforcement notices. It also establishes the national environmental fund.

3.3.1. - Environmental Assessment Regulations, 1999 (L.I 1652)

L.I 1652, is a legislative instrument made pursuant to Act 490. It provides a list of activities that require either an environmental impact assessment or an environmental permit before commencement. It also gives the procedure, requirements and contents for a satisfactory environmental impact assessment report.

3.4. Ghana Maritime Authority Act, 2002 (Act 630)

The Act establishes the Ghana Maritime Authority (GMA) and gives it, in addition to other duties, the duty to collaborate with other public agencies for the prevention of marine source pollution and protection of the marine environment. The Act also provides for the Registrar of Ships to be appointed by the President. The Registrar of Ships is responsible for the registration of ships, fishing vessels and any other navigation vessels.

3.5. Local Governance Act, 2016 (Act 936)

Act 936 provides for the establishment of districts and district assemblies and their functions. The functions of district assemblies include coordinating, integrating and harmonizing the execution of programmes and projects under approved development plans for the district and other development programmes promoted by ministries, departments, public corporations and other statutory bodies in the district.[22] Though management of fisheries is not mentioned expressly as one of the functions of the District Assembly because fisheries management in Ghana is largely centralized, District Assemblies are to play an important role particularly in the registration of artisanal fishing. Legislation[23] gives the District Assemblies the mandate to register artisanal fishing vessels (canoes) but in practice, this mandate is not being performed by the District Assemblies. Currently, the Fisheries Commission is about to complete the registration of marine canoes and will

[22] Section 12 of Act 936
[23] Section 55 of Act 625.

commence licensing thereafter.[24] Also the law requires that the Commission shall not issue a license unless the canoe has been registered through the relevant District Assembly[25].

3.6. Ghana Shipping Act, 2003 (Act 645)

The Ghana Shipping Act, 2003 (Act 645) provides for procedure and requirements for the registration of ships including fishing vessels; the register of ships and vessels and the identity marks for fishing vessels. It also provides for the requirements for a ship to qualify as a Ghanaian ship.

3.7. Standards Authority Act, 1973 (NRCD 173)

The Standards Authority Act, 1973 provides for the establishment of an Authority that oversees the quality of goods and products in Ghana. As part of its functions in section 3 of the Act, it has created a Fish Inspection Department with the primary focus on ensuring standards of fish and fish products particularly for exports.

CHAPTER FOUR - LICENSING REGIME AND TENURE RIGHTS FOR FISHERIES

1. Registration of Vessels and Fishing Licences

Fishing vessels are required by law to be registered before they can undertake any fishing activity in Ghana's waters. After registration, a fishing licence must be obtained before the commencement of any fishing or related activity in the fishery waters.[26] For the purposes of registration and licensing, fishing vessels are classified as Foreign Fishing Vessels, Local Industrial and Semi-Industrial Fishing Vessels and Artisanal Fishing Vessels.

For Foreign Fishing Vessels and Local Industrial and Semi-Industrial Fishing Vessels, the Fishing Licenses are issued by the Minister of Fisheries and Aquaculture Development. The application for the licence is made through the Fisheries Commission (FC)[27]; which should be accompanied by the documents and information set out in the Fisheries Regulations, 2010 (L.I. 1968). The FC then recommends to the Minister for Fisheries whether or not to issue the licence applied for.[28]

For Artisanal Fishing Vessels (Canoes), fishing licences are to be issued by the FC or by persons authorized by the Commission.[29] Legislation[30] gives the District Assemblies the mandate to register artisanal fishing vessels (canoes) but in practice, this mandate is not being performed by the District Assembly. Currently, the FC is about to complete the registration of marine canoes and will commence licensing thereafter.[31] Also the law requires that the Commission shall not issue a licence unless the canoe has been registered through the relevant District Assembly[32].

[24] Cacaud, P. and Sekor, E. (2015). Legal Framework Review: Final Report.
[25] Section 52 of Act 625.
[26] Section 46 of Act 625
[27] Sections 69 to 80 of Act 625
[28] Section 70 of Act 625
[29] Regulation 27 of L.I 1968
[30] Section 55 of Act 625.
[31] Cacaud, P. and Sekor, E. (2015). Legal Framework Review: Final Report.
[32] Section 52 of Act 625.

The specific requirements for registration and licensing for the various types of Fishing Vessels are considered in more detail below:

1.1. Local Fishing Vessels

A Local Fishing Vessel (LFV) is a fishing vessel registered in Ghana and owned/controlled by a citizen, the Government, or owned/ controlled by a company or partnership registered in Ghana which has its principal place of business in Ghana and the share[s] of which [are] beneficially owned wholly by the Government, a citizen, a public corporation established by law in the Republic or a combination of any of them.[33] For Tuna Fishing Vessels, the law allows for foreign participation but at least fifty percent of the shares in the vessel should beneficially owned or controlled by the Government, a citizen, a public corporation established by law in the Republic or a combination of any of them.[34] Depending on their make-up, their capacity and activities, LFV fall under the following:

1.1.1. Local Industrial Fishing Vessel

A Local Industrial Fishing Vessel refers to a motor fishing vessel equipped with hydraulic equipment and uses industrial gears.[35] Industrial fishing vessels must be registered under the Ghana Shipping Act, 2003 (Act 645), and must be seaworthy and fit for the purpose of fishing before the grant of a fishing licence. The vessel must also bear identity markings allocated to the vessel by the Registrar of Ships before it can be issued with a fishing licence.[36]

1.1.2. Local Semi-Industrial Fishing Vessel

A Local Semi-Industrial Fishing Vessel refers to a motor fishing vessel powered by an inboard engine[37]. Semi-industrial fishing vessels must be registered under the Ghana Shipping Act, 2003 (Act 645), and must be seaworthy and fit for the purpose of fishing before the grant of a fishing licence. The vessel must also bear identity markings allocated to the vessel by the Registrar of Ships before it can be issued with a fishing licence.[38]

1.1.3. Artisanal Fishing Vessel (Canoes)

Canoes refer to a planked dugout or a fabricated vessel which is propelled by means of sails, oars, paddles, poles, outboard engine or a combination of any of them.[39] Canoes are required to be registered with the Fisheries Commission through the District Assembly of the area where it is to be used. They are also required to bear the markings of identity allocated to by the District Assembly of where it is to operate.[40] In practice, neither of this has been done, though the FC has plans to commence soon.

[33] Section 47 of Act 625
[34] Section 47 of Act 625
[35] Section 140 of Act 625
[36] Section 49 of Act 625
[37] Section 140 of Act 625
[38] Section 49 of Act 625
[39] Section 140 of Act 625
[40] Section 55 of Act 625

Canoes are required to also obtain fishing licences, after registration, before they can engage in artisanal fishing activities. However, this licensing regime has not been established in practice.[41] Artisanal fishing is defined in law as the traditional canoe fishing carried on by a citizen.[42] For the grant of an Artisanal Fishing Licence by the Fisheries Commission, the canoe must be solely owned by a citizen or a partnership/ company registered in Ghana in which the shares are beneficially held by a citizen.[43] The application for the licence is also to be made to the Commission through the District Assembly of the locality where the applicant intends to operate the canoe.[44]

The law gives the FC a specific duty to promote and protect artisanal and semi-industrial fishing.[45] The FC is required to register artisanal fishing vessels; encourage the establishment and development of fishing, processing and marketing co-operative societies; establish reserved areas for fishing activities by artisanal and semi-industrial fishing vessels; and ensure that fishing rights are allocated in priority to artisanal and semi-industrial vessels.

1.2. Foreign Fishing Vessel

A Foreign Fishing Vessel (FFV) has been defined as any fishing vessel other than a local industrial or semi-industrial fishing vessel or a canoe.[46] FFVs are to be registered in accordance with the law of its flag state[47]. They are also to obtain a certificate of seaworthiness by the competent authority or by the International Association of Classification Societies.[48]

A registered FFV requires a fishing licence issued by the Minister of Fisheries or an authorization under an agreement between the Government of Ghana and the country under which it is registered before it can undertake any fishing activities in Ghana.[49] The licence may only be issued to a FFV under an access arrangement[50] made under the Act.

The access agreement must specify the allowable allocation of fish and this must not exceed a level consistent with conservation and management of fishery resources, the national fishery plan and must provide for the protection of local fishermen.[51] The access arrangement must also provide for measures by the foreign party to ensure compliance with applicable laws, the regulation of transshipment of fish and the issuance of licences and payment of fees.[52]

However, in the absence of an access agreement, the Minister may issue a licence to a FFV on the recommendation of the Fisheries Commission board for fishing and related activities.[53]

[41] Cacaud, P. and Sekor, E. (2015). Legal Framework Review: Final Report.
[42] Section 140 of Act 625
[43] Section 52 of Act 625
[44] Sections 52 and 55 of Act 625
[45] Section 51 of Act 625
[46] Section 140 of Act 625
[47] Section 63(4) of Act 625
[48] Section 63(4) of Act 625
[49] Section 61 of Act 625
[50] Section 63 (1) of Act 625
[51] Section 64 of Act 625
[52] Section 64(3) of ACT 625
[53] Section 63(3) of Act 625

Further requirements for a fishing licence for a FFV are that it may be required to appoint a local agent in Ghana to receive and respond to legal processes in respect of its activities if there is no Ghanaian ownership or shareholding in the FFV.[54] The Minister may also require the applicant or authorized agent of a FFV to post a performance bond which may be applied for the payment of a fine, penalty etc.[55]

2. Aquaculture and Recreational Fishing

A permit or licence is required for an aquaculture project or recreational fishing.[56] Application for a permit is to be received by the FC. The application must be accompanied by an Environmental Impact Assessment (EIA).[57] The FC then recommends to the Minister for Fisheries whether or not to issue the licence applied for.[58] The grant of the licence is conditional upon the grant of an environmental permit by the Environmental Protection Agency.[59] Where applicable, the applicant must obtain the necessary approvals from the Water Resources Commission before commencement of the aquaculture project or recreational fishing.[60]

The licence for aquaculture/ recreational fishing must specify the organism to be farmed and is transferable only on the authorization of the Minister upon recommendation of the governing council of the FC.[61] Furthermore the transfer of live fish within Ghana is subject to the grant of a permit by FC.[62] Similarly, fish breeding is contingent upon the grant of a permit by the FC.[63]

3. Authorizations for marine scientific research and trial fishing

In the absence of an access arrangement, the Minister for Fisheries may, on the advice of the governing board, authorize marine scientific research or trial fishing operations. The authorization must be in writing and should specify conditions determined by the Minister.[64]

[54] Section 67 of Act 625
[55] Section 68 of Act 625
[56] Section 60 of Act 625 and Regulation 52 of L.I.1968
[57] Section 60(1) of Act 625
[58] Section 70 of Act 625
[59] Regulation 52 of L.I. 1968
[60] Regulation 52 of L.I 1968
[61] Section 60 of Act 625
[62] Regulation 56 of L.I 1968
[63] Regulation 59 of L.I 1968
[64] Section 65 of Act 625

CHAPTER FIVE – RECOMMENDATIONS FROM BENCHMARKING MATRIX [65]

This chapter summarizes recommendations of amendments in legislation and policy after the laws and policies relevant to fisheries had been benchmarked against the VGGT and SSFG to determine their alignment with the voluntary principles. The recommendations are presented under eight themes and are categorized under changes to policy and changes to legislation.

1. RECOGNIZE AND RESPECT TENURE RIGHT-HOLDERS AND THEIR RIGHTS

Land, fisheries and forests are central to the general development of a State. In this vein, it is necessary that legitimate tenure right-holders are protected and their rights are not infringed upon or extinguished. There should be safeguards that will ensure that the holders of the rights as well as the rights themselves are protected and also that these tenure right-holders have full knowledge of their rights and the duties that come with these rights.

In connection with the identified laws and policy as benchmarked against the VGGT and SSFG, the following are recommended as a way to align the principles in the VGGT and SSFG to the Ghanaian legal regime.

Recommendation for policy changes

a) Recognition of the dependence of certain communities on fish resources for their livelihoods, and of the right of these communities to continue to engage in fisheries.

b) Subject the right to fish, including small-scale fishing (SSF), to principles and approaches applicable to all fisheries, including sustainable use, the ecosystem approach to fisheries and the precautionary approach.

c) Clarification of the role of the District Assembly with regard to SSF, including registration and licensing.

d) Clarification of the relationship between the licensing and registration procedures for SSF and the powers of local government, to ensure that local government powers are compatible with the provisions of the Fisheries Act.

e) Clear statement of intent to ensure that SSF tenure rights and informal rights are recognized, identified and recorded in a transparent and fair manner.

f) Recognition of the need to identify and allocate specific user rights to SSF communities, such as territorial user rights and community-based catch quotas, and the need to establish clear allocation mechanisms.

g) Recognition that transferability of use rights for SSF is necessary for the protection of livelihoods under certain circumstances.

h) Recognition of the need to develop mechanisms, in conjunction with relevant authorities, to facilitate the granting of preferential access to landing sites and land on which on-shore fish processing facilities are situated to fishers, especially small-scale, who depend on them.

[65] Complete matrix of the benchmarking of Ghanaian law and policy against VGGT and SSFG attached as APPENDIX 1

i) Recognition of the need to ensure access to traditional fishing grounds and related resources is protected, and that alternative access solutions must be found where access is limited by other developments, and damages paid if this is not possible.

j) Recognition of the need for involvement of women in all decision-making and management processes that affect them and for the provision of mechanisms that facilitate their involvement including: representation and membership of advisory boards, explicit references to involvement of women in co-management arrangements, reference to women as stakeholders to be consulted in the development of fishery management plans.

k) Statement that supports the applicability of human rights principles, and constitutional rights in the context of SSF.

Recommendation for legislative changes

Inshore Exclusion Zone

a) Clarification and extension in law of the IEZ boundary to reflect current pattern of fishing activities by the artisanal and semi-industrial fleets.

b) Provision of legal limits to and circumscribe the discretion given to the Fisheries Commission to authorize large semi-industrial vessels to enter the IEZ.

c) Clarification that the specific activity which, in exceptional circumstances, may be authorized by the Commission to take place in the IEZ be limited to the capture of cephalopods.

d) Requirement for the Commission to publish authorizations granted to carry out activities within the IEZ stating the period of the authorization and the permissible activities.

e) Specification of the use rights for each of the categories of fisheries having access to the IEZ, including applicability of conservation and management measures (e.g. applicability of fishing seasons, gear specifications, species restrictions, etc.)

Registration and licensing

f) Clarification of requirements/procedure for registration and, if relevant, licensing of artisanal canoes, including grounds for approving or refusing an application, obligation to provide in writing the grounds for refusal of registration/licensing and provision for reviewing decisions and appeals.

g) Specification of the allowed use of registered vessels, including the conditions under which registered vessels may be transferred, and implications of change of ownership.

h) Clarification of the entity that has the mandate to register canoes and issue fishing licences and the functions devolved to the District Assemblies.

i) Provision for the establishment of a transparent and accessible record of registered vessels, with clear procedure for how to access such records.

j) Provision for public access to information on allocation mechanisms to SSF.

User rights

k) Specification of the user rights that registration and/or licensing secures, including access to the IEZ.

l) Provision of powers to decide or to devolve the decision to introduce user rights that benefit SSF communities, including territorial user rights.

m) Provision for recording of access to fishing grounds and use of specific landing sites and on-shore facilities at registration.

n) Specification of the right to transfer use of artisanal fishing vessels/licences.

o) Requirement for District Assemblies with fishing communities to designate and own areas as public landing sites and to regulate their exclusive use as artisanal landing sites for locals and displaced communities.

Gender

p) Explicit requirement for the inclusion of a representative of women's associations (fish processors and traders) in the Fisheries Commission Board.

q) Inclusion of specific provision to ensure fisheries legislation is consistent with national gender policies.

r) Explicit provision that the Fisheries Development fund should be applied to provide technical and financial assistance to women in fisheries.

s) Provision to allow women access to fishing resources and to register vessels.

Participation and preferential access

t) Requirement for parliamentary approval of licences/ fisheries rights issued to large industrial vessels and foreign vessels.

u) Specification that in preparing the fishery plan, equitable access by all stakeholders and redistributive reform should be guiding principles

2. SAFEGUARD LEGITIMATE TENURE RIGHTS AGAINST THREATS AND INFRINGEMENTS

In recognizing or allocating tenure rights, the State needs to establish safeguards, which prevent the infringement of tenure rights. The State needs to ensure that all actions taken to implement such safeguards are in line with their existing obligations under national, regional and international laws.

Recommendation for policy changes

a) Description of effective mechanisms for involvement of SSF stakeholders in decision-making processes related to the protection of their tenure rights.

b) Recognition of the need to establish a new advisory body through which representatives of stakeholder groups are consulted and involved in management planning and decision-making, including explicitly representatives of SSF and women's groups.

c) Specification of cases in which the advisory body is heard, for example in the development of fisheries management plans, policies, legislation and conclusion of access agreements. Recognition of circumstances where the advice of the advisory body should be binding or collective agreements on fisheries management required.

d) Recognition of the potential negative effect of access agreements on fishing opportunities of SSF, and statement that mechanisms need to be found to ensure that the interests of SSF are taken into consideration before access agreements are concluded.

e) Recognition of the potential negative effect of certain large-scale developments that affect the marine environment on fishing opportunities of SSF, and statement that mechanisms need to be found to ensure that interests of SSF are taken into consideration before such large-scale developments are authorised to ensure that appropriate mitigation measures are taken.

f) Recognition of need to provide process for meaningful compensation in case of damage/ infringement of legitimate tenure rights, including in the form of material compensation that benefits communities as a whole, e.g. building of schools, education, establishment of processing facilities and obligation to process share of catches in these facilities.

g) Recognition of the need to ensure that appropriate, transparent and accessible support is provided to SSF to develop their capacities to protect legitimate SSF rights.

h) Recognition of the importance of strengthening judicial training and negotiation support to SSF in the context of involvement of SSF representatives prior to large-scale investments/access agreements being agreed.

Recommendation for legislation changes

a) Specification that membership of the Fisheries Commission board should include civil society organization, women's association and SSF representatives.

b) Specification of the situations in which the Commission board (or the new stakeholder advisory body) must be consulted (e.g. development of fisheries management plans, policies, legislation and conclusion of access agreements), and where binding advice or collective agreements on fisheries management are required. Clarify procedure for developing advice by advisory body.

c) Provision of specific task of the Fisheries Commission to provide capacity development and support access to justice, targeting SSF and related sectors, including express reference to women. Funding to enable this could be generated through registration/licence fees or taxes on SSF revenues.

d) Requirement for the Fisheries Commission to publish or give notice of all applications for fishing licences submitted by operators of industrial and foreign vessels. Establishment of a mechanism for the provision of inputs from stakeholders and for such inputs to be taken into consideration in deciding whether or not to grant the licence.

e) Express requirement for parliamentary approval for the allocation of licences/ fishing rights to large industrial vessels and foreign vessels, or for the exploitation of fishery resources of a specified magnitude.

f) Provision for mandatory consultation of potentially affected stakeholders prior to concluding fishing access agreements and other large-scale developments that may affect SSF, and specification of procedure for consultation/involvement of stakeholders.

g) Clarification of the situations for which Fisheries Impact Assessments should be mandatory, including provisions on public hearing, access to information and stakeholder participation in the process. Alternatively, provision of legal requirement for the Fisheries Commission to elaborate guidelines to assess fisheries impacts as part of the EIA process.

3. SUSTAINABLE DEVELOPMENT AND TENURE RIGHT-HOLDERS

There is a need to adopt long-term conservation measures which will ensure the continuity of an ecological foundation for food production with reference to the fisheries sector. Rights come with responsibilities and it is crucial to put in place appropriate management systems which are consistent with the obligations of those who are engaged in fisheries management, of which the biggest players will be tenure right-holders.

Recommendation for policy changes

a) Statement that, despite the special position of SSF, these fisheries must be in accordance with the ecosystem approach and precautionary approach to ensure sustainable practices.

b) Specific reference to ensuring that traditional practices that are consistent with responsible fisheries are maintained.

c) Recognition of the need to establish mechanism to facilitate involvement of SSF in management decisions that affect them, including through: development of advisory groups; insertion of obligations to hear SSF and other stakeholders in relevant decision-making processes.

d) Recognition of the need to provide training and support to SSF communities to effectively represent their interests and be involved in the management and policy decision processes that may affect their livelihoods, possibly with the support of SSF representatives within the advisory body.

e) Recognition of co-management as the preferred management option through the involvement of, where possible, SSF communities in the co-management of resources on which they depend for their livelihoods.

f) Statement of the need to develop adequate measures to address over-capacity in the fisheries sector, including for SSF, although negative effects on livelihoods of SSF should be mitigated.

g) Recognition of the role of SSF in MCS, including their positive contribution, and in providing data for MCS and catch statistics.

h) Recognition of the need to facilitate the registration of canoes and provision of documentation and of MCS data, by calling for the development of simplified and accessible systems.

Recommendation for legislative changes

a) Provision of obligation that all fisheries, including SSF, are carried out and planned in accordance with the principles and approaches supporting the conservation and sustainable use of the resources, and that access is regulated by way of such principles as the precautionary approach and ecosystem approach to fisheries.

b) Specific reference that traditional practices must be taken into consideration, but will be subject to principles of sustainable management, including the ecosystem and precautionary approach.

c) Explicit reference to involvement of advisory body, which should include a representative of, among others, SSF interests, in the development of management strategies and decisions over resources that affect the livelihoods of SSF.

d) Provision for mandatory hearing and participation of SSF and other stakeholders potentially affected by future decisions and management plans.

e) Provision of specific task of the Fisheries Commission to provide training and support to SSF communities to effectively represent their interests and be involved in the management and policy decision processes that may affect their livelihoods.

f) Provision for processes to obtain compensation for SSF in case development and management decisions unnecessarily affect their livelihoods.

g) Explicit obligation on the Fisheries Commission to address over-capacity in the fisheries sector, including by developing national plans of action to address over-capacity, carrying out capacity assessments and analysis of actions to be taken, and developing effective and complete fishing vessel records.

h) Requirement for the Fisheries Commission to consult with civil society organizations focused on fisheries, SSF associations and women groups in the preparation of fishery plans.

i) Provision for the general public or concerned groups to submit concerns to the Fisheries Commission during the preparation of fishery plans and for these concerns to be taken into consideration in the finalisation of the plan.

j) Specification of the life span of each fishery plan and procedure for its regular review and revision.

k) Provision of mandate to the Minister for Fisheries to make regulations that provide for the development and establishment of co-management arrangements, structures and mechanisms.

l) Explicit description of the process through which co-management arrangements must be developed, including setting up of a co-management structure/body, and provision of suggested duties and responsibilities including in relation to limitation of access and measures to be taken in case of non-compliance.

m) Obligation to agree the co-management conditions with affected SSF communities, if co-management is possible, prior to initiating co-management.

n) Obligation for the Commission to take into consideration the interests of SSF communities in relation to shared stocks when deciding on shared management arrangements with neighbouring states, and to involve SSF communities in the negotiation process and co-management arrangements if their interests are affected.

o) Provision of legal basis for SSF to contribute to MCS, including reporting on sightings of unregistered vessels engaged in fishing, and of vessels engaged in IUU fishing activities, and obligation on SSF to provide data for MCS and catch statistics.

p) Establishment of a functioning register of SSF vessels, including recognition and registration of activities that the vessels may legitimately engage in.

4. SOCIAL DEVELOPMENT, EMPLOYMENT AND DECENT WORK

A State thrives on social development and employment. Consideration should be given to integrated, ecosystem and holistic approaches to SSF management and development. These approaches should take into account the complexity of livelihoods. All parties should be involved in the protection of human rights and the dignity of SSF stakeholders.

Recommendation for policy changes

a) Explicit recognition of representative organisations of stakeholder groups, including for SSF, in the representation of stakeholder interests, including in relation to the advisory body/Council.

b) Recognition of the importance of professional and organisational organisation of SSF, and recommendation to develop ways to facilitate the establishment of such organisations, including by recognising their existence and by involving g their representatives in decision-making and co-management processes, on the basis of principles of transparency, accountability, representativeness, equity and non-discrimination.

c) Policy recognition that occupational health and unfair working conditions may be/are an issue in the country. Statement that an assessment of the situation must be made and that measures to address the issue should be developed, with involvement of relevant stakeholders and organisations.

Recommendation for legislative changes

a) Legislation recognizing the process by which representatives of SSF organisations are selected, their duties and responsibilities, including selection of representatives through a transparent process, focusing on capacities, and fair selection procedures, procedure for ensuring the representatives engage in stakeholder hearings and sharing of information, documentation of process, accountability of representatives for duties and responsibilities, and training and remuneration.

b) Explicit reference to obligations in relation to occupational health, labour standards and working conditions in the context of issued licenses and authorisations.

5. GENDER EQUALITY

Gender equality is fundamental to development. Policies and laws that secure tenure rights should not be discriminatory or gender biased so that there is the recognition of the vital role both women and men play in the fisheries industry. There is also the need for States to comply with their obligations under international human rights law to implement policies and measures which give recognition to gender equality.

Recommendation for policy changes

a) Recognition of the need to ensure gender equity in the application of the legislation and reference to specific mechanisms to ensure gender equity, including by involvement of women in advisory boards, in co-decision-making and in co-management of resources.

b) Recognition of the need to include a representative of women's interests in the advisory body, to be involved in the development of management strategies and decisions over resources that affect the livelihoods of women, especially those in SSF communities.

c) Explicit reference to the need to address discrimination, including against women, in the application of the law, in accordance with international instruments.

d) Statement that recognizes and promotes the implementation of international instruments to address discrimination against women and other human rights in the context of fisheries.

e) Policy addresses the need for training and support for women to effectively represent their interests and be involved in the management and policy decision processes that may affect their livelihoods, possibly with the support of the women's representative within the advisory body.

f) Provision of a clear intention and mechanism to facilitate the involvement of women in management of SSF, especially where related to or affecting retail.

Recommendation for legislative changes

a) Reference specific actions to be taken to ensure gender equity in the application of the legislation including the inclusion of a representative of women's interests in the advisory body, the organizational development of women's interests and their recognition, and support in capacity building specifically targeting women

b) Requirement for the mandatory hearing and participation of women and other stakeholders potentially affected by decisions and management plans.

c) Explicit provision for processes to obtain compensation for SSF, including women, in case development and management decisions unnecessarily affect their livelihoods.

d) Requirement that the Fisheries Development fund be applied to provide technical and financial assistance to women in fisheries.

e) Provision to allow women access to fishing resources and to register vessels.

6. NATURAL DISASTER RISKS AND CLIMATE CHANGE

The State must recognize that combating climate change, including in the context of sustainable SSF, requires urgent and ambitious action. The State should take into consideration the differential impact of natural and human-induced disasters as well as climate changes on fisheries. It is therefore necessary that the State develops policies and plans which will address climate change in fisheries, in particular strategies for adaptation and mitigation, as well as for building resilience, in full and effective consultation with fishing communities.

Recommendation for policy changes

a) Policy requiring measures related to climate change adaptation support to take into consideration needs and interests of SSF.

b) Reference to taking into consideration needs and interests of SSF communities in the development and application of emergency response and disaster risk management strategies.

Recommendation for legislative changes

a) Explicit reference to the need to ensure that stakeholder representatives of SSF interests are heard and involved in the development of climate change adaptation strategies, based on data on the SSF sector and the way climate change adaptation may affect their livelihoods.

b) Explicit reference in measures related to climate change adaptation support to take into consideration needs and interests of small-scale fishers.

7. POLICY COHERENCE, INSTITUTIONAL COORDINATION AND COLLABORATION

A single body cannot take up the role of ensuring a sustainable, equitable and efficient fisheries sector. In this regard, it will be necessary for the state to give recognition to the need for coherence across policies and institutions, for example with planning and tourism authorities, and between the Fisheries Commission and the Petroleum Commission with regard to oil and gas exploration and installations. Further, the institutions that work within the fisheries sector need to coordinate and collaborate with each other. This will ensure development is comprehensive and sustainable.

Recommendation for policy changes

a) Statement that SSF and customary tenure systems need to be considered and communities need to be involved in integrated practices such as integrated coastal zone management.

b) Policy addressing long-term vision for sustainable fisheries, including SSF, and the eradication of hunger, based on the ecosystem approach to fisheries and other responsible fisheries measures.

Recommendation for legislative changes

a) Explicit provision to ensure consideration and where possible application of spatial planning and integrated coastal zone management.

b) Provision for cross-sectoral stakeholder consultations possibly through the establishment of a dedicated body (e.g. as a sub-body of the advisory body/council) in which multi-sectoral interests are represented or through ad hoc arrangements, depending on frequency.

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8. ACCESS TO JUSTICE

Providing effective and legitimate ways to settle disputes or grievances is an important factor in protecting legitimate tenure rights and one of the key functions of the law. In this regard, it is important that the state provides access through impartial and competent judicial and administrative bodies to timely, affordable and effective means of resolving such disputes and grievances, as well as effective remedies and a right to appeal.

Recommendation for policy changes

a) Recognition of the need to ensure and facilitate that all resource users, in particular SSF, and vulnerable and marginalised people have access to judicial and administrative bodies to resolve disputes.

b) Recognition of the need to establish a specialised court for fisheries and related matters to improve efficiency and effectiveness of justice delivery.

Recommendation for legislative changes

a) Provision of effective and informal dispute settlement mechanisms to ensure that all resource users, in particular SSF, and vulnerable and marginalized people, have access to judicial and administrative bodies to resolve disputes. This may include the establishment of a dedicated tribunal or body to deal with SSF tenure rights disputes and related matters.

b) Establishment of a specialized magistrate court for fisheries and related matters to SSF to improve the efficiency and effectiveness of justice delivery.

c) Provision of obligation to negotiate compensation for losses in fishing opportunities for those who depend on fishing for their livelihoods as a result of human interventions.

CHAPTER SIX - CONCLUSION AND LEGISLATIVE PROPOSALS

This report consists of a desk review of all identified laws and policy relevant to fisheries and a review of the fisheries law framework as benchmarked against the VGGT and SSFG to determine alignment with the voluntary principles, identify gaps and propose recommendations on changes to the legislation.

The report also incorporates comments from stakeholders into the desktop findings, recommendations and suggested amendments to the 2002 Fisheries Act and 2010 Fisheries Regulations in a final report.

In particular, draft legislative proposals streamlined and targeted to the various legislative recommendations are provided taking account of the broad framework of the Ghana legal system. In the attached table, Appendix 1, these proposals are presented in a tabular form where the legislative proposals are matched with their corresponding recommendation and the current state of the law.