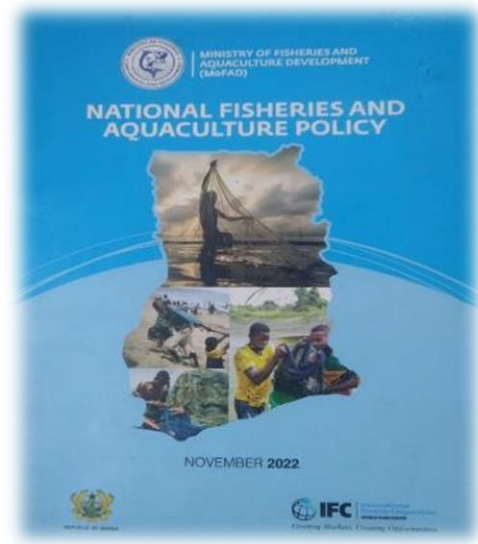
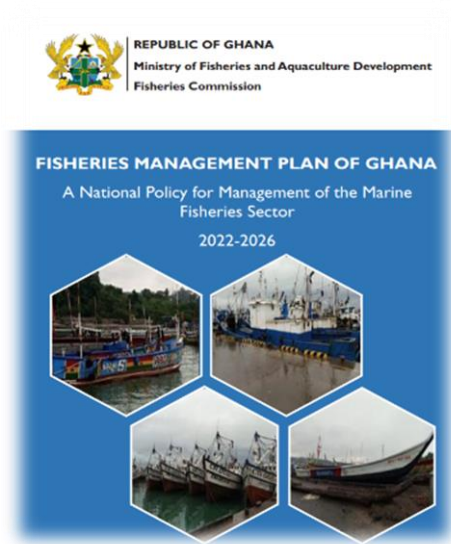




FISHERIES COMMISSION

(MINISTRY OF FISHERIES AND AQUACULTURE DEVELOPMENT)



2023 ANNUAL PERFORMANCE REPORT



APRIL 2024

2023 ANNUAL PERFORMANCE REPORT

Fisheries Commission, 2024

SUMMARY OF KEY INDICATORS

Indicator	2023	2022	% Change
Environmental and Oceanographic Parameters			
<i>Average Annual Sea Surface Temperature (°C)</i>	27.63±2.1	26.7±2.1	0.9±2.97
<i>Average Annual Salinity (‰)</i>	36.02±0.6	33.6±1.9	2.4±1.99
<i>Annual Upwelling Index</i>		16.46	-100.0
Total Annual Fish Requirement (mt)	1,275,095.72	1,254,015.72	4.3
Annual Fish Production (mt)	684,114.87	657,472.31	4.1
<i>Annual Marine Fish Production (mt)</i>	425,423.91	378,196.51	12.5
<i>Annual Inland Fish Production (mt)</i>	142,583.13	146,623.41	-2.8
<i>Aquaculture Production (mt)</i>	116,107.83	132,652.39	-12.5
Fish Imports (mt)	84,827.50	165,829.34	-48.9
Value of Fish Import (FOB) (US\$)	44,166,729.26	74,928,325.00	-41.1
Fish Exports (mt)	203,103.63	171,335.55	18.5
Value of Fish Export (US\$)	425,969,296.32	359,342,093.82	18.5
Fish Self Sufficiency (%)	44.4	52.0	-14.6
Per Capita Consumption (kg)	17.8	20.8	-14.4
Total Number of Industrial Vessels Licensed to Fish	74	106	-30.2
Number of Newly Registered Vessels (Replacement)	0	2	-100.0
Total Number of Quayside Inspections of Vessels	375	561	-33.2
New Ponds Constructed	400	389	2.8
New Cages Developed	23	14	64.3
Total Number of Fingerlings Produced	381,198,262	615,873,001	-38.1
Total Number of Staff	524	564	-7.1
FC Budget Approved (GH¢)	49,325,039.00	38,525,315.00	28.0
Actual Expenditure (GH¢)	48,176,000.57	27,532,890.94	75.0
Internally Generated Funds - IGF (GH¢)	108,748,866.28	47,815,122.23	127.4

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ABBREVIATIONS

ABFA	Annual Budget Fund Allocation
AFJ	Aquaculture for Food and Jobs
AU	African Union
CIC	Canoe Identification Card
CIS	Canoe Identification System
ClaT	Child labour and Trafficking
CPESD	Coordinated Programmes for Economic and Social Development Policies
CSOs	Civil Society Organizations
ECOWAS	Economic Commission for West Africa States
EU	European Union
F2F	Fisher to fisher
FAD	Fisheries Aggregating Device
FAO	Food and Agriculture Organization
FCWC	Fisheries Committee for the West Central Gulf of Guinea
FEU	Fisheries Enforcement Unit
FfD	Fish for Development
FMOC	Fisheries Management Operational Committee
FRM	Fisheries Resource Management
FSSD	Fisheries Scientific Survey Division
GDP	Gross Domestic Product
GFRA	Ghana Fisheries Recovery Activity Project
GNADP	Ghana National Aquaculture Development Plan
GNCFC	Ghana National Canoe Fishermen Council
GoG	Government of Ghana
GSI	Gonadosomatic Index
ICCAT	International Commission for the Conservation of Atlantic Tuna
ICCAT	International Commission for the Convention of Atlantic Tunas
IFC/WB	International Finance Corporation of the World Bank
IGF	Internally Generated Funds
IUU	Illegal, Unreported, Unregulated
IYAFA	International Year of Artisanal Fisheries and Aquaculture
LBCs	Landing Beach Committees
MFMD	Marine Fisheries Management Division
MFMP	Marine Fisheries Management Plan
MoFAD	Ministry of Fisheries and Aquaculture Development
MoGCSP	Ministry of Gender, Children and Social Protection
MoU	Memorandum of Understanding
MPA	Marine Protected Areas
MSCD	Monitoring, Control and Surveillance Division
NAFAG	National Fisheries Associations of Ghana
NAFPTA	National Fish Processors and Traders Association.
NFAP	National Fisheries and Aquaculture Policy
NGOs	Non-Governmental Organizations
NICFC	National Inland Canoe Fishermen Council
NPA	National Petroleum Authority
NPFS	National Premix Fuel Secretariat
OACPS	Organization of African, Caribbean and Pacific States
OACPS	Organization of African, Caribbean and Pacific States
PSMA	Port State Measures Agreement
SST	Sea Surface Temperature
STC	Scientific and Technical Committee
USAID	United State Agency for International Development

EXECUTIVE SUMMARY

The fisheries sector is of great importance to Ghana for several reasons: i. economic contribution, ii. Food security, iii. Livelihoods, iv. Cultural importance, v. and Environmental

sustainability. It is essential to continue to support and invest in the sector to ensure its continued growth and contribution to the country's development.

1. Economic Contribution

There has been a decline in the sector's contribution to the GDP over a decade by 4.4%. The fisheries GDP increased by 0.08% from 0.93% (2022) to 1.01% (2023). The breakdown of the subsectors within the fisheries sector reveals that marine fisheries accounted for 0.64% of the GDP, inland fisheries by 0.25%, and aquaculture by 0.12%. Except for the

marine sub-sector, the inland and aquaculture subsectors reported decreases of 0.03% and 0.07%, respectively, from 2022 to 2023. Except for the marine sub-sector, the inland and aquaculture subsectors reported decreases of 0.03% and 0.07%, respectively, from 2022 to 2023.

2. Resource Management and Aquaculture Development

The total annual fish production increased by 4.1% from 657,472.31 mt in 2022 to 684,114.87 mt in 2023. Marine catch ranked the highest (61.3%) followed by inland (21.3%) and aquaculture (17.4%). The overall volume of marine fish landings increased 12.5% from 378,196.51 mt (2022) to 425,423.91 mt (2023) due to a significant increase in industrial catch as a result of the closed season. The artisanal sub-sector reported decline of fish catches by 4.2% between 2022 and 2023. In terms of the share of artisanal fish landed by regions for the year 2023, the Western region reported the highest (38.6%) with the least being the Volta region (10.2%). Volume of fish landed by the inshore showed an increase of 1.2% while industrial also about double (102%). Among the three regions (Western, Central, and Greater Accra) reporting on inshore, Greater Accra recorded the highest share (39.2%) with the least coming from Central region (24.0%) for the year 2023. Tuna catches shot up by 39.6% from 91,095 mt (2022) to 127,147 mt (2023).

Inland fish production declined by 2.8% from 146,623.41 mt in 2022 to 142,583.13 mt in

2023. Data is collected mainly from landing sites from Yeji. Aquaculture production declined by 12.5% mainly due to water spillage at Akosombo which affected mostly the downstream farms.

Cages as usual contributed the largest share (85% followed by ponds/tanks/tarpaulins (12.5%) with the least coming from dams, dugouts, and reservoirs (0.3%). Tilapia species accounted for the largest share of fish species produced (63.65%) in the country. Eastern, Greater Accra and Ashanti were the 1st three main regions contributed significantly to the overall aquaculture production. Volta region dropped from the 3rd position to the 4th due to the negative impact of water spillage at the Akosombo dam for the year 2023 on fish farmers at the down stream. A total of 115 private hatcheries were recorded in 2023 of which 102 representing about 89% were functional. Total fingerlings produced stood at about 381.2 mil. pieces showing a decline of 40%.

Total premix fuel liftings to fishermen

decreased by 18.3% from 39,582,000 Lt in 2022 to 32,346,000 Lt (2023) supplied to the landing beach committees due to prolonged payment of under-recoveries owed to Bulk Oil Distribution Companies (BDCs) lifting Premix Fuel by Government. Three Hundred (300) Automated Premix Fuel outlets are expected to

3. Fisheries Enforcement

There was a 100% observer coverage of all industrial fleet. Monitoring control and surveillance was carried out 24/7 and 375 quayside inspections were conducted. Fish imports decreased from 165,829.34 mt in 2022 to 84,827.50 mt in 2023 by 48.8%. Transit of frozen fish to landlocked countries also decreased by 3.3% from 66,074.24 mt (2022) to

4. Fish Health and Post-Harvest

The Fisheries Commission, as part of the efforts to ensure the production of safe and quality fish and fishery products trained 126 fisheries officers and aquaculture operators on Catfish Hatchery Management, Fish Health Management, and Water Quality Test Kits. Seventy-four (74) fish disease and mortality cases were investigated in the Greater Accra (8), Eastern (26), Oti (1), Volta (4), and Northern sector (36).

To enhance the post-harvest sector, a meeting was held for post-harvest operators which include academia, government institutions, NGOs, and donor partners. A policy and technical brief and a guide on the inclusion of

be installed nationwide of which Fifty (50) representing 16.7% have so far been completed. The construction of the Automated fuel Dispensing and monitoring system is to improve accountability, efficiency, and transparency in the premix fuel distribution system.

63,906.57 mt (2023). Forty-four (44) community sensitization programmes were carried out in the Eastern and Western Command as well as communities along the Volta Lake (Inland) in 2023. The number of accidents at sea reported showed an increase from 17 (2022) to 19 (2023) representing 11.8%

small fish in the Ghana School Feeding Program were developed and launched. Safe Fish Certification and Licensing Scheme (SFCLS) was also launched in the year. The Commission trained and sensitized fisheries officers and fishers in hygienic fish handling, processing, group dynamics, business management and financial literacy, and gender mainstreaming. Seven hundred (700) fishers drawn from five (5) communities within the Greater Accra Region were sensitized on Hygienic Fish Handling while 34 stakeholders, comprising Fisheries Officers, Environmental Health Workers, CSOs/NGOs and Fishers were trained on Financial Literacy and Business Management

5. Fisheries Sector Coordination and Public Relations

To address the issue of overcapacity with the view to recovering depleted marine fish stocks, the Fisheries Commission and MoFAD after extensive stakeholder consultations at regional and national levels announced the implementation of a three (3)-year moratorium on new marine artisanal canoe entrants effective 1st October 2023. The Ministry completed the construction of a state-of-the-art National Aquaculture Centre and Commercial Farms to provide skills training in various aspects of aquaculture including production, farm management, fish health, feed

formulation, and processing for the youth to take up aquaculture as a viable enterprise. MoFAD and the National Premix Fuel Secretariat commenced the implementation of the Premix Fuel Automation Project of installing 300 automated premix fuel outlets at designated landing beaches across marine and inland fishing communities in June 2022. The project is expected to ensure equity, transparency, and accountability in premix fuel dispensing and provide real-time monitoring of premix fuel distribution. A National Fish festival was organized in the year as well as the

participation in the National Farmers Day Celebration. Progress was made steadily in drafting regulations to implement the Port State Measures Agreement (PSMA) aimed at preventing, deterring, and eliminating Illegal, Unreported, and Unregulated (IUU) fishing.

6. Gender and Youth

There was a collaboration with donor partners to build synergies to promote social inclusion in the fisheries sector. To address these gaps, GFRA, with the support of MoFAD/FC collaborated with key stakeholders at regional and national levels to build synergies and improve capacities for addressing gender mainstreaming and equity issues in an intentional manner. A key outcome of this

7. Management and Administration

The numerical strength of staff stood at 524 made up of 326 (62%) males and 198 (38%) females. The total staff strength dropped by shot up by 6.8% over the 2022 figure of 561. The decrease was as a result of the retirement and resignation of newly recruited staff. A total of 147 officers, made up of 88 professionals and 59 sub-professionals were promoted in the year.

The Commission Board undertook the

This effort received support from the Food and Agriculture Organization (FAO) as part of the "EC-funded project GCP/GLO/447/EC Fourth PSMA Global Capacity Development Programme Support Project." The regulation was also validated within the year.

intervention is the creation of the Fisheries Sector GESI Platform to improve synergy, cross-learning, and data management. Also, a total of 4,748 participants were trained on gender-based violence. The capacity of the media was built in Gender and Youth Development using the media to promote social and behavioral change.

following activities during the year: approve establishment ceilings and vacancies for FC, met the fisheries and aquaculture industrial to ascertain the impact of Akosombo Dam Spillage, visited to Apam to observe post-closed season biological data collected by fisheries officers, retreat with Management of FC to assess performance of 2023 planned activities and approval of allowances and fuel for the staff.

CHAPTER ONE

SECTOR OVERVIEW

1.0 Introduction

The fisheries and aquaculture sector in Ghana is essential for job creation, food security, and nutrition. With a growing population, there is a higher demand for protein sources, and seafood is a vital part of many diets in the country. However, in order to sustainably meet this demand, significant reforms are needed across different aspects of the sector through the following: Policy - *enacting policies that promote sustainable fishing practices, protect marine ecosystems, and ensure fair labour practices within the industry*; Management- *maintaining healthy fish stocks and ecosystems by adopting science-based management practices, improving monitoring and enforcement efforts, and co-management in decision-making processes*; Innovation- *aims at increasing the efficiency and sustainability of fisheries and aquaculture, which could involve the development of new fishing technologies that reduce bycatch and habitat damage, advancements in aquaculture systems to improve productivity whilst also minimizing environmental impacts, and value addition -the creation of new value-added products from seafood by-products*; and Investment- *transitioning towards sustainable fisheries and aquaculture by capitalising on research and development, infrastructure improvements, capacity building for fishers and aquaculture practitioners, and financial mechanisms to support small-scale fishers and coastal communities*.

The report is divided into ten chapters, starting with an overview of the fisheries sector in chapter one. Subsequent chapters two to five cover fisheries resource management, aquaculture development, fisheries law enforcement, as well as aquatic animal health, and post-harvest management. Chapters six and seven focus on fisheries sector coordination, public relations activities and issues related to gender, and youth. Chapter eight discusses programmes and projects implemented, while chapter nine explores project implementation collaborations. The challenges and future direction of programme implementation are outlined in chapter ten.

1.1 The Fisheries Perspective

Ghana fisheries resources are from three main sources namely capture, aquaculture, and culture-based. Capture fisheries involves harvesting of fish from the wild, including marine (the ocean); brackish (lagoons); riverine (such as Oti, Pra, Black and White Volta); and lacustrine (including Lakes Volta and Bosomtwe) environment. Aquaculture is practised in ponds, cages and tanks in freshwater (inland) environment. Culture-based fisheries are practiced in reservoirs, dams and dug-outs mainly in the five regions in the northern part of Ghana.

Ghana's exploitable marine fisheries resources include small pelagics, also known as "people's fish," large pelagics, or tunas, and demersal species. Ghana has 550 km of coastline along the Gulf of Guinea. Round and flat sardinellas, anchovies, chub, and horse mackerels are the most significant small pelagic species, accounting for 60–70% of the total marine fish production. The small pelagics provide a significant contribution to the nation's fish food and nutrition security due to their abundance and affordability. Together with the large pelagic species (Bigeye, Yellow fin, and Skipjack), the most significant demersal species are sea breams, red snapper, groupers, grunts, croakers, cephalopods, and shrimp which make up a considerable portion of the foreign exchange earnings.

The marine sub-sector comprises artisanal, semi-industrial (inshore) and industrial. The predominant artisanal sub-sector is an open access, multi-gear fisheries, operated from 12,181¹ dugout canoes that contribute about 71% of the marine total catch, mostly small pelagic species. The semi-industrial subsector comprises 400 vessels of locally constructed, wood hull vessels, powered by 100HP inboard engines out of which 250 are operational. The industrial subsector comprises 71 trawlers and 39 tuna vessels that are steel hulls and which are all imported. The inland fisheries are also mainly artisanal, operating from 24,000 landing sites along Volta Lake and in other inland water bodies. The most important species include tilapia, catfish, heterotis, Nile perch, bony tongues, silver catfish, and synodontis species.

Aquaculture is mainly freshwater based. It continues to be the fastest growing sub-sector which has attracted significant investment from the private sector. Aquaculture production grew by 17.2% from 44,610mt (2015) to 76,620mt in 2018, however, production dropped to 52,350.02mt in 2019 due to the disease incidence that occurred on the Volta Lake in 2018. Fish production, however, increased to 64,004.06 mt in 2020 (22.26%). This was partly attributable to the aggressive fish immunization exercise carried out in the aquaculture enclave on the Volta Lake by the Fisheries Commission with collaboration from MoFAD. There was an increase from 64,004 mt (2020) to 89,375.48 mt in 2021 which constituted a 39.6% increase over that of 2020. There was a further increase of 48% to 132,652.40 in 2022. However, the year under review recorded a lower production of 116,107.83 mt, representing 12% decline due to flood caused by rain and spillage of the Akosombo Dam. There are about 2,000 small-scale aquaculture establishments and about 10 large-scale operators in existence in the aquaculture sector. Small-scale fish processors process harvested fish into more stable forms like smoked, salted/sun-dried, and fermented fishery products.

1.2 Contribution of Fisheries to GDP

Generally, the fisheries subsector percentage share of GDP dropped consecutively for five (5) years from 1.33% in 2014 to 0.88% in 2019 [except in 2015 (1.46%)] and then increased to 0.96% and 1.06% in 2020 and 2021 respectively (Table 1.1). The year under review recorded an increase by about 0.08% points to 1.01% while 2022 recorded 0.13% points decline. The Agriculture Sector recorded the lowest share of GDP in 2023 (22.69%) with the highest being services (45.64%). For a decade, the share of agriculture sector to GDP has been the lowest ranging from 18.51% to 22.69% after the rebasing of the economy in 2013, to include oil and gas. The trend shows an annual declining rate of 0.39% in the share of Agriculture GDP from 21.55% in 2014 to 22.69% in 2023. The fisheries subsector also declined by 4.46% for the decade from 1.33% (2014) to 1.01% (2023) (Table 1.1).

Table 1.2 shows that the marine sub-sector has since 2014 recorded the highest share of GDP, ranging from 0.46% to 0.86%. In 2023, Marine recorded a share of GDP of 0.64% compared to Inland (0.25%) and Aquaculture (0.12%). The percentage change in GDP for marine, inland and aquaculture from 2022 to 2023 were 39.13%, -10.71% and -36.84% respectively. The dwindling nature of the fisheries contributions to GDP may be attributable to impacts of challenges in the fisheries sector which include disease outbreak in the aquaculture sub-sector, overexploitation in the capture and inadequate data collection specifically in the inland sub-sector among others.

¹ 2022 Canoe Frame Survey

Table 1. 1: Contribution of Sectors to GDP

Sector	2014	2015	2016	2017	2018	2019	2020	2021	2022 ²	2023
Agriculture:	21.55	21.81	22.55	21.03	19.50	18.51	20.07	20.05	20.81	22.69
o/w Fisheries Sub-	1.33	1.46	1.35	1.11	0.94	0.88	0.96	1.06	0.93	1.01
Industry	37.29	33.97	29.95	32.21	33.53	33.24	31.81	30.42	33.56	31.67
Services	41.16	44.22	47.50	46.76	46.97	48.24	48.11	48.53	45.62	45.64

Source: Ghana Statistical Service (2014-2023)

Table 1. 2: Fisheries Sub-Sector Share of GDP (Percentage)

Sub-Sector	2014	2015	2016	2017	2018	2019	2020	2021	2022 ³	2023
Marine	0.79	0.86	0.79	0.65	0.51	0.51	0.61	0.60	0.46	0.64
Inland	0.39	0.41	0.37	0.24	0.23	0.24	0.21	0.30	0.28	0.25
Aquaculture	0.15	0.18	0.20	0.22	0.20	0.13	0.15	0.16	0.19	0.12
Total	1.33	1.46	1.35	1.11	0.94	0.88	0.96	1.06	0.93	1.01

Source: Ghana Statistical Service (2014-2023)

Table 1.3 reports of the growth rate of gross domestic product at constant 2013 prices for the sectors of the economy. The growth rate for the agriculture sector experienced fluctuations with the highest growth recorded in 2021 and the least in 2014. The growth rate of agriculture sector dropped from 8.5 percent in 2021 to 4.2 percent in 2022 and then expanded by 4.5 percent in 2023. The fisheries sub-sector, which has been the driving force of growth in the agriculture sector from 2020 to 2022, saw a declined from 14.2% in 2021 to 8.8 percent in 2022 and further declined to 4.1 percent in 2023. Apart from the agriculture sector, the other sectors experienced a decline in growth rate.

The Services sector recorded the highest growth rate of 5.5 percent, followed by Agriculture (4.5) and Industry (-1.2) sectors. Fisheries sub-sector also expanded by 4.1 percent in 2023 over 2022 (Table 1.3). The growth in the fisheries sub-sector is mainly attributable to the following: (i) implementation of the closed season, which enhanced spawning and improved fish sizes; (ii) increased trainings on improved aquaculture management practices; (iii) implementation of the Aquaculture for Food and Jobs programme; (iv) adherence to ministerial trawl gear directives and (v) improved data collection regime in terms of coverage and methodology.

Table 1. 3: Growth Rates of Gross Domestic Product at Constant 2013 Prices

Sector	2014	2015	2016	2017	2018	2019	2020	2021	2022 ⁴	2023
Agriculture:	0.9	2.1	2.7	6.2	4.9	4.7	7.3	8.5	4.2	4.5
• Crops	2.8	1.7	2.2	7.2	5.8	5.3	8.6	8.9	3.8	4.8
o.w. Cocoa	4.3	-8.0	-7.0	9.2	3.7	5.4	1.4	10.4	0.9	-0.3
• Livestock	5.1	5.2	5.4	5.7	5.4	5.4	5.4	5.5	5.5	6.5
• Forestry and Logging	-1.5	-3.9	2.9	3.4	2.4	-1.7	-9.4	4.4	1.7	-5.0
• Fisheries Sub-sector	-23.3	8.5	3.1	-1.4	-6.8	1.7	14.1	14.2	8.8	4.1
Industry	1.1	1.2	4.3	15.6	10.5	6.4	-2.5	-0.5	0.6	-1.2
Services	5.2	2.9	2.8	3.4	2.8	7.6	0.7	9.4	6.3	5.5

Source: Ghana Statistical Service (2013-2023)

Table 1.4 shows a summary of growth rate for the fisheries sub-sectors. The highest growth of GDP in the fisheries sector since 2014 was recorded in 2021 with a rate of 14.2%, followed by 2020 (14.1%)

² Provisional estimated figures

³ Provisional estimated figures

⁴ Provisional estimated figures

and 2022 (8.8%). Growth in the sector has been fluctuating since 2014 with negative growth rates of -23.3% (2014), -1.4% in 2017 and -6.8% in 2018 (Tables 1.3 & 1.4). On the average, the fisheries sector has expanded by 2.3% (2014 to 2023) while the year under review saw an expansion of 4.1%.

Table 1. 4: Sub-sector Growth Rate

Sub-Sector	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Marine	-31.8	8.4	1.6	-0.9	-13.5	8.8	23.1	2.9	-4.3	32.4
Inland	-18.6	4.4	-0.9	-22.2	4.8	13.6	-6.1	45.5	15.4	-12.1
Aquaculture	52.7	19.6	19.2	35.7	0.5	-29.6	15.2	15.3	45.2	-40.9
Total	-23.3	8.5	3.1	-1.4	-6.8	1.7	14.1	14.2	8.8	4.1

Source: Ghana Statistical Service (2014-2023)

1.3 Policy Trajectory of the Sector

1.3.1 Policy Initiatives

The Ministry of Fisheries and Aquaculture Development through the 2014-2017 Coordinated Programmes for Economic and Social Development Policies (CPESD), projected that the structure of fish production in Ghana is expected to change significantly over the period 2017-2025 with marine production estimated to constitute 52% from 71%, followed by aquaculture rising to 28% from 13% in 2017 and inland production from 16% in 2017 to 20% with a heightened emphasis on aquaculture development and sustainable management of aquatic fisheries resources. The current (2023) structure stands at 61%, 21% and 17% for Marine, Inland and Aquaculture respectively.

The Commission has, over the years, been implementing policies that are geared towards improving the fisheries and aquaculture sector. Implementation of programmes and projects are pivoted on the following Policies/Plans: National Fisheries and Aquaculture Policy, Fisheries Co-Management Policy, Marine Fisheries Management Plan (2022-2026) and its 2023-2024 Annual Operational Plan, Draft Ghana National Aquaculture Development Plan, and Ghana National Aquatic Animal Health Policy.

- **National Fisheries and Aquaculture Policy 2022**

The National Fisheries and Aquaculture Policy, 2022 (NFAP 2022) builds on the 2008 Policy (NFAP 2008) and is an outcome of a detailed review of the current status of capture fisheries and aquaculture, the management of the fisheries sector, a review of other policy documents relevant to fisheries and aquaculture, as well as widespread consultations with stakeholders. The Policy is expected to consolidate the results achieved from the implementation of the 2008 Policy and take into consideration the changing nature of the fisheries and aquaculture sector globally, and for that matter in Ghana.

The Policy is also guided by the Medium-Term National Development Policy Framework (Agenda for Jobs) (2018-2021) which operationalizes the Coordinated Programme of Economic and Social Development Policies (2017-2024) and takes into account national policies including the Ghana National Climate Change Policy, and the Food and Agriculture Sector Development Policy (FASDEP II). In this regard, national development priorities and the general principles of policy development, including transparency and accountability, equity, stakeholder participation, conservation, sustainability and precautionary principles have been considered. In addition, the Policy is informed by a number of international initiatives and best practices of relevance to the sector such as the Blue Growth Initiative, Blue Economy Agenda, Gender and Youth, as well as Child Labour and Trafficking in the Fisheries Sector. Eleven (11) key policy focus areas have been identified in this Policy. Each area has a specific goal, operational objectives and policy actions for the operational objectives. The key focus areas are:

- i. Marine Fisheries

- ii. Lagoon Fisheries
- iii. Inland Fisheries
- iv. Aquaculture
- v. Fisheries Infrastructure Development
- vi. Post-Harvest Management & Trade
- vii. Aquatic Animal Health
- viii. Environment & Climate Change
- ix. The special case of Small-Scale Fisheries
- x. Fisheries Governance
- xi. Research and Innovation

- ***Fisheries Co-Management Policy (2020)***

Co-management is a partnership arrangement between government and the local community of resource users, sometimes also connected with agents such as NGOs and research institutions, and other resource stakeholders, to share the responsibility and authority for the management of a resource. It takes many forms from very little power sharing where government generally consults with resource users on proposed rules, to systems where management decisions regarding exploitation and utilization of the resources are made primarily by user groups.

Fisheries Co-Management Policy has been developed mainly to provide a roadmap for Ghana's fisheries management that transitions from a basically top-down consultative management framework to an approach that provides for some delegation of authority to resource users and other stakeholders in the decision-making processes. There is no one right way for implementing co-management policies and the approach taken in Ghana must consider the unique ecological, socio-economic and cultural characteristics of the fisheries industry. When it is fully implemented, fisheries management at the regional and local levels will be significantly improved.

- ***The Ghana National Aquatic Animal Health Policy (2017)***

The Policy was developed to ensure that fish farming systems and operators of fish culture facilities in Ghana are provided with a management and regulatory framework to prevent, control or treat fish diseases in accordance with acceptable standards and regulations. This will ensure food safety and security and optimize economic benefits. The main objectives of the Policy are:

- ✓ To improve ***biosecurity measures*** at enterprise, regional and national levels.
- ✓ To strengthen ***emergency disease preparedness and response*** capability to adverse aquatic animal health events.
- ✓ ***To improve*** disease detection, surveillance and diagnostic services.
- ✓ To enhance ***availability of appropriate and safe veterinary medicines***.
- ✓ To promote ***education, training and awareness*** of aquatic veterinary health.
- ✓ To promote ***domestic and international trade***

- ***Marine Fisheries Management Plan (2022-2026)***

The Fisheries Commission in collaboration with MoFAD developed a new Marine Fisheries Management Plan (2022-2026) to replace the 2015-2019 Marine Fisheries Management Plan. The MFMP 2022-2026 was approved by Cabinet in February 2023 and gazzeted in March 2023 for implementation. In addition, an operational plan for 2023 to 2024 was developed to guide its implementation and the FMOC was established to ensure its implementation.

- ***Ghana National Aquaculture Development Plan (2024-2028)***

The evaluation of the GNADP (2012-2016) for a new Plan spanning 2024-2028, which began in 2021, was continued during the review period. Since the inception of the GNADP in 2012, the aquaculture sub-sector has undergone significant transformations at both national and global levels. Consequently, an update to the Plan in 2021 was deemed necessary to align with international best practices. The GNADP 2024-2024 aims to sustain the growth of the sub-sector while building upon the sectoral progress made during the implementation of the GNADP 2012-2016. Aligned with the National Aquaculture Strategic Framework of 2021, the GNADP 2024-2024 is designed to promote aquaculture as a viable business, offering a strategic roadmap for the expansion, management, regulation, and sustainable development of aquaculture in a responsible manner.

The medium-term objectives are to:

1. Increase commercial farmed fish produced from 116,107.83 mt in 2023 to 238,655.49 mt by the end of 2028 with an average annual growth of 15.5%.
2. Increase the market share of commercially farmed fish from 14% in 2021 to 25% in 2027, and the value of farmed fish from US\$ 132,863,646.07 in 2021 to US\$314,704,672.47 in 2027.
3. Improve the performance of 50% of fish farms and related aquaculture value chain enterprises by at least 80% within the plan period of 5 years.
4. Sustainably improve the environment for aquaculture production, aquatic animal health standards and social acceptability of aquaculture products.
5. Improve the effectiveness and efficiency of public sector institutions in aquaculture development, regulation and policy formulation.

- ***Drafting of Regulations to Effectively Implement Port State Measures Agreement***

Ghana, through the Ministry of Fisheries and Aquaculture Development, is a member of regional and international fisheries organisations and is also a signatory to regional and international fisheries treaties including the Port State Measures Agreement to prevent, deter and eliminate Illegal, Unreported, Unregulated (IUU) fishing. Accordingly, Ghana is obliged to implement the decisions and provisions of these organisations and treaties. However, a review of the existing legal framework revealed that there are gaps in the fisheries legislation, especially relating to the implementation of international fisheries instruments. Additionally, IUU fishing remains a major threat to managing marine fisheries resources.

The Ministry and the Fisheries Commission with the support of the FAO under the EC-funded project GCP/GLO/447/EC “Fourth PSMA Global Capacity Development Programme Support Project” commenced processes in 2022 for the drafting of Regulations to implement the Port State Measures Agreement to prevent, deter and eliminate IUU fishing. For the reporting year, the Ministry and the

FAO team worked to complete the drafting of the Regulations. The drafting process was participatory and involved consultations and engagement of relevant stakeholders including fisheries associations, Ghana Maritime Authority (GMA), Ghana Navy, Marine Police, Ghana Ports and Harbours Authority (GPHA), and Shippers Authority. The draft Regulations was validated by stakeholders at a workshop held at the Coconut Groove Hotel, Accra on 28th and 29th November, 2023.

The validated Regulations will be submitted to the Office of the Attorney General for necessary action and submission to Parliament in the first quarter of 2024. The enactment and enforcement of the Regulations is expected to improve fisheries governance for the sustainable management of fisheries resources in Ghana.

- ***Ghana-EU IUU Bilateral Dialogue***

The European Commission (EC) identified Ghana as a non-cooperating third-party country in the fight against Illegal, Unreported and Unregulated (IUU) fishing in June 2021 and issued Ghana a “yellow card” in accordance with Article 32 of Council Regulation (EC) No 1005/2008. The issues raised by the EC included the expired Marine Fisheries Management Plan, transshipment at sea, inconsistencies in the existing fisheries legal framework, and deficiencies in the monitoring, control, and surveillance of fleets.

A formal bilateral dialogue was established between the EU and Ghana (Ghana/EU IUU Dialogue) to address the shortcomings identified in Ghana’s fight against IUU. Since June 2021, Ghana and the EC represented by the Directorate-General for Maritime Affairs and Fisheries (DG MARE) have held meetings in Brussels and Ghana with the view to addressing the issues and ensuring that Ghana is adequately equipped to prevent, deter, and eliminate IUU fishing. The recent meeting was held in Ghana from 17th to 21st April 2023. The dialogue missions assessed progress made by Ghana in implementing the recommendations of the EC and to make further recommendations toward addressing the issues identified by the EC. Since the establishment of the dialogue, the Ministry has submitted six (6) Progress Reports with supporting documents on measures taken to address issues identified by the EC. Significant measures taken include:

1. Engagement of Consultant to review the Fisheries Act, 2002 (Act 625) and develop a new Fisheries and Aquaculture Bill
2. Elimination of illegal transshipment (Saiko) (2021)
3. Drafting of Regulations to effectively implement PSMA and international obligations (2023)
4. Development of Marine Fisheries Management Plan (2022-2026) to replace the expired Plan (2015-2019)
5. Revision and implementation of the National Plan of Action to Combat IUU fishing
6. Revision of the National Inspection Plan (2023)
7. Implementation of Ministerial Trawl Gear Directive (2022)
8. Ministerial Directives on 30 days per trip Directives (2022)
9. Renewal of Contract with CLS for full access to Vessel Monitoring System (2024)
10. Development of Standard Operating Procedure for Inspections (2023)

1.3.2 Planned Programmes and Expected Results

Planned programmes and expected results are captured in **Error! Reference source not found.** to **Error! Reference source not found.**.

Table 1. 5: 2023 Planned Programmes and Expected Results – Aquaculture Development

Programme	Planned Operation	Target & Expected Output	Approved Budget (GHS)
Aquaculture Development (P3)	1. Procure equipment, broodstock and feed for hatcheries	- Hatcheries operations improved - M&E manual on AFJ developed - Adaptive trials on culturable species conducted - Final GNADP document produced and launched - Ghana Aquaculture Guidelines and code of practice reviewed - One-stop-shop permitting system launched - Enhanced extension service delivery 50 Officers trained in Bioflocs Technology - Database of license applications established - Data collection guidelines developed - Guidelines on fish feed developed - Monitoring system for fish feed established - Guidelines/protocols on farm inspections established - Computers and accessories procured - Veaa, Dormaa and Sefwi-Wiawso hatcheries furnished - Lawra office renovated - Asuogyaman office reconstructed - New regional office at Savannah constructed and oti land documented - Filtration system at Ashiaman constructed	9,238,261
	2. Develop M&E manual for AFJ		
	3. Conduct adaptive trials of other culturable species		
	4. Finalize GNADP and submit final draft to MOFAD		
	5. Print 1000 copies of GNADP for distribution to Stakeholders		
	6. Launch GNADP		
	7. Conduct southern, middle and northern sectors consultation workshops and review Ghana Aquaculture Guidelines and Code of Practice		
	8. Establish one-stop shop Application Management Forum (Secretariat)		
	9. Conduct stakeholder workshops on one-stop-shop licensing system		
	10. Finalise and submit final one-stop-shop document for political approval		
	11. Print 1000 copies of one-stop-shop permitting system documents		
	12. Launch one-stop shop permitting system		
	13. Procure the needed logistics; Multi-parameter Water Test Kits (Probe), Measuring Tape, GPS Device and Tablets for extension services		
	14. Conduct training on Aquaculture Best Management Practices, GNADP and Aquaculture Regulations for officers and farmers		
	15. Train Staff in Bioflocs Technology		
	16. Carry out routine farm inspections in regions		
	17. Establishing a database for license applications and granted licenses		
	18. Establish guideline for regular data collection on production, the aquatic environment and fish health at the farm level		
	19. Conduct training in data collection / reporting		
	20. Develop guidelines for fish feed		
	21. Establish monitoring system for fish feed		
	22. Establish guidelines/protocols for farm inspections and carry out inspections on aquaculture facilities accordingly		
	23. Furnish Hatchery at Veaa, Dormaa and Sefwi-Wiawso (on-going)		
	24. Renovate office at Lawra		
	25. Reconstruct Asuogyaman zonal office at Akosombo		
	26. Procure Computers and Accessories for Regional and Zonal Offices		

Programme	Planned Operation	Target & Expected Output	Approved Budget (GHS)
	27. Continue the Construction of new Regional Office at Savannah and document land (ownership) for regional office construction at Oti		
	28. Construct water filtration system at Ashiaman		

Table 1. 6: 2023 Planned Programmes and Expected Results – Fisheries Resource Management

Programme	Planned Operation	Target & Expected Output	Approved Budget (GHS)
Fisheries Resource Management <i>Marine Fisheries Management (P2.1)</i>	1. Complete the Registration and embossment of all Canoes and Inshore vessels 2. Clean and Upgrade the Canoe and Inshore Registers 3. Develop Operational Guideline for the CIC 4. Distribute Canoe Identification Cards across the 4 coastal regions 5. Control of new entrants to reduce capacity in the fishery 6. Organize quarterly Engagements with industry (Tuna, Trawlers, Inshore and Canoe) 7. Train fisheries staff in negotiation and Access Agreement 8. Establish 2 Fisheries Co-management Implementation Committees at Regional levels 9. Conduct public awareness and advocacy on Child Labour Trafficking 10. Implement 2023 closed season 11. Establish Marine Protected Areas (MPAs) 12. Develop Operational Plans for the establishment and management of Community Based Co-management Committees 13. Carry out engagement on 3-year Moratorium to the fishery and capacity reduction (National, Regional and local) 14. Develop Operational Plan for the Marine Fisheries Management Plan 15. Re-classification artisanal canoes 16. Support FMOC to provide oversight in the implementation of the Fisheries Management Plan 17. Provide support to MOFAD/FC to revise National Anti-Child Labour Trafficking (CLaT) Strategy for fisheries 18. Conduct Fisher to Fisher Dialogues in Greater Accra, Volta, Western and Central Regions 19. Rehabilitate staff quarters at Elmina 20. Continue construction of Sefwi-Wiawso hatchery	- Registration on canoes and inshore vessels completed for 2023 - Marine Canoe and Inshore registers upgraded - Guidelines for CIC developed - Canoe Identification cards distributed in 4 coastal regions 10 sensitization and education meetings with the canoes sector 20 FC staff trained in negotiation and access agreement - Training reports prepared - Fisheries Co-management committees established - Report on establishment of committees prepared - Public awareness and advocacy conducted - Reports on awareness and advocacy prepared - Biological and economic study reports prepared - Stakeholder engagements on MPA establishment carried out - Operational plan for community-based committees developed - Engagement on 3-year Moratorium carried out and reports prepared - Operational plan for MFMP developed - Artisanal canoes re-classified - National Anti-CLaT Strategy for fisheries revised - Dialogues carried out at 4 coastal regions - Elmina staff quarters rehabilitated	7,812,392

Programme	Planned Operation	Target & Expected Output	Approved Budget (GHS)
		Sefwi-Wiawso hatchery constructed	
Inland Fisheries Management (P2.2)	1. Register and Develop Canoe Identification Cards for canoes on the Volta Lake	- Inland canoe register created 6 co-management manuals developed and translated into 6 local languages 6 Fisher Associations strengthened Reports prepared 4 culture systems established on 4 small water bodies 30 metric tonnes of fish produced 40 sustainable jobs created for youth and women in the North East Region.	
	2. Develop and translate Co-management manual into Six languages		
	3. Strengthen inland fishers’ associations to relevant bodies/institutions to access needed support		
	4. Establish 4 culture systems on 4 small water bodies		
Fisheries and Aquaculture Research (P2.3)	1. Align fishing effort with estimated annual sustainable levels	- Climate change adaptive strategies developed - Status of environment and fisheries resources updated - Gear regime improved 10 staff capacity enhanced 15 computers, 30 tablets procured and distributed 8 FSSD staff trained in data processing work tools - OpenARTFISH software upgraded - Artisanal and Inshore Gear Audit report prepared - Science-based management reports produced - Research results communicated at a workshop - Biological survey report prepared - Ministerial directive impact assessment report prepared - Workshop to review 2022 closed season organized - FSSD/MCS block upgraded	
	2. Improve data collection system		
	3. Conduct studies on climate change adaption and mitigation		
	4. Undertake sea surveys		
	5. Submit gear audit report to fisheries law review committee for inclusion into new fisheries law		
	6. Contract fishing gear experts to build capacity of gear unit		
	7. Build capacity of FC officers in gear technology		
	8. Conduct training and education on gear technology		
	9. Recruit, train, equip and deploy enumerators.		
	10. Procure computers and tablets for regions and head office		
	11. Train FSSD staff in data processing work tools.		
	12. Upgrade the OpenARTFISH software.		
	13. Conduct a survey of gears in the Artisanal and Semi industrial sectors		
	14. Identify and support the production of science-based management reports by FSSD/Academia		
	15. Facilitate academia and research to make presentations to industry on state of marine fisheries resources		
	16. Communicate research results through roundtable discussions, newsletters, seminars, conferences and electronic reports		
	17. Conduct biological survey for Closed Season -Artisanal		

Programme	Planned Operation	Target & Expected Output	Approved Budget (GHS)
	18. Support STC to assess the impact of Ministerial directive on the use of fishing gear by the industrial trawl sector, on bycatch landings at the two designated ports of Tema and Takoradi		
	19. Support STC to review 2022 closed season impact assessment reports (Biological and Socio-economic)		
	20. Upgrade FSSD/MCS Block		

Table 1. 7: 2023 Planned Programmes and Expected Results – Fisheries Law Enforcement

Programme	Planned Operation	Target & Expected Output	Approved Budget (GHS)
Fisheries Law Enforcement (P4)	1. Conduct Sea patrols	- Sea Patrols conducted 312 quayside inspections carried out 180 days of beach combing conducted 24/7 Electronic monitoring conducted - VMS maintenance carried out - Sensitization carried out in 6 communities from 4 coastal and inland regions. - Annual national seminars held on fisheries laws for 15 MDAs and 50 MMDAs 50 new observers recruited and trained 10 judges, 10 prosecutors and 20 FEU staff trained - All tuna vessels monitored 12 stakeholder engagements carried out 2 FWV group in each regions established and deployed 4 sensitization on safe practices at sea conducted - SOP for existing Community Enforcement Committees developed - Trials of electronic monitors on 10 industrial vessels carried out	3,404,910.00
	2. Conduct regular quayside inspections on all fishing vessels		
	3. Conduct patrol combing on the Volta Lake and its environs		
	4. Conduct beach combing		
	5. Conduct 24/7 electronic monitoring of industrial fishing vessels		
	6. Carry out regular maintenance of Vessel Monitoring Systems infrastructure		
	7. Replace non-functional VMS and AIS Transponders on fishing vessels		
	8. Conduct sensitization of fishers in fishing communities on fisheries laws and regulations		
	9. Hold 4 annual national seminars on Fisheries Law enforcement for Heads of MDAs and MMDAs on the negative effect of IUU		
	10. Recruit, train and deploy observers		
	11. Train additional Judges, Prosecutors and FEU personnel on fisheries laws and regulation		
	12. Provide continuous in-service training on fisheries law enforcement for fisheries staff		
	13. Facilitate the replacement of non-functional monitoring devices on all Tuna fishing vessels		
	14. Undertake stakeholder engagements on the formation of FWV		
	15. Identify prospective volunteers, select and train on FWV		
	16. Establish and deploy additional FWV groups at strategic locations		

Programme	Planned Operation	Target & Expected Output	Approved Budget (GHS)
	17. Initiate safety-at-sea Campaign among fishers particularly in the artisanal and inshore	Office at Sene rehabilitated	
	18. Conduct regular sensitization of fishers on safe practices at sea		
	19. Operationalize FEU Offices in at Tema and Takoradi		
	20. Support the Implementation Strategy for New Trawl Gear Directive		
	21. Harmonise all operations of the existing Community Enforcement Committees and develop SOP		
	22. Carry out trial of electronic monitors on industrial vessels		
	23. Renovation of FEU office at Yeji (Sene)		

Table 1. 8: 2023 Planned Programmes and Expected Results – Aquatic Animal Health and Post-Harvest Management

Programme	Planned Operation	Target & Expected Output	Approved Budget (GHS)
(Fish Health and Sanitation P5.1)	1. Distributes vaccines to hatcheries and farms to carry out immunization exercises on fish disease prone areas on the Volta Lake and the parts of the middle zone 2. Develop the biosecurity guidelines/checklist 3. Procure and maintain fish holding (quarantine) facilities 4. Conduct routine monitoring and surveillance on farms 5. Equip and operate existing labs (reagents/consumables) 6. Establish guidelines for laboratory diagnostics 7. Sensitize stakeholders on fish disease prevention and management 8. Develop biosecurity training and guidelines for hatcheries, farms and national quarantine centres 9. Establish register, and regular monitoring of biosecurity compliance 10. Conduct training course in biosecurity 11. Develop routines for notification/alerts and response procedures for outbreak investigations. 12. Train aquatic animal disease personnel in outbreak investigations. (Veterinary officers, fisheries officers, technical supporting staff) 13. Conduct baseline study on ponds to establish knowledge on important endemic diseases. 14. Establish guidelines/protocol for routine diagnostics (field and lab) 15. Upgrade Laboratories conducting routine diagnostics	150 vaccines distributed to 15 hatcheries, 20 growout farm - Biosecurity checklist/ guidelines developed and printed for dissemination - Quarantine facilities (KIA & Tema Port) procured and maintained 150 fish farms (50 hatcheries and 100 grow-out) surveyed and monitored - Existing laboratories equipped and operationalised - Guidelines for laboratory diagnosis established - Stakeholders (100 Fisheries Officers/120 Farmers) sensitized on fish disease prevention and management - Guidelines on biosecurity developed - Selected laboratories upgraded - Biosecurity guidelines at aquaculture establishments enforced - Aquatic Animal Health Focal Persons at regional level appointed and resourced - Minutes of quarterly meetings with aquaculture operators	1,200,000.00

Programme	Planned Operation	Target & Expected Output	Approved Budget (GHS)
	16. Establish guidelines/protocols for use, and control of use of chemicals and drugs, including anti-microbial resistance (AMR) 17. Establish register for the use of drugs and chemicals 18. Train extension staff and fish farmers in fish health management 19. Evaluate and Review the Implementation Plan of the AAHP 20. Implement and enforce the Aquatic Animal Biosecurity guidelines at all Aquaculture Establishments 22. Appoint and resource Aquatic Animal Health Focal Persons at regional levels to coordinate fish health operations at regional levels 23. Institute quarterly stakeholder meetings with aquaculture operators at the regional level to address sector-specific issues	prepared	
Post-Harvest Management-P5.2	1. Finalize development of operational guidelines, extension and training manuals for the post-harvest sector 2. Conduct validation meeting with post-harvest actors on operational guidelines, extension and training manuals 3. Train fisheries officers on post-harvest extension delivery; operational guidelines, extension and training manuals 4. Organize a post-harvest actor's coordination meeting 5. Develop operational guidelines for standardization of fish weights and packaging at the ports 6. Validate operational guidelines for standardization of fish weights and packaging at the ports 7. Conduct periodic inspections at port on fish weight and packaging standardization at ports 8. Facilitate acquisition of improved fish processing and handling technologies 9. Review working document of the Safe Fish Certification and Licensing scheme (SFCLS) 10. Train Fisheries officers on SFCLS as auditors 11. Train fish processors and traders on hygienic fish handling and the SFCLS 12. Facilitate the formation and formalization of fish processor and trader associations 13. Train Fish processors and traders on group dynamics 14. Develop Market Data Collection System 15. Conduct a study on fish prices in the major marine landing sites 16. Train leadership of MoFAD/FC in Gender 17. Review Fisheries Gender mainstreaming strategy of FC	- Operational guidelines, training manual and extension manuals developed for post-harvest sector - One (1) coordination meeting of actors organised - Operational guidelines for standardisation of fish weights and packaging at ports developed - Inspections of fish packages inspected at ports 10 improved ovens constructed by stakeholders 50 fisheries Officers trained on guidelines and manual 300 fish processors trained on hygienic fish handling and SFCLS 300 fish processors trained on group dynamics - Market data collection system developed - Data on fish prices from 5 marine landing sites collated 40 Heads of Divisions/Units, regional Directors and Cost Center Managers trained in gender - Gender Mainstreaming strategy reviewed - Operational guidelines for gender mainstreaming in Fisheries developed - SSF umbrella programs implemented in 10 fishing communities	

Programme	Planned Operation	Target & Expected Output	Approved Budget (GHS)
	18. Develop operational guidelines for Gender mainstreaming for fisheries sector		
	19. Facilitate implementation of activities under the 'Empowering women for sustainable food systems' Project		

Table 1. 9: 2023 Planned Programmes and Expected Results – Management and Administration

Programme	Planned Operation	Target & Expected Output	Approved Budget (GHS)
Management and Administration (P1)	1. Payment of Utilities 2. Staff capacity enhancement and welfare expense 3. Honouring International Obligations 4. Office Consumables / Imprest / Sundry Expenses 5. Maintenance of General Equipment 6. Counterpart Funding for Fish for Development 7. FC Board Operations 8. Monitoring of programmes and projects 9. Farmers Day Celebrations 10. General Admin Operations 11. Audit Operations 12. Accounting operations 13. PBM&E Operations 14. HR Operations 15. Procurement Operations 16. Legal Operations 17. Fisheries Infrastructure Improvement <i>Procure motorbikes and pickups</i> <i>Renovation of FC bungalow at Com 18 Tema</i> <i>Procure laptops, furniture, and office equipment</i>	• Efficient administrative support services in place • Payment for utilities carried out (Receipts) • International obligation honoured • Closed season Implemented • Programme and Project Monitoring Reports produced • 2023 Sector Procurement Plan Developed and validated • Farmers Day Celebration Report produced • Office consumables procured • Maintenance of general equipment carried out • Counterpart funds provided (funds) • 50 motorbikes and 5 pickups procured • FC Bungalow at Community 18 renovated • 100 laptops, 100 desktop, furniture and office equipment procured	12,240,000.00

CHAPTER TWO

FISHERIES RESOURCE MANAGEMENT

2.0 Introduction

Fisheries Resource Management (FRM) strives to ensure the sustainable use of marine and inland fisheries resources for current and future generations, as well as the proper utilization of fish to guarantee Ghanaian food security and nutrition. Fisheries and Aquaculture Research and Development, Maritime Fisheries Resource Management, Inland Fisheries Resource Management, and Premix Fuel Management are the four (4) components of FRM.

Key Fisheries Resource Management Performance Highlights

- Closed season successfully implemented for all fleet
- Marine fish production increased by 8.49% from 378,196.51 mt (2022) to 410,293.23 mt (2023)
- Inland capture fish production decreased by 2.8% from 146,623.14 mt (2022) to 142,583.13 mt (2023)
- Transshipment declined by 15.31% from 19,500 (mt) in 2022 to 16,515 mt (2023)
- Number of observers assigned to vessels declined from 43 (2022) to 39 (2023) by 9.3%.
- 48 Captains, 14 Crew managers, and 30 Fish masters from various vessels trained on fisheries information documentation
- 98 trawls were inspected and certified during the year of which 15 vessels representing 15.3% failed to meet the specifications on the fishing circle
- 188 pre-departure and 190 arrival inspection were conducted on vessels
- Capacity of 3 FC staff built in Fish Capture Technology
- 74 operational industrial vessels licenced in 2023 as against 106 in 2022 showing a decline of 62.4%
- Licenced semi-industrial vessels increased from 218 (2022) to 258 (2023) by 18.3%
- 13,700 canoes registered in 2023 of which 10,661 were embossed
- Quarterly meetings held with industrial vessels, artisanal and inshore vessels
- Moratorium engagement with stakeholders and 909 CIC distributed to fishermen
- Number of inland vessels registered was 12,206 including 11,619 canoes and 587 boats
- Supply of premix decreased by 18.3% from 39,582,000 Lt (2022) to 32,346,000 Lt (2023)

2.1 Fisheries and Aquaculture Research and Development

2.1.1 Research and Monitoring of Coastal and Marine Environment

➤ Environmental Monitoring

There was one field visit in the year 2023 to the seven (7) coastal observation stations namely Keta, Winneba, Elmina, Takoradi, Cape-Three-Points, Axim, and Half Assini (Figure 2.1).

The year 2023 provided valuable insights into the status of the coastal environment. The key parameters measured included temperature, salinity, total dissolved solids, and pH. These parameters play a crucial role in understanding the dynamics of the coastal environment and its impacts on fish production. There were also studies on marine debris at Sakumono Beach.

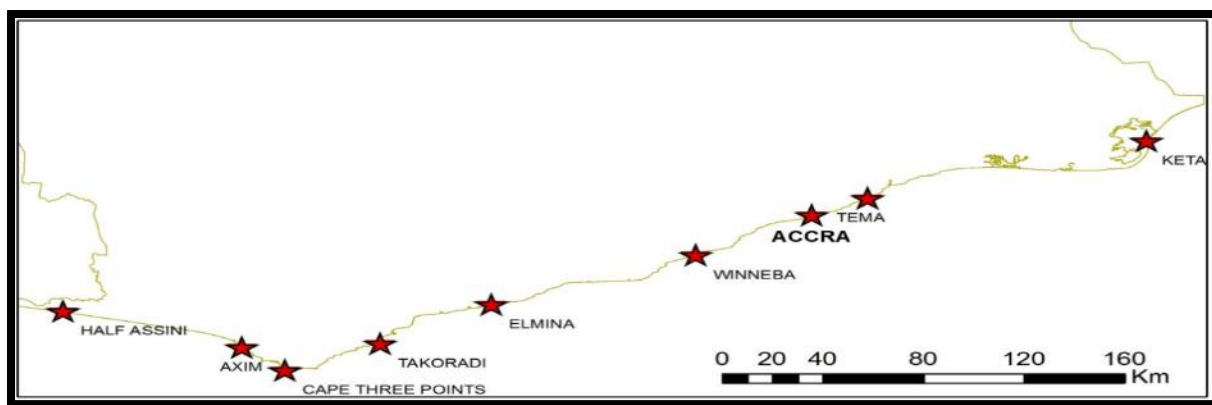


Figure 2. 1: Oceanographic sampling stations along the coast of Ghana

➤ Status of the Ghanaian Marine Environment

• Temperature and Salinity

Figures 2.2 & 2.3 show the mean monthly variations in temperature and salinity monitored at Tema. The average temperature and salinity for the year 2023 are 27.63 ± 2.11 °C, higher than what was recorded in 2022 (26.7 ± 2.08 °C) and $36.02 \pm 0.6\%$ (higher than the 2022 value of $33.25 \pm 1.9\%$). Temperature values for September and October were not obtained due to unavailability of the recorder. On the average, the year 2023 recorded a higher temperature of 27.49°C compared to 26.68°C recorded in 2022. The sea was thus relatively warmer in 2023. Lower sea surface temperatures have favourable effect on marine biological productivity and this can affect in plankton availability and consequently fish production. The Round sardinella (*Sardinella aurita*) prefers temperatures below 26°C and salinity above 35‰. Trend analysis of temperature and salinity are shown on Figure 2.4. Trend of temperature and salinity showed a general increase from 2018 to 2023 by 0.38% (Figure 2.4). It implies temperature got warmer and salinity increased.

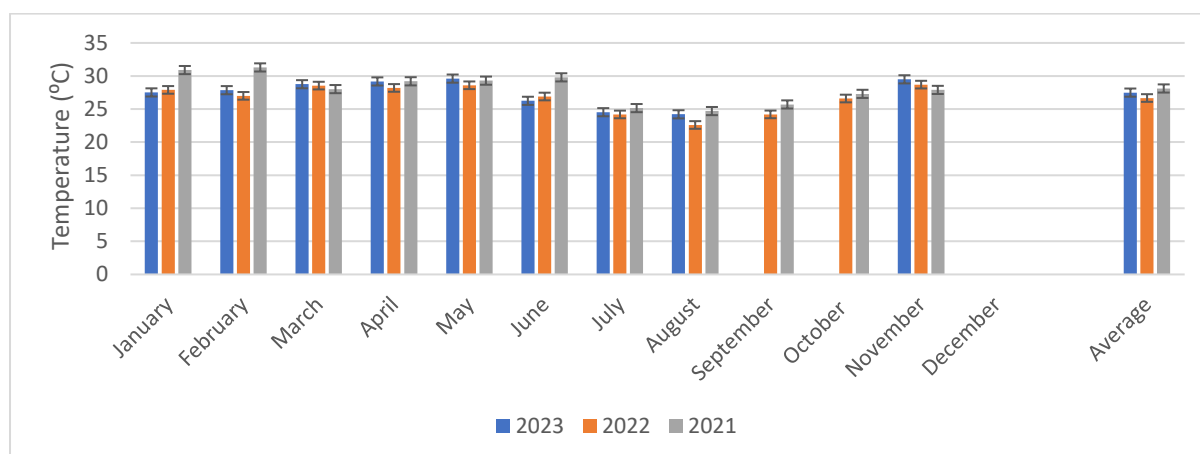


Figure 2. 2: Monthly temperature variations from 2021to 2023

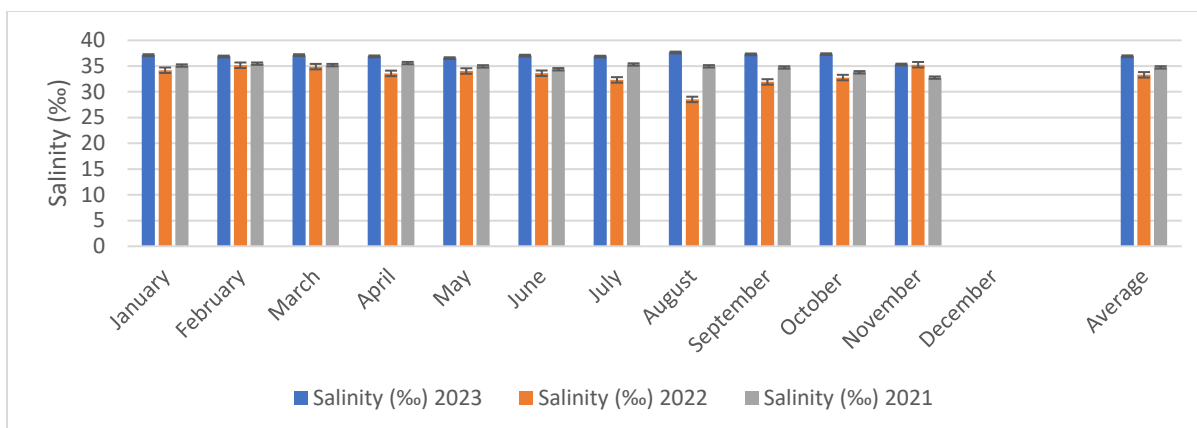


Figure 2. 3: Monthly salinity variations from 2021 to 2023

- Trend analysis of temperature and salinity

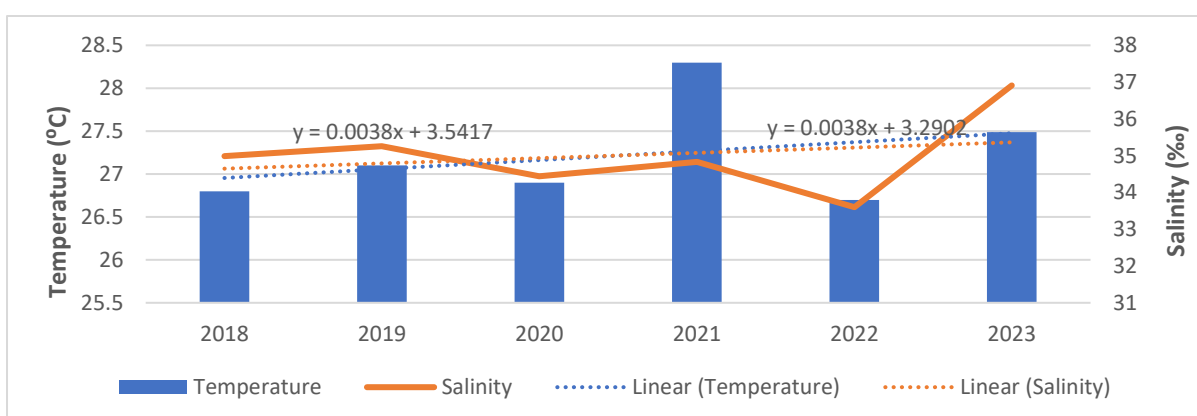


Figure 2. 4: Trend analysis of temperature and salinity from 2018 to 2023

pH and total dissolved solids

- The pH of water has a significant impact on fisheries and aquatic ecosystems. Changes in pH can affect the health and survival of fish and other aquatic organisms in several ways. An increase in pH, or alkalinity can have negative effects on fisheries. High pH levels can reduce the availability of essential nutrients such as phosphorus and can lead to the formation of harmful algal blooms, which can deplete oxygen levels in the water and suffocate fish.
- Total Dissolved Solids (TDS) can have a significant impact on fisheries and aquatic ecosystems. TDS is a measure of the combined content of all inorganic and organic substances contained in a liquid in molecular, ionized, or micro-granular suspended form. High levels of TDS can indicate poor water quality, which can directly affect fish health and survival.

Figures 2.5 to 2.7 provide a summary of pH and total dissolved solid in the coastal waters. The observed average pH value during the year was 8.05 ± 0.1 , indicating a notable increase compared to the 2022 recording of 7.30 ± 0.45 . The month of May recorded the highest average pH value of 8.3 ± 0.2 , signifying slightly alkaline conditions, while October registered the lowest average pH of 7.70 ± 0.2 , reflecting slightly acidic conditions (Fig 2.6). These fluctuations highlight variability in the acidity and alkalinity of the water in the course of the year.

In terms of total dissolved solids (TDS), measurements remained relatively stable throughout the first

half of the year. The recorded average TDS concentration was 27.95 ± 0.46 ppt, demonstrating an increase from the 2022 value of 25.67 ± 1.36 ppt. October marked the peak TDS concentration at 28.47 ± 0.4 ppt, while November recorded the lowest concentration at 26.72 ± 0.4 ppt (Figure 2.7). These findings suggest consistent TDS levels with subtle variations during the monitoring period. Figure 2.8 summarizes trend of pH and TDS for the 6 years period. The trend of TDS showed a negative trend while pH showed a positive trend.

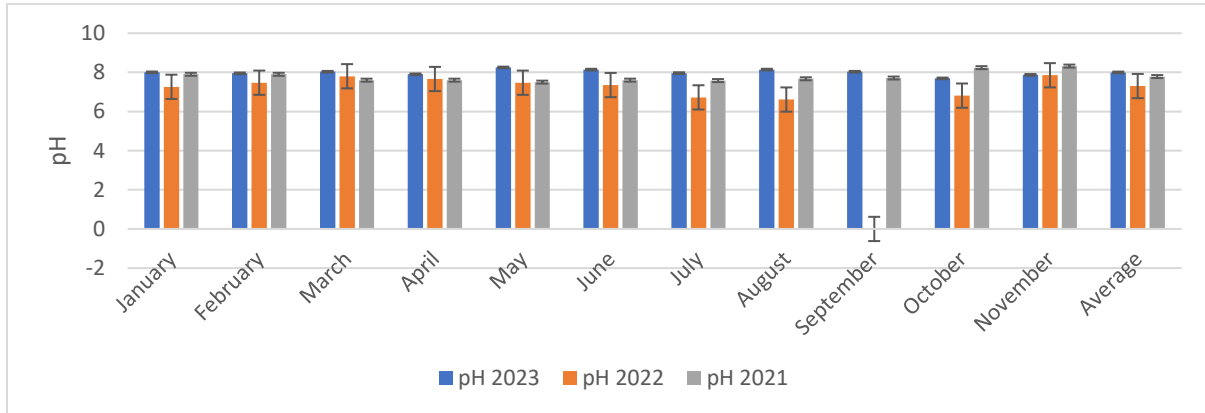


Figure 2. 5: Monthly variations in pH from 2021 to 2023

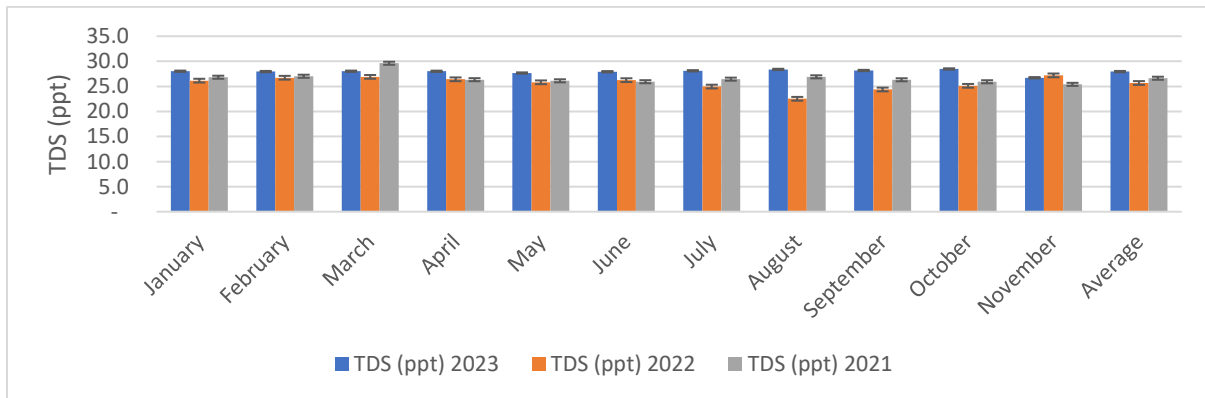


Figure 2. 6: Monthly variations in TDS from 2021 to 2023

Trend analysis of pH and TDS

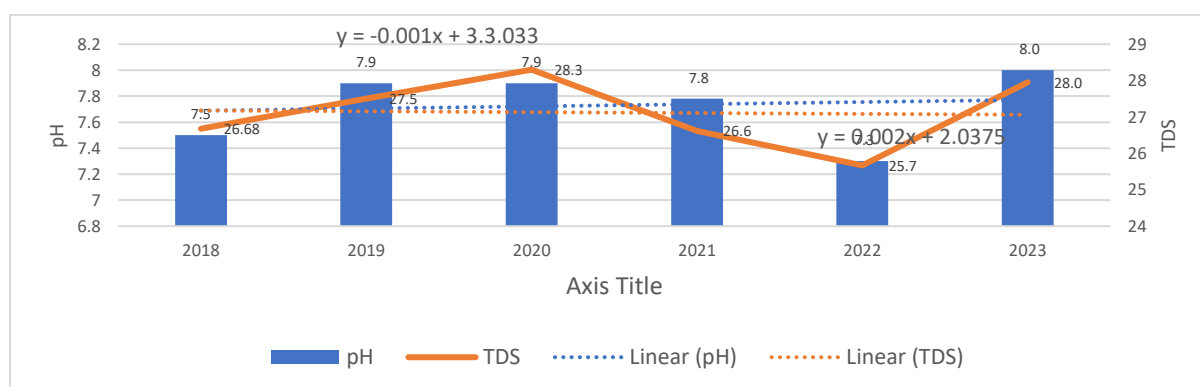


Figure 2. 7: Trend analysis of pH and TDS

2.1.2 Marine Litter Assessment

This report presents an evaluation of marine litter samples collected using a beach seine net at Sakumono Beach. The dataset encompasses information on the various types of litter, the number of counts of items, and their corresponding weights in kilograms. The primary objective of this report is to illuminate the composition and scope of marine litter within the specified area.

Sakumono beach in the Greater Accra region was chosen for the study. The beach is a fish-landing site for small-scale fishermen from the nearby Sakumono village and is adjacent to the Ramsar-designated Sakumono I lagoon. Sampling involves using three types of beach seine nets (small, medium, large), with the small and medium nets being most common. Fishing is conducted during the day with a crew of 20-40 men using paddled canoes. The nets are dragged along the seafloor to capture marine litter, and samples are randomly taken from one net at a time.

Marine litter is separated from each haul, sorted, and categorized using the EAF Nansen monitoring log-sheet and photo identification guide. The litter is quantified by weight and number, and environmental conditions such as tide, weather, and sea state are recorded.

The results show that there were 28 different types of litter observed in the samples over the period of sampling. The total number of individual counts was 5,207 with accumulated weight of 89.03 kg. The highest type of marine litter is plastic sheets having individual counts of 4,193 (80.53 % of the total) and also have the highest weight of 42.21 kg (Table 2.1). The other three ranked materials after plastics sheets are household disposable (5.55%) sachet 2.63% and plastic fragment (2.34%).

Table 2. 1: Marine debris examines with their counts and weight

No	Material	Total			
		Num	Weigh (kg)	Num (%)	Weight (%)
1	Plastic sheet	4193	42.205	80.53	47.40
2	Household disposable	289	3.82	5.55	4.29
3	Sachet	137	1.745	2.63	1.96
4	Plastic fragment	122	3.3	2.34	3.71
5	Fabrics and tissue	86	8.27	1.65	9.29
6	Plastic bottle	70	1.94	1.34	2.18
7	Styrofoam	42	0.05	0.81	0.06

No	Material	Total		Num (%)	Weight (%)
		Num	Weigh (kg)		
8	Straws	34	0.06	0.65	0.07
9	Plastic Bag	34	1.6	0.65	1.80
10	Lids	33	0.14	0.63	0.16
11	Foam	25	5.43	0.48	6.10
12	Plastic cups	25	0.341	0.48	0.38
13	Net entanglement	19	2.74	0.36	3.08
14	Wood	17	0.36	0.33	0.40
15	Plastic cutlery	12	0.04	0.23	0.04
16	Diaper	10	0.98	0.19	1.10
17	Plastic container	9	0.17	0.17	0.19
18	Raphia sack	9	0.81	0.17	0.91
19	Electronic wire	8	0.07	0.15	0.08
20	Footwear	7	0.89	0.13	1.00
21	Hair	7	0.33	0.13	0.37
22	Shoe lining	5	0.24	0.10	0.27
23	Toothpaste tube	4	0.04	0.08	0.04
24	PVC pipe	3	0.28	0.06	0.31
25	Car tyre	2	13	0.04	14.60
26	Rope	2	0.01	0.04	0.01
27	Scrubbing brush	2	0.14	0.04	0.16
28	Leather strap	1	0.03	0.02	0.03
	Total	5,207	89.03	100.00%	100.00%

Summary

- **Location:** Sakumono beach, Greater Accra region
- **Total Litter Types:** 28
- **Total Individual Counts:** 5,207
- **Total Accumulated Weight:** 89.03 kg
- **Dominant Litter Type:** Plastic sheets
 - **Individual Counts:** 4,193 (80.53% of total)
 - **Weight:** 42.21 kg
- **Other Notable Litter Types:**
 - Household disposables: 5.55%
 - Sachets: 2.63%
 - Plastic fragments: 2.34%

Comparison with Other Studies in Ghana:

1. **Study on Marine Litter at Accra Beaches⁵:**
 - **Location:** Various beaches in Accra
 - **Total Litter Types:** 30

⁵ Aikins, S., & Osei, J. (2016). Characterization of Beach Litter along the Coast of Accra, Ghana.

Wiafe, G., & Abayie, B. O. (2019). Marine Debris in the Coastal Waters of Ghana: Sources, Types, and Distribution.

- **Total Individual Counts:** 6,500
 - **Total Accumulated Weight:** 95 kg
 - **Dominant Litter Type:** Plastic bags
 - **Percentage:** Approximately 75% of total litter
 - **Other Notable Litter Types:**
 - Food wrappers: 10%
 - Metal cans: 5%
 - **Remarks:** Similar to the study in Sakumono, plastic items dominate, though plastic bags are specifically highlighted as the most common.
2. **Study on Marine Litter at Cape Coast Beaches⁶:**
- **Location:** Beaches in Cape Coast
 - **Total Litter Types:** 25
 - **Total Individual Counts:** 4,800
 - **Total Accumulated Weight:** 82 kg
 - **Dominant Litter Type:** Plastic bottles
 - **Percentage:** 70% of total litter
 - **Other Notable Litter Types:**
 - Food containers: 8%
 - Fishing gear: 6%
 - **Remarks:** The study indicates a high prevalence of plastic bottles, showing some variation in the type of dominant plastic litter compared to Sakumono study.
3. **Study on Marine Litter at Takoradi Beaches⁷:**
- **Location:** Beaches in Takoradi
 - **Total Litter Types:** 27
 - **Total Individual Counts:** 5,000
 - **Total Accumulated Weight:** 88 kg
 - **Dominant Litter Type:** Plastic fragments
 - **Percentage:** 78% of total litter
 - **Other Notable Litter Types:**
 - Foam pieces: 7%
 - Metal items: 5%
 - **Remarks:** Plastic fragments are the most common litter type, which is consistent with the study's findings regarding plastic prevalence.

Summary of Comparison with Other Ghanaian Studies:

- **Plastic Dominance:** Similar to Sakumono study, other studies along the Ghanaian coastline also report plastic as the dominant litter type. The specific forms of plastic may vary (sheets, bags, bottles, fragments), but the prevalence is consistent.
- **Quantity and Weight:** The total individual counts and accumulated weight in Sakumono study are comparable to other studies, indicating similar levels of marine litter pollution.

⁶ Oteng-Ababio, M., & Arguello, J. E. M. (2013). The Impact of Marine Litter on Ghanaian Coastal Tourism and Fishing.

⁷ Asiedu, A. B., & Agyei, E. (2020). Assessment of Marine Litter on Beaches of Takoradi, Ghana.

- **Secondary Litter Types:** While the dominant plastic types vary, other notable litter types such as food wrappers, metal items, and foam pieces are also reported in other studies, reflecting similar sources of pollution.

2.1.3 Marine Fish landings

The marine fishing fleet comprises of the artisanal, semi-industrial (inshore), industrial trawl and tuna. There are 11,583 canoes scattered in 292 landing beaches within 186 fishing villages along the coastline.

➤ Artisanal Fish Landings

The total marine artisanal landing was 240,881.02 mt in 2022 compared to 230,892.55 mt in 2023 (Table 2.2) representing a decline of about 4.15%. The CPUE dropped from 626kg/trip in 2022 to 454kg/trip in 2023.

The decline in landings could be attributed to warmer waters observed in 2023 compared to 2022. Analysis showed that in 2023, Western region recorded the highest artisanal catch (39.6%) followed by Greater Accra (28.2%) with the least being Volta Region (10.4%) (Table 2.2 and Figure 2.9). Similar trends in regional production were observed in the previous year 2022.

Table 2. 2: % share of marine artisanal fish landings for 2022 and 2023

Region	2022			2023			
	Catch (MT)	% Share	Value (GHS)	Catch (MT)	% Share	Value (GHS)	% Share of landings
Volta	25,051.63	10.4	447,629,952.04	23,456.55	10.2	450,462,468.72	-6.37
Greater Accra	67,928.45	28.2	1,290,419,677.74	64,363.45	27.9	1,347,737,458.72	-5.25
Central	52,512.06	21.8	940,419,631.23	53,836.00	23.3	1,015,593,749.95	2.52
Western	95,388.88	39.6	1,750,206,354.74	89,236.55	38.6	1,794,826,683.59	-6.45
Total	240,881.02	100.0	4,428,675,615.75	230,892.55	100.0	4,608,620,360.98	-4.15

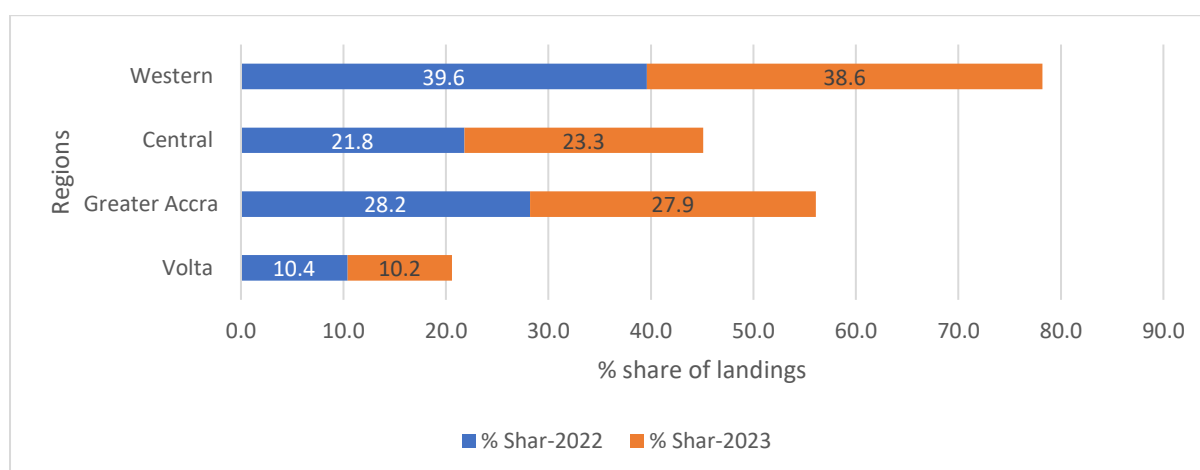


Figure 2. 8: Percentage share of artisanal fish catch by coastal region in 2022 and 2023

➤ **Semi-Industrial Fish Landings**

The total semi-industrial landings in 2023 was 20,193.58 Mt compared to 19,950.70 Mt in 2022 (Table 2.3). This represents 1.22 % increase in catch in 2023. The value of fish production increased from GHS 378,673,345.69 in 2022 to GHS 410,509,663.58 in 2023. Greater Accra Region recorded the highest catch whilst Central Region recorded the lowest catch in both 2023 and 2022. Figure 2.10 shows the percentage distribution of semi-industrial fish catch by region in 2023.

Table 2. 3: Share of Semi-Industrial Fish Landings for 2022 and 2023

Region	2022			2023			
	Catch (MT)	% Share	Value (GHS)	Catch (MT)	% Share	Value (GHS)	% Share of landings
Greater Accra	7,980.28	40.0	157,242,538.28	7,916.58	39.2	164,729,481.60	(0.80)
Central	5,785.70	29.0	108,838,340.25	4,845.00	24.0	100,391,032.77	(16.26)
Western	6,184.72	31.0	112,592,467.16	7,432.00	36.8	145,389,149.21	20.17
Total	19,950.70	100.0	378,673,345.69	20,193.58	100.0	410,509,663.58	1.22

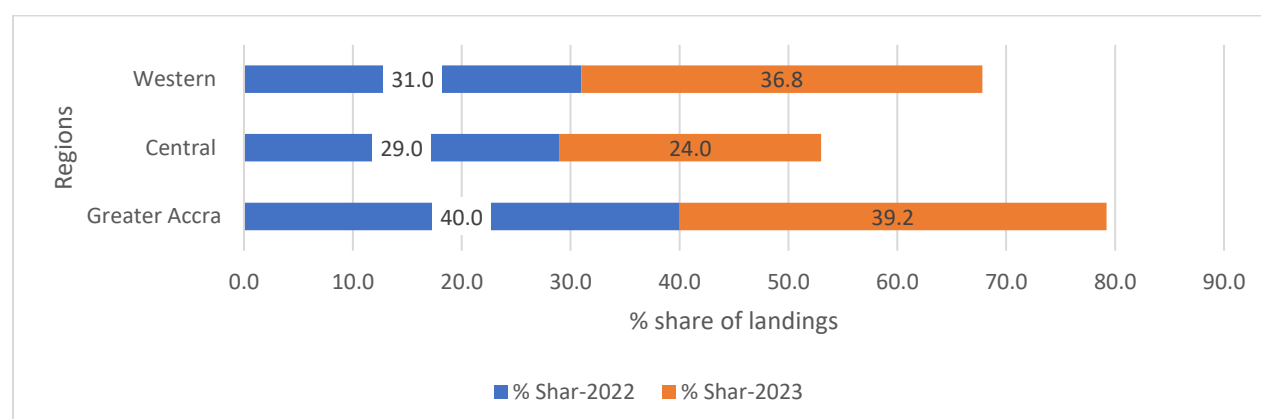


Figure 2. 9: Percentage distribution of semi-industrial fish catch by region in 2023

➤ **Industrial Trawl Fish Landings**

The total industrial trawl landings in 2023 was 53,040.78 mt compared to 26,269.79 mt in 2022 (Table 2.4) representing an increase of about 102%. This is due to higher number of trawl vessels in 2023 compared to 2022 as a result of the implementation of ministerial directive on trawl gear. The value of fish production also increased by 101.78% from GHS 695,683,955.10 in 2022 to GHS 1,403,770,345.32 in 2023. The number of vessels and the fishing days were higher in 2023 than 2022 due to more vessels meeting the Ministerial directive on trawl gear.

Table 2. 4: Industrial Trawl Fish Landings for 2022 and 2023

Year	Catch (MT)	Value (GHS)	% Change in catch	Change in value (GHS)
2021	66,408.35	1,306,806,577.67	101.91	101.78
2022	26,269.79	695,683,955.10		
2023	53,040.78	1,403,770,345.32		

➤ Tuna Landings

The total tuna landings increased by about 33.2% from 91,095 mt (2022) to 121,297.00 mt (2023) (Table 2.5). The value of tuna production also by 44.0% from increased from GHS 2,360,448,008.14 in 2022 to GHS 3,399,600,470.07 in 2023. Yellowfin, skipjack and others increased by 29.5%, 35.3% and 71.2% respectively while bigeye decreased by 13.3% from the year 2022 to 2023. In both years, the share of skipjack is the highest followed by yellowfin (Figure 2.11).

Table 2. 5: Tuna Landings for 2022 and 2023

TUNA	2022			2023			% Change in catch
	Catch	Value	% Share	Catch	Value	% Share	
YELLOWFIN	23,069.00	694,738,097.21	25.32	29,875.00	917,852,997.49	24.6	29.5
BIGEYE	3,861.00	107,215,730.73	4.24	3,349.00	112,853,254.89	2.8	(13.3)
SKIPJACK	60,581.00	1,480,318,102.05	66.50	81,937.00	2,206,410,921.65	67.6	35.3
OTHERS	3,584.00	78,176,078.14	3.93	6,136.00	162,483,296.04	5.1	71.2
TOTAL	91,095.00	2,360,448,008.14	100.00	121,297.00	3,399,600,470.07	100.00	33.2

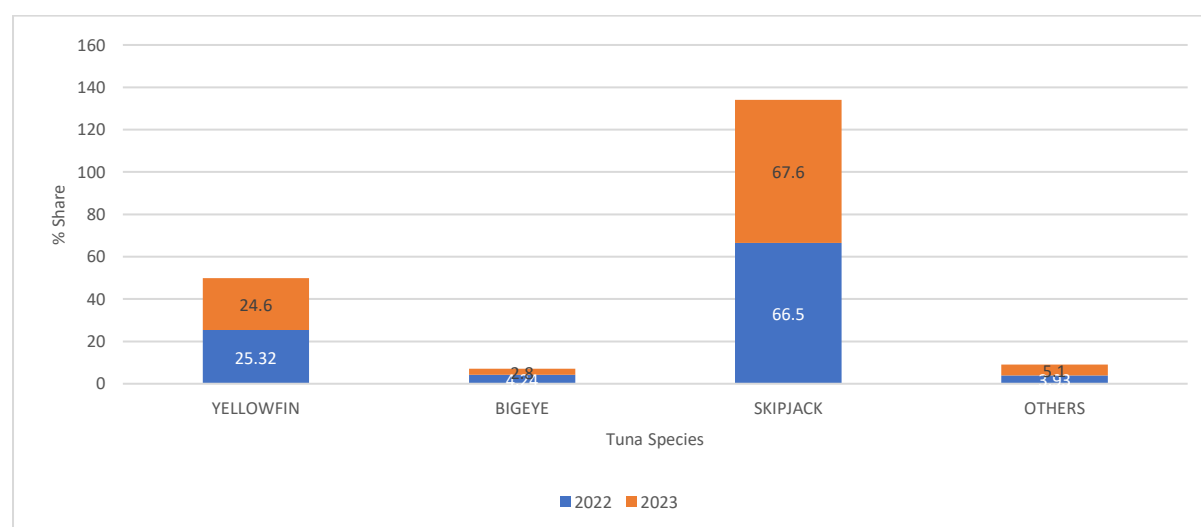


Figure 2. 10: Percentage composition of tuna catch by species in 2023

➤ Trend in Marine Fish Landings

The total marine fish landings in 2023 was 410,293.23mt compared to 378,196.51mt in 2022 (Table 2.6). This represents 8.5 % increase in catch in 2023. The value of fish production increased from GHS7,863,480,924.68 in 2022 to GHS9,822,500,839.95 in 2023. The artisanal sector recorded the highest share of fish landed whilst the semi-industrial recorded the lowest in both 2022 and 2023. Percentage distribution of fish catch by fleet in 2023 is shown in Figure 2.12.

Table 2. 6: Estimates fish landings for all fleet in 2022 and 2023

Fleet	2022			2023			% Change of catches
	Catch (MT)	% Share	Value (GHS)	Catch (MT)	% Share	Value (GHS)	
Artisanal	240,881.02	63.69	4,428,675,615.75	230,892.55	56.28	4,608,620,360.98	-4.15
Semi-industrial	19,950.70	5.28	378,673,345.69	20,193.58	4.92	410,509,663.58	1.22
Industrial trawl	26,269.79	6.95	695,683,955.10	53,040.78	12.93	1,403,770,345.32	101.91
Tuna	91,095.00	24.09	2,360,448,008.14	121,297.00	25.88	3,399,600,470.07	16.54
Total	378,196.51	100.00	7,863,480,924.68	425,423.91	100	9,822,500,839.95	8.49

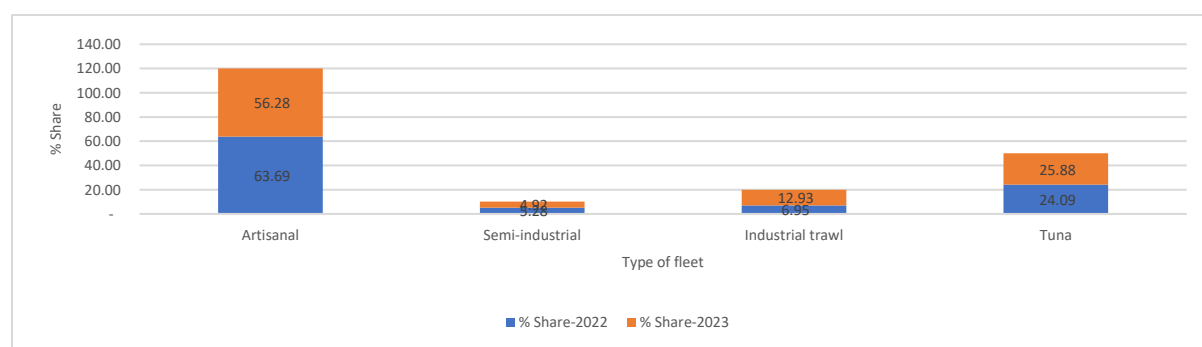


Figure 2. 11: Percentage distribution of fish catch by fleet in 2023

Figure 2.13 shows trends in marine fish landings from 2016 to 2023. The targeted fish production for 2023 was 340,188.30 mt, an average for the seven-year period from 2016 to 2023. Harvest from all the fleet for the 8-years showed positive growth.

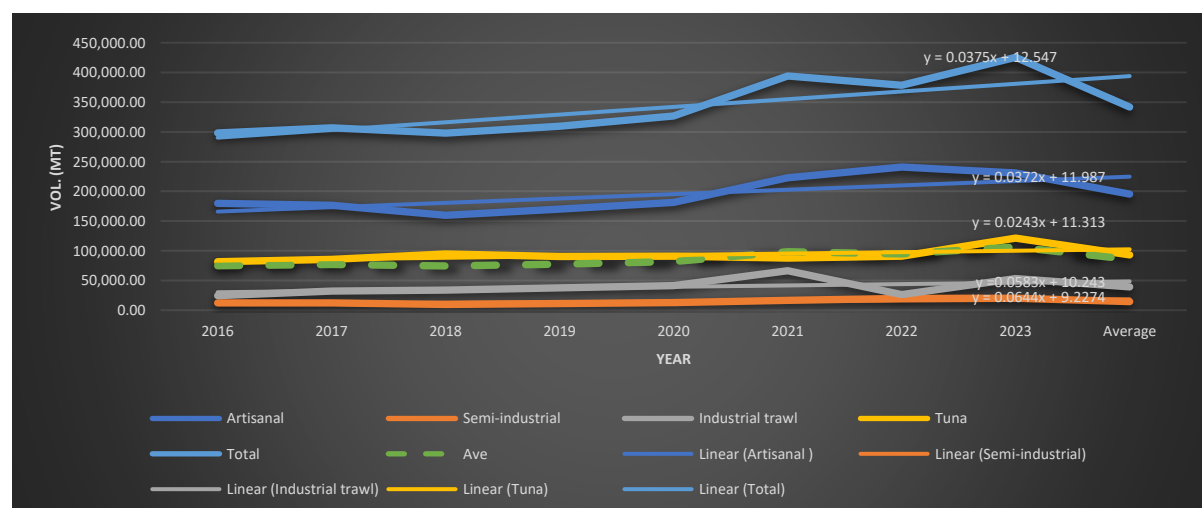


Figure 2. 12: Fish landings from the fleet from 2016 to 2023

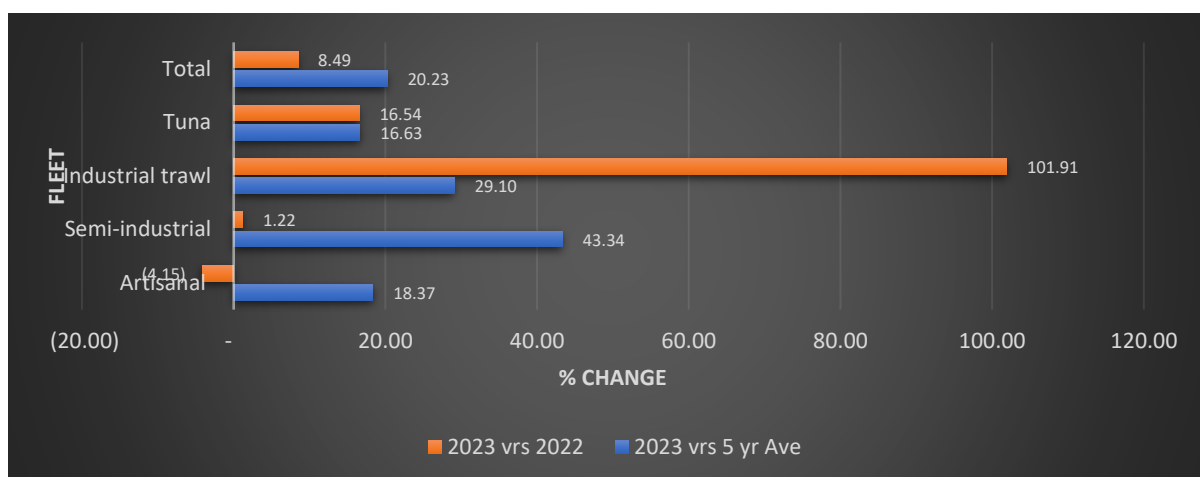


Figure 2. 13: Growth of fish landed by fleet

Fish landed by the artisanal fleet recorded a negative growth (-4.15%) on year-on-year as against the other fleets which saw positive growth (Figure 2.14). Volume of fish landings reported for the industrial fleet doubled. The figure again revealed that all the fleets reported a positive growth when comparing year 2023 and 5-year average. It means that the overall performance of all the fishing fleets in terms of their landings or production improved during that specific year. This positive growth indicates that the fishing industry experienced an increase in output or productivity compared to the average performance over the previous five years. This could be due to various factors such as implementation of closed seasons for all fleet among others.

2.1.4 Transshipment Supervision

The number of transshipments carried out reduced from 27 (2022) to 21 (2023) representing 22.2%. Volume of tuna transhipped also declined by 15.3% from 19,500 mt (2022) to 16,515 mt (2023). Transshipments were undertaken at the Takoradi Port by the six purse seiners of Panofi Company Limited. The total volume of tuna was transhipped through the company's carrier vessel, Volta Glory during the period (Table 2.7). The species transhipped were mainly tuna which include Bigeye, Yellowfin and Skipjack.

Table 2. 7: Supervised Transshipment from January to December

MONTH	Number of Vessels	YFT	SKJ	2023 BET	OTHERS	Total Tonnage	Number of Vessels	2022 Total Tonnage	% Change of vessels	% Change in tonnage
January	2	262	89	1,052	2	1,405	2	2,050	0	(31.46)
February	-	-	-	-	-	-	-	-	-	-
March	-	-	-	-	-	-	-	-	-	-
April	2	277	1,474	47	2	1,800	3	460	(33.33)	291.30
May	1	185	539	25	1	750	3	1,800	(66.67)	(58.33)
June	2	396	1,244	47	3	1,690	3	3,000	(33.33)	(43.67)
July	3	646	1,757	55	17	2,475	3	1,800	-	37.50
August	2	406	1,329	61	4	1,800	3	2,490	(33.33)	(27.71)
September	1	148	720	30	2	900	3	2,400	(66.67)	(62.50)
October	3	823	1,781	90	6	2,700	2	1,800	50.00	50.00
November	1	206	468	50	41	765	1	2,550	-	(70.00)
December	4	472	1,656	93	9	2,230	4	1,150	-	93.91
Total	21	3,821	11,057	1,550	87	16,515	27	19,500	(22.22)	(15.31)

2.1.5 Biological Data Collection Training

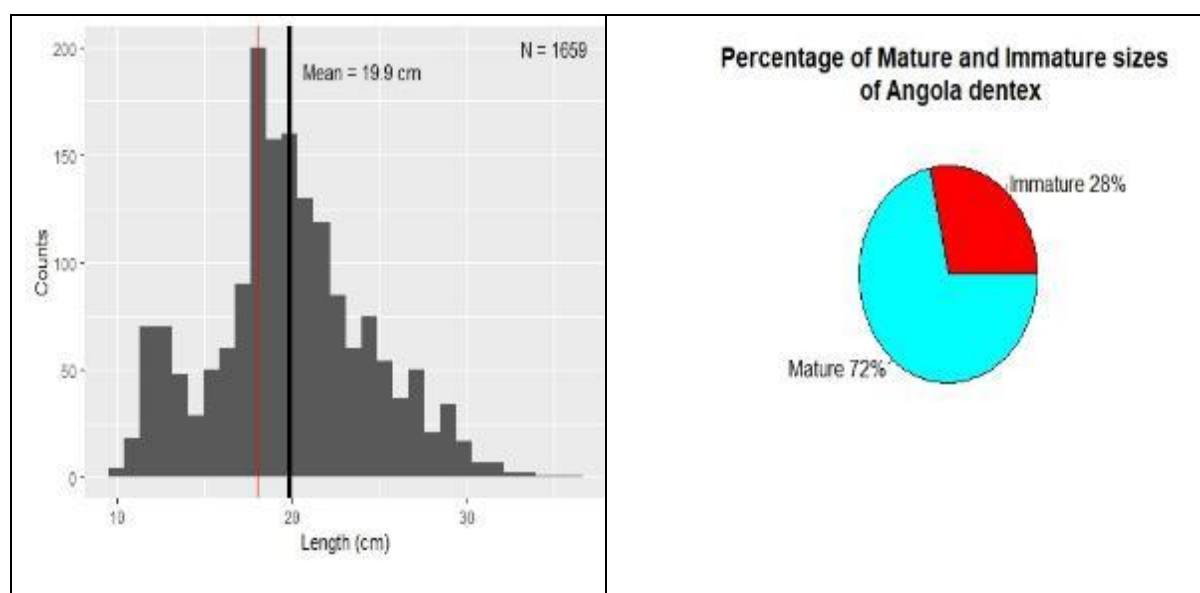
The Fisheries Commission (FC) was supported by Environmental Justice Foundation (EJF) to organize a two-day refresher training workshop at the Elmina Beach Resort on 23rd and 24th May 2023, for the 2023 closed fishing season biological data collection. There were 24 participants to the workshop comprised of 8 enumerators from eight (8) sampling sites, and their respective zonal managers. The sampling sites selected were Keta, Tema, Bortianor, Apam, Elmina, Shama, Sekondi and Axim. Representatives from some of the fisheries stakeholders such as the Ghana National Canoe Fishermen Council (GNCFC), Ghana Inshore Fishermen Association (GIFA), Ghana Fisheries Recovery Activity (GFRA), National Fish Processors and Traders Association (NAFPTA) were present throughout the training workshop.

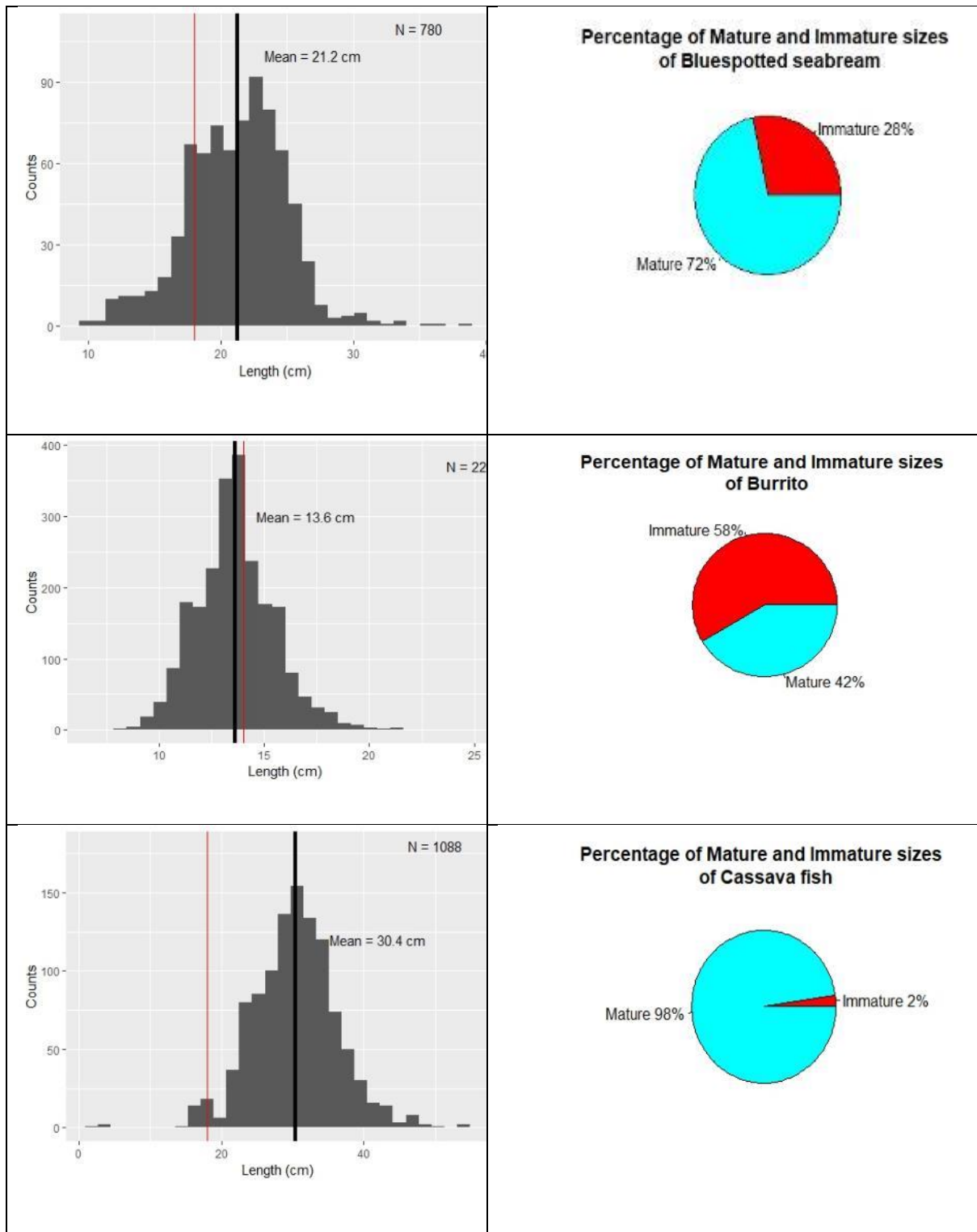
2.1.6 Biological Monitoring of Trawl Gear (Summary of full report almost ready)

Biological information was collected for selected economically important demersal species and pelagic species. The species of interest were *Dentex angolensis* (Angola dentex), *Pagellus bellottii* (Red pandora), *Pseudolithus senegalensis* (Cassava croaker), *Pseudopenaeus prayensis* (Red mullet), *Pagrus caeruleostictus* (Bluespotted seabream), *Brachydeuterus auritus* (Burrito), *Sepia officinalis hierredda* (Cuttle fish), *Sardinella aurita* (Round sardinella), *Scomber colias* (Chub mackerel), *Trachurus trecae* (Atlantic horse mackerel), *Decapterus punctatus* (Round scad). The sex and maturity stage of each specimen were determined by visual examination of the gonads (Figure 14 & 15).

- **Demersal species**

Majority of demersal species examined exceeded the minimum allowable landing sizes (Figure 3), except for Burrito, which had an average landed size 13.6 cm smaller than the 14 cm minimum. Immature sizes varied, with Cassava fish having the lowest proportion at 2%, and Burrito the highest at 58%. Species with fewer immature sizes included Cassava croaker and Red mullet, each with less than 10% of immature specimens in the samples examined.





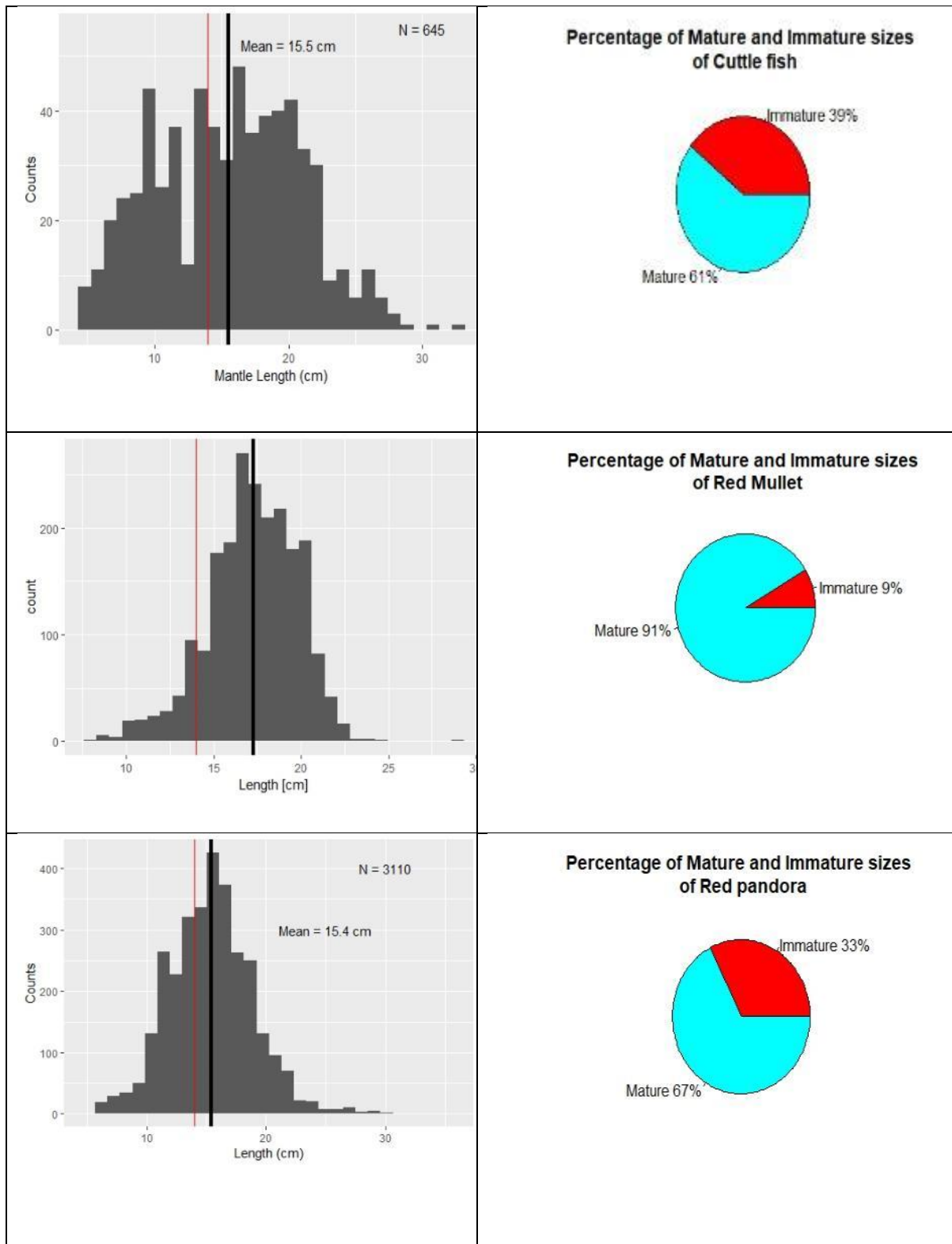


Figure 2. 14: Length distribution(left) and proportion mature (right) of economically important demersal species. Black line showing mean value and red line the allowable landing size.

- **Small Pelagic species**

The small pelagic species investigated in this study included Round sardinella, Chub mackerel, Round

scad, and horse mackerel. Except Round sardinella, the common sizes of these species exploited exceeded the allowable landed size. All specimens of Round sardinella examined were immature (Figure 4), and approximately 47% of Chub mackerel examined were also immature. However, nearly all samples of Round scad were found to be mature.

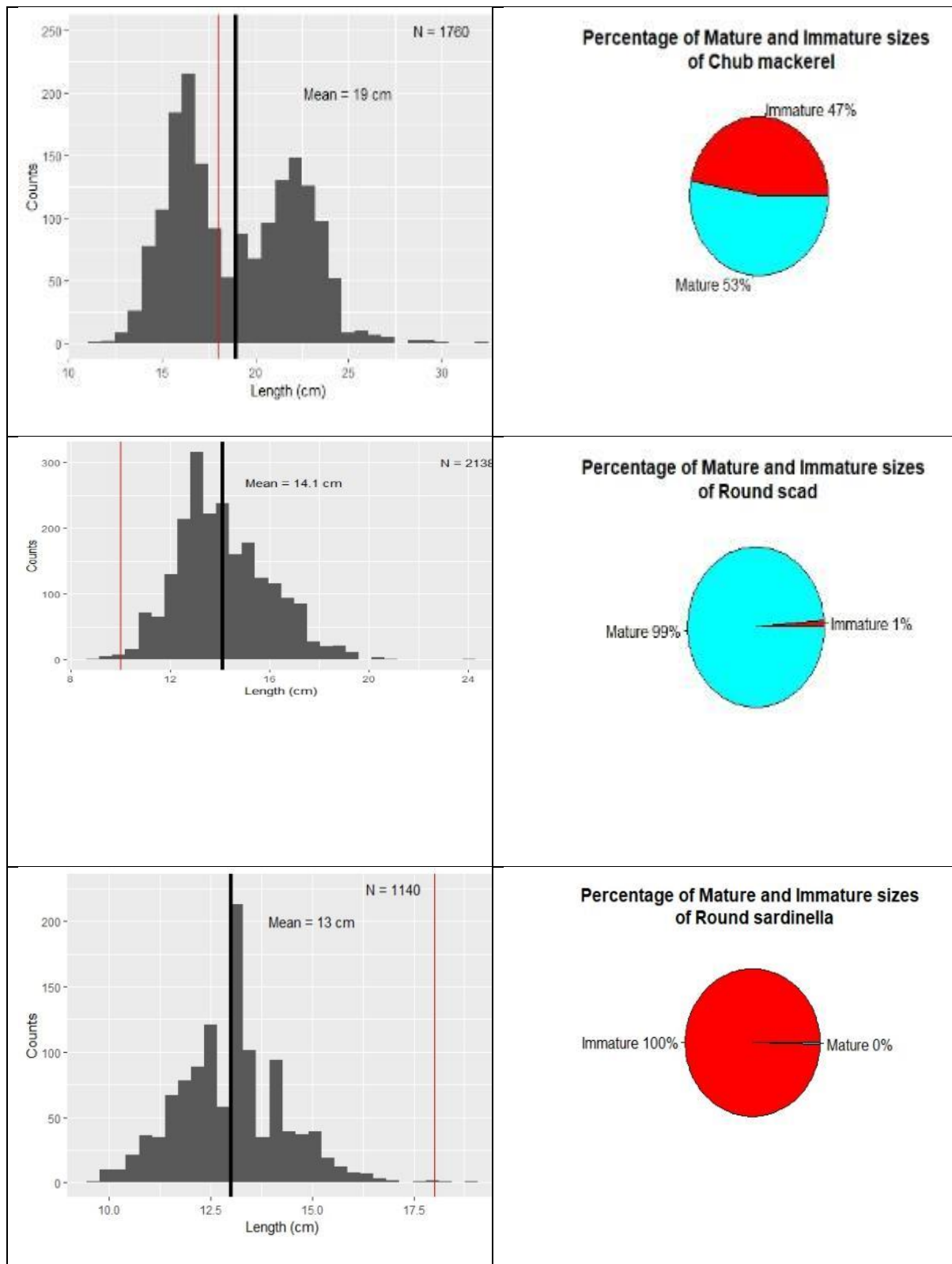


Figure 2. 15: Length distribution(left) and Proportion mature(right) of economically important pelagic species. Black line showing mean value and red line the allowable landing size.

2.1.7 Observer Programme

The number of observers assigned to vessels declined from 43 (2022) to 39 (2023) by 9.3%. The 39 observers were assigned on 19 purse seiners (5 Belize flagged vessels), 6 bait boats and 1 carrier throughout the year 2023. Eight new observers were also trained in March but only four were able to pass the course. However, in October 2023, one of the observers (Samuel Abayateye) was declared missing on-board the vessel, Marine 707 and the incidence is still under investigation. The ICCAT Moratorium period was from 1st of January to 13th March 2023. All vessels complied with the directives given; only one vessel (Panofi Grace) went for fishing during that period and carried out all her fishing activities without fishing on FADs.

2.1.8 Assessment of 2023 Closed Season

Biological studies, catch rate analyses and measurement of sea surface temperature (SST) were conducted on three small pelagic species; Round Sardinella, Flat sardinella and Anchovy in pre-closure and post-closure periods (June to October) to monitor the 2023 closed season. Data was collected at eight sampling sites along the coast namely Keta, Tema, Bortianor, Apam, Elmina, Shama, Sekondi, and Axim. SST measurements revealed that the closed season occurred within the upwelling season (July to September) and the closure of the fisheries in July enhanced the spawning potential of the small pelagic species in the post-closure period. Round sardinella landings for both purse seine and set nets reduced post-closed season. Similarly, Flat sardinella landings decreased post-closed season for the purse seine gear but increased for set net. Anchovy landings increased, exhibiting the highest mean catch per trip of 485.34 kg after the closed season.

The average size of Round Sardinella, Flat sardinella and Anchovy across the eight stations were 16.5 cm, 16.0 cm and 7.5 cm respectively. There were variations in the mean size distribution of Round sardinella across the eight sampling sites, with monthly mean size distribution of the species showing an increase in the months of August and September (post-closure). The gonadal development for Round sardinella peaked after the closed season. In terms of maturity stages, higher proportion of mature Round sardinella were landed than immature species of same after the closure. The closure period for the species in July thus enhanced growth and reproduction. Similar biological observations were made for the Flat sardinella and Anchovy.

The biggest size of Round sardinella increase was observed in 2023 compared to 2021 and 2022 closures. The highest proportion of Round sardinella recruitment were recorded in the post-closure months of August (65%) and September (76%) while the lowest took place in the pre-closure month of June (25%). Similar observations were made for the Flat sardinella and anchovy. This indicates a greater recruitment of the small pelagic species into the fishery after the closed season.

From these findings, it is recommended that the month of July should be maintained as the month for the closed fishing season for artisanal subsector as it protects the spawning stock and enhance recruitment. This will help rebuild the fish stocks. It is also recommended that fisheries enforcement measures are enhanced to curb inappropriate methods of fishing that can erode some of the gains of the closed season.

2.1.9 Training on Fisheries Information Documentation

A training session was organized by experts from the Fisheries Scientific Survey Division (FSSD) for Captains and crew managers of all trawl vessels operating within Ghanaian waters at NAFAG Hall in Tema on August 28, 2023. The main goal was to enhance their knowledge and skills in fisheries data gathering and documentation. The workshop was attended by 48 Captains, 14 Crew managers, and 30

Fish masters from various vessels. In addition to documentation, participants were also briefed on at-sea sampling protocols and were introduced to the newly proposed packaging methods for "bycatch" samples.

2.1.10 Fishing Gear Methods and Development

✓ *Implementation of Ministerial Directives on Trawl Gear*

Table 2.8 gives a summary of arrival and pre-departure inspections for the year 2023. Total number of departures was 188 and 190.

Table 2. 8: Summaries arrival and pre -departure inspections for 2023

MONTH	PRE-DEPARTURE	DISCHARGE/ARRIVAL
January	4	4
February	13	1
March	15	27
April	15	13
May	22	34
June	20	25
July	0	15
August	0	0
September	8	0
October	41	17
November	30	31
December	20	23
Total	188	190

✓ *Certification Inspections*

Trawl gears inspections and certification before licensing by the section continued throughout the year 2023 (Figure 2.16). Inspections were conducted at the end of each quarter prior to the renewal of fishing license for all prospective vessels. All inspections are done at port in the presence of the vessel captain and in most instances the operation managers of the vessels.

A total of 98 trawls were inspected and certified during the year. Out of this number, 15 vessels representing 15.3% failed to meet the specifications on the fishing circle (60 m) and vertical opening (10 m) and 9 others representing 9.2% had codends exceeding the 1 0m limit. Vessels that failed to meet the requirement were asked to make the necessary amendments to gear.



Figure 2. 14: Certification inspection at port with vessel Captain in attendance

✓ **Pre-Departure Inspection**

One hundred and eighty-eight (188) pre-departure inspections were conducted in conjunction with the MCSD at the port of Tema during the year 2023 (Figure 2.16). The main emphasis of this exercise was to ensure that vessels depart port to the fishing grounds with the same nets inspected prior to licensing. Averagely, vessels depart port with two sets of complete trawl gears but occasionally some vessels have as many as four sets of nets. It has been observed that almost all vessels carry along with them at least one each of the two main trawl designs identified (1,000 by 150 millimeter net combination and 300 by 150 millimeters combination)



Figure 2. 15: Pre-departure inspection before sailing

✓ **Arrival Inspection**

A total of 190 arrival inspections were conducted for the year 2023 (Figure 2.17). Arrival inspections are to ascertain that trawl gears inspected at port before departure are the same ones that were used at the fishing grounds, and also to verify if there has been any alteration or tampering whiles at sea. The arrival inspections also afford the opportunity to examine the catches to help determine if the overall objective of the ministerial directive is being achieved.



Figure 2. 16: An officer inspecting trawl on Arrival fish at port

The most common observations during the arrival inspections were evidence of repaired damaged nets at sea as a result of fishing operations. These routine mending activities at sea did not affect the specifications as outlined in the gear directives. Table 2.9 shows some of most frequent damage to trawls and the actions taken.

Table 2. 9: Some net damages and action taken

No	Damage	Action taken
1	2 Major damage to the wings and belly of net	Repaired at sea
2	3 Net completely damaged beyond repairs	Replaced with a new one at port
3	Damage to the codend	Repaired at sea.
4	Damage to the wings and belly of the net	Repaired at sea
5	Complete damage to net	Replacement at port.

✓ Observations

Two main types of trawl designs have been identified since the inception of the new ministerial directive on trawl gears:

1. A combination of a 1000 mm mesh netting at the wings and square (upper panel) and 150 mm mesh netting at the lower panel of the fishing circle.
2. A combination of 300 mm mesh netting at the wings and square with a 150 mm mesh netting at the lower panel of fishing circle.

Based on the physical examinations of landings at the port, it is evident that these two types of nets identified performs differently in terms of catches.

2.1.11 Capacity Building

Two members from Fisheries Scientific Survey Division and one person from Monitoring, Control and Surveillance Division undertook a three weeks (4-28 August 2023) capacity building training in Fish Capture Technology at the Danish Technical University (DTU), Denmark funded by Fish for Development project under a Norwegian Government.

- **Benefits of the training**

Staff were equipped with knowledge on the following:

- Trawl gear performance and assessment
- Scientific cruise design and execution
- Data collection and analysis

2.2 Marine Fisheries Resource Management

2.2.1 Registration and licensing of Industrial fishing vessels

✓ Registration of New Industrial Fishing Vessels

Table 2.10 shows the categories of vessels registered in 2022 and 2023 respectively. There were no vessels registered in 2023 compared to two Ghanaian-flagged tuna vessels registered in 2022.

Table 2. 10: Newly Registered Fishing Vessels (2022 and 2023)

Type of Fishing Vessel		No. of newly registered vessels	
		2022	2023
Trawl		0	0
Tuna	Ghanaian flagged	2	0
	Foreign flagged	0	0
Support (Carrier/Supplier)		0	0
TOTAL		2	0

✓ Licensing of Industrial Fishing Vessels

The number of operational vessels licenced declined by 30.2%. The decline could be as a result of the fact that some vessels had moved out of the flag state while some have still not conformed with the ministerial directives. Table 2.11 shows that in 2023, a total of 74 industrial fishing vessels were licensed, including both Ghanaian and foreign-flagged vessels, compared to 106 vessels in 2022. All the operational vessels licenced declined between the two years.

Table 2. 11: Number of operational vessels (2022 & 2023)

Type of Fishing Vessel		2022	2023	% Change
Trawl		70	41	-41.4
Tuna	Ghanaian flagged	23	22	-4.4
	Foreign flagged	12	10	-16.7
Support (Carrier/Supplier)		1	1	0
Total		106	74	-30.2

Most fishing Licences were issued quarterly for almost all the industrial vessels (Table 2.12). Number of licences issued for trawlers decreased by 25.9% from 158 (2022) to 117 (2023). Also, the number of licences issued for local tunal vessels declined by 1.2% from 83 (2022) to 82 (2023). Furthermore, licences issued to foreign vessels decreased from 22 (2022) to 20 (2023) by 9.1. The lower number of licenced vessels recorded in the first quarter for the tuna fleet was due to the compliance to International Commission for The Conservation of Atlantic Tunas (ICCAT) recommendation on moratorium in the Atlantic Ocean. All tuna vessels observed the closure until 13th March. However, the sixteen (16) tuna fishing vessels that renewed their fishing licences within the first quarter mostly did the free school fishing as recommended by ICCAT. In 2023, the number of licences issued declined in the trawl sector

due to the following:

- High Cost of operations
- Ministerial trawl directives on the change of gears
- Movement of some fleets out of the flagged state for repairs
- Non-payment of fines

Table 2. 12: No. of licences issued per quarter

Quarter	2022					2023					% Change
	Trawler	Local Tuna	Foreign Tuna	Carrier	Total	Trawler	Local Tuna	Foreign Tuna	Carrier	Total	
1ST	70	15	2	1	88	27	16	2	1	46	(47.7)
2ND	69	23	4	1	97	41	22	4	1	68	(29.9)
3RD	0	22	12	1	35	10	22	10	1	43	22.9
4TH	19	23	4	1	47	39	22	4	1	66	40.4
TOTAL	158	83	22	4	267	117	82	20	4	223	(16.5)
AVG	40	21	6	1	67	29	21	5	1	56	(16.5)

On average, 67 fishing vessels were licensed in 2022 as compared to 56 vessels in 2023 representing a decrease of 16.42%. The average breakdown of licensed fishing vessels for 2023 was 29 trawls, 21 local tunas, 5 foreign tunas and 1 carrier. Figure 2.18 displays percentage change of licenced fishing vessels. The 3rd and 4th quarter shows positive change.

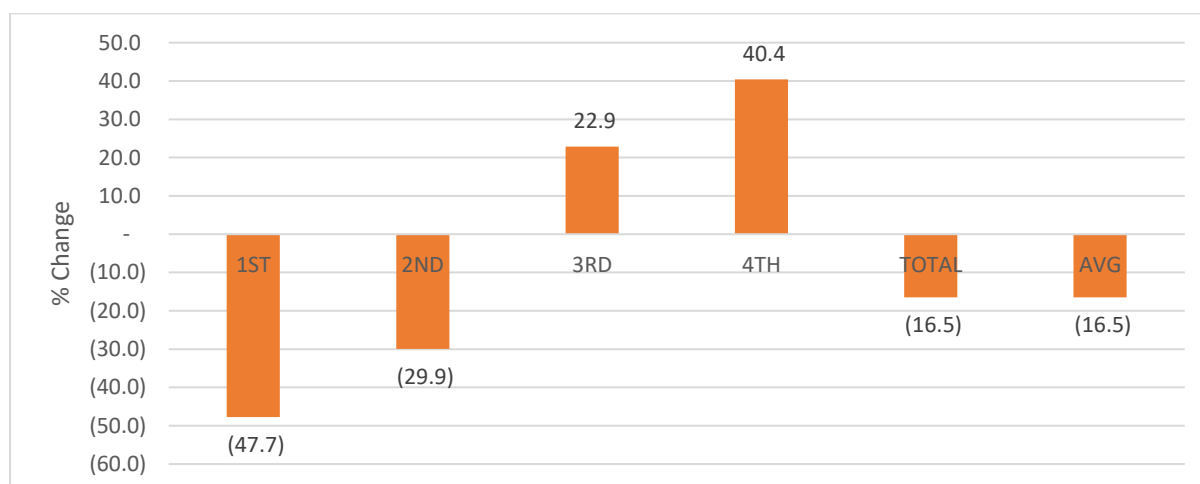


Figure 2. 17: Percentage change of licensed fishing vessels

2.2.2 Revenue Generated from Industrial Vessels Licencing

An amount of GHS57,653,238.14 was realized in 2023 as compared to 40,328,791.52 in 2022 representing an increase of 43% (Table 2.13). The licence fee charged for both years was USD 135 per Gross Tonnage (GT) for each vessel. The difference in the revenue generated in 2022 and 2023 was mainly due to an increase in the exchange rate of cedi to dollar in the reporting year. The local and foreign tuna vessels contribute about 77.4% of the total revenue mainly because of their large Gross Tonnages which ranges between (298-2500). The percentage change of revenue accrued between the different vessels increased. Revenue accrued by the Ghanaian flagged tuna vessels increased by 57.1% followed by foreign flagged tuna vessels (33.1%).

Table 2. 13: Annual License Fees Collected for 2022 and 2023

Type of Fishing		2022			2023		
Vessel		No. of Operational Vessels	Amount (GH¢)	% Cont.	No. of Operational Vessels	Amount GH¢	% Change (Amt)
Trawler		70	8,305,643.19	20.6	41	10,649,055.13	28.2
Tuna	Ghanaian Flagged	23	19,306,390.83	47.9	22	30,329,945.71	57.1
	Foreign Flagged	12	10,714,322.56	26.6	10	14,264,778.00	33.1
Support (Carrier/Supplier)		1	2,002,434.94	5.0	1	2,409,459.30	20.3
TOTAL		106	40,328,791.52	100	74	57,653,238.14	43.0

➤ Semi-industrial

Semi-industrial vessel is a motor fishing vessel powered by an inboard engine and classified with length between 10 – 32 m and gross tonnage ranging between 15-150. The length-over-all of the vessel determines the revenue (or licence fee charged) from the semi-industrial fleet that is licenced. The revenue from the licencing of semi-industrial fleet from the three regions increased by 18.3% from GHS 128,870.5 in 2022 to GHS 189,766.5 in 2023. The Central region recorded the highest revenue as a result of the increase in the number of licensed fleet by 26.9% from 108 (2022) to 137 (2023). The Greater Accra recorded 16.7% increase from 24 (2022) to 28 (2023). The least was from the Western region which increased by 8.1% (Table 2.14).

Table 2. 14: Licencing and Revenue of Semi-Industrial Fleet

Region	2022			2023			% change (Fleet)
	No. of fleet	Amount (GHS)	% share	No. of fleet	Amount (GHS)	% share	
Central	108	59,369.00	46.1	137	91,982.00	48.5	26.9
Western	86	56,475.00	43.8	93	77,722.51	41.0	8.1
Greater Accra	24	13,026.50	10.1	28	20,061.95	10.6	16.7
Total	218	128,870.5	100.0	258	189,766.5	100.0	18.3

2.2.3 Update on Canoe Registration and Embossment

Table 2.15 shows a yearly breakdown of the number of canoes registered and embossed by region. A total number of 13,700 canoes were registered and 10,661 were embossed with registration numbers. In the Central region, the number of registered canoes was 4,654 and the number of embossed canoes was 3,990. In Greater Accra, the number of registered canoes was 4,031 and the number of embossed canoes was 3,455. In the Volta Region, the number of registered canoes was 1,005 and the number of embossed canoes was 878. In the Western region, the number of registered canoes was 4,010 and the number of embossed canoes was 2,338. All registrations were done before the effective date of the moratorium.

Table 2. 15: Number of registered and embossed canoes

Region	2019		2020		2021		2022		2023	
	Total No. of Reg. Canoes	Total No. of Embossed Canoes	Total No. of Reg. Canoes	Total No. of Embossed Canoes	Total No. of Reg. Canoes	Total No. of Embossed Canoes	Total No. of Reg. Canoes	Total No. of Embossed Canoes	Total No. of Reg. Active Canoes	Total No. of Embossed Active Canoes
Volta	1,502	1,186	1,581	1,186	1,200	1,515	1,515	1,263	1,005	878
Greater Accra	3,545	2,156	3,545	2,156	3,860	2,175	3,901	3,455	4,031	3,455
Central	4,773	2,905	4,820	2,905	4,745	1,621	4,223	3,311	4,654	3,990
Western	4,455	2,967	4,478	1,943	4,863	2,261	3,929	2,338	4,010	2,338
Total	14,275	9,214	14,428	8,190	14,668	7,572	13,253	10,367	13,700	10,661

2.2.4 Management of the fishing Vessel Registry and licensing System

Quarterly updates to the Vessel Registry and Licencing System are posted on the MOFAD and FC websites, www.mofad.gov.gh and <https://fishcom.gov.gh/> respectively.

2.2.5 Quarterly meeting with industrial operators (Tuna & Trawler)

The quarterly meetings create a conducive environment for industry players to interact and discuss issues about the sector, reach a consensus on key policy decisions and strengthen collaboration between fisheries managers and fishing operators. The following subject matters were discussed.

A. Status of the Yellow card

- ✓ Setting up of Dialogue between Ghana and EU in order to update EU on the progress of finding solutions to the sanctions.
- ✓ Recruitment of a consultant to update the Fisheries Act
- ✓ Drafting regulations to implement Port State Measure Agreement (PSMA)
- ✓ Establishing the Fisheries Monitoring Centre (FMC)

B. Updates on Ministerial Directive on Trawl Gear

- ✓ Fishing nets should be certified before departure.
- ✓ Sampling of catch should be done before sorting of same. Samples given to observers should be kept well.
- ✓ Observers are required to take the position, depth and time of the vessel during fishing.
- ✓ Sampling of the turtle fish will begin in September.
- ✓ The language in the log books should be English, with specific species recorded in them.
- ✓ Captains and Crew Managers will be trained on the filling of log books on Monday, 26th August, 2023.

• EMS piloting to augment VMS

Electronic Monitoring System (EMS) has been introduced on three licensed vessels (“Meng Xin 1”, “Guo Jin 601” and “Lu Rong Yuan Yu 966”) for monitoring and analyzing fishing activities of the

vessels. This was done in May-June with support from Ghana Fishery Recovery Activity (GFRA-USAID). The Pilot phase continued after the close season (July- August) to the end of the year. Management decision will be based on the results of the outcome of the piloting.

2.2.8 Addressing illegal fishing in the Trawl Sector

The Minister of Fisheries and Aquaculture Development, Hon. Mavis Hawa Koomson, summoned the Ghana Industrial Trawlers Association (GITA) to address the ongoing issue of persistent illegal fishing practices within the industrial trawling sector (Figure 2.19). This significant effort was to address the persistent issues of illegal fishing practices through open dialogue and collective action aimed at protecting the integrity of Ghana's fishing industry and ensuring its sustainability.



Figure 2. 18: Emergency Meeting of Ghana Industrial Trawler Operators with The Minister

2.2.9 Moratorium engagement

- Moratorium on New Entrants (Canoes) into the Artisanal Fishery

The Minister of Fisheries and Aquaculture Development, Hon. Mavis Hawa Koomson announced a moratorium for New Canoe Entrants into the Marine Fisheries Sector. This is one of the key measures to control fleet capacity and fishing efforts to sustainable levels as indicated in the Marine Fisheries Management Plan (MFMP 2022-2026). The implementation of the moratorium is for a 3-year period and took effect from 1st October 2023 (Figure 2.20). The objectives are as follows;

- Align fishing effort with estimated annual sustainable levels
- End open access regime and full roll out of Canoe Identification Cards
- Re-characterize canoes by regulating canoe size, gear & motor sizes,
- Improve the socio-economic wellbeing of fishers along the value chain,
- Improve efficiency in the sale and distribution of premix fuel
- Contribute to the reduction of deforestation to mitigate impact of climate change.

GFRA collaborated with MOFAD/FC to organize series of engagements at community, regional and national levels to sensitize stakeholders on the management procedure for the moratorium. GFRA supported a national dialogue led by MOFAD at the national (February 16, 2023), regional (March 1 – 9, 2023), and community levels, with Regional Ministers, the Forestry Commission, the Parliamentary Select Committee on Food, Agriculture, and Cocoa Affairs (PSCFACA), and Metropolitan, Municipal and District Chief Executives from all the 30 coastal districts. Four regional multi-stakeholder engagements among fishers, district assemblies, traditional authorities, academia, and other stakeholders whose livelihoods will be affected by the management measure were held. Community engagements with fishers through its fisher-2-fisher dialogues were also held along the four coastal regions in 2022. Over 1200 fishers were engaged through 15 cluster community engagements across the four coastal regions out of which 73% agreed on the position to stop or pause new canoe entrants.

Massive communications were done through the media broadcast (selected radio and television stations) and posters disseminated in all the coastal regions to give information on the Moratorium.

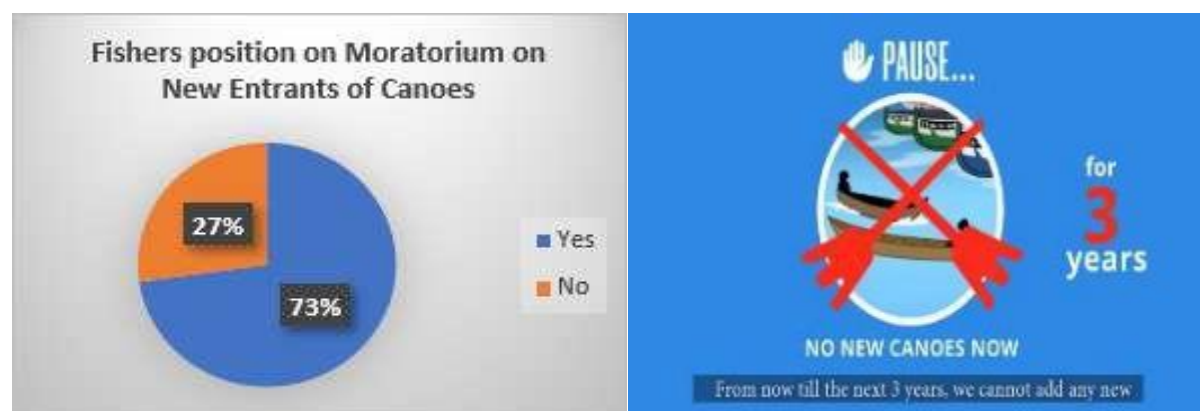


Figure 2. 19: Information on Moratorium

2.2.11 Distribution of Canoe Identification Cards

As part of efforts to control canoe numbers and ensure efficient distribution and sale of premix fuel to registered canoes at landing beaches, Zonal Officers and team from MFMD -Head Office carried out canoe verifications at the Nungua, Elmina, Anomabo, Chorkor, Kokrobite, Abia, Orokpe and Wekumagbe landing beaches. The initiative is to also to prevent the hoarding and diversion of premix fuel at the landing beaches and enable fishers to purchase premix fuel from the newly constructed automated premix fuel pumps. This entailed:

- the cleaning of the canoe register by deleting all inactive canoes – this was a collaborative exercise done with the office of the Chief Fisherman, the Landing Beach Enforcement Committee (LaBEC) and some fishers who assisted the team from MFMD in identifying inactive canoes.
- distribution of Canoe Identification Cards (CIC) to verified canoes. The Ghana card of canoe owners were used for authentication before the cards were issued.
- CIC totaling 909 were distributed to fishermen at Nungua, Elmina, and Chorkor, (Table 2.16)

Scenes from the Distribution of the Canoe Identification Cards are indicated in Figure 2. 20



Distribution of CIC at Nungua

Distribution of CIC at Elmina



Figure 2. 20: Scenes from the Distribution of the Canoe Identification Cards

Table 2. 16: Verification of canoes and distribution of CIC

Landing sites	Registered Canoes	Active Canoes	CIC printed	CIC distributed	Remarks
Nungua	102	75	85	75	Done
Elmina	481	464	464	464	Done
Chorkor	324	382	370	370	Done
Total	426	921	919	909	

Table 2.16 shows number of canoes verified and number of Canoe Identification Cards (CIC) distributed. Nine hundred and nine (909) out of 921 cards representing 98.9% were distributed to fishermen at the 3 communities. This process is on-going till cards are distributed to all marine canoes.



National Engagement With Legislators And Policy Makers

Regional Engagement – Western



Regional Engagement – Central

Regional Engagement – Greater Accra

Regional Engagement – Volta

Figure 2. 21: Scenes from the Stakeholder Engagements

- **Training of Fishers to Facilitate F2F in the Four Coastal Regions**

The Ghana Fisheries Recovery Activity (GFRA) organized a Training Session to address key subject areas relevant to the current management focus of the artisanal fishery sector as they were enlisted as top priority areas for discussion during the GFRA meeting held on 26th May, 2023 at Elmina. Following the agenda setting meeting, facilitators were trained, who in turn trained the fishers on the identified subject areas. The training was intended to enhance the understanding of the facilitators on the subject areas and build their capacity to further train fishers during the fisher-to-fisher dialogues.

Key subject areas for discussion were; **Moratorium on New Canoe Entrants, roles of LABECs (Landing Beach Enforcement Committees) and SPCC (Small Pelagics Co-Management Committee) and relationships with Co-management Committees, GFRA livelihoods Intervention, Safe Fish Certification, Closed Season and how to maximize impact.**

The trainings took place on 14th – 16th June, 2023 at the Pine Hotel conference room in Komenda for Western and Central Regions, followed by 22nd – 24th June, 2023 at the Aborigines Beach Resort, Keta for the Greater Accra and Volta Regions

2.2.10 Marine Spatial Planning Capacity Building Workshop

The Land Use and Spatial Planning Authority (LUSPA) is in partnership with the UK Government's Marine Management Organization to progress Ghana's Marine Spatial Planning (MSP).

The organized workshop built on the Marine Spatial Development Framework for the Western Coastal Zone of Ghana, prepared by the Environmental Protection Agency (EPA) in collaboration with Land Use & Spatial Planning Authority (LUSPA), Fisheries Commission and other stakeholders.

The objectives of the workshop were to:

1. raise awareness of the importance of MSP as a tool to promote the sustainable management of the marine environment.
2. raise awareness of the development of the Draft *Marine Spatial Development Framework for the Western Coastal Zone – Ghana* (for Jomoro, Ellembelle, Nzema East and Ahanta West Districts)
3. build capacity of key stakeholders to contribute to MSP in Ghana in the future
4. secure commitments to undertake MSP and implement the draft Marine Spatial Development Framework
5. facilitate the sharing of evidence/data among agencies or institutions to support MSP.

To create a shared understanding of MSP, and the process to develop a Framework for the western region, under the leadership of LUSPA, a two-day capacity building workshop was held at the Alisa Hotel on Thursday 7th and Friday 8th December, 2023 (Figure 2.23).



Figure 2. 22: Scenes from the Marine Spatial Planning Capacity Building Workshop

2.2.11 Training Workshop on Blue Carbon and Coastal Management

The Intergovernmental Oceanographic Commission of UNESCO (IOC) Ghana, as a competent international organization, promotes international cooperation and coordination of programmes in the field of ocean and coastal scientific research, and capacity-building, to support the achievement of the UN Decade of Ocean Science for Sustainable Development in Ghana.

The CSIR-Water Research Institute serving as the national focal point for UNESCO-IOC partnered other institutions including the Fisheries Commission and Environmental Protection Agency (EPA) of Ghana, with sponsorship from the United States National Oceanographic and Atmospheric Administration (NOAA) to contribute towards addressing primarily [ODC 9 and other ODCs 2, 4 and 7](#). This is essentially contributing to realizing the [UN Sustainable Development Goals \(SDGs\) 14](#), specifically targetting goal 14.8.



Biomass sampling

Participants on Densu river to inspect oyster



Figure 2. 23: Scenes from the training workshop

Blue Carbon and Coastal Management training

The objective of the training was to implement a Technical Support and Capacity Building for Monitoring, Mapping and Managing Mangrove and Other Coastal Blue Carbon Ecosystems in Ghana involving field trips to Winneba and the Densu Ramsar Site, Weija. **Collaborating Institutions in this training were;** National Oceanic and Atmospheric Administration (NOAA), Silverstrum Climate Associates, The Ocean Foundation, United States Embassy, Ghana, CSIR – Water Research Institute, Environmental Protection Agency, Sustainable Development Goals Advisory Unit in the office of the President, University of Cape Coast, Hen Mpoano, Forestry Commission, Fisheries Commission and CSIR – Forestry Research Institute. The training was organized from 31st October to 2nd November and 6th to 10th November 2023.

2.2.13 Report on Inshore Meeting

A meeting was organized for the stakeholders within the inshore sector for Western, Central and Greater Accra Regions. The meeting took place on the 21st January, 2023. The following presentations were made to help in addressing issues related to the inshore sector;

- a. Inshore Vessel Census: Inshore vessel register were distributed and verified for all operational vessels; information on operational vessels, ownership and vessel details in the register were updated and new vessels were registered towards the anticipated 3-year moratorium on all fleet as captured in the National Marine Fisheries Management Plan (2022-2026).
- b. Inshore Vessel Inspection: Inspection must be done before the issuance of license and that the regional office should ensure that all vessels take license through regular engagement, sensitization and education on the need for them to take license

2.2.14 Quarterly Stakeholder Meeting Artisanal and Inshore Sector

The Marine Fisheries Management Plan (MFMP, 2022-2026) was developed with the aim of creating a strategic framework for reversing the downward trend in fishery resources and establishing a competent management regime to ensure that fish stocks are utilized sustainably in a better environment. In view of that, there was a need to have a quarterly stakeholder meeting to discuss and deliberate on the challenges pertaining to the artisanal and inshore sectors. The meeting was held in two sessions; Morning session (Artisanal Sector) and the Afternoon session (Inshore Sector) on Tuesday, 2nd May, 2023 at the KEEA Municipal Assembly Hall, Elmina (Figure 2. 24). Notable amongst audience present were the Board Chair, FC; the Executive Director; the National and Regional Presidents of the GNCFC, Director, Marine Fisheries Management Division (MFMD)' regional

directors from the coastal regions of Ghana and some staff from the KEEA Zone and the Central regional office.



Figure 2. 24: Quarterly meeting with artisanal and inshore sector

2.3 Inland Fisheries Resource Management

Inland capture fisheries comprise the utilization and sustainable development of fisheries resources in inland water bodies, including rivers, lakes, dams, dugouts and lagoons.

2.3.1 Estimated Inland Fish Production

Inland production for the year 2023 was 142,583.13 mt with a market value of GHS3,905,708,570.00 (Figure 2. 25) as against 2022 of 146,623.14 mt with a market value of GHS3,225,715,020.00. The production shows a decrease of 2.76%. The decrease in production could be attributed to flooding of most of the riverine systems of the river Volta, coupled with inadequate supply of premix fuel for fishing expeditions. The major species landed and traded in were *Chrysichthys*, *Tilapia*, *Bagrus*, *Labeo*, *Mormyrus*, *Schilbe*, *Hydrocynus*, *Alestes*, *Clarias*, *Citharus*, *Gymnarchus*, *Heterotis*, *Lates*, *Synodontis* and *Distichodus*.

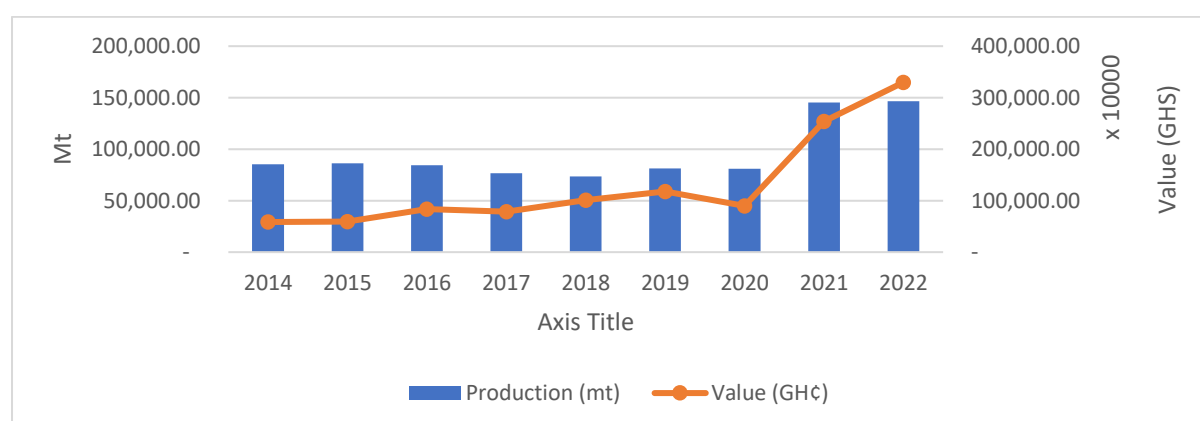


Figure 2. 25: Trends of Inland Fish Production

2.3.2 Engagement with Fishers in Three Lake Districts along the Volta Lake

In a drive to strengthen Inland Fishers Associations in Ghana to assist in co-management of the fisheries resources, workshops were organized in four districts (Pru East, Pru West, Sene East and Sene West) along the Volta Lake in the Bono East Region.

The objectives of the workshop included:

- i. Encourage the formation and strengthening of Fishers' Associations for co-management of the

fisheries resources

- ii. Sensitization of fishers on canoe registration and frame survey
- iii. Record Keeping and use of fishing logbook
- iv. Assessment of challenges of fishers in the Inland sector

The engagement exercise targeted 280 Fishers across the four selected districts along the Volta Lake.

2.3.3 Visit to Fisheries Commission Facilities

A visit from the headoffice to Yeji revealed that some structures which belong to Fisheries Commission were in bad state and needed immediate attention to prevent the properties from deteriorating further or collapsing in the near future. During a tour of the facilities, the following observations were made:

1. The building which served as a workshop (Figure 2. 26) for outboard motor repairs was in a deplorable state. Part of the fence wall of the facility was broken down, fostering access by unauthorized persons into the facility.
2. Place of convenience was also in a deplorable state.
3. Some fish species (Figure 2.30) of the Lake which have been preserved in bottles of formalin for study and reference have been kept in a box outside the wet-laboratory due to the deplorable state of the wet lab.
4. The electrical wiring of the facility is in a poor state and currently serving as death trap. One of the FC Staff bungalows has been abandoned because it is inhabitable.



Figure 2. 26: Outboard-motor repair workshop of the Fisheries Commission, Yeji



Figure 2. 27: Some preserved fish species of economic importance from the Lake

2.3.4 Engagement with Fishers at Yeji, Prang, Kwame Danso and Kajaji

There were interactions with Director of Inland Fisheries and 160 fishers from selected communities (Figure 2. 28) for the need to belong to an Association and what they stand to gain collectively as members of associations. Fishers were, among others, sensitized on the impending Inland Canoe registration exercise and the need to fully embrace it. They were also informed to get ready for such national exercise by doing the following:

- a. Give names to their fishing canoes, and
- b. Possess an identification card (ID) especially the Ghana Card.



Figure 2. 28: Scenes from Engagements with fishers

Participants were taken through the fishing log book which was prepared by the Fisheries Commission to enable Fishers to collect data on daily fishing activities. The log books were later distributed to each of the participants.

Some of the issues that came up during the engagements were:

- a. Illegal fishing using unapproved gears and mesh size
- b. Child labour
- c. Conflicts over water user rights among fishers
- d. Premix fuel shortage
- e. High cost of fishing gears and outboard motors.

In response to some of the issues raised, the Director, Inland Fisheries and Aquaculture encouraged fishers to:

1. Unite and strengthen their Associations for effective advocacy
2. Avoid illegal fishing practices
3. Avoid child labour, and allow their children to go to school
4. Assist Fisheries Commission in co-management of the fisheries resources
5. Improve on their Record keeping and share data with the Commission

2.3.5 Training and Pre-Testing of Inland Canoe Registration and Frame Survey Software

Effective development and management of the inland fisheries sub-sector requires policy decision making and implementation that hinges on science-based data. The Commission undertook inland canoe registration and frame survey on the Volta Lake to gather vital data for effective and efficient management of the fisheries resources, and for efficient distribution of premix fuel for fishers and

transport boats on the Volta Lake. To undertake that activity, a software (an application) was developed by a consultant for data collection. The software was pre-tested directly on the field (Figure 2. 29) after which errors or challenges encountered were discussed and the software further fine-tuned. The workshop was held in July at Akosombo for selected 55 staff made up of Regional Directors and some Zonal Officers bordering the Volta Lake.

Activities at the workshop,

1. FC Staff were sensitized on the need for the exercise.
2. Participants were trained as trainer of trainers for the use of the canoe registration software.
3. Inputs were made to fine-tune the software for capturing required data on the field.
4. The software was pretested at one of the landing beaches in Akosombo.
5. A strategy for effective and efficient registration exercise was designed.
6. A communication strategy was developed
7. The villages where the exercises will be conducted were coded for the software
8. Budget estimates were prepared for the registration exercise across the Volta Lake.
9. Essential materials and equipment needed to aid in the canoe registration exercise were enumerated. These included power bank, tablets, zip locks, vests, cap, identity tags, student mattress, generator, mosquito net, flash lights, crocs sandals, notepads and pens, tape measures and mobile data.



Figure 2. 29: Test Registration and Measuring of Canoe Length

2.3.6 Commencement of inland Canoes and Boats Registration exercise

The canoe registration exercise and frame survey commenced in August 2023 across all the seven regions bordering the Volta Lake i.e. Savanna, Bono, Bono East, Northern, Oti, Volta and Eastern Regions after the needed equipment and materials were procured and supplied to the regions.

The exercise was divided into three phases. The first phase was from August 24 – September 14, 2023 and second phase started from November 8 - November 29, 2023. The third phase will commence by the end of the first quarter of 2024. The exercise was carried out in phases due to inadequate funds.

2.3.7 Monitoring of Inland Canoes & Boats Registrations in the Eastern, Oti and Volta Regions

The monitoring exercise was carried out to assess the progress of the canoe and boat registration exercise to ascertain if its objectives are being achieved. During the monitoring visit, the data collected was validated. The monitoring team interacted with the field officers and technical challenges were assessed and real-time solutions given.

During the monitoring exercise it came to light that:

- i. Fishers had a false perception that, the registration exercise was a means of taxing resulting in some fishers not participating.
- ii. There was inadequate sensitization on the registration exercise
- iii. Some fishers did not partake in the registration exercise because they did not have Ghana cards whilst others registered with cards of relatives and friends.
- iv. Some registered fishers could not find their names in the register because their data were yet to be approved by the supervisors.

✓ Summary of vessels registered at the end of the second phase

At the end of December, 2023, 12,206 vessels were registered and identification numbers generated for them. Table 2.17 indicates the number of canoes and transport boats registered in the various regions.

Table 2. 17: Number of Canoes and boats registered

Region	Canoes	Boats	Total Vessels
Bono	598	46	644
Bono East	2,319	77	2,396
Eastern	3,599	152	3,751
Northern	1,260	11	1,271
Oti	1,667	32	1,699
Savannah	1,224	-	1,224
Volta	952	269	1,221
Total	11,619	587	12,206

2.4 Premix Management

Premix Fuel, a subsidized petroleum product is a key fishing input used by artisanal fishers in the capture fisheries (marine and inland) to power outboard motors for fishing expeditions. The effective and efficient management of the allocation, distribution and sale of the Fuel is therefore key in attaining fish self-sufficiency and ensuring the availability of fish to meet protein requirements. The management of Premix Fuel is guided by the National Premix Fuel Regulations, 2016 (L.I. 2233) which established

the National Premix Fuel Committee (NPFC) and National Premix Fuel Secretariat (NPFS).

2.4.1 Supply of Premix Fuel

The National Premix Fuel Secretariat (NPFS) facilitated the supply of 32,346,000 litres (2,936 trucks, with each truck carrying 13,500 litres) of Premix Fuel to Landing Beach Committees (LBCs) nationwide. Comparatively, this represents an 18.28% decrease in Premix Fuel supply compared to the same period in 2022 (39,582,000 Lt).

One of the primary factors contributing to the challenges faced by the NPFS is the government's delayed payment of under-recoveries owed to Bulk Oil Distribution Companies (BDCs) involved in lifting Premix Fuel. However, it is important to note that this issue was resolved, leading to an upsurge in the amount of Premix Fuel supplied from the second quarter of 2023 onwards. However, the needs of the fishers could not be met adequately in the year under review.

The breakdown of Premix Fuel supplied from January to November of 2022 and 2023 with a graphical representation is shown in Figure 2. 30.

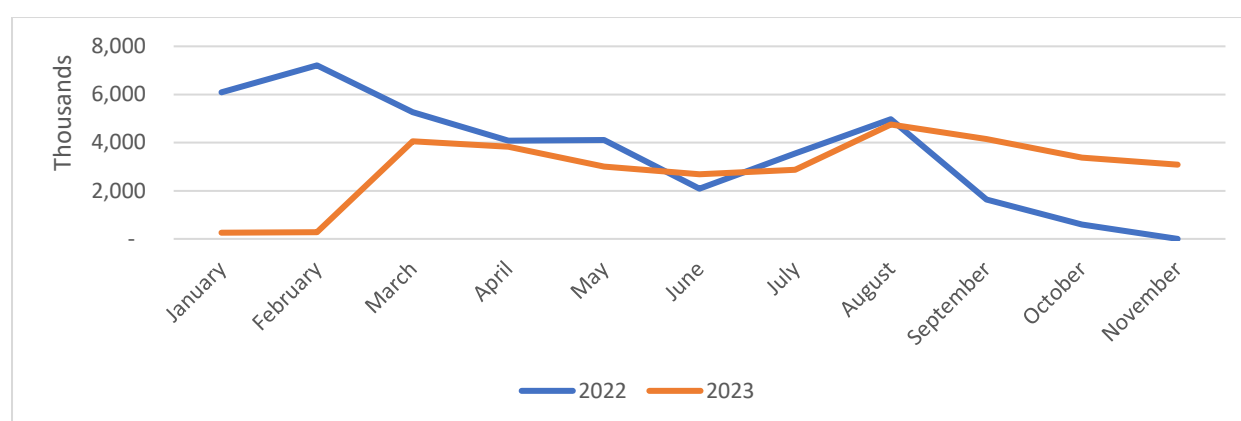


Figure 2. 30: Premix Fuel Supplied

2.4.2 Premix Fuel Pricing

Following the publication of Price Build-up by the National Petroleum Authority (NPA) of premix fuel, the administration cost component of premix fuel was increased from 0.23 per litre to 0.93 pesewas per litre effective 1st June, 2022 representing 304.3%. This accounted for the upward adjustment of the product to 10.40p per gallon. This move was primarily to fund the ongoing premix fuel automation project and help eliminate the numerous challenges associated with the current manual system. Prior to this adjustment, the price of premix fuel was 7.20p per gallon. This amount had endured for almost a decade. Government's subsidy on the price of Premix Fuel was 85%.

Currently, the price of Premix Fuel is 22.82p per gallon and Government's current subsidy on the price of Premix Fuel is 50%.

2.4.3 Automation of Premix Fuel

The government of Ghana has implemented the Automated Premix Fuel Dispensing and Monitoring System, a ground-breaking project designed to completely transform the fishing industry's paradigm. This project is an important step in the country's ongoing efforts to improve accountability, efficiency, and transparency in the premix fuel distribution system.

A comprehensive technical innovation, the Automated Premix Fuel System is designed to transform the long-term problems associated with the distribution, allocation, and sale of premix fuel. Ghana's resource management enters a new era with this announcement, especially for this essential component that supports the fishing sector.

Incorporating cutting-edge dispensing control units and facilitating real-time monitoring through web and mobile applications, the system is not only poised to eliminate persistent issues such as hoarding and unwarranted price fluctuations but also pledges to deliver an unparalleled level of transparency throughout the entire distribution process. This comprehensive and innovative approach underscores the government's unwavering commitment to fostering fairness, sustainability, and progress within the realm of Ghana's vital fisheries. Three Hundred (300) Automated Premix Fuel outlets are expected to be installed nationwide of which fifty (50) representing 16.7% have so far been completed (Table 2.18).

Table 2. 18: Automated Premix Fuel Outlets by regions

Region	No. of sites	Name of Sites	Status
Volta	1	Adidogorme	100% Complete
	2	Kpando Harbour 1	
	3	Kpando Harbour 2	
	4	Torkor East	
	5	Adina	
	6	Agave	
	7	Battor	
	8	Dayi East	
	9	Dayi South	
	10	Dayi West	
	11	Kedzi	
	12	Vodza	
	13	Mafi Dugame	
	14	Mepe	
	15	Titikorpe	
	16	Anyanwu	
	17	Nyatikpo	
Oti	1	Dadoto	100% Complete
	2	Damanko	
	3	Dambai	
	4	Kete Krachi Main and Blekuku	
Greater Accra	1	Abia	100% Complete
	2	Chorkor A	
	3	Chorkor B	
	4	Chorkor C	
	5	Kokrobite	

Region	No. of sites	Name of Sites	Status
	6	Nungua	
	7	Old Ningo	
	8	Elavanyo	
	9	Workumagbe	
	10	Otrokpey	
Central	1	Elmina A	100% Complete
	2	Elmina B	
	3	Elmina C	
	4	Moree	
	5	Mumford	
	6	Anomabo Main and Lower	
	7	Biriwa Main and Lower	
	8	British Komenda Main and Lower	
Western	1	Half Assini Central	100% Complete
	2	Half Assini East	
	3	Half Assini West	
	4	Lower Dixcove	
	5	Jaway Wharf	
	6	Upper Dixcove	
	7	Shama Apo	
	8	Apewosika	
BONO EAST	1	Yeji A	100% Complete
	2	Yeji B	
	3	Yeji C	

2.4.4 On-going Project Status

Even though the civil works phase has been 100% completed, the tank installation phase is just 17% of the entire project complete. This is consistent with the Premix Fuel Automation Project's overall state, which stands at 17% complete. Communication channels, including community meetings, will be effectively utilized to ensure stakeholders are not only well-informed but also actively engaged in the ongoing developments. Figure 2. 31 shows automated premix dispensing units in Half Assini in the Western region.



Figure 2. 31: Three (3) Automated Premix Fuel Dispensing Units in Half Assini, Western Region

2.4.5 Report on the Premix Automation Test Run in Elmina, Chorkor, Nungua

Test Runs of the Automated Premix Fuel Dispensing and Monitoring System were conducted at Elmina in the Central Region as well as Nungua and Chorkor in the Greater Accra Region (Figure 2.38). The purpose of the Test Run was to thoroughly assess the reliability and performance of the software by transforming abstract concepts into measurable observations. This comprehensive testing aimed to identify any defects within the automation system.

Challenges Identified: Several challenges were encountered during the Test Run, which are summarized as follows:

- a. **Software Integration Delay:** The work could not commence as scheduled due to a network failure to integrate with the system.
- b. **Insufficient Verification on Cards:** The cards provided to the fisher folks lacked essential identification information, such as their names and pictures. This deficiency allowed anyone to present the card for purchasing premix fuel. In some instances, multiple individuals claimed ownership of a single card, leading to difficulties in determining the true owner. The cards were subsequently returned to the Fisheries Commission to ascertain the actual owners.
- c. **Insufficient Funds on Cards:** Some of the distributed cards had inadequate funds allocated to them.
- d. **Proximity to Fire Hazards:** Wooden structures utilized by fish smokers were found in close proximity to the facility, posing a significant fire threat.
- e. **Lack of Insurance Documentation:** No evidence of insurance coverage for the facility was found prior to the Test Run.

Based on the challenges identified, the following recommendations are proposed:

- a. **Enhanced Card Verification:** In addition to the canoe names already present on the cards, it is crucial to include the actual names of the card owners to prevent duplication of ownership. By printing the owners' names on the cards, it will become easier to verify ownership. Furthermore, the inclusion of owners' photos on the cards will facilitate swift identification.
- b. **Robust Fund Allocation System:** A robust system should be implemented to ensure that all cards have the necessary funds allocated to them, avoiding instances of insufficient funds.
- c. **Insurance Coverage:** Prior to the commencement of operations, it is imperative to secure appropriate insurance coverage for the facility, considering its location near wooden structures and fish smokers.



Figure 2. 32: Premix Fuel Automated Site at Elmina

2.4.6 Launch of the Premix Fuel Automation System in Elmina

The inauguration of the Automated Premix Fuel Dispensing and Monitoring System marked a significant milestone in Ghana's efforts to revolutionize the supply and distribution of premix fuel. The system was commissioned by Vice President Alhaji Dr. Mahamadu Bawumia of Ghana (Figure 2. 33). The event showcased the groundbreaking technology and its potential to address challenges associated with the allocation, distribution, and sale of premix fuel, ultimately benefiting the fishing industry and ensuring fairness, accountability, and sustainability. The system's successful pilot phase in Elmina on Tuesday 5th September 2023, highlighted its myriad benefits, including easy payment methods, real-time monitoring, and increased accessibility.



Figure 2. 33: H.E. Dr. Mahamadu Bawumia, Vice-President of Ghana launching Premix Fuel Automation System

2.4.7 Engagement with Fishers on Premix Fuel

The Ministry of Fisheries and Aquaculture Development engaged the Ghana Canoe Fisherman Council on issues bothering on the local fishing Industry. The meeting was held at the premises of the National Premix Fuel Secretariat (Figure 2. 34).

The Ghana Canoe Fishermen Council proposed an upward adjustment in the ex-pump price of premix fuel as a measure of support to improve the supply of the product across the country and help resolve the issues of intermittent shortages. The fishers group also proposed a collaborative effort that will see it actively support the tracking of Premix Fuel being transported to Landing Beach. The Minister for Fisheries and Aquaculture Development Hon. Mavis Hawa Koomson (MP) commended the group for their show of support to the Ministry and promised that the government will do more for the Fisheries sector productivity.

She delivered updates on the progress of work on the ongoing automation of Premix Fuel supply, measures taken to guarantee the availability of premix fuel throughout the year and government's renewed resolve to rid the fishing sector of Illegal, Unreported, and Unregulated fishing activities (IUU fishing). Acting President of the Ghana Canoe Fishermen Council, Mr. Jojo Solomon thanked the Ministry and the National Premix Fuel Secretariat for their continued support for the fishing sector and applauded the new measures introduced by the Ministry. According to him, the new measures were certain to put the sector on the path to Productivity and Prosperity this year.



Figure 2. 34: Hon. Minister for Fisheries interacting with the fishers on premix

2.4.8 Community Development Projects

As part of Government's agenda for community development and as stated by provisions in the National Premix Fuel Committee Regulations 2016, 53 % percent (GH¢1,100.00) of the proceeds from the sale of Premix Fuel is to be kept in an account in the name of the local community for its development. The NPFC/S has continually monitored the progress of community based projects funded by these community development funds also ensures that proceeds from the sale of Premix Fuel are used to develop the fishing communities (Figure 2. 35). The NPFC regularly visits the LBCs and uses Operations Officers of the NPFS in the various districts to inspect projects and auditing their accounts. Images of some completed and ongoing projects are indicated below.



Community Shed By Atuabo Krisan LBC

Washroom Facility By Sekondi LBCS

Figure 2. 35: Some Community Development Projects

2.4.9 Fire Safety Programme for Landing Beach Committees

Under the guidance of the National Premix Fuel Secretariat (NPFS) in collaboration with the National Petroleum Authority (NPA) and Ghana National Fire Service (GNFS), fire safety training programmes were held to educate members of the various LBCs across the country on fire hazards and best safety practices. The programme took place in the Central, Western, Volta, Eastern Regions as well as parts of the Greater Accra region.

A detailed presentation by Regional Safety Officers of the Ghana National Fire Service took participants through the elements of fire, preventive measures and basic firefighting tool utilization. LBC members were admonished to count the cost of fire accidents before indulging in irresponsible activities that were bound to cause fire outbreaks. The use of the fire extinguisher was demonstrated and explained as the basic approach to putting out fires in the preliminary stages on an inferno while LBC members were given hands-on experience. Participants were warned against storing premix Fuel in bottles, storing of the product in living rooms and use of the product to light fires.

Head of Retail and Premix of the NPA, Madam Sandra Aidoo revealed that more than 82% of LBCs across the country were not fit to operate as they were not compliant with safety protocols stipulated by

the NPA. She warned that the NPA would soon embark on a rigorous inspection exercise and erring LBCs could be closed.

CHAPTER THREE

AQUACULTURE DEVELOPMENT

3.0 Overview of Aquaculture Sub-Sector in Ghana

The capture fisheries sector in Ghana is highly over-exploited, leading to unsustainable exploitation levels, thereby threatening the collapse of the sector. The need to reverse this downward trend has resulted in the development of strategic policy documents, plans and programs geared towards revamping the aquaculture sub-sector as an alternative source to providing fish food and nutrition security. This is with the clear objective of increasing domestic fish production, creating decent job avenues for the teeming youth and women along the aquaculture value chain and promote foreign exchange earnings through fish export.

In line with above, key notable achievements have been made within the reporting period in operational areas such as,

- Aquaculture production
- Hatchery Operations
- Extension services delivery

Key Aquaculture Development Performance Highlights

- Aquaculture production was 116,107.83mt (valued at GH¢4,202,986,490.00, as against end of year target of 124,606.00mt (representing 93.18%)
- Production by cages accounted for 98,766.47 (85.06%), Ponds, tanks & tarpaulins 16,884.77 (14.54%) and Reservoirs, Dams & Dugouts 456.58 (0.39%).
- Average price of fish per ton for the reporting year was GHC 37,000.00 for tilapia and GHC 35,000.00 for catfish.
- There was an estimated number of 111 private hatcheries (106 functional) and 6 public hatcheries (all functional).
- A total of 381,198, 262 is the annual estimated fingerling production (Nile Tilapia: 370,773,405 (97%) and African Catfish: 10,424,857 (3%).
- There was a 52% increase in farm visits over the previous year
- Seven hundred and twenty-three (723) new production facilities were constructed consisting of 400 ponds, 23 cages and 65 tanks and tarpaulins. = 488
- There was an estimated number of 6,435 farm visits, 626 site inspections out of which 537 sites were suitable.
- A total of 6 permits were issued

3.1 Aquaculture Production

The total estimated aquaculture production for 2023 was **116,107.83mt** (valued at **GHS4,202,986,490.00**). This represents a 12.5% decrease over the previous year's figure of 132,652.39mt. The decrease could be attributed to the destruction of some cages on the Volta Lake and loss of fish (fish escape) due to the excessive spillage of water from the Akosombo Dam between September and October 2023.

3.1.1 Distribution of Aquaculture Production by Species and Region

The Nile tilapia accounted for a greater proportion of total output in 2023 with a share of **73,901.53 mt** (63.65%), while African catfish contributed 42,156.78 mt (36.31%) and others 0.04% out of the total production figure of **116,107.83 mt**. The Volta region contributed 3 %, Greater Accra 29.3% and Eastern Region 58%. The remaining thirteen (13) regions contributed an estimated 9.7 %. Table 3.1 contains the detail breakdown.

Table 3. 1: Distribution of Aquaculture Production by Species and Regional Breakdown

No.	Region	Tilapia (mt)	Catfish (mt)	Heterotis (mt)	Total fish production
1	Eastern Region	44,742.12	18,301.03	-	67,611.11
2	Greater Accra	24,849.11	700.447165	-	34,086.82
3	Volta	2,541.84	1.818095	0.04	3,461.26
4	Ashanti	834.75	10,327.98	-	4,916.15
5	Bono	321.29302	3,383.67	-	1,675.72
6	Western North	0.91814795	357.273413	-	132
7	Western	-	1434.47666	-	524.97
8	Ahafo	150.348563	1103.7412	49.48	676.21
9	Northern	0.19097477	160.943817	-	59.16
10	Central	14.0219555	547.646176	-	219.52
11	Bono East	115.488321	781.083023	-	443.08
12	Upper West	3.75338881	4,752.00	-	1,744.18
13	Upper East	250.198988	51.7534107	-	359.56
14	North East	-	-	-	-
15	Oti	-	55.2783262	-	20.23
16	Savanna	77.499032	197.641193	-	177.84
	Total	73,901.53	42,156.78	49.52	116,107.83

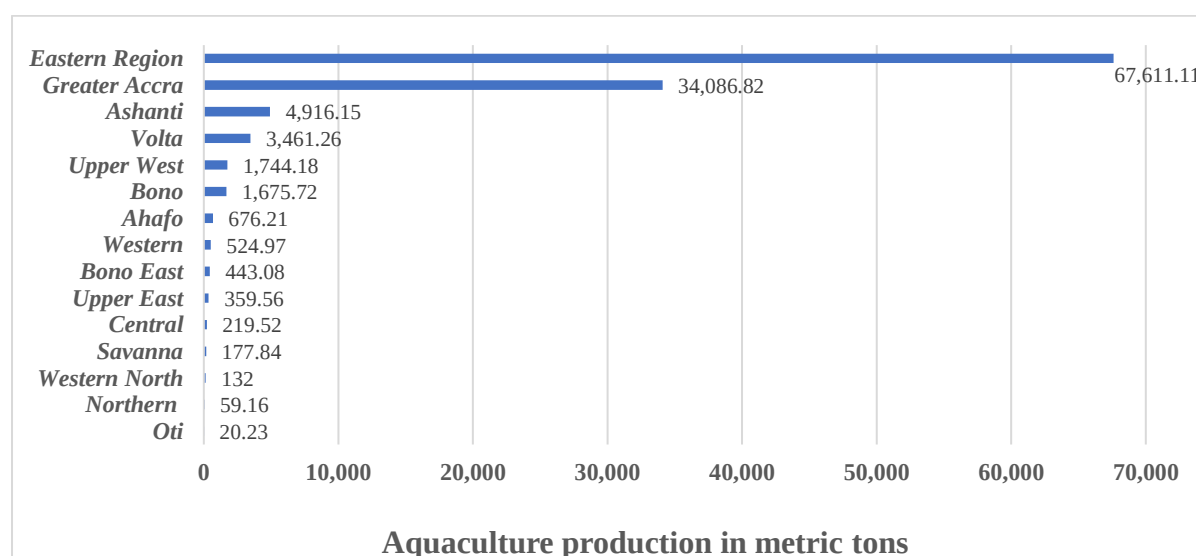


Figure 3. 1: Distribution of Aquaculture Production by Species and Region

The three (3) most dominant regions over the past years (Eastern, Greater Accra and Volta) have consistently contributed the highest share of total aquaculture production with this year being an exception due to the spillage of the Akosombo Dam. Production from the Volta region declined significantly (from 14,644.82mt in 2022 to 3,461.26 in 2023)

Key contributing factors to the decline include

- i. Most of the medium and large-scale cage farms in the sub-sector are located along these regions, especially along the Volta Lake enclave, major aquaculture site in the country.
- ii. All the major inputs of aquaculture such as fingerlings and fish feed are easily accessible in these regions compared to the other regions. This provides the

justification for more aquaculture farms located in these areas.

- iii. Proximity and easy access to markets in Accra, and Tema metropolis.

3.1.2 Aquaculture Production by Holding Facilities

Aquaculture in Ghana is practiced mainly in holding systems such as ponds, cages, tanks, tarpaulins, dams, dugouts and reservoirs with varying scales of production (small, medium and large scales) (Table 3.2). The cage system has persistently contributed the highest output over the years with an estimated 85% in 2023. Ponds/tanks/tarpaulins recorded 12.5%

The remaining 13 regions in totality contributed 9.7%. The reason could be attributed to inadequate access to aquaculture inputs, low productivity and scale of production as well as low access to output markets

and dams/dugouts/reservoirs accounting for 0.3%. The key prevailing factors promoting the dominance of cage culture over the other systems include:

- i. Conducive environmental factors such as continuous water exchange through the cages and sufficient dissolved oxygen.
- ii. Intensive culture system.

Table 3. 2: Aquaculture Production by Holding Facility in 2022 and 2023

Holding Facility	2023	2022	Percentage Contribution (%)	
			2023	2022
Ponds/Tanks/Tarpaulins	16,884.77	15,918.29	12.5	12
Cages	98,766.47	104,158.66	85	78.52
Dams/Dugout/Reservoir	456.58	12,575.45	0.3	9.48
Total	116,107.83	132,652.40	100.00	100.00

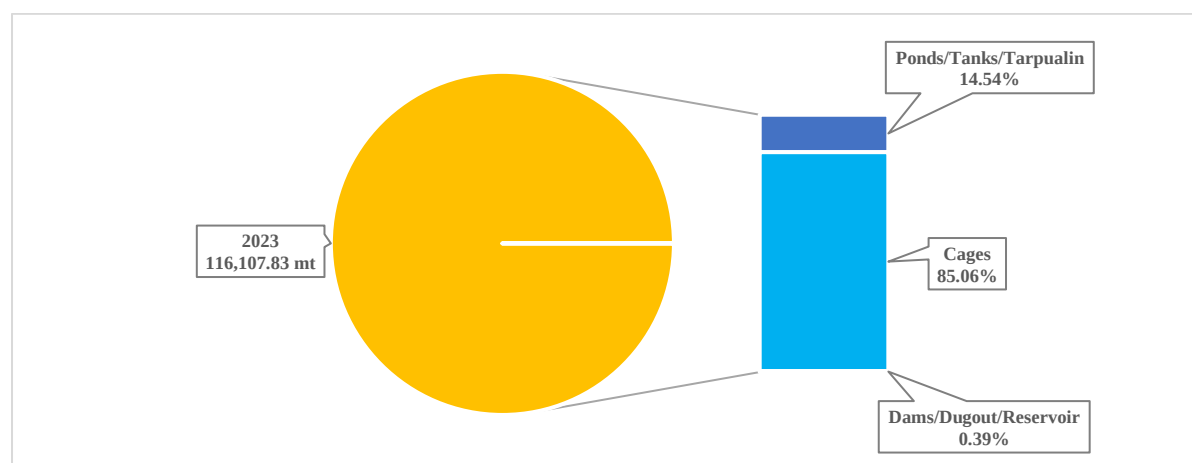


Figure 3. 2: Aquaculture Production by Holding Facilities

Output variations by Quarterly Production

The total aquaculture production for the period under review was also analyzed based on the differences in quarterly production figures, values and price variations. Out of the total figure of 116,107.83 mt, the second quarter recorded the highest output of 40,997.35 mt with a share value of GHS1,544,825,920.00. Second and fourth quarter productions are higher as most farmers target Christmas and Easter festivities. The first quarter production accounted for 22,522.40 mt with a corresponding value of GHS777,015,900. The percentage share of tilapia is 76% and catfish 23% out of the 22,522.40 mt produced during the first quarter. The second quarter recorded 69% tilapia and 31% catfish representing a slight increase of over 7% of catfish produced. Similarly, the third quarter contribution was 70% for tilapia and 30% for catfish. Moreover, production for tilapia and catfish were 74% and 26% respectively for the fourth quarter. The major specie that dominated production in all quarters is the *Nile Tilapia*. This is evident by the fact that there is high market demand for tilapia species over the catfish and other species. Details are captured in Table 3.3

Table 3. 3: Aquaculture production by Quarterly Distribution and price variations

Quarters	Quantity - Tilapia	Unit price/mt	Value (GHS)	Quantity- Catfish	Unit price/mt	Value (GHS)	Total Quantity	Total Value (GHS)
First	16,888.35	35,000.00	591,092,250.00	5,634.05	33,000.00	185,923,650.00	22,522.40	777,015,900.00
Second	27,923.97	38,000.00	1,061,110,860.00	13,073.38	37,000.00	483,715,060.00	40,997.35	1,544,825,920.00
Third	25,264.99	36,000.00	909,539,640.00	11,258.15	35,000.00	394,035,250.00	36,523.14	1,303,574,890.00
Forth	3,824.22	39,000.00	149,144,580.00	12,240.72	35,000.00	428,425,200.00	16,064.94	577,569,780.00
Total	73,901.53		2,710,887,330.00	42,206.30		1,492,099,160.00	116,107.83	4,202,986,490.00

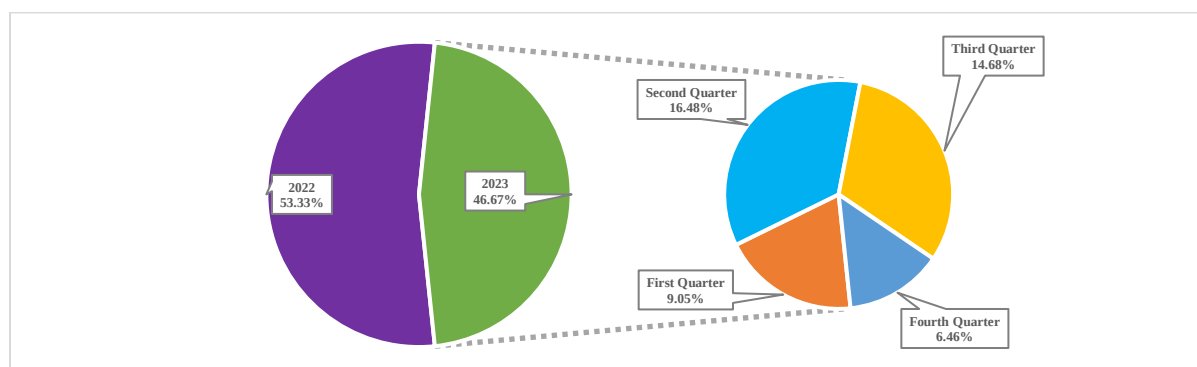


Figure 3. 3: Total Aquaculture production by Quarterly Distribution

Price Variations for the Major Fish Species of Culture

Tilapia Price Variation: The cost per ton of Tilapia fluctuated within the year, from GHS35,000.00 in the first quarter, GHS38,000.00 in the second and third quarters and ended the last quarter at GHS39,000.00.

Catfish Price Variation: Similarly, the cost of catfish moved from GHS33,000.00 in the first quarter to GHS37,000.00 in the second and then to GHS35,000.00 and GHS35,000.00 in the third and fourth quarters respectively.

Value Variation: Additionally, the overall value of catfish and tilapia changed from quarter to quarter. The second quarter had the highest total value, with the third, fourth, and first quarters following respectively. These variations could be due to factors such as market demand, availability of fish, and other economic factors affecting prices and production (Table 3.3).

3.2 Hatchery Operations

A key input needed for promoting aquaculture development is quality fingerlings. The processes involved in producing fingerlings is referred to as hatchery operations; both the private and public sectors operate in this industry. The reporting period recorded a total number of 121 hatcheries, constituting 115 private (102 functional and 13 non- functional) and 6 public hatcheries (all functional). Government invests in the public hatcheries for research, training and adaptive trial purposes to develop the aquaculture value chain. The private

hatcheries on the other hand operate mainly for commercial purposes. As the government's continuous investment has ensured increased efficiency in the operations of the public hatcheries over the years, private sector involvement has also contributed immensely to the steady growth of the industry. Refer to Tables 3.4 and 3.5 for status of private and public hatcheries respectively.

Table 3. 4: Status of Private Hatcheries by Regional Distribution

S/N	Region	No. of Hatcheries - 2023	No. of Functional Hatcheries - 2023	No. of Non-Functional Hatcheries -2023
1	Eastern	18	18	0
2	Greater Accra	14	14	0
3	Volta	6	6	0
4	Bono	10	7	3
5	Bono East	3	3	
6	Ahafo	4	2	2
7	Northern	4	4	0
8	Ashanti	26	20	6
9	North East	0	0	0
10	Central	18	17	1
11	Upper East	4	4	0
12	Upper West	1	1	1
13	Oti	0	0	0
14	Savanna	1	1	0
15	Western	4	4	0
16	Western North	2	1	1
	Total	115	102	13

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Table 3. 5: Status of Public Hatcheries –Fish- By Regional – 2023

No	Name of Hatchery	Region	Location	Status	Remark
1	Aquaculture Demonstrating Center	Greater Accra	Ashaiman	Functional	Construction of water filtration system to be completed to ensure quality water supply
2	Pilot Aquaculture Center (PAC)	Ashanti	Kona-Odumase	Functional	Old broodstocks in the hatchery need to be replaced with new ones The existing recirculating system needs a backup generator
3	Aquaculture Research and Development Center (ARDEC)	Eastern	Akosombo	Functional	Research centre for Aquaculture, owned and operated by WRI of CSIR
4	Vea	Upper East	Bongo	Functional	The need for additional tanks and borehole
5	Dormaa Hatchery	Bono	Dormaa Ahenkro	Functional	Need for additional ponds and dredging of adjoining stream
6	Sefwi-Wiawso Hatchery	Western North	Sefwi-Wiawso	Functional	Need for physical security to avoid encroachment and theft

3.2.1 Monitoring visit to Ashaiman, Sefwi Wiaso and Dormaa Hatcheries

As part of efforts to improve the status of existing and newly constructed Ashaiman, Sefwi-Wiawso and Dormaa hatcheries to efficiently function, the Executive Director of Fisheries Commission (FC) led a team from the Head Office to visited these facilities. This was to enable management ascertain the current state of the hatcheries and provide solutions to existing challenges. Highlights of key findings and remedial actions required are indicated in table 3,6 below.

Table 3. 6: Status of Fish Hatcheries

Name of Hatchery	Key Finding	Way forward
Sefwi-Wiaso Hatchery	Lack of borehole to the hatchery	Contract was awarded for the drilling of two (2) boreholes in the first quarter of 2024
	No physical barrier to the hatchery	Process ongoing for the award of contract to fence the site
	Lack of electricity connection to the hatchery	Contract awarded for the connection of electricity within first quarter of 2024
	Lack of key equipment and logistics (Incubator, oxygen tanks.)	Some logistics provided within the last quarter of 2023 but incubator and oxygen tanks yet to be provided
Dormaa Hatchery	Lack of water	Borehole provided
	Lack of electricity	Facility connected to the grid
	Deplorable fencing material	Renovation of fencing yet to be initiated
	Lack of key equipment	Some equipment provided
	Inadequate holding facilities	Action yet to be taken
	Ponds get flooded through backflow of adjoining stream	Action yet to be taken

Name of Hatchery	Key Finding	Way forward
	Documentation of land not completed	Process for complete documentation started
Ashaiman Demonstration Centre	Poor water quality of the Ashaiman reservoir which is the main source of water for the hatchery	Contract awarded for the construction of a filtration system to improve quality of water supplied to the hatchery.
	High bacteria load in water used for culture	
	Increased mortality rate of hatchery	
	Deplorable state of the training centre	Renovation of the training facility started

Procurement of Logistics for Aquaculture Extension Service Delivery

During the period under review some aquaculture equipment and materials were procured for the hatcheries in Dormaa, Sefwi-Wiawso and Veia. Table 3.7 indicates the quantities and how they were distributed.

Table 3. 7: Distribution list of Aquaculture equipment and materials procured

SN	Items	Qty procured	Distribution				Total
			Dormaa	Sefwi-Wiawso	Veia	HQ	
1.	Beakers	3	1	1	1		3
2.	Measuring Cylinder	4	1	1	1		3
3.	Slides	10	3	3	3		9
4.	Alcohol	5	1	2	2		5
5.	Wellington Boots	3	1	1	1		3
6.	Waders	19	7	6	6		19
7.	Lab coat	10	3	3	3	1	10
8.	Oxygen hose clear (30*48)	3	1	1	1		3
9.	Fingerling net 2 inches	2	1	1			2
10.	Sample bottle	10	3	3	3		9
11.	Tricycle & Accessories	3	1	1	1		3
12.	Refrigerator	3	1	1	1		3
13.	Deep freezer	3	1	1	1		3
14.	Weed slasher	3	1	1	1		3
15.	Lawn mower	3	1	1	1		3
16.	Ovaprim	2	1		1		2
17.	Multi-parameter water probe	2	1		1		2
18.	Generator	1	1				1
19.	17 α -methyl-testosterone (kg)	3	1 (1.5kg)	1 (800g)	1 (700g)		3 (3kg)
20.	Microscope	1		1			1
21.	Oxygen cylinder		1				1
22.	Water filter	1	1				1
23.	Nitrite gloves	1	1				1

3.2.2 Fingerling Production

Sustainable aquaculture development is highly dependent on the availability of good quality fingerling supply. The aquaculture sub-sector in Ghana relies predominantly on two cultured species: Nile tilapia and African catfish. A total of **381,198,262** is the estimated quantity of fingerlings produced in 2023. **370,773,405 (97%)**, of tilapia and 10,424,857 (3%) of catfish

fingerlings were produced. Comparison with the previous year's record (615,873,001m) indicated a decrease of 40%. The reduction could be attributed to the destruction of major farms in the Volta region due to the flooding (September-October 2023) which led to the decrease in demand for fingerlings. Table 3.8 has details of production

Table 3. 8: Fingerling Production by Regional Distribution and Species Composition

S/N	Region	Tilapia	Catfish	Total
1	Eastern	73,466,571	2,614,150	76,080,721
2	Greater Accra	282,225,480	945,500	283,170,980
3	Volta	12,933,844	-	12,933,844
4	Bono	20,000	170,000	190,000
5	Bono East	15,000	53,512	68,512
6	Ahafo	43,000	209,000	252,000
7	Northern	50,000	165,000	215,000
8	Ashanti	15,000	2,892,100	2,907,100
9	North East	N/A-	N/A-	N/A-
10	Central	1,880,000	1,488,835	3,368,835
11	Upper East	N/A-	20,000	20,000
12	Upper West	1,510	19,460	20,970
13	Oti	N/A-	N/A-	N/A-
14	Savanna	123,000	N/A-	123,000
15	Western	N/A-	1,830,630	1,830,630
16	Western North	N/A-	16,670	16,670
	Total	370,773,405	10,424,857	381,198,262

3.3 Extension Service Delivery

Extension service delivery is a process of providing technical guidance to fishers and fish farmers to induce attitudinal change for technological adoption, leading to improved productivity and production. Fisheries Commission Technical Officers on daily basis provide key extension services such as site selection; supervision of pond and cage construction; fingerling transportation and stocking; provision of improved husbandry practices; development and dissemination of new production technologies; record keeping and accounting; disease surveillance, control and prevention; hatchery management and fingerling production;

3.3.1 Farm Visits

Routine farm visits are conducted by FC Extension Officers to aquaculture operators to ensure that the practices of operators are according to good farm management guidelines. The reporting period recorded an estimated 6,435 farm visits undertaken. This represents 52% increase over the previous year (3,083). Implementation of existing projects from Development Partners such as GFRA, FAO and other NGOs that are supporting the activities of extension officers might have contributed to the increase in farm visits as detailed in Table 3.9

Table 3. 9: Farm Visits Conducted in 2022 and 2023

No.	Region	2023	2022
1	Eastern	369	294
2	Greater Accra	416	159
3	Volta	77	45
4	Bono	1,224	789
5	Bono East	471	315
6	Ahafo	406	306
7	Northern	185	71
8	Ashanti	452	347
9	North East	0	10
10	Central	1,414	259
11	Upper East	845	28
12	Upper West	136	66
13	Oti	0	3
14	Savanna	63	31
15	Western	0	246
16	Western North	377	114
	Total	6,435	3,083

3.3.2 Site Inspections

Aquaculture production is practiced in holding facilities such as ponds, cages, tanks, tarpaulins, dams, and dugouts. These facilities are constructed either to expand existing farms or as a start-up business. The technical processes involved in constructing these facilities include

site inspection. Environmental factors assessed during site inspections include soil suitability,

availability and quality of water sources, land topography, natural and anthropogenic risk factors such as drought and floods. A total of 626 site inspections were undertaken in the reporting period, representing a 25% increase compared to the previous year's of 470 ().

Eighty-nine (89) sites were deemed unsuitable, as they did not meet the minimum environmental, social, technical, economic, or legal criteria for aquaculture sustainability.

Table 3. 10: Site Inspections by Regions

No.	Region	Total Sites Inspected	Suitable	Unsuitable
1	Eastern	50	48	2
2	Greater Accra	80	56	24
3	Volta	11	8	3
4	Bono	81	77	4
5	Bono East	44	41	3
6	Ahafo	0	0	0
7	Northern	20	20	0
8	Ashanti	89	62	27
9	North East	0	0	0
10	Central	97	93	4
11	Upper East	61	49	12
12	Upper West	28	25	3
13	Oti	0	0	0
14	Savanna	8	6	2
15	Western	0	0	0
16	Western North	57	52	5
Total		626	537	89

3.3.3 New Production Facilities Constructed

A total of 723 new production facilities were constructed in 2023 comprising 400 Ponds, 23 cages, and 65 tarpaulin, and 235 concrete tanks. Comparatively 557 new facilities were recorded the previous year showing an increase of 29.8% increase.

These facilities were constructed to expand the farms and augment fish production. The reason for the increase could be attributed to the high demand for fish and the potential profits envisaged (Table 3.11).

Table 3. 11: New Production Facilities Constructed -2023

No.	Region	cage farm	pond farms	concrete tanks	Tarpaulin Tanks
1	Eastern	15	36	15	7
2	Greater Accra	0	0	4	0
3	Volta	0	3	1	2
4	Bono	0	30	45	0
5	Bono East	0	18	47	22
6	Ahafo	2	285	37	18
7	Northern	0	0	27	8
8	Ashanti	0	0	0	0
9	North East	0	0	0	0
10	Central	0	3	0	0
11	Upper East	4	0	40	5
12	Upper West	0	0	0	0
13	Oti	0	0	0	0
14	Savanna	2	0	10	0
15	Western	0	0	0	0
16	Western North		25	9	3
Total		23	400	235	65

3.4 Permit Acquisition

Aquaculture operators are mandated to acquire environmental use permit from the Environmental Production Agency (EPA) and production permit from the Fisheries Commission (FC). These permits are provided to facilities that meet the mandated required regulatory conditions upon application for same. A total of six (6) aquaculture operators applied and were issued permits during the period These comprised two (2) fish hatcheries and four (4) grow-out facilities. The previous year recorded a total of seven permits issued. Details are provided in **Error! Reference source not found..**

Table 3. 12: Permits issued to Aquaculture Facilities in 2023

No.	Name of Farm	Region	Type of Operation	Date Issued	Expiry Date
1	Fish and Feeds Limited	Volta region	Grow-out	25-10- 2023	23-10-204
2	China Fujian Fishing Limited	Greater Accra	Grow-out	06-05-2023	05-04-2024
3	Crystal Lake	Eastern	Grow-out	9-11-2023	8-11-2024
4	Crystal Lake	Eastern	hatchery	9-11-2023	8-11-2024
5	African Golden Tilapia	Eastern	Grow-out	9-11-2023	8-11-2024
6	African Golden Tilapia	Eastern	hatchery	9-11-2023	8-11-2024

CHAPTER FOUR

FISHERIES LAW ENFORCEMENT

4.0 Introduction

The Fisheries law enforcement programme aims at: promoting compliance with fisheries laws and

regulations; deterring and eliminating Illegal, Unreported and Unregulated (IUU) Fishing activities; and protecting the fisheries resources in a sustainable manner.

Key Fisheries Law Enforcement Performance Highlights

- 100% observer coverage of all industrial vessels (234 observer missions conducted).
- MCS conducted 24/7 monitoring of Industrial Fishing Fleet.
- 375 (target- 700) quayside inspections conducted on the Industrial Fishing Vessels.
- 30 land patrols (Target – 45) were conducted totaling 345 hours
- 44 (target-60) communities sensitized on Fisheries Laws and Regulations.
- Enforcement operations resulted in no infractions
- Fifteen (15) Fisheries Officers were trained in VMS Operations.
- Fish Imports stood at 84,827.50mt (US\$44,166,729.26)
- 120 observers trained (Target – 120)
- Ten (10) Landing Beach Enforcement Committees (LaBEC) were established (Target – 10)
- 19 Supervised Transshipment carried out

4.1 Port Operations

Fisheries port operations entail quayside inspections; inspection for renewal of fishing license; and supervised transshipment. Details of port operations for the year under review are as follows:

4.1.1 Quayside Inspections

Quayside inspections at both the Tema and Takoradi Ports comprise inspections of vessel licenses, fishing gears, catch verification, sanitary conditions of vessels, logbooks and life jackets. Inspections also include vessel search and arrest of persons who are suspected to have committed fisheries infractions. The team also looked for vessels branded as Illegal Unreported Unregulated (IUU) vessels by international partners to ensure such vessels do not operate in Ghana.

A total of 375 vessels called at the port in 2023 to discharge frozen fish compared to 561 in 2022, showing a decrease by 186 (33.2%) vessels. A corresponding volume of 94,653.72 mt (Ghana

EEZ) of fish was recorded from the 375 landings in 2023 compared to 133,991.55 mt from the 561 landings in 2022, representing a 29.4% decrease for 2023. The average quantity of fish discharged by the fleet decreased by 10.4% from 534.44 mt (2022) to 478.62 mt in 2023. Landings from Tuna Vessels sharply decreased in volume by 29.7% from 105,336.00mt(2022) to 74,004.26 mt in 2023. Fish landings from trawlers, on the other hand, decreased by 27.9% from 28,655.55 mt (2022) to 20,649.46 mt in 2023. In terms of average landings by fleets, tuna Vessels shot up significantly by 21.2% from 598.50 mt/landing (2022) to 725.53 mt/landing in 2023. Also, trawlers recorded a marginal decrease of 3.1% from 101.98 mt/landing (2022) to 98.80 mt/landing (2023). Fish landings from reefers decreased marginally by 48.8% from 165,829.35 mt/landing (2022) to 84,827.50 mt/landing in 2023. Average landing per reefer decreased significantly by 16.9% from 1,594.51 mt/landing (2022) to 1,325.43 mt/landing (2023). Table 4.1 compares 2023 and 2022 fish landings from Industrial Fishing Vessels and Reefers.

Table 4. 1: Fish Landings from Industrial Fishing Vessels and Reefers

Vessel Type	2023			2022		
	Number of Times Vessels	Quantity of Fish (mt)	Average Quantity per landing (mt)	Number of Times Vessels Landed	Quantity of Fish (mt)	Average Quantity per landing (mt)
Trawlers	209	20,649.46	98.80	281	28,655.55	101.98
Tuna	102	74,004.26	725.53	176	105,336.00	598.50
Sub-total (Ghana's EEZ)	311	94,653.72	304.35	457	133,991.55	293.20
Reefer (imports)	64	84,827.50	1,325.43	104	165,829.35	1,594.51
Total	375	179,481.22	478.62	561	299,820.90	534.44

4.1.2 Monitoring of Fish Imports

Fish imports are monitored to ensure that products of IUU fishing are not imported into Ghana. The frozen fish imports, which were mainly Horse mackerel, Mackerel, Sardines and other mixed African species, were mostly from Mauritania, Chile, Angola, Norway, Sierra Leone and Guinea-Bissau. Performance of landings from reefers (imports) in 2023 against the past 10 years is shown in Table 4. 2.

Table 4. 2: Annual Fish Imports and Freight-On-Board (FOB) values from 2013 to 2023

Year	Imports (mt)	FOB (US\$)	Estimated price per ton (\$/mt)
2013	150,700.61	135,118,500.77	897
2014	145,910.35	120,443,785.06	825
2015	180,801.76	154,019,585.04	852
2016	192,131.47	131,388,230.03	684
2017	197,063.45	146,124,559.95	742
2018	192,689.55	116,447,371.38	604
2019	190,617.15	78,164,476.12	410
2020	193,226.87	51,981,448.73	269
2021	273,382.32	66,733,594.45	244
2022	165,829.34	74,928,325.00	452
2023	84,827.50	44,166,729.26	521
10 year average (2013-2022)	188,235.29	107,534,987.65	597.90
2023 vs 2022 (%)	-48.8	-41.1	15.3
2023 vs 10-yr ave (%)	-54.9	-58.9	-12.9

Generally, over the decade, fish imports trends show an average annual growth rate of 3.4% in volume. Average annual growth for the later five years (2018-2022) was marginal, being 0.6% compared to the earlier five years (2013-2017), which was 8.1%. Year-on-year comparative analysis indicates that fish imports reduced from 150,700.6 mt (2013) to 145,910.35 mt (2014) representing a decline of 3.2%. However, fish imports consecutively increased year-on-year from 2015 to 2017 by 23.9%, 6.3% and 2.6% respectively. Fish imports later declined sequentially by 2.2% and 1.1% in 2018 and 2019 respectively. However, fish imports increased marginally by 1.4% from 190,617.15 mt (2019) to 193,226.87 mt in 2020 and further increased significantly by 41.5% in 2021. There was a

significant decline in fish imports by 39.3% from 273,382.32 mt (2021) to 165,829.34 mt (2022). The year under review saw a significant decline in fish imports of 48.8% from 165,829.34 mt (2022) to 84,827.50 (2023). The continuous decline in fish imports since 2021 could be attributed to the significant upward adjustment in fish import levy from GHS15.00 (US\$1.52) to GHS170.769825 (US\$17.25) which was approved by Parliament of Ghana under the Fees and Charges (Miscellaneous Provisions) Act, 2002 (Act 1080). The FOB value on the other hand decreased drastically by 41.1% from US\$74,928,325.00 in 2022 to US\$44,166,729.26 in 2023 (Table 4.2). The average price per metric ton of fish imported increased by 15.3% from US\$452 in 2022 to US\$521 in 2023.

The 10-year from 2013 to 2022 for imports averaged at 188,827.50 mt with its corresponding FOB value of US\$107,534,987.65. Comparing the 10-year average to the 2023 imports and FOB values, there is a significant decline of 54.9% and 58.9% respectively. The average price per metric ton of fish imported decreased by 12.9% from US\$597.90 for the 10-year average (2013-2022) to US\$521 in 2023.

Medium Term comparative analysis between 2016-2019 and 2020-2023, shows that the period 2020-2023 contracted significantly at an annual rate of 29.7% while that of 2016-2019 period contracted marginally at an annual rate of 0.5%.

The aggregate volume of imported fish decreased from 772,501.62 mt (2016-2019) to 717,266.03 mt (2020-2023) with a percentage decrease of 7.2%. The corresponding value of imported fish decreased by 49.6% from US\$472,124,637.48 to US\$237,810,097.44 over the same period.

Figure 4.1 summarizes total fish exports from 2017 to 2023. The export of fish increased by 16.9% from 78,840.12 mt (2017) to 203,103.63 mt (2023). Fish is exported to countries such as China, Japan, United States, Italy, Portugal, Belgium, Netherlands, United Arab Emirates, and Spain.

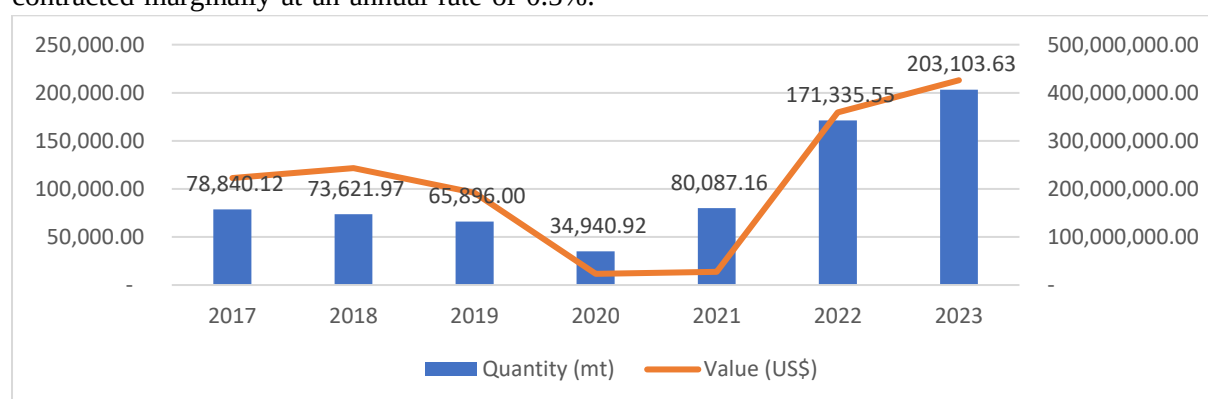


Figure 4. 1: Export of Fish and Fishery Products

Source: Ghana Export Promotion Authority

4.1.3 Inspection for Renewal of Fishing License

The total number of vessels that were inspected prior to renewal of their license decreased by 30.2% from One Hundred and Six (106) in 2022 to Seventy-four (74) in 2023 (Table 4. 3).

Table 4. 3: Inspection for Renewal of Fishing License

Year	Type of vessel				Total
	Trawler	Tuna	Carrier	Access	
2023	41	22	1	10	74
2022	70	23	1	12	106
2021	71	24	2	15	112

4.1.4 Training of Fisheries Inspectors

Through the support of the European Union (EU), European Fisheries Control Agency (EFCA) trained 20 fisheries inspectors from both Tema and Takoradi. The training focused on quayside and at sea inspections from 19th to 22nd September, 2023 at Crismon Hotel.



Figure 4. 2: Training of Fisheries Inspectors

4.1.5 Frozen Fish Transit to Neighbouring Landlocked Countries

A total of 63,906.57 mt of fish was transited through Tema Port to Burkina Faso in 2023 as compared to 66,074.24 mt in 2022 representing a 3.3% decrease in volume of transited fish. The number of fish transit times increased from

thirteen (13) in 2022 to Forty-three (43) in 2023, which resulted in quantity of fish transit per consignment decreasing from 5,082.63 mt (2022) to 1,486.20 mt in 2023 (Table 4. 4).

Table 4. 4: Fish transit statistics in 2023 compared to 2022

Year	Quantity of Fish Transited (mt)	Number of Transits	Average quantity of fish per transit (mt)
2023	63,906.57	43	1,486.20
2022	66,074.24	13	5,082.63
% Change	-3.3%	230.8%	-70.8%

4.1.6 Supervised Transshipment

A total of 14,830.00 mt of various tuna species (Yellow Fin, Skip Jack, and Big Eye) were transhipped through Nineteen (19) supervised transshipments from tuna fishing vessels to carriers at the Takoradi Port as compared to Twenty-one (21) with 16,610.00 mt of tuna in 2022. There was a significant decrease (10.7%) in the total quantity of tuna that was transhipped from

tuna fishing vessels to carriers in 2023 compared to 2022, with a corresponding decrease (9.5%) in the number of supervised transshipments. The average quantity of tuna transhipped at a time decreased by 1.3% from 790.95 mt (2022) to 780.53 mt in 2023 (Table 4. 5). There was no record of unsupervised transshipment, hence transshipment infractions were nil.

Table 4. 5: Supervised Transshipment

Quarter	2023		2022	
	Number of Transshipment	Quantity Transhipped	Number of Transshipment	Quantity Transhipped (mt)
First	0	0.00	0	6,965
Second	4	3,450	6	5,260
Third	7	5,900	9	6,690
Fourth	8	5,480	6	5,500
Total	19	14,830	21	16,610

4.2 Electronic Monitoring of Vessels

This section covers Vessel Monitoring System (VMS) operations which included 24/7 monitoring of vessels, VMS Training, new installation and replacement works on VMS

transponders.

4.2.1 Vessel Monitoring System Operations

The Fisheries Monitoring Centre continues to conduct 24/7 monitoring of fishing vessels. Positions of all Ghanaian flagged fishing vessels, equipped with Vessel Monitoring System (VMS) beacons were tracked by the Fisheries Enforcement Unit. Foreign fishing vessels and other vessels were also monitored through

Automatic Identification System (AIS) beacons by Exact Earth Ship view interface (Figure 4.3).

VMS reports are widely used by fish exporters and the Police as evidence to support investigations and prosecution of fisheries infractions where necessary. The use of the VMS for monitoring of fishing trawlers has improved compliance by operators during fishing expeditions.



Figure 4. 3: The Deputy Minister, Hon. Moses Anim and the Executive Director, Mr. Fred Antwi Boadu trying their hands on VMS tracking

4.2.2 New Installation and Replacement Works on Vessel Monitoring System (VMS)

There has not been installation or replacement works done on mal-functioning VMS

transponders since 2020. This is because none of the vessels have reported any malfunctioning. The last time VMS transponder was replaced on a fishing vessel was in 2019, when seven replacements were carried out (Table 4. 6).

Table 4. 6: Transponder Replacement Trends

Year	2023	2022	2021	2020	2019	2018
Number VMS Transponders Installed	0	0	0	0	7	33

4.2.3 Electronic Monitoring of Semi-Industrial Fleet

The Fisheries Monitoring Centre continues to monitor all Semi-industrial vessels fitted with AIS beacons through the Exact Earth's Ship view interface. No infractions were recorded with the AIS monitoring. No new beacon was installed on any inshore vessel since 2020.

4.2.4 VMS Training

Through the support of the European Union (EU), European Fisheries Control Agency (EFCA) trained 15 fisheries officers at the Fisheries Monitoring Center (FMC) received Vessel Monitoring System (VMS). The training was from 25th to 27nd September, 2023 at Crismon Hotel.



Figure 4. 4: Mr. Bruno from EFCA taking officers through VMS training

4.2.5 Fisheries Monitoring Centre

The MCSD has refurbished its Fisheries Monitoring Center (FMC) with state-of-the art equipment. The FMC now host the Vessel Monitoring System, Automatics Identification System (AIS) and Electronic Monitoring System (EMS).

The Deputy Minister, Hon. Moses Anim and the Executive Director, Mr. Fred Antwi-Boadu on the 21st September, 2023 visited the FMC. The Deputy Minister was full of praise to the MCSD management for the refurbishment and admonished the staff to be diligent and take very good care of the facility.



Figure 4. 5: Hon. Moses Anim and the Executive Director, Mr. Fred Antwi Boadu in a group picture with some staff of the MCSD

4.3 Fisheries Observer Programme on Industrial Fleets

To ensure that fishing activities conducted by industrial fishing trawlers are devoid of illegal fishing activities, fisheries observers are placed on-board every industrial fishing trawler that goes on fishing expeditions. Hence, 100% Observer coverage is recorded. The aim is to intensify enforcement and improve compliance with Fisheries Laws and Regulations for sustainable exploitation of the limited fisheries resources. The year under review saw Two Hundred and Forty-three (243) Fisheries Observers placed on fishing trawlers as against Two Hundred and thirty-four (234) observers in the previous year (2022). The number of fishing expeditions by trawlers increased by 3.8% as the number of missions conducted increased to 243 (2023) from 234 in 2022 (Figure 4.6). The increase was due to the strict adherence to the mandatory 30 days fishing as part of Ministerial Directive on trawl gear. Observer missions peaked at 41 expeditions in October as compared to 42 in March for 2022. In the month of July and August, there were no expeditions.

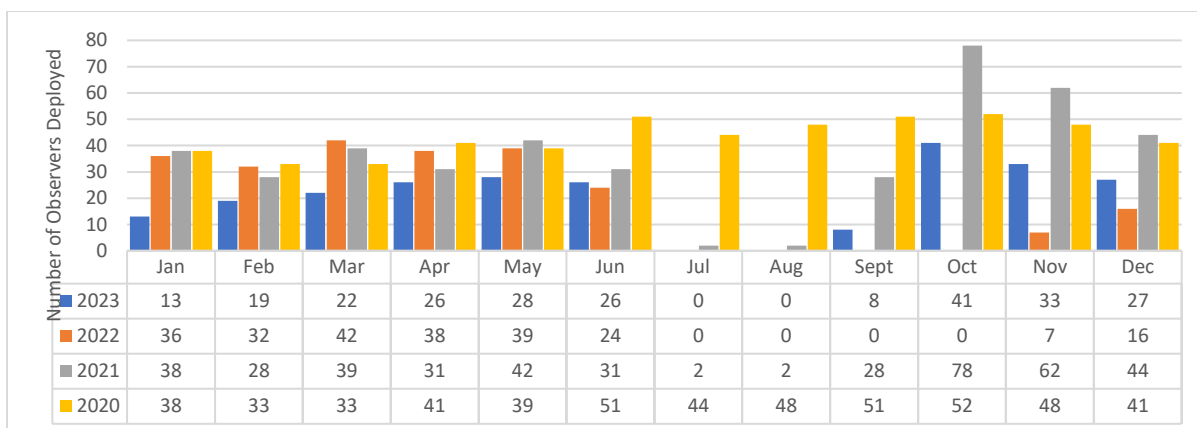


Figure 4. 6: Monthly observer distribution from 2020 to 2023

4.3.1 Training of Observers

A total of 100 observers including new ones were given in-service training during the year under review as compared to 180 in 2022. The training was supported by the USAID Ghana Fisheries Recovery Activities (GFRA) and focused more on trawl gear as per requirement under the ministerial directive.

Also, 20 observers for specialized training at Crimson Hotel



Figure 4. 7: Observers receiving training from EFCA at Crimson Hotel

4.4 Enforcement Patrols

The Fisheries Enforcement Unit (FEU) conducts two types of patrol operations namely sea and land patrols. The outputs/outcomes of these operations are as follows:

4.4.1 Sea Patrols

There were three (3) sea patrols conducted by the FEU in 2023 totalling 40 hours as compared to zero (0) in 2022. (Table 4. 7).

Table 4. 7: Details of Sea Patrols conducted by the FEU in 2021 to 2023

Year	# Patrols	Hours of Patrols	Observations / Remarks				
			Canoe fishermen arrested	Semi-industrial fishermen	Trawler fisherman arrested	Generators seized	Lighting accessories seized
2023	3	40	6	0	0	0	0
2022	0	0	0	0	0	0	0
2021	6	180	0	0	0	0	0

4.4.2 Land Patrols (Beach Combing)

Thirty (30) land patrols totalling 345 hours were carried out in 2023 as compared to Forty-five (45) land patrols with a total of 560 hours in 2022 in the marine sector by both Eastern and

Western Commands (Table 4.8). There were no patrols on the Volta Lake in the year under review. Through the operations, a total of 43 generators, 43 tripods with electric cables were seized. The

number of beach combings decreased by 33.3% as well as corresponding hours of patrol by 38.3%. Therefore, the average hours spent on patrol was 12 hours for both years. Table 4. 8 shows that the beach combings were carried out in twenty (20) fishing communities in three coastal regions in 2023 as compared to twenty-six

(26) communities in 2022. The MCSD/FEU embarked on some beach combing activities after intelligence reports indicates that some fishermen were still adamant and were engaging in illegal fishing activities. Some communities were sensitized on fisheries laws and regulations during the beach combing exercise.

Table 4. 8: Details of Land Patrols Carried-out in 2023 compared to 2022

Region	No. of Patrols		Hours of Patrols		Communities patrolled	
	2023	2022	2023	2022	2023	2022
Volta	11	12	172	162	Keta Aflao, Denu, Hedranawo, Anloga, Adina,	Keta Aflao, Denu, Hedranawo, Anloga, Adina,
Greater-Accra	3	16	48	214	Ada and Azizanya, Prampram, Old Ningo	Ada and Azizanya, Otrokpe, Puteh, Ocansey Korpe, Prampram, Bortianor, Old Ningo
Central	2	3/5	5	20/24	Apam, Senya Breku	Elmina, Cape Coast, Moree
Western	10	12	120	160	Abuesi Sekondi, Axim, Shama, Essiama, Ahobre, Ekpue, Kristian, Antobra,	Abuesi Sekondi, Axim, Shama, Essiama, Ahobre, Ekpue, Kristian, Antobra,
Volta Lake	0	0	0	0		
Total	30	45	345	560		

4.4.3 Special Operations

✓ *Establishment of the Fisheries Settlement Committee (FSC)*

On 15th February, 2023 the Fisheries Settlement Committee (FSC) was established under Section 10 of the Fisheries Act, 2002 (ACT, 625).

There was a maiden meeting on the said date. Members of this committee took oaths of Office, Allegiance and Secrecy during the swearing-in.

Table 4. 9: Members of the Settlement Committee

S/N	NAME	STATUS	INSTITUTION
1.	Mad. Dorothy Afriyie-Ansah	Chairperson	FC Board
2.	Mr. Richard Yeboah	Secretary	Head, MCSD
3.	Cdre Francis Ayitevi Nyarko	Member	Nat. Cood. FEU/Ghana Navy
4.	Mr. Stephen Adjokatcher	Member	FC Board/GITA
5.	Nana Jojo Solomon	Member	FC Board/GNCFC
6.	Augustine Acheampong Otoo	Member	FC Board
7.	ASP Ernest Kwofie	Member/Prosecutor	Ghana Police, Tema
8.	C/Insp. Daniel Kwasi Donkor	Member/Investigator	Marine Police, Tema
9	E.A Amevor	Recorder	MCSD



Figure 4. 8: Fisheries Settlement Committee

4.5 Fisheries Infractions and Prosecutions

The Fisheries Commission continued to collaborate with the Ghana Navy, Ghana Police, Attorney General, Ghana Air Force, Ghana Ports and Harbours Authority to enforce the Fisheries Laws and Regulations. Some of the cases resulting from the infractions were resolved in court and also out-of-court.

During the year under review the Fisheries Settlement Committee successfully determined dumping cases from 2020, 2021, 2022 and 2023 observer reports. Cases from Fisheries Monitoring Center (FMC) of vessels fishing in Inshore Exclusive Zone (IEZ) and non-reporting of VMS were also settled. A total of GH 28,533,900 and USD 115,000 was imposed as fines Five Hundred and Ninety-Two Thousand Six Hundred Ghana Cedis (GH 275,000) and Fifteen Thousand United States Dollars (USD 15,000) were paid.

4.6 Accident Cases At-Sea

During the year under review, the Arbitration Committee received seventeen (19) accident cases. The cases are as follows; Greater Accra (11 cases), Western (4 Cases), and Central (4 Cases) Regions. There was no reported case of At-Sea Accidents in the Volta Region. Eleven (11)

cases were solved amicably, five (5) cases were dismissed for lack of evidence and three (3) cases were under investigation (Table 4. 10). The number of accident cases that were successfully resolved decreased significantly by 26.7% as the cases resolved dropped to 11(2023) from 15(2022). The summary of the settlement of accident cases is captured in (Table 4. 10).

Table 4. 10: Summary of Accidents at Sea

Year	Number of Cases Received	Number of Cases Resolved	Number of Cases under Investigation	Dismissed for lack of Evidence
2023	19	11	5	3
2022	17	15	1	1

Details of accident at sea cases are indicated in

Table 4. 11.

Table 4. 11: Details of At-Sea Accidents Cases heard by the Settlement Committees

No.	Case	Remarks
1	Accident at sea involving vessel with Reg. number CR-127-MF and Vessel name Osahene and canoe with the name Okamafo Jesus. The inshore vessel crashed into the canoe destroying the front part on 20th February, 2023.	The vessel owner repaired the canoe and compensated the fisherman all amounting to about 3,300.00
2	Accident at sea involving a vessel with reg. number and name CR-087-MF, and canoe with reg. number CR-KE-011-AKY on 12th April 2023. The inshore vessels destroyed the canoe's net.	Vessel owner repaired the net for the canoe owner
3	Accident at sea involving two inshore vessels with registration numbers and names WR-141-SK, St. Anthony and CR-239-EL, Adom Nnsa on Friday 21st April 2023. In the evening, the crew of WR- 141-SK saw CR-239-EL approaching and signaled to move to the west but CR-239-EL got the signal wrong and headed north crashing the set net of WR-141-SK. After the realization of the harm caused and deliberations, CR-239-EL continued moving and caused further damage to the net instead of going to shore to resolve matters.	The owner of CR-239-EL repaired the net of WR-141-SK
4	In the month of September, an accident at sea occurred involving a vessel with Reg. number CR- 046-EL and vessel name OYE ADOM and a canoe with the name Nyame Ogya. The inshore vessel destroyed the canoe's net.	Case under investigation
5	On 1 st August a canoe with registration number WR-AH-123-LDX (Mountain Zion) owned by Papa Akromah had an accident as a result of the rough nature of the sea. High tides during that period destroyed his canoe, outboard motor, and nets.	Two crew members got injured and were taken to the hospital.
6	On 2 nd August a canoe with registration number WR-AH-087-UDX (the blood of Jesus) had an accident as a result of rough nature of the sea. High tides during that period destroyed the canoe, outboard motor and nets.	Two crew members got injured and were taken to the hospital.
7	On the 4 th August in Jomoro a canoe with a registration number WR-JM-077-HAS (Don't Lose Hope) was involved in an accident at Fanteline.	One crew member of Don't Lose Hope was injured and the canoe was damaged.
8	On the 7 th August in Jomoro, a canoe with a registration number WR-JM-054-HAS (Alpha and Omega) was involved in an accident at Eweline.	The canoe was damaged.
9	Accident at sea involving a canoe "Yellow Yellow" and M/V Mengxin 3 on 4 th November 2023 in Accra waters. Fishermen alleged the destruction of their fishing net.	Case under investigation.
10	Accident at sea a canoe "Walaabi" and M/V Mengxin 13 on 5 th December, 2023 off Accra waters. Fishermen alleged the destruction of their fishing net.	Case under investigation.
11	Accident at sea involving M/V Determination and a canoe "Walaabi" on 1 st December 2023 off Anloga. Fishermen alleged the destruction of their fishing net.	Case settled and fishermen compensated with Eleven Thousand Three Hundred and Thirty Ghana cedis (GHC11,330.00)
12	Accident at sea involving a canoe "Sankofa" and M/V Iris Queen on 10 th November 2023. Fishermen alleged the destruction of their fishing net.	Case dismissed since fishermen were already compensated with fish at sea.
13	Accident at sea involving a canoe 'Fear God' and 'M/V NYK PAULA' on 6 th August 2023 off Tema. Fishermen alleged the destruction of their fishing net.	Case settled amicably and fisherman compensated with GHC 4,000.00
14	Accident at sea involving M/V Long Xiang 608 and canoe "Sunday no 5" on 3 rd April 2023 off Prampram waters. Fishermen alleged the destruction of fishing net.	Case settled amicably and canoe owner compensated with (GHC 15,000.00) Fifteen Thousand Ghana Cedis.
15	Accident at sea involving M/V Lu Rong Yuan Yu 967 and canoe "No Shaking" on Fishermen alleged the destruction of fishing net.	Case settled amicably and canoe owner compensated with (GHC 5,000.00) Five Thousand Ghana Cedis.
16	Accident at sea involving Inshore boat GR-004- TM and a canoe Joe B	Case settled amicably and fishermen

No.	Case	Remarks
	off Nungua on 6th March 2023. Destruction of fishing net.	compensated with GHC1,500.00
17	Accident at sea involving M/V Mengxin 3 and a canoe 'Nyame Na Onyin' and off Anomabu on 16th February 2023. Destruction of fishing net.	Case settled amicably and fishermen compensated with GHC 4000.00
18	Accident at sea involving M/V Mengxin 3 and a canoe 'Halleluya' off Anomabu on 16th February 2023. Destruction of fishing net.	Case settled amicably and fishermen compensated with GHC 4000.00
19	Accident at sea involving M/V Lu Rong Yuan Yu 967 and a canoe 'No Shaking' and Mighty Is All, off Elmina on 18th February 2023.	Case settled amicably and canoe owners compensated with GHC 5,000.00 each.

4.7 Community Sensitization on Fisheries Laws and Regulations

Community sensitization is one of the activities that is carried out by MCSD/FEU to educate fisher folks on the need to observe sound and sustainable fishing practices, stop illegal fishing practices as well solicit concerns of fisher folks so as to devise ways of helping solve them. The

FEU undertook Forty-four (44) community sensitization programmes in both the Eastern and Western Command as well as communities along the Volta Lake (Inland) in 2023 as against Eighty (80) in 2022.

4.8 Monitoring of 2023 Closed Season by MCS/FEU

Section 84 of the Fisheries Act 625 (2002) of Ghana provides that *the Fisheries Commission may by notice of Gazette declare a Closed Seasons, including their duration, for fishing in specified areas of the coastal waters or the riverine system.* The MCSD/FEU conducted monitoring of the closed season implemented by the Fisheries Commission in collaboration with

the Ministry of Fisheries and Aquaculture Development (MoFAD). The Minister, Hon. Hawa Koomson officially declared the closed season for the 2023/2024 fishing season for both Artisanal and Industrial sectors. Fishing Communities visited by the MCSD/FEU to monitor for compliance (Table 4. 12) and dates are as follows:

Table 4. 12: Details of Communities visited during 2023 Closed Season

Date of Visit	Communities Visited	Sector	Remarks
19-25/07/2023	Half Asini, ankobra, asanta, kikam, essiana, old bakanta, sanzule, krisan, eikwe, ngelekpole, ngelekyi, anokyi, baku and atuabo effasu, mangyea, nzimetianu, mempasem, boakor and anumatuapim Ankobra, Eikwe, Krisan Ellembele, Half Assini, Effasu Jomoro, Eikwe, Sanzule, Krisan, Ampain, Esiana, Jam Kay, Kikam, New Old Bankata, Asanta and Ankobra, Buakwa, Mempeasem, Mangyea, Ngelekpole, Ngelekyi, Baku, Anokyi, Ekebaku,	Western	Most communities closed to the border with Cote d'Ivoire left to the country and were fishing at night. Some fishermen at Half Asini were arrested for fishing during the period. Whiles some were complying with the closed season others were defying it and fishing at night
22/07/2023	Chorkor, James Town, Labadi, Teshie, Nungua, Sakumon, Tema New Town	Eastern	There was high compliant; fishermen busily mending net and repairing canoes
17-21/07/2023	Prampram, New Ningo, Old Ningo, Ahwiam, Akplabaya. Puteh, Ocansey Korpe, Ada Foah	Eastern	There was high compliant; fishermen busily mending net and repairing canoes. Some fishers were seen at Puteh embarking on a voyage to Cameroon

Date of Visit	Communities Visited	Sector	Remarks
21-23/07/2022	Aflao, Denu, Hedranawo,, Abeliakorpe, Adina, Adafianu, Keta	Eastern	There was tension and disquiet at most places as some canoes left their beaches to Togo only to come back to fish in Ghana waters during the season

4.9 ICCAT Moratorium

All the Ghanaian Registered tuna fishing vessels observed the ICCAT moratorium from 1st January-16th March, 2023

4.10 2023 Closed Season

The Minister for Fisheries and Aquaculture Development, Hon. Hawah Koomson officially declared the Closed Season for the 2023/2024 fishing season for both Artisanal/Inshore and industrial sectors

- **Artisanal/Inshore sector** **1st July to 31st July**
- **Industrial trawl sector** **1st July to 31st August**

4.11 Inter-Agency Consultations and Collaborations on Law Enforcement

Through collaborations with the USAID and Ghana Fisheries Recovery Activity, the MSCD established 10 Landing Beach Enforcement Committees (LaBECs) in the Volta, Greater Accra and Western Regions. The LaBECs are to compliment the efforts of the FEU in the enforcement of Fisheries Laws at the local level.

Table 4. 13: Details of Landing Beaches Established

Region	Number	Communities
Volta	3	Vodaza, Kedzikorpe, Adina
Greater Accra	4	Nungua, Prampram, Azizanya, Bortianor
Western	3	Axim, Shama, Sekondi
Total	10	



Figure 4. 9: LaBECs being inaugurated at Adina in the Volta Region

MoFAD continues to collaborate with relevant law enforcement agencies including Ghana Navy,

Maritime Police, Ghana Police, Attorney General's Department, etc. to carry out operations in the year under review. These institutions played significant roles right from land and sea patrols to arrests and prosecutions.

The activities involve collaboration with relevant domestic institutions as well as working with neighbouring countries in West Africa. There is therefore the need for more funding from internal and external sources to aid and intensify enforcement operations.

MCSD-FEU conducts operations that aim at ensuring compliance to the fisheries laws and regulations for sustainable exploitation of Ghana's fisheries resources. MCSD-FEU collaborated with relevant domestic institutions and enforcement agencies in neighbouring countries in West Africa during law enforcement operations.

- Richard Klutse was on exercise "Obangami" a compliance simulation exercise conducted on IUU fishing in the Inshore Exclusive Zone (IEZ) on 28th January, 2023
- The Executive Director of the Fisheries Commission on the 23rd March, 2023, had a meeting with Fisheries Observers on the need to work hard and be committed to the job in order to promote the objectives of the observer program.
- Four Officers and two FEU officers participated in a workshop on the development of training module for Landing Beach Enforcement Committees (LaBEC) in Takoradi from 21st to 23rd March, 2023.
- Three staff of the Division participated in a 2-day workshop held at Alliance Hotel, Takoradi on 17 and 18 May 2023.
- The training centered on the establishment and Standard Operating Procedures of Landing Beaches Enforcement Committees (LaBECs). The training was sponsored by the Ghana Fisheries Recovery Activity and facilitated by Mr. Yaw Attobrah (Consultant) and Mr Damoah (Central Regional Director, FC). There was a delegate each from the Ghana Navy and the Marine Police.
- A staff (Frank Eshun) represented the Commission at 5-day training on Maritime Security Reporting.
- Three officers; Mavis Dwamena, Samira A. Yakubu and Emmanuel Amevor attended a workshop on Sustainable Fisheries Management in Ghana, Prospects and Challenges on 4th October, 2023 at University of Ghana (Legon)
- Two officers; Richard Klutse and Samira Yakubu attended a dissemination workshop on transparency and accountability in Ghana's Fisheries Sector on 2nd November, 2023 organized by CEMLAWS at MJ Grand Hotel, Accra.
- Daniel Odoi attended Training on Maritime Security and Transnational Organized Crime at Kofi Annan International Training and Peace-Keeping Centre (KAITPC) from 6-17th November, 2023.
- Mr. Richard Yeboah, Emmanuel Amevor and Jullian Ampa attended Landing Beach Enforcement Committee Review workshop from 31st Oct to 2nd Nov. 2023 at Elmina. Emmanuel Amevor and Chrispina Mary Frimpong participated in a Workshop on Vulnerability, threat and Capacity System and Operating Procedure at Maritime Port and Border in the contest of Arm Trafficking by UNODC from 12-13th Nov. 2023
- Dr. Charles Teye, Theodore Kwadjosse, Emmanuel Amevor, Mavis Dwamena and Samira Yakubu participated in Legal Review of the Fisheries Act, 625 and Fisheries Amendment Regulation 2015 (LI 2217) from 27- 30th Nov. 2023 at FAO office in Accra

The above trainings and meetings by the fisheries officers have enhanced their capacities in maritime enforcement, thereby making IUU high risk enterprise for deviant operators.

CHAPTER FIVE

AQUATIC ANIMAL HEALTH AND POST-HARVEST MANAGEMENT

5.0 Introduction

The twin objective of this technical programme is to ensure the production of safe and quality fish and fishery products for both the local and international market; and reduce post-harvest losses in the fisheries sector. The scope of this program covers interventions from production through to the marketing of the final product. This is achieved through the application of standard protocols of global acceptance along the fisheries and aquaculture value chain. The programme is made up of two (2) main sub-programmes, namely, Fish Health and Sanitation and Post-Harvest Management.

Key Aquatic Animal Health and Post-Harvest Management Performance Highlights

Fish Health and Sanitation

- 74 fish disease and mortality cases were investigated in the Greater Accra (8), Eastern (26), Oti (1), Volta (4), and Northern sector (36)
- 126 aquaculture establishments, 6 fish feed mills and 32 fish landing beaches were monitored nationwide
- 84 fisheries officers and aquaculture operators benefited from capacity enhancement programmes on Catfish Hatchery Management, Fish Health Management, and Water Quality Test Kits.
- 63 health permits were issued for the export and import of live aquatic animals and fish feed in 2023

Post-Harvest Management and Trade

- 1,590 stakeholders benefited from 21 capacity enhancement programmes on hygienic fish handling, safe fish certification and licensing scheme (SFCLS), group dynamics and improved fish processing technologies
- 30 stakeholders trained on re-purposing fish by-products into fish silage
- Safe Fish Certification and Licensing Scheme (SFCLS) launched and 159 artisanal fish processing facilities certified
- A Policy and technical brief for the inclusion of small fish into the Ghana School Feeding Program (GSFP) developed, launched and disseminated to 178 stakeholders under the FAO SSF Umbrella Programme
- Contract awarded for the construction and upgrade of post-harvest infrastructure in Axim, Ekumfi Narkwa and Dzemeni under SSF Umbrella Programme
- One (1) Post-Harvest Coordinating meeting organized
- 25 fisheries officers trained on Post-Harvest Loss Assessment Tools
- 49 export and 348 import permits were issued in 2023
- 5 Port visits to inspect fish packaging and labelling by industrial trawlers were carried out

5.1 Fish Health and Sanitation

The objectives of this sub-programme are to reduce health risks associated with fisheries exploitation and utilization; prevent the occurrence of health risks along the value chain; and ensure bio-security in fish production facilities. It supports the day-to-day operations of fish value chain actors in the production of fish and fishery products in the areas of disease management and quality assurance; provides expert aquatic animal husbandry and laboratory services; provides services in quarantine and contingency preparedness; controls the import of exotic aquatic organisms and the issuance of permits and certificates.

5.1.1 Disease Surveillance and Extension Service Delivery

Disease Surveillance and Extension Service delivery in the fisheries and aquaculture sector are of paramount importance to ensure adherence to biosecurity protocols and good husbandry practices. Key activities undertaken are as follows:

5.1.1.1 Mortality Investigation

A total of seventy-five (75) fish disease and mortality cases were investigated in the Greater Accra (8), Eastern (26), Oti (1), Volta (4), and Northern sector (36). Low adherence to biosecurity measures and poor husbandry practices were the primary causes of these health challenges in the affected farms. Clinical signs such as jaundice, ulcerative dermatitis, fin rot, crack head and hepatitis were observed (**Error! Reference source not found.**). Laboratory investigations revealed infections caused by *Streptococcus spp*, *Pseudomonas spp*, *Aeromonas spp* and *Ichthyophthirius spp* among others. Appropriate interventions, such as implementation of biosecurity measures and good husbandry practices, were recommended by the Fish Health Veterinarians.



Figure 5. 1: Clinical signs of infections

5.1.1.2 Health Monitoring and Disease Surveillance

One hundred and twenty-six (126) aquaculture establishments, six (6) fish feed mills and thirty-two (32) fish landing beaches were monitored nationwide in 2023. The exercise was aimed at improving biosecurity, hygiene and sanitation at the various aquaculture establishments, landing beaches (including fish processing sites) and fish feed production facilities. This is to control the incidence and spread of fish diseases and to promote public health. In addition, it afforded the Commission the opportunity to render veterinary extension services and to collect relevant fish health data.



Figure 5. 2: Some Scenes from the Health Monitoring

5.1.2 Capacity Enhancement Programmes

The Commission trained fisheries officers and aquaculture operators during the reporting period. These trainings were aimed at improving service delivery by fisheries officers and enhance health status of aquaculture establishments. Key among these trainings are:

5.1.2.1 Training on Hatchery Operations

A 5-day (13th – 17th March, 2023) intensive training was organized for prospective hatchery operators at Koforidua in the Eastern Region. The objective of the training was to provide trainees with the appropriate knowledge and skills to undertake fingerling production in their respective localities. A total of five (5) hatchery operators benefited from this exercise. Certificates and start up fingerlings were given to farmers to begin their own operations.

5.1.2.2 Training on Fish Health Management

The Fish Health Unit, collaborated with Pilot Aquaculture Center (PAC) in the Ashanti Region to organize a 3-day (20th – 22nd March, 2023) training for five (5) farmers to educate them on fish health management with emphasis on biosecurity. The farmers were also taken through catfish and tilapia spawning and antimicrobial resistance.

5.1.2.3 Training on Water Quality Test Kits

On March 16, 2023, Fisheries Commission (Ashanti region) collaborated with Aquamet Technologies to train thirty (30) fisheries officers and fish farmers within the Ashanti region. The objective of the training was to introduce participants to some products for water quality testing. Training mode include lectures and practical sessions where participants had hands-on experience with the test kits. Aquamet Technologies also introduced trainees to software application on the products.

5.1.2.4 Training on Catfish Hatchery Operations and Fish Health Management

On 31st May 2023, forty-four (44) fisheries staff in the Eastern region were trained on catfish hatchery operations and fish health management at the Eastern Regional Training Centre in Koforidua. Topics discussed include Catfish Species and Sex Identification, Removal and Extraction of Pituitary Gland, Removal and Extraction of milt, Stripping and fertilization, Egg Spreading and incubation, Water Quality Parameters, Biosecurity and Use of Antibiotics in aquaculture. The essence of this exercise was to educate newly recruited staff and upgrade the knowledge of existing on the stated topics. Lectures were followed with intensive practical session where trainees were equipped with practical skills in catfish sex identification and catfish breeding.

5.1.3 Collaboration with Development Partners

The Commission collaborated with key development partners, under three (3) main projects, in the areas of (i) Biosecurity Enhancement; (ii) Strengthening Surveillance; (iii) Strengthening Emergency Preparedness and Response; (iv) Improving Diagnosis; and (v) Promoting Awareness Creation on Aquatic Animal Health to sustainably enhance Aquatic Animal Health Management and promote the development of the sector. These Projects are UK DEFRA Projects; Fish for Development (FfD) and UN sponsored Projects. Key collaborative interventions carried-out under the various projects are indicated as follows:

5.1.3.1 UK DEFRA Projects (AHSS, OCPP, Fleming Fund)

- Fish Health and Biosecurity Management Training Workshop under AHSS
- Validation of Animal Disease Surveillance Guide for Ghana under AHSS
- Exploring Support for Aquaculture Sector under Fleming Fund
- Scoping Mission to Assess Mariculture Potential and Ecological Health of Selected Estuaries

5.1.3.2 *Fish for Development (FfD) Project*

- National Baseline Surveillance Study for Pathogens in Ponds
- Training of Aquatic Animal Health Personnel in Outbreak Investigations
- Aquaculture Principles and Animal Health Management Training

5.1.3.3 *UN (FAO, WOA, WHO) Sponsored Projects*

- Tilapia Lake Virus Surveillance Workshop and Feedback Meeting
- Knowledge, Attitude and Practices (KAP) Training and Survey on Antimicrobial Use (AMU) and Antimicrobial Resistance (AMR)
- Progressive Management Pathway (PMP) Workshop on AMR
- Workshop for Media Professionals in Communicating Information on AMU and AMR
- National Workshop for Validation of One Health Policy
- Training on Effective Leadership and Multi-sectorial Collaboration Skills to Address AMR
- Stakeholder Engagement for Information Gathering on Cost of AMR in Plant, Animal, Environment and Human Health
- Training of National Focal Points for Aquatic Animal Health and Antimicrobial Resistance in Aquaculture
- Launch of Regional Aquatic Animal Health Laboratory Network

5.1.4 Issuance of Permits for Export of Live Aquatic Organisms and Fish Feed

A total of sixty-three (63) permits were issued for the export of fish feed and the export and import of live aquatic animals in 2023. This includes thirty-three (33) permits for fish feed export to Cameroun, Cote D'Ivoire, Benin, Gabon, Siera Leone, Nigeria and Mali; twenty-two (22) permits for live fish export to Gambia, Nigeria, Liberia, USA, Japan and Hong-Kong; and eight (8) permits for ornamental fish import from Thailand. Total permits issued for 2023, compared to that of 2022 (48 permits) shows an increase of 31%.

5.2 Post-Harvest Management

The objectives of this sub-programme are to reduce post-harvest losses, enhance value-addition and facilitate trade of fish and fishery products. Most of these activities were carried-out in collaboration with Food and Agriculture Organization's (FAO) Small Scale Fisheries Umbrella Programmes, and the Feed the Future Ghana Fisheries Recovery Activity (GFRA). Highlights of these activities are as follows:

5.2.1 Coordination of Post-Harvest Activities

The Commission employed strategies to coordinate interventions in the fisheries post-harvest sector. Key among these are as follows:

5.2.1.1 *Second Post-Harvest Coordination Meeting with Stakeholders*

The Division, together with Ghana Fisheries Recovery Activity (GFRA), organized the 2nd Post-Harvest Stakeholders meeting on 27th - 28th March, 2023 at the Elmina Beach Resort (Figure 5. 3). Participants at the meeting were representatives from MoFAD, FC, GSA, FDA, FRI, DAA, CEWEFIA, EJE, FAO, NAFPTA, and Academia (UG and UCC).



Figure 5. 3: Scenes from the Post-Harvest Coordination Meeting

The objectives of this meeting were to discuss (i) the status of implementation of post-harvest activities and projects, 2022; (ii) planned activities of various actors for 2023; (iii) the status of the preparation of working documents; and (iv) emerging issues and developments in the sector and the way forward. Some recommendations proposed by participants at the meeting include (i) Adopt The FAO's smart fish training manual (001) and (002) for use in the Ghanaian context; (ii) Establish Learning Centres, under the FAO SSF Umbrella Programme to be used for training and capacity enhancement in post-harvest and fisheries in general; (iii) Hold two Coordination Meetings annually.

The Secretariat compiled all recommendations from the groups for incorporation into the draft Working Documents (guidelines, training and extension manuals).

5.2.1.2 Appointment of Post-Harvest Focal Persons

As part of efforts to consciously include post-harvest activities and report same at the local level, seventeen (17) fisheries officers were appointed as focal persons across the 16 regions and Yeji Artisanal Fisheries Station. This will ensure that production of safe and quality fish and trade are well coordinated nationwide.

5.1.1.3 Launch and dissemination of Policy and technical briefs and guide for the inclusion of small fish in the Ghana School Feeding Program (GSFP)

The Commission in collaboration with the FAO, under its SSF Umbrella Programs developed a policy and technical brief and a guide on the inclusion of small fish in the Ghana School Feeding Program. The three documents were launched by the Hon. Minister for MoFAD, Mavis Hawa Koomson on 25th July, 2023 at the Labadi Beach Hotel, Accra. In attendance were the FAO representative to Ghana, Mr. Yurdi Yasmi, the Deputy Minister for Food and Agriculture in-charge of Crops, Executive Director of FC, Members of Parliament and Representatives from the World Food Program (WFP). Others included representatives from the Fisheries Commission, Fishery Industry, Ghana School Feeding Caterers Association, CSOs/NGOs and other Government Institutions. The details of the briefs and guide have been disseminated to stakeholders through four (4) Regional (Volta, Central, Western and Greater Accra) workshops organized. The dissemination workshops were in two parts; a “food for your thoughts” session that discussed the policy document and a “get skilled to nourish” that discussed the technical brief and guidelines for the inclusion of small fish in meals for children of school going age. Participants (178; 43 males & 135 females) included caterers and coordinators of the Ghana school feeding program, officers of the Ghana Education Service (school health unit), Officers of the Ghana Health Service (Nutrition Division), Bursars of Senior High Schools, Fishers, Officers of FC and FAO.



Figure 5. 4: Launch of Policy Brief and Dissemination Exercise

5.2.1.4 Post-Harvest Loss Assessment (PHLA) in Fisheries

The Ministry of Food and Agriculture (MOFA) under the Modernizing Agriculture in Ghana (MAG) Project engaged DAB consult to conduct a post-harvest loss assessment in Ghana's agriculture sector of which fisheries is part. The study was conducted in selected districts in both coastal and inland regions of Ghana with emphasis on small-pelagic fishes (sardines & anchovies), Tuna, tilapias and catfishes. A total of 472 respondents, comprising 80 fishermen, 177 processors, 10 fish farmers, 103 traders and 102 transporters, were interviewed. The main tools used for data collection were the Informal Fisheries Loss Assessment Method (IFLAM), Questionnaire Loss Assessing Method (QLAM) and Load Tracking (LT) method. The total PHL after the study was estimated as 22.5% of total fish production, valued at GHC 2.6 billion with the marine sector accounting for 95% (21.4%) of this total loss.

As part of the consultant's deliverables, a day's training on the developed PHLA data collection tools were organized for twenty-five (25) fisheries Officers from the national, regional and zonal levels on 31st October, 2023 at the MOFA Conference room for future studies. The results of the study were also presented to participants.

5.2.2 Technology Dissemination and Adoption

To facilitate and enhance technology dissemination and adoption among fish processors and other stakeholders, the PHMTD carried-out the following activities:

5.2.2.1 Launch of Safe Fish Certification and Licencing Scheme

The Commission collaborated with GFRA to launch the Safe Fish Certification and Licensing Scheme (SFCLS) on 31st of January, 2023 at Alisa Hotel (Figure 5. 5). The SFCLS seeks to regulate the artisanal fish smoking industry through certification of fish processors. The Scheme recommends adherence to hygienic fish handling practices and use of improved fish smoking ovens to reduce the Polycyclic Aromatic Hydrocarbon (PAH) levels in smoked fish for the local and international markets. The launch of the SFCLS forms part of the activities to ensure that safe and quality fish is traded at both the local and international markets. In attendance were the Chief of Party, GFRA; leadership and staff of MoFAD/FC, representatives of Fisher-Based Associations, Government Agencies (GSA & FDA), CSO's and the media. The launch marked the commencement of capacity building programmes on the safe fish certification for stakeholders involved in the fish processing sector.



Figure 5.5: Scenes from Launch of SFCLS

In the course of the year, two hundred and thirty-eight (238) facilities applied for certification under the SFCLS. These facilities were audited and one hundred and fifty-nine (159) passed and were successfully certified.

5.2.2.2 Needs Assessment of SSF Project Communities

Under the FAO SSF Umbrella Programme, an infrastructure needs assessment was conducted in five (Axim, Ekumfi Narkwa, Dzemeni, Akateng and Nungua) of the ten (10) SSF project communities from 26th February to 6th March 2023. Based on the recommendations, contracts have been awarded to Skylynx Haven Investment Ltd. to construct (i) Community Fish Processing Demonstration Center in Axim; (ii) Shed and Urinal for Ekumfi Narkwa Landing Beach; and (iii) Fish Cleaning Station for the fish Processing facility in Dzemeni.

5.2.3 Capacity Enhancement and Post-Harvest Extension Service Delivery

As part of efforts to transform the fisheries post-harvest sector and empower actors within the value-chain, the The Commission through PHMTD trained and sensitized fisheries officers and fishers in hygienic fish handling, processing, group dynamics, business management and financial literacy, and gender mainstreaming (Table 5.1).

Table 5.1: Summary of capacity enhancement programmes in 2023

No.	Focus Area	Number of activities	Number of participants		Total
			Male	Female	
1	Safe fish certification Scheme	4	43	64	107
2	Sensitization on hygienic fish handling and group dynamics	15	224	1,023	1,247
3	Group dynamics only	1	6	18	24
4	Business management only	1	5	29	34
5	Workshop on inclusion of small fish in Ghana school feeding program	4	43	135	178
Total		25	321	1,269	1,590

5.2.3.1 Training of Officers (FC & GSA) on SFCLS

The *Feed the Future Ghana Fisheries Recovery Activity* (GFRA) has been introduced to mitigate the collapse of the fisheries sector and bolster the ecological recovery and growth of especially small pelagic fisheries and as such appropriate guidelines should be put in place. GFRA, in collaboration with the Fisheries Commission, organized a capacity building workshop on Safe Fish Certification and Licencing Scheme (SFCLS) for fifteen (15) fisheries officers and eight (8) GSA officers from the 17th - 19th January, 2023, at the Elmina Beach Resort. Twenty-three (23) officers made up of eleven (11) females and twelve (12) males benefited from this exercise (Figure 5. 6).

The objective of the training was to;

- Enlighten officers and fish processors on the concept of the SFCLS for National adoption and improvement of safe fish production
- Aid officers on the use of the checklist in conducting facility audits for certification



Figure 5. 6: Scenes from SFCLS Training and Inspection of Processing Facility

As part of the training, officers were taken through the checklist for safe fish certification scheme to help in auditing a processing facility. This section divided the checklist into parts: Environmental hygiene; Layout of Premises; Personal Hygiene; Water Quality; good storage; quality pest control and waste management measures; packaging and transportation. In addition, three (3) processing facilities were audited at the end of the day. Breakout groups discussed outcomes of their audit at the various facilities (Figure 5. 6). The owners of the audited processing facilities were advised on best practices to meet criteria on the SFCLS checklist.

The training was facilitated by Officers from GFRA, GSA and the Fisheries Commission. Mode of delivery were presentations, questions and answers and break-out group discussions.

5.2.3.2 Training of Fish Processors (CAOPA) on SFCLS

Twenty-seven (27) CAOPA executives comprising twenty-six (26) females and one (1) male were trained on SFCLS on 7th February, 2023 at canoe beach, Tema. This exercise was done as part of the Commission's mandate to help produce safe and quality fish for consumption (Figure 5. 7).

Objectives of the training were;

- To introduce Fish Processors to the concept of the SFCLS for National adoption and development.
- To educate and sensitize processors on hygienic handling of fish.
- To train Fish processors on the SFCLS check list for audit.

The training was conducted by fisheries officers through presentations, questions and answers and experience sharing. Stakeholders were introduced to the SFCLS and best practices that can get one certified. A processing site was visited by fisheries officers and stakeholders in line with to safe fish certification compliance. The assessment was based on layout and environmental hygiene of the premises, processing method employed and the storage area.



Figure 5. 7: Scenes from SFCLS Training for CAOPA Executives

Participants appreciated the SFCLS and promised to comply with all Standard Sanitary Operating Systems (SSOPs) to meet the standards of the SFCLS

5.2.3.3 Training of Stakeholders on SFCLS

The Commission collaborated with GFRA to conduct training for twenty-nine (29) stakeholders on 28th June 2023 at the Elmina Beach Resort. Beneficiaries include twenty-three (23) Regional Directors of the Environmental Health Units across the sixteen (16) regions, one (1) official from Food Research Institute (CSIR-FRI), two (2) officials from Central and Western Fishmongers Improvement Association (CEWEFIA) and three (3) officials from the Fisheries Commission.

Key issues raised at the training include:

- a. Gaps in the Scheme and how to address them
- b. Ways to disseminate the Scheme
- c. How to identify Safe Fish Retailers in our markets
- d. The need for capacity building for retailers on environmental issues.

The following were proposed for successful deployment of the Scheme:

- a. The need for provision of hygienic market spaces
- b. The need for screening fishermen and all actors in the food chain
- c. The need for sensitization of all Safe Fish Retailers to have food handlers' certificate.



Figure 5. 8: Scenes from Training of Stakeholders on the SFCLS

5.2.3.4 Sensitization of Fishers on Hygienic Fish Handling and SFCLS in Greater Accra Region

The Commission, under the auspices of ABA and Partners (consultants for the construction of the Amrahia National Aquaculture Centre), organized five (5) sensitization workshops on hygienic fish handling for seven hundred and fifteen (715) fishers drawn from five (5) communities within the Greater Accra Region (Table 5. 2). This is made up of 85 males and 630 females.

Table 5. 2: Details of Engagements

Date of engagement	Community	Number of processors trained	Male	Female
06/06/2023	Kpone	150	0	150
12/06/2023	Nungua	120	18	102
13/06/2023	Teshie	150	52	98
20/06/2023	Tema	150	0	150
06/07/2023	Osu	145	15	130
Total		715	85	630

The fishers were sensitized on: (i) the newly established National Aquaculture Centre in Amrahia, (ii) hygienic fish handling and SFCLS, (iii) improved fish handling and processing technologies and (iv) VSLAs.

5.2.3.5 Training of Fish Processors and Traders in Half Assini on Hygienic Fish Handling

Following a documentary by TV3 on poor fish handling practices among fish processors in Half Assini in the Western Region, the Commission organized a sensitization on 22nd June, 2023 for one hundred and fifty-one (151) women fish processors drawn from three (3) communities (Epku, Ahobire and Half Assini). Participants were sensitized on hygienic fish handling using FAO SSF Best Practices Videos. The processors were also sensitized on the Safe Fish Certification Scheme (SFCLS). The following were recommended during the exercise:

- The need for the development of teaching aids (including videos) for fisheries extension services
- Introduction of improved ovens in Zone
- A need for increased engagements with fish processors and traders on good business management practices.

After the training, the Team also visited some fish processing sites in the Zone. The processors were encouraged to acquire the improved ovens and also put their facilities in shape to enable them apply for the Safe Fish Certificate.

5.2.3.6 Training of Fishers in Group Dynamics

With support from FAO and the Department of Cooperatives, twenty-four (24) fishers drawn from five (5) fisher-based groups were trained on group formation and formalization under the SSF Umbrella Programme from 13th – 15th March, 2023 at the FAO Ghana Office. The objective of the training was to sensitize fish processors in group formation and management. Among other advantages mentioned, the ability to have one voice to channel complaints, an avenue for technical knowledge exchange, opportunity of the community getting recognized and helped in terms of project implementation or getting funds and also a means of supporting each other were highlighted as the benefits of being in a group. A strong group means positioning themselves at vantage point to receive any available governmental support meant for Fish processors

5.2.3.7 Sensitization of Fishers in Savannah and Bono East Regions on Hygienic Fish Handling and Group Dynamics

Three hundred and seventy-seven (377) fishers (28 males; 349 females) from nine (9) fisher groups in the Savannah and Bono East regions were sensitized on hygienic fish handling and group dynamics from 28th August to 5th September, 2023 (Figure 5. 9). Participants were drawn from five (5) and four (4) communities in Savannah and Bono East regions respectively (Table 5. 3).

Table 5. 3: Regional Distribution of Participants

Region	Community	Male	Female	Total
Savannah	Makango, Libi, Kikale No 4, Jama Nsuano, Fuu	5	288	293
Bono East	Benkrom, Kadelso, Abodwise, Alhassan kura	23	61	84
Total		28	349	377

The exercise offered participants the opportunity to have first-hand information on the improved fish processing techniques (*ahotor oven*) and the SFCLS. A market data collection exercise was conducted at the Buipe market by the team as part of the process to pre-test the market data collection tool (*kobotoolbox*) developed by the Division.



Figure 5. 9: Scenes from the sensitization exercise in the Savannah and Bono-East regions

5.2.3.8 Training of Trainers' Workshop on Financial Literacy and Business Management

The Ghana Fisheries Recovery Activity, (GFRA) in collaboration with PHILNETA Company organized a five (5) day training workshop for 34 stakeholders (29 females; 5 males), comprising: Fisheries Officers, Environmental Health Workers, CSOs/NGOs and Fishers on Financial Literacy and Business Management from 17th to 21st July, 2023 at Lagoon Beach Hotel, Volta region. The training equipped stakeholders on Financial Literacy and Business Management skills. Topics treated included, entrepreneurship skills, marketing and customer relations, personal management and record keeping.

5.2.3.9 Training on fish silage

To ensure the optimum utilization of fisheries resources, production of fish silage is an option to convert fish by-products (such as viscera, scales, gills, head, bones, and other unwanted parts of the fish) into useful products. Following a request from the FC, a 2-day interactive and practical training was organized for stakeholders on 25th and 26th October, 2023 at the FAO Country Office on repurposing fisheries by-products through fish silage for thirty (30) stakeholders in the fisheries and agriculture value chain. Participants comprised officers of MoFAD/FC, MOFA-WIAD, FRI, Fisher Associations, fish processors, poultry and crop farmers. The training built the capacity of participants on fish silage technology to preserve and transform fish by-products. The training was facilitated by Mr. Jogeir Toppe of the FAO through power point presentations, discussions and practical sessions. Participants had the opportunity to produce fish silage through biological and chemical means. Participants discussed (i) ready market for the final product (ii) cost of some equipment and acid used in the preparation of the product (iii) commercialization after production (iv) availability of raw materials in enough volumes for production of the fish silage and (v) support from either FAO or the government to produce the fish silage in large quantities.

5.2.4 Trade Facilitation

Details of trade facilitation activities are carried-out by the Division are as follows:

5.2.4.1 Port Inspection

As part of efforts to ensure standardization of fish landings, the Commission (MCSD and FSSD) conducted five (5) port inspections at the Tema Harbour during the reporting period. Fifteen (15) landed fishing vessels were inspected (Figure 5. 10).



Figure 5. 10: Scenes from the Inspection Exercise at Tema Harbour

These exercises were carried out to inspect packaged fish labels and the corresponding contents for compliance with existing National and International standards to help develop standards for fish landings.

5.2.4.2 Fish Price Data

The Commission conducted a study on fresh and processed fish prices from three (3) coastal landing sites and four (4) markets along the Coast in the Volta region from 7th to 10th November, 2023 using newly developed market data collection system uploaded onto the Kobo toolbox online application. The objective of the exercise is to develop and harmonize market data collection at fish landing sites and markets to inform decision-making.

5.2.4.3 Permits Issued for Import and Export of fish species

This section provides information on permits issued for the import and export of fish in 2023.

- **Fish Imports**

Four hundred and fifteen (415) import permits were issued for 159,162.01 mt of different fish species, valued at USD75,084,894.89 (Table 5. 4).

Table 5. 4: Details of Import Permit Issued in 2023

Month	Number of permits issued	Quantity (mt)	Value (USD)
January	26	13,383.581	7,413,589.59
February	19	7,622.222	3,986,319.24
March	36	11,114.582	7,428,242.510
April	20	12,167.280	5,618,069.120
May	24	13,006.105	8,506,620.210
June	16	5,235.440	2,596,810.676
July	12	7,536.760	4,839,286.850
August	20	6,624.512	3,561,584.080
September	90	15,340.276	14,394,733.700
October	77	14,158.990	8,325,001.600

Month	Number of permits issued	Quantity (mt)	Value (USD)
November	49	49,360.607	6,686,515.610
December	26	3,611.654	1,728,121.700
Total	415	159,162.01	75,084,894.89

Species of fish for which permits were issued include; snappers, sea breams, mackerels, sardines, mullets, hake, herrings.

- **Fish Exports**

Forty-five (45) export permits were raised for 21,931.065 mt of different fish species (valued at USD10,948,511.80).

Table 5. 5: Details of Import Permit Issued in 2023

Month	Number of permits issued	Quantity (mt)	Value (USD)
January	1	2000	1,010.00
February	0	0	0
March	2	1,800.00	407,500
April	0	0	0
May	10	5,056,616	2,737,456.20
June	1	550	277,750.00
July	1	500	252,500.00
August	10	4,401.919	2,885,999.6
September	3	2,020.45	1,238,815
October	7	2,359.65	1,392,405
November	4	773	393,855
December	6	2,469.43	1,361,221
Total	45	21931.065	10,948,511.80

CHAPTER SIX

FISHERIES SECTOR COORDINATION AND PUBLIC RELATIONS

6.0 Introduction

The ever-growing demand for fish products, coupled with the increasing environmental concerns and regulatory frameworks has necessitated the need for efficient coordination among various actors in the fisheries sector. Efficient coordination ensures sustainable exploitation of fishery resources and development of the aquaculture industry, promotes equitable distribution of fisheries and aquaculture inputs, and facilitates the implementation of conservation measures including reduction of post-harvest losses. Consequently, the Ministry and its agencies, namely the Fisheries Commission and the National Premix Fuel Secretariat implemented activities to promote coordination in the sector during the year 2023.

6.1 Stakeholder Consultations on 2023 Closed Season and Distribution of Relief Items

The Ministry continued the implementation of the Annual Closed Season for artisanal, inshore, and semi-industrial trawl vessels as a marine fish stock recovery strategy.. To ensure compliance with the Closed Season, the Ministry and the Fisheries Commission organized a stakeholder consultation meeting with key stakeholders on 13th April 2023 at the CLOGSAG Hall, Accra. Participants at the stakeholder meeting were representatives of the various marine Fisheries Associations, namely the:

- i. National Fisheries Association of Ghana (NAFAG)
- ii. Ghana National Canoe Fishermen Council (GNCFC)
- iii. Ghana Tuna Association (GTA)
- iv. Ghana Industrial Trawlers Association (GITA)
- v. National Fish Processors and Traders Association (NAFPTA).

Also at the stakeholder consultative meeting were Civil Society Organisations operating in the sector, including the USAID Ghana Fisheries Recovery Activity, and Academia. The stakeholder consultation meeting facilitated dialogue, knowledge sharing, and collaboration on the implementation of the 2023 Closed Season. The Ministry and FC presented the outcome of the 2022 Closed Season to stakeholders and also agreed on timelines for the closure. The official closure ceremony to pave way for the 2023 Closed Season for artisanal, inshore, and semi-industrial trawlers was held on 1st July 2023 at Elmina. The closed seasons were as follows:

Artisanal	-	1 st - 31 st July 2023
Inshore	-	1 st - 31 st July 2023
Industrial Trawl	-	1 st July - 31 st August 2023

A press briefing by the Minister was also held on 14th June, 2023 to share the results of the 2022 Closed Season and the modalities for the 2023 Closed Season with the public.

Fishing and related enterprises are the major economic activities in coastal fishing communities and, therefore, not going for fishing during the period of the closed season may have an adverse effect on the livelihoods of coastal fishing communities, especially fishers and their dependents. To mitigate this adverse effect, the Ministry provided the following relief items to fishers and fish processors: rice (20,000 25 kg bags) and cooking oil (8,333 boxes). Fishing inputs such as fishing nets, bundles of wire mesh (3,000), outboard motors, and aluminum basins (10,000) were also distributed to the fishers along the coast.



Closing and Opening of the Sea

Distribution of Closed Season Relief Items at marine fishing communities

6.2 Information/Data Sharing and Transparency

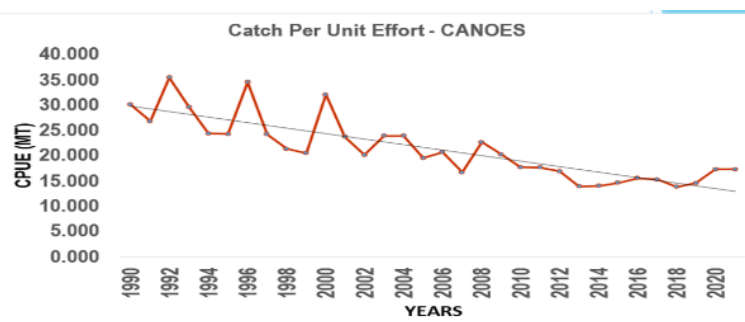
Recognizing the significance of accurate and up-to-date data for informed decision-making, the Ministry and FC prioritized efforts to improve information sharing and transparency in the sector. Accordingly, key documents and information such as the list of registered and licensed vessels, the Marine Fisheries Management Plan (2022-2026), Fisheries Acts and Regulations, National Plan of Action to Combat IUU Fishing (NPOA-IUU), Co-Management for the Fisheries Sector and sector reports were published on the MoFAD and FC websites for public access.

MoFAD and FC also shared updates on fisheries and aquaculture activities on various social media platforms, such as Facebook, Instagram, and others, to improve transparency, participation and raise public awareness.

6.3 Moratorium on New Marine Artisanal Canoe Entrants

Ghana's marine fish stocks have declined rapidly over the years reaching their lowest level. It is reported that the Catch Per Unit of Effort (CPUE) of all fleets, particularly the artisanal subsector has experienced a decline, except for the Tuna fleet which remained stable. Fish landings of some key marine species, especially small pelagics like Sardinellas and Mackerel are also at their lowest levels. A key contributing factor to the rapid decline is overfishing resulting from overcapacity in the marine subsector.

Preliminary results from the 2022 Canoe Frame Survey of the Fisheries Commission (FC) for instance, indicate an increased number of operational canoes in the marine subsector from 11,583 in 2016 to 12,175 in 2022. The efficiency of artisanal canoes has also improved significantly over the years. Scientific analysis on the current state of the marine fisheries resources is that, drastic measures have to be taken to ensure recovery of the depleted stocks to avoid the collapse of the stocks which would have adverse implications on the livelihoods of artisanal fishers and coastal fishing communities.





Official launch of Moratorium on new entrants of canoes

To address the issue of overcapacity with the view to recovering depleted marine fish stocks, The moratorium involves capping the number of operational marine artisanal canoes and restricting the entry of new canoes.

MoFAD and the FC, after extensive stakeholder consultations at regional and national levels, announced the implementation of a three (3)-year moratorium on new marine artisanal canoe entrants, effective 1st October 2023. The announcement ceremony took place at the Alisa Hotel, Accra on 14th September, 2023. The moratorium is a fishing effort reduction strategy to complement other sustainable fisheries management measures such as the annual closed seasons for fishing fleets.



National Engagement with Legislators and Policy Makers



Regional Engagements: Central Region

The stakeholder meetings included the Parliamentary Select Committee, Regional Ministers from Coastal Regions, Coastal Development Authority (CODA), Forestry Commission, and Metropolitan, Municipal, and District Chief Executives of Coastal MMDAs at the Alisa Hotel on 16th February 2023 to discuss the timelines, modalities for implementing the moratorium and measures to ensure compliance.

6.4 Commissioning of National Aquaculture Centre and Commercial Farms

The Ministry completed the construction of a state-of-the-art National Aquaculture Centre and Commercial Farms, using Recirculating Aquaculture System (RAS). The construction of the Centre formed part of the Government's vision to promote aquaculture development to increase domestic fish production, reduce fish import, and create additional job opportunities along the fisheries and aquaculture value chains.



The Centre contains indoor aquaculture structures, classrooms, accommodation, pack houses, and cold storage facilities to provide skills training in various aspects of aquaculture including production, farm management, fish health, feed formulation, and processing for the youth to take up aquaculture as a viable enterprise. The wastewater from the facility will be used for the cultivation of vegetables.

The Centre was commissioned by His Excellency the President of the Republic on 8th June 2023 at the project site located at Amrahia in the Adenta Municipality of the Greater Accra Region. Participants at the commissioning ceremony included the Hon. Minister for Fisheries and Aquaculture Development, Hon. Minister for Information, Hon. Deputy Minister for Fisheries and Aquaculture Development, Hon. Greater Accra Regional Minister, the Municipal Chief Executive of the Adentan Municipal Assembly and Traditional Authorities.



6.5 Commissioning of Premix Fuel Automated Outlets, Elmina

MoFAD and the National Premix Fuel Secretariat commenced the implementation of the Premix Fuel Automation Project of installing 300 automated premix fuel outlets at designated landing beaches across marine and inland fishing communities in June 2022. The project is expected to ensure equity, transparency, and accountability in premix fuel dispensing and provide real-time monitoring of premix fuel distribution. It is also expected to complement existing strategies being employed to address the challenges associated with the allocation, distribution, and sale of premix fuel such as fuel diversion, hoarding, sale at exorbitant prices, and poor safety standards. The project is being executed by Fuel Automation Ghana Limited and supervised by Techrew Limited, as well as, Multi Lead Limited.



The Elmina premix fuel automation outlets, as part of the fifty (50) outlets under Phase 1 of the project, were completed for commissioning and operationalisation. MoFAD and the NPFS, in collaboration with the Office of the Vice President commissioned the first three automated premix fuel outlets located at Elmina, Central Region on 5th September, 2023. Dignitaries including the Vice President of the Republic, His Excellency Dr. Mahamudu Bawumia, Hon. Minister for Fisheries and Aquaculture Development, Mrs. Mavis Hawa Koomson, Omanhen of Elmina, Nana Condua IV, the Central Regional Minister and executives of the Ghana National Canoe Fishermen Council (GNCFC) graced the commissioning ceremony, held at the forecourt of the premix fuel station.

6.6 Fisheries Policy Dialogue Workshop with Fisheries Champions

MoFAD and FC, with the support of Development Partners (DP) and stakeholders, are implementing fisheries management measures aimed at sustaining the fisheries sector and the livelihood of fishing communities. These measures include the annual Closed Fishing Season, Ministerial Directives on Trawl Gears, piloting of Electronic Monitoring Systems, and Landing Beach Enforcement Committees (LaBECs). The effective implementation of these and other fisheries management measures requires the active participation of key stakeholders such as the Parliamentary Select Committee on Food, Agriculture and Cocoa Affairs (PSCFACA) who have been identified as Fisheries Champions.

Accordingly, MoFAD with the support of the Ghana Fisheries Recovery Activity (GFRA), organised a two-day Policy Dialogue Workshop from 9th to 10th August 2023 at the Ridge Royal Hotel, Cape Coast to provide a platform to engage the Select Committee and Civil Society Organizations to discuss

pertinent issues in the sector, measures being undertaken to address the issues and the role of the Committee in managing the fisheries resources. The Workshop was specifically organized to:

- i. Provide progress made towards the implementation of fisheries management measures such as closed season, review of fisheries laws, fisheries enforcement, ministerial directives on trawl gears, and Electronic Monitoring System (EMS)
- ii. Discuss circumstances leading to the issue of “Yellow Card” and measures being implemented to address same.
- iii. Present and discuss the implementation of moratorium on the artisanal fishing fleet
- iv. Discuss the Landing Beach Enforcement Committees (LaBECs) concept for community fisheries law enforcement and voluntary compliance with regulations
- v. Identify areas of support by PSCFACA in the implementation of fisheries management measures.

PSCFACA made the following recommendations on areas for government intervention:

- i. The Committee assures the Ministry and the Fisheries Commission of its support in the implementation of the Moratorium on new marine canoe entrants, Closed Fishing Season, Electronic Monitoring System, the Landing Beach Enforcement Committees (LaBECs), and the Trawl Gear Directives aimed at sustaining the fisheries sector and the livelihood of fishing communities.
- ii. The Policy Dialogue Workshop should be organised at least thrice every year to enable the Ministry and the Fisheries Commission to apprise the Committee of their activities, performance, and operational challenges.
- iii. Industry (Fisher Associations, Academia, and Research Institutions, relevant Enforcement Agencies) should be invited to participate in subsequent workshops to deepen relations and support fisheries programmes.
- iv. The Committee will make a case for the Ministry and its Agencies for the increase in budgetary allocations during their engagement with the Ministry of Finance, considering the projects and programmes being undertaken to sustain the fisheries sector.
- v. The Committee will support the Ministry and the Fisheries Commission in the fisheries legal review process. The active participation of the Committee in the IUU dialogue meetings with the EU, the implementation of the Gear Directives, and distribution of the relief items to fishing communities during the Closed Fishing Season were also recommended.
- vi. The Ghana Fishery Recovery Activity Project should develop milestones on the programmes presented at the workshop to track implementation progress.



6.7 National Fish Festival Celebration

MoFAD and its Agencies organised the 2023 edition of the National Fish Festival Celebration to commemorate the 2023 World Fisheries Day. The event which was on the theme “Developing Ghana’s Blue Economy for Sustainable Fisheries Management and National Development” was held at the Independence Square from 20th to 21st of November 2023. The National Fish Festival involved a two-day exhibition and sale of fish and fish products, as well as panel discussions on topical issues in the sector. Exhibitors at the Fish Festival included Fish Processors, Aquaculture Operators, Fish Feed Companies, and Fishing Input Dealers. Fish and fish products displayed and sold at the festival included fresh tilapia, smoked, dried, and salted fish, fish rolls, balls, salad, and flakes.



The two-day exhibition provided a platform for the exhibitors to showcase and market their products to a wider populace. It also provided them with the opportunity to network. The ceremony also provided a platform for the launching of the National Marine Fisheries Management Plan (2022-2026), the presentation of Safe Fish Certificates to qualified fish processors, and the launch of the Best Fishing Practices Award Scheme.

The panel discussions covered four (4) key topics in the fisheries and aquaculture sector:

- Promoting the Consumption of Safe Fish Products
- Opportunities and Challenges within the Aquaculture Value Chain and the Way Forward
- Combatting IUU Fishing; a Collective Effort towards Sustainable Fisheries Management
- Co-Management in the Fisheries Sector

The panel discussion sessions provided the platform for regulators, industry, and professionals in the sector to deliberate on key issues confronting the sector and proffer solutions to address the challenges.

6.8 2023 (39th) National Farmers’ Day Celebration

MoFAD in collaboration with the Ministry of Food and Agriculture (MoFA) and the Ghana Cocoa Board organized the 39th National Farmers’ Day Celebration in Accra and Tarkwa on the theme “**Delivering Smart Solutions for Sustainable Food Security and Resilience**”. The exhibition of agricultural and fisheries-related products was held at the Ministerial Enclave, Accra from 27th November 2023 to 1st December 2023 while the Awards Night Ceremony to climax the celebration was held on 1st December 2023 at the University of Mines and Technology (UMaT) Campus, Tarkwa in the Western Region.



The Special Guest of Honour for the occasion was His Excellency the Vice President, Dr. Alhaji Mahamadu Bawumia, Vice President of the Republic. The ceremony was chaired by Nana Tetteh Okuamoah Sekyem III, President of the Western Regional House of Chiefs and Paramount Chief of the Wassa Amenfi Traditional Area. Participants at the Durbar also included Ministers, Members of Parliament, Members of the Diplomatic Corps, Chief Executives of Government Agencies, Traditional Authorities, Municipal and District Chief Executives, Farmers, Fishers and Aquaculture Operators.

Outstanding Fishers and Aquaculture Operators for the year were acknowledged for their hard work and dedication as follows:

Award Category	Award Winner	Region
Overall Best National Fisher	Kwesi Mensah	Central Region
Best Aquaculture Operator	Godfred Kofi Dadson	Ashanti Region
Best Inland Fisher	John Osabutey	Savannah Region
Best Fish Processor	Grace Tsali	Bono Region

6.9 Development of Regulations to implement PSMA

The drafting of Regulations to implement the Port State Measures Agreement (PSMA) to Prevent, Deter, and Eliminate IUU fishing with the support of FAO under the EC-funded project, “GCP/GLO/447/EC - Fourth PSMA Global Capacity Development Programme Support Project” progressed steadily. For the year under review, the FAO in collaboration with MoFAD and FC organised two (2) stakeholder engagement meetings on the draft Regulations in April (12th to 14th) and September (18th to 20th) to among other things:

- Fulfil a legal requirement (stakeholder consultation) for the adoption of the Regulations;
- Gather detailed feedback and input from stakeholders through work sessions and incorporate the same where relevant in the draft Regulations, and
- As necessary, continue the sensitization of stakeholders, through brief presentations on the PSMA and related international instruments to which Ghana is a party and the obligations of Ghana under these instruments.



The draft Regulations was also validated by stakeholders at a validation workshop held at the Coconut Groove Hotel, Accra on 28th and 29th November, 2023. The validated Regulations will be submitted to the Office of the Attorney-General for their action and pre-laying at Parliament in the first quarter of 2024.

6.10 World Food Day Celebration (WFD)

World Food Day (WFD) was declared in 1979 by the Conference of the Food and Agriculture Organization (FAO). It marks the date of the founding of FAO in 1945. The Day aims to heighten public awareness of the world food problem and strengthen solidarity in the struggle against hunger, malnutrition, and poverty. The World Food Day is observed on 16th October every year by Member States of the United Nations. In Ghana, the event is organized by the Ministry of Food and Agriculture

and the Ministry of Fisheries and Aquaculture Development in collaboration with FAO, the World Food Programme, Religious Bodies, etc.

MoFAD, as a key stakeholder in WFD celebration, actively participated in the annual celebration over the years including the 43rd Edition of the WFD, held on 16th October, 2023 at the Forecourt of the State House, Accra on the theme **‘Water is Life, Water is Food, Leave No One Behind’**. The occasion highlighted the need for collective action to sustain national food and nutrition security, protect water bodies, and conserve the environment for present and future generations.

6.11 8th Edition of Our Ocean Conference, Panama

The Hon. Minister, Mrs. Mavis Hawa Koomson, led a delegation from the Ministry, Fisheries Commission, the Ghana Fisheries Recovery Activity and Industry to participate in the 8th Edition of Our Ocean Conference held in Panama City, Panama from 2nd to 3rd March 2023 on the theme “Our Ocean, Our Connection”. The event which took place in parallel with the UN Conference on Marine Biodiversity beyond National Jurisdiction brought together representatives of Governments, the private sector, academia, industry, and CSOs to discuss the framework for the “Blue Economy” for the protection and sustainable use of the seas and the ocean.



The Conference highlighted the importance of creating Marine Protected Areas, growing sustainable Blue Economies and Tourism, and finding innovative solutions to end marine pollution. It also emphasized the need to commit to concrete actions and encouraged cooperation to protect the health of the ocean. During the Conference, Ghana through the Hon. Minister committed to 100% transparency in industrial fishing in its waters, effective 2023 through the installation of Electronic Monitoring Systems (EMS) on board industrial vessels. In fulfilment of this commitment, MoFAD has been piloting the EMS on trawl vessels since March 2023.



6.12 Working visit to the People's Republic of China

The Hon. Minister led a delegation from the Ministry, and the Fisheries Commission, to Shandong Province in China from 13th to 19th May 2023 at the invitation of the Shandong Zhonglu Oceanic Fisheries Company. The purpose of the visit was to inspect the operations of the Company for possible establishment of similar projects in Ghana. The other members of the delegation were Directors and Senior Officers from the Ministry, the Fisheries Commission, and industry.

The Hon. Minister held discussions with the Shandong Zhonglu Oceanic Fisheries Company. The discussions touched on the historical, political, and economic relations between Ghana and China. Both countries recognised the importance of the fisheries sector to their respective economies and common interest in protecting the fisheries resources. In the case of Ghana, the Chinese delegation was informed that the fisheries and aquaculture sector support the livelihood of over 3 million people along the value chain. The country earns over USD 200 million annually from the export of fish and fishery products. The per capita consumption of fish in Ghana is 26 kg and the sector contributes about 0.94% to GDP.

The two (2) countries also acknowledged the negative impact of IUU fishing on marine fisheries resources and the livelihood of fishing communities, and highlighted the need for cooperation to effectively address IUU fishing. Ghana's delegation acknowledged China's advancements in fisheries and aquaculture and requested the establishment of a Memorandum of Understanding (MoU) through which China will assist Ghana. The working visit provided a platform for the exchange of knowledge and best practices in the fisheries and aquaculture sector.

6.13 MoFAD Support to Akosombo Flood Communities

The Volta River Authority (VRA) began spilling water from the Akosombo Dam in September 2023 to protect the dam. This caused flooding in low-lying areas along the Volta River such as Mepe, Dzidzokope, Kpedzi, Kudikope, Adidome, and Ada which are predominantly fishing and fish farming communities.

These communities are generally characterised by low incomes and their major source of economic activity and income has been fishing, fish farming, and related activities. The flood resulted in the loss of homes, possessions, and livelihoods in these communities. Fish farms and other aquaculture establishments such as cages, tanks, and hatcheries were flooded and washed away, leading to a loss of investments. Additionally, the spillage adversely affected the food security and nutrition of the affected communities.

Accordingly, MoFAD and its Agencies provided relief items including bags of rice, cartons of cooking oil, tin tomatoes, detergents, and toiletries to the affected communities as a form of leverage package to help reduce the effect of the flood on the affected communities.



CHAPTER SEVEN

GENDER AND YOUTH

7.0 Introduction

The contextual analysis of gender in Ghana's fisheries sector presents a critical overview of the entire sector from a gendered perspective. Thus, gender mainstreaming and social inclusion focuses on the roles men, women, and youth play in promoting the fisheries sector development. These analyses also cover gender power dynamics, vulnerabilities and presents a critical look at gender-based violence (GBV) that perpetuate in the fishing communities. In furtherance to this, the Commission is committed to promoting active participation of men, women and youth in the development of the sector, hence, key operational activities were implemented in 2023 in collaboration with some development partners. The Food and Agriculture organization (FAO), USAID-Ghana Fisheries Recovery Activity (GFRA), Yen Npoano and CEWEFIA are some of the collaborating NGOs and Development partners. The progress of implementing activities is detailed in this chapter.

7.1 Building Synergies that promotes social Inclusion in Fisheries Sector

Gender equity and CLaT issues are less prioritized in fisheries sector dialogues. This is evident by the limited existing platforms for learning and coordination for greater impact. To address these gaps, GFRA, with the support of MoFAD/FC collaborated with key stakeholders at regional and national levels to build synergies and improve capacities for addressing gender mainstreaming and equity issues in an intentional manner. During the reporting period, three (3) regional stakeholder dialogues were organized in Volta, Central and Western Regions to further emphasize on the need for coordination among institutions. These culminated in a national stakeholders Coordination and Learning workshop in Elmina in May 2023, where twenty-four (24) state and non-state organizations - including MOFAD, FC, various departments of the Ministry of Gender, Children and Social Protections (MOGCSP), Ministry of Employment and Labor Relations (MELR) Child Labor Unit, and partner MMDAs, as well as CSOs and media - shared experiences from implementing women's economic empowerment, GBV, and youth programming and discussed opportunities for achieving greater socio-economic and political balance in the fisheries sector. An important part of the coordination and learning workshop was training on emerging approaches to inclusive resource governance. MOFAD/FC, MELR and MOGCSP, as the main government agencies for addressing CLaT and GBV in fisheries, took the opportunity to connect and map out ways to address the sector challenges in a coordinated fashion.



Figure 7. 1: Participants at the CSOs Coordination & Learning Workshop

A key outcome of this intervention is the creation of the Fisheries Sector GESI Platform to improve synergy, cross-learning, and data management. These deliberate actions at improving collaborations and partnerships are yielding great impacts already. Key amongst them is that, the MELR now captures data on child labour in marine fisheries. Hitherto, the focus was only on the Volta Lake, which meant that national data records were eschewing critical issues and interventions in the marine sector.

GFRA is working with MOFAD and FC to ensure that data is sufficiently presented.

Setting legal and Policy Framework for Gender and social Inclusion in Fisheries: Key to MoFAD, FC and GFRA's success in addressing GBV and CLaT in the fisheries sector is ensuring strong government leadership, especially in enforcing anti-GBV and anti-CLaT regulations. During the year under review, MOFAD and FC formally adopted the GBV and CLaT vulnerability assessment tool designed by GFRA, paving the way for wide dissemination and institutional commitment to implement the recommendations. GFRA and MOFAD/FC also developed two policy briefs summarizing these vulnerabilities and recommending key policy actions. Recommendations from the policy briefs serve as guidelines for implementing actions to achieve greater equity in the sector. Upon official request from the Ministry, and Commission, GFRA initiated a process to revise the sector Gender and anti-CLaT strategies which will be conduits for implementing policy recommendations as laid out in the policy briefs. GFRA is also developing a Tool Kit to provide howto develop guidelines for integration efforts. Relatedly, GFRA and MoFAD/FC have also initiated discussions to set up gender-responsive indicators to measure the sector's policies and programmes. At the site levels, GFRA is monitoring the activities of Zonal Officers and building their capacities to prepare them for implementing site level gender responsive policies and interventions.

7.2 Capacity Building Training for Victims of Gender Based Violence.

The approach to tackling GBV and CLaT prevention is viewed from the point of community education and collective actions. As a result, MoFAD/FC in collaboration with GFRA has devoted significant effort to ensuring that communities appreciate the extent and consequences of GBV in fisheries through a series of community trainings. The trainings conclude with dialogue platforms that discuss solutions for reducing incidence of abuse against women, children, and men. Without fail, the dialogue platforms became medium for communities to critically analyze the issues, calling out the wrong, and fashioning out collective solutions. Influential persons such as chiefs, religious leaders and government officials use the dialogue platforms to make proclamations and statements against GBV and CLaT and impose responsibilities on leaders and members to make their communities violence-free. During the period under review, GFRA in collaboration with MoFAD/FC ramped up efforts to address GBV and CLaT by expanding these trainings and dialogues through the work of key partners such as Hen Mpoano, Curious Minds, and CEWEFIA. Partnering with local officials, GFRA organized 30 GBV and CLaT trainings and dialogues for communities and institutions across the coast. In addition, specialized trainings were conducted for key institutions and local structures such as the Community Advocates, SPCCs, CCPCs and Circles of Support to enable them to lead specific agendas on GBV and CLaT prevention and women's participation in fisheries management. Table 7. 1 indicates, 4,748 people (61% females and 39% males) benefitted from these trainings.

Table 7. 1: List of specialized trainings for key institutions and local structures

Type of Training	Total Participants	Male	Female
Community Trainings (GBV & CLaT)	4,376	1,654	2,722
GESI Training for Advocates	50	20	30
GESI Training for SPCC	83	32	51
GESI Training for CSOs and Government Officials	45	18	27
GESI Training for CCPCs	84	33	51
GESI Training for Circles of Support	30	12	18
Community Information Center Operators (GBV & CLaT)	80	78	2
Total	4,748	1,847	2,901

It is worth noting that there has been a noticeable attitudinal change towards GBV and CLaT in communities that have hosted two years of GFRA supported dialogues and trainings. At the initial

stages, community members often agreed that GBV is pervasive and acknowledged the abuses meted out to women in fishing communities but they became evasive and resistant when the dialogues shift to the need to commit to local actions to safeguard women from GBV. However, after constant engagements these local communities eventually demonstrate strong intent to collaborate and implement multiple actions and a zeal to be a part of a new positive narrative about their communities. Communities like Keta have anti-GBV and anti-CLaT sentiments that have become part of the regular discourse at fisheries leadership meetings, signifying an important shift as they explore solutions.

Moreover, the FC also partnered CEWEFIA during the period under review as part of the WiFVEs Project to organize a short-term vocational skills training in Business Development, Financial Management and Hygienic Fish Handling practices. The participants for the training were victims of GBV selected by Department of Social Welfare and Community Development and supported by CEWEFIA and Hen Mpoano. A capacity needs assessment was conducted to determine the level of understanding of women in enterprises such as fish processing, soap making, make-up artistry, baking. Based on their knowledge and interest, potential beneficiaries were assigned to follow different livelihood training modules. In all, a total of 360 beneficiaries including sheltered survivors of physical violence from the target communities were selected for further training and support.

The skills with the highest percentages were baking and soap-making. The participants were therefore asked to select either of the two skills set. The activity was implemented both in the Central and Western Regions covering all eighteen (18) targeted communities. The activity was aimed at ensuring participants received comprehensive and hands-on instruction.

Approach adopted: The training was planned to cover theoretical aspects, practical demonstrations, and sufficient practical sessions. The approach allowed participants to not only grasp the concepts but also develop proficiency in applying their newly acquired skills. As a result of the short-term vocational skills training and set-up for GBV victims and at-risk persons, participants gained practical skills in either Liquid and Bar Soap Making or Baking and Confectionery. The impact of the training extended beyond individual empowerment but also equipped participants, with complementary sources of income that better positioned stakeholders to resist and overcome the challenges associated with GBV and poverty.

Capacity Enhancement in Gender and Youth Development using the media to promote social and behavioral change.



Figure 7. 2: GFRA Advocate Nana Nkanomamako IV in a radio discussion

The Ghana Fisheries Recovery Activity in collaboration with MoFAD/FC initiated media campaigns against CLaT and GBV to complement community level actions with wider reach and impact. At the national level, TV3 Network documented and broadcasted compelling stories of CLaT from a 360-degree perspective that analyzed the situation, identified the problem and drivers, and discussed the solutions. There were earlier indications that this strategy may contribute to behavior changes and actions. For instance, at a community durbar in June 2023, an opinion leader in Mumford lamented about a TV3 story on CLaT in the community and called on members to act to counter CLaT saying, “it is an indictment on us”.

Further, GFRA Advocates led eight (8) radio discussions across popular coastal radio stations. In addition, GFRA in collaboration with MoFAD/FC has worked with Lintas to develop jingles and posters informed by community level fisheries actors for mass communication on preventing GBV and CLaT in fisheries. The posters and jingles were tested and validated across GFRA communities before finalization. In preparation for dissemination, CEWEFIA in collaboration with MoFAD/FC trained 80 Landing Beach Information Center Operators in Komenda-Edina-Eguafo-Abrem Municipal Assembly (KEEA) to use their platforms to campaign to fishers against GBV and CLaT. The audio-visual materials were used as blueprint for advocacy.



Figure 7. 3: A poster on CLaT

7.3 Decrease Women's Vulnerability to Gender Based Violence (GBV)

The use of site level anti-GBV interventions focused on utilizing community dialogue platforms and public durbars to deepen commitments and generate response actions is crucial in promoting anti GBV strategies. During the year under review, advocates also actively engaged community leaders and government officials to implement local actions. In the process, Circles of Support emerged as an important response system. These local actions may not only serve the respective communities that initiated them, but could become learning points for MOFAD, FC and other national bodies to implement inclusion policies in the fisheries sector.

Community Durbars and Public Proclamations: Public events in Ghana mobilize communities to strongly rally around an issue of public concern. GFRA in collaboration with MoFAD/FC took advantage of the annual commemoration of 16 Days of Activism Against GBV to highlight the unique challenges women and girls in fisheries communities face and gather support for addressing them. Commemoration durbars attracting over 800 women, men, and youth that were organized in Elmina and Keta respectively, preceded by public processions along the major streets. Participants in the processions carried placards with messages to create awareness against GBV. Traditional and religious leaders, youth and women's groups, fisher associations and heads of government departments and agencies graced the durbars as speakers and participants. At the durbars, community leaders made important proclamations against GBV, aimed to provoke positive shifts in attitudes and behaviors. For example, in his address, the Municipal Chief Executive for Keta, gave his commitment to protect women and vulnerable persons in his municipality.

We traditional leaders will no longer be impediments to the pursuit of justice for abuse survivors. All abuse cases, including domestic violence would be referred to the relevant institutions for action. This is important. - Adjoa Kweigyewa,

Formation of Circles of Support Against GBV: GFRA, through Hen Mpoano, collaborated with Shama District Assembly to form two Circles of Support against GBV during the year under review. They are the first pilots of a new model of Circles of Support and will guide similar actions in partner districts across the regions. Circles of Support as originally conceptualized by government and development partners are government institutions that collaborate on GBV. However, this framing failed to address barriers to accessing protection services and safe spaces for GBV survivors. Therefore, GFRA in collaboration with MoFAD/FC worked with the Assembly to adapt the existing framework to better

suit the local context. The new Circles of Support that GFRA in collaboration with FC is piloting are localized and built on existing informal structures within communities such as VSLAs, local chapters of fisher associations and youth groups that are accessible to all. A group of passionate individuals that volunteer themselves in groups (at least 10 members) can also form Circles of Support. In order to become a Circle of Support, each group undergoes intensive assessment and trainings to certify that the group and its members have the capacity to provide care to victims of abuse.

The Abuesi and Aboadzi Circle of Support is an interesting example. After the series of community trainings and dialogues, the communities nominated reputable volunteers to form a Circle of Support



Figure 7. 4: Participants in a Role Play

comprised of fisher leaders, community leaders and community members passionate about preventing and responding to GBV. The Circle of Support aims to provide a safe and supportive environment for survivors and those at risk of GBV and CLaT and empower them to challenge harmful norms. Members were trained by the Department of Social Welfare and other mandated institutions to instill the values of care, support, and inclusivity. These groups are now ready to provide counselling, guidance, and generally

show compassion to survivors of abuse. The Circles of Support also have the right resources to provide case referrals to the institutional response systems, where necessary.

7.4 Community Engagement and Sensitization on Child Labour and Trafficking (CLaT)

The Gender Equality and Social Inclusion (GESI) team of Hen Mpoano in collaboration with FC also engaged two communities in the Jomoro Municipality in the Western Region for sensitization on CLaT. This is an initial step among a series of processes to establish community-based action to prevent and respond rapidly to CLaT in project target communities. The community engagements focused on raising awareness, fostering community involvement, and promoting sustainable solutions to combat these prevalent challenges. The event was a precursor for establishing Community Child Protection Committees (CCPCs) as a grassroots mechanism to minimize and ultimately eliminate the occurrence of CLaT in target communities.



Figure 7. 5: A cross-section of participants in Half Assini community members engage the audience during the sensitization

The engagement process was mainly interactive and participatory and involved the use of child protection tool kits such as flashcards to initiate and trigger conversations around issues of child protection. The event also partnered with community leaders such as leaders of fisher associations, and assembly members to leverage their influence and support in disseminating information and encouraging community involvement.



Figure 7. 6: Left - Officers of DSWCD engaging participants at Ekpu using child protection flash cards. Right - A participant contributing at the sensitization at Ekpu

A community-based action was initiated from the engagements for the prevention and monitoring of child labor. Community members volunteered to form a Community Child Protection Committee to institute local community mechanisms to reduce and eventually eliminate the incidence of CLaT

made up of major governmental organizations such as the FC, Department of Social Welfare and Community Development, Ghana Education Service, and Ghana Health Service, among others. However, district level is costly, unsustainable, and does not render services at the community level where CLaT violations occur. GFRA in collaboration with MoFAD/FC therefore worked with the three distinct MMDAs to set up ten (10) Community Child Protection Committees (CCPCs) that mimic the



Figure 7. 7: Left - Newly Inaugurated CCPC in a photo with MMDA Officials and Traditional Leaders. Right - MCE and Paramount Chief for Keta congratulate a CCPC Member

Community Child Protection Committees (CCPCs): MoFAD/FC supported the formation of GFRA-supported CCPCs, which is a direct outcome of the community dialogues. Similar to Circles of Support, the concept of CCPCs originated as formal district level committees

district level structure but in a more practical and engaging manner. Each CCPC is composed of 7-11 members. The Assemblies worked with local communities to identify and train worthy nominees in accordance with local government procedures. The CCPCs lead in identifying or

receiving child welfare cases at the community levels for redress. They also serve as local child protection advocates. GFRA and Grantees will monitor and provide technical support to address potential challenges and learn lessons for replication in other districts. In Chorkor and Tema, GFRA grantee Curious Minds worked with the Assemblies to form District Anti-CLaT Networks with similar mandates, structures, and membership as the CCPCs. So far, 13 CCPCs across the districts have been inaugurated and are holding community sensitization meetings, and addressing issues around school drop-out, teenage pregnancy and child neglect, all of which are major contributors to CLaT in fishing communities.

Public Commemorations Against Child Labor: GFRA and partners - MoFAD/FC, Hen Mpoano, CEWEFIA and Curious Minds - commemorated World Day Against Child Labor with two durbars and a public colloquium in Dago, Anomabo, and Tema, mobilizing a total of 700 participants. The commemorative events provided public platforms for influential

We will fight the negative tag that places Dago in the same basket with child labor. We will dissociate ourselves from the negativities of child labor. My people, arise, and let us fight it

leaders to renew commitments to preventing CLaT. Dago is a community known for a very high incidence of CLaT and as a result of the durbar, the Municipal Coordinating Director, paramount chiefs, and religious leaders made strong calls for action. Children played a critical role during the durbar. They engaged community members on the dangers of CLaT through thought-provoking drama, poetry and cultural performances that resulted in deeper community dialogues during the durbar. After the events, several community members approached GFRA staff to discuss ways to rescue children that have been trafficked, and how they can better secure these children's

future. GFRA has referred the individuals to join in the livelihoods program and has also provided guidance on how to bring their children back as well as connecting them to local resources.

7.5 Child-Led Advocacy against CLaT

GFRA is positioning children and adolescents as strategic advocates against CLaT in Tema, Chorkor and Azizanya. Throughout reporting period, rights of the Child (RoC) Clubs were formed in all three communities and members received training to lead anti-CLaT advocacy in their respective communities. In addition, community members were socialized to understand and accept this unconventional role of children in anti-CLaT advocacy. Since their formation, the ROCs have co-facilitated community dialogues with external resource persons. Additionally, seven in-community broadcast sessions were held. The sessions were recorded and played on Obonu FM, a local Ga station in Accra. In all sessions, children engage the discussions from their own perspectives in a way that draws compassion. The ROC Clubs have subsequently trained new sets of children to ramp-up anti-CLaT campaigns. Given children's unique vulnerabilities, GFRA in collaboration with MoFAD/FC monitor the dialogues between children and adults closely while also supporting Curious Minds to implement their own organizational safeguards that protect children.



7.6 Inauguration of Five Community Child Protection Committees in the Jomoro Municipality

An official inauguration ceremony was organised for five (5) Community Child Protection Committees (CCPCs) in Jomoro District between December 12th and 15th, 2023

by GIFRA and Yen Npoanu in collaboration with MoFAD/FC. These committees were strategically formed in the communities of Bonyere, Ekpu, Half Assini, Metika, and New Town as actions to prevent and end Child labour and trafficking within Ghana's fisheries sector and coastal fishing communities.

The inauguration focused on engaging government officials dedicated to combating CLaT. Key participants included FC, the Social Welfare Director of the Jomoro Municipality, who led the inauguration, along with personnel from CHRAJ, Immigration, Navy and Ghana Education Service. The event also drew the presence of influential community and fisherfolk leaders, encompassing community chiefs, assembly members, chief fishermen, and their Konkohemaa.



Figure 7. 8: Madam Doris Dzifa giving the opening remarks at New Town (left) and Ekpu (right)

Initiated in each community, the activities aimed to introduce and establish the CCPCs, seeking the essential backing and support from community leaders to empower them in their crucial roles.

In all, 492 participants, comprising 180 males and 312 females, were reached during the inauguration across the communities—Bonyere (85 participants: 24 males, 61 females), Ekpu (139 participants: 51 males, 88 females), Half Assini (129 participants: 39 males, 90 females), Metika (88 participants: 41 males, 47 females), and New Town (51 participants: 25 males, 26 females). Furthermore, a total of 43 CCPC members were inaugurated, consisting of 27 males and 16 females, across the five coastal communities.





Figure 7. 9: A cross-section of participants at the CCPC inauguration was addressed by GFRA and Hen Mpoano project officers

Participants were briefed on the Ghana Fisheries Recovery Activity, the primary sponsor of the initiative. This collaboration between the Ghana Fisheries Recovery Activity and the government of Ghana seeks to rebuild fisheries stocks, support fishing communities with livelihood initiatives, and eradicate all forms of abuse against women and children, including CLaT.

The Director of the Social Welfare Department, alongside assembly members, Hen Mpoano, and GFRA staff, presented logistics crucial for providing the CCPCs with the necessary recognition to carry out their responsibilities. The items included well-branded USAID GFRA T-shirts, reflectors, caps, bags, books, pens, ID cards, and manuals used for their training. This symbolic presentation signified their readiness to work, culminating in the swearing of their undertaken responsibilities and the official unveiling of the groups.

7.7 Women's Vulnerability to Gender Based Violence

The Social Welfare Directors of the Mfantseman and Ekumfi districts were consulted by the Gender Equality and Social Inclusion (GESI) team- GFRA in advance of the third-year operations under the Ghana Fisheries Recovery Activity (GFRA) in the Central Region, in collaboration with MoFAD/FC. Outlining GFRA GESI projects slated for particular localities was the aim. The group organized community and fishermen leaders in Ekpu Mpoano, Otum (Ekumfi district), and Salt Pond (Mfantseman district) in cooperation with the directors. The interactions had, as their main goal, setting the framework for programs that would deal with ClaT and gender-based violence (GBV).

Community briefings familiarized attendees with GFRA objectives and the significance of the GESI component. Proposed initiatives targeting GBV and ClaT were well-received, with Social Welfare and community leaders acknowledging these challenges and expressing openness to interventions. Consultations with leaders determined Tuesday as the consensus day for community engagement. However, due to planned traditional and Christmas festivities, activities were advised to be rescheduled to January for maximum community participation.



Figure 7. 10: GFRA GESI team in collaboration with MoFAD/FC briefing community leaders on GFRA project

7.8 Decrease local vulnerability to child labor and trafficking (CLaT)

During the period under review, CLaT specific community interventions included public proclamations and formation of CCPCs building on several interesting findings that emerged specific to CLaT from the community dialogues. A significant number of participants admitted publicly that they perpetrate CLaT. It was evident during the dialogues section that some communities have normalized engaging children as laborers and oppose changes that might eliminate the practice.

It is also a general belief among fishers that fishing is a skill learned on-the-job and must be acquired early in life (e.g., 6 years old), and not as an adult. This belief systems, coupled with widespread poverty, continue to drive high incidents of CLaT in coastal communities. Through the trainings, dialogues and other SBCC activities, GFRA in collaboration with FC seeks to re-orient fishers and build communities that are resilient and united against CLaT.

What do I do if I cannot afford the cost of my children's education and cannot sufficiently feed them? Will government do it for me? No, I must do what I can, and that includes getting the child into an economic activity to supplement my efforts. - 39 yr. old fishmonger in Dago, Central Region.

Conclusion

The chapter concludes by highlighting the committed work done by the Fisheries Commission and its partners, FAO and USAID-GFRA, SEWEFIA and Yen Npoano, among others, in advancing gender equality and social inclusion in Ghana's fisheries sector. Initiatives like gender analysis, which guarantee equitable opportunities for men and women in the fisheries value chain, demonstrate the dedication to gender mainstreaming.

Within the Jomoro Municipality, the Hen Mpoano GESI team conducted community engagement and sensitization campaigns on child labour and trafficking, or CLaT. The report gives a full overview of these initiatives. In an effort to prevent and address CLaT in specific communities, Community Child Protection Committees (CCPCs) have been established. In order to highlight the joint commitment to ending CLaT in the fishing industry, these committees were formally inaugurated in partnership with key stakeholders, public servants, and community leaders.

The report also provides information on efforts to lessen women's susceptibility to GBV, such as the establishment of safe places in priority communities for survivors and GBV conversation. The proactive interaction between Social Welfare directors and local authorities highlights a thorough strategy for tackling GBV concerns in the Central Region.

Overall, the report illustrates a multi-faceted strategy involving community engagement, capacity enhancement, and the establishment of local committees to address challenges related to gender, youth involvement, and child protection in the fisheries sector. These initiatives align with the long-term, bottom-up strategy advocated by the National Fisheries and Aquaculture Policy, emphasizing the importance of sustainable and inclusive practices for the growth of the fishing industry.

CHAPTER EIGHT

MANAGEMENT AND ADMINISTRATION

8.0 Introduction

This Programme provides all the support services required for the smooth implementation of all planned operations of the Commission. The services cover Human Resource Management; Finance and Administration; Planning, Budgeting, Monitoring and Evaluation; Logistic Management (procurement, stores and transport); Legal and ICT services, and Public Relations.

Key Management and Administration Performance Highlights

- Total Staff Strength of the Commission stood at 564 and 524 as at the beginning and end of 2023 respectively
- 40 staff of the Commission exited the service through retirement (10), resignation/vacation of post (23), leave of absence (2) and death (5)
- 108 officers were promoted to various grades
- 40 officers were posted and re-assigned, as part of measures to improve efficiency in the commission
- 8 staffs were granted study leave without pay and (5) with pay
- Total Financial Allocation for the Commission was **GH¢49,325,039.00** (representing 23.12% of the Total Resource Envelope of the Sector)
- Actual Expenditure as at December 2023 stood at GH¢48,176,000.57 (representing 97.67% of the Total Allocation to the Commission)
- Total Revenue Mobilized by the Commission for 2023 was **GH¢108,748,866.28** (representing an increase of 11.44% of the Projected IGF of **GH¢97,583,487.87**)

8.1 Human Resource

This sub-programme reports on existing state of human resource of the Commission. It provides information on staff strength, staff categorization, staff movement and capacity enhancement programmes.

8.1.1 Staff Strength

The Fisheries Commission had a numerical strength of five hundred and sixty-four (564) at the beginning of 2023 and five hundred and twenty-four (524) at the close of the year, as indicated in Table 8. 1.

Table 8. 1: Total Staff Strength

Cost Centre	Staff Strength as @		% share	Additional staff			
	01.01.23	31.12.23		Volunteers	National Service Personnel	Contract Workers	Staff On Secondment at FC
Head Office (Accra)	102	86	16.4%	0	8	4	22
MCSD	30	28	5.3%	0	2	1	1
FSSD	42	40	7.6%	0		4	1
Ashaiman Dem. Centre	14	10	1.9%	0	6	3	1
Greater Accra Region	42	47	9.0%	4		0	1
Central Region	44	43	8.2%	4		3	1
Western Region	33	33	6.3%	3		2	2
Volta Region	24	20	3.8%	0		5	1
Eastern Region	36	41	7.8%	0		1	1
Ashanti Region*	33	33	6.3%	2		2	1
Bono Region	18	18	3.4%	1		2	1
Northern Region	18	20	3.8%	3		2	2
Upper East Region	15	12	2.3%	2		3	1
Upper West Region	16	16	3.1%	5		3	1
Yebi Artisanal Region	11	9	1.7%	0		2	1
Oti Region	13	10	1.9%	1		2	1
Western North Region	13	14	2.7%	3		3	1
Bono East Region	17	17	3.2%	1		2	1
Ahafo Region	17	14	2.7%	3		3	1

Cost Centre	Staff Strength as @		% share	Additional staff			
	01.01.23	31.12.23		Volunteers	National Service Personnel	Contract Workers	Staff On Secondment at FC
North East Region	13	6	1.1%	3		4	1
Savannah Region	13	7	1.3%	0		3	1
Total Staff	564	524	100.0%	35	16	54	44

No recruitment was carried-out in 2023. However, forty (40) officers exited the service in the course of the year through retirement, resignation, death etc. In addition, the Commission also had 35 Data Volunteers, 16 National Service Personnel, 54 Contract Workers, and 44 Seconded Staff to complement and support fisheries operations nationwide.

8.1.2 Sex Distribution

By sex distribution, males constitute 326 (representing 62% of the total staff) while the remaining 198 (representing 38%) are females, giving an estimated male : female ratio of 62:38 (1.6:1) Details are provided in Table 8. 2.

Table 8. 2: Sex Distribution

Agency	Distribution		Total
	Male	Female	
Fisheries Commission	326	198	524
Total	326	198	524

8.1.3 Age Distribution

The ages of the staff of the Commission range from 21 to 60 years. The majority (37.60%) of the staff fall within the age range of 31-40 years. This was closely followed by 152 staff (29.01%) falling within ages 21-30 years. It is evident that in the next twenty (20) years, one-third (33.40%) of staff will exit the service through retirement only (Table 8.3). There is therefore the need to intensify efforts to replace the potential retirees. There is also the need for the development of a Succession Plan to identify and train potential officers to replace the retiring ones.

Table 8. 3: Age Distribution

Agency	Age Range	21-30yrs	31-40yrs	41-50yrs	51-60yrs	Total
Fisheries Commission	Male	74	117	77	54	322
	Female	78	80	32	12	202
Total		152	197	109	66	524

8.1.4 Staff Categorization

In terms of categorization by seniority, the Commission has 404 (representing 77.10%) senior staff and 120 (representing 22.90%) junior staff. Details are indicated in Table 8. 4.

Table 8. 4: Staff Categorization

Agency	Senior Staff		Junior Staff		Total
	Male	Female	Male	Female	
Fisheries Commission	232	172	90	30	524
Total	232	172	90	30	524

8.1.5 Staff Movement

This section provides information on postings and reassignment, recruitments/replacements, secondment and exits from the Commission during the reporting year.

8.1.5.1 Postings and Re-assignment

Fifty-two (52) officers were posted and re-assigned within the Commission to where their services are mostly needed. This is necessary to improve service delivery and strengthen fisheries presence in the newly created regions. Details are indicated in Table 8. 5.

Table 8. 5: Postings and Re-assignment

No	Name	Rank	Posting		Responsibility	Effective Date of Posting
			From	To		
1	Margaret Narh-Josiah	Deputy Director	Head Office	Head Office	Divisional Head - HR	03/01/2023
2	Jescitan Sanakey	Deputy Director	Central Region	Head Office	Inland Fisheries Management Division	03/01/2023
3	Janet Anchirinah	Deputy Director	Akosombo	Head Office	Divisional Head, Post-Harvest Unit	03/01/2023
4	Paa Joe Maale-Adsei	Senior Fisheries Manager	Head Office	Head Office	Post-Harvest Unit	03/01/2023
5	Raphael Quaye	Senior Manager	Head Office	Greater Accra Region	Human Resource	03/01/2023
6	Richard Yeboah	Principal Manager	Bono East	MCSD-Tema	Ag. Head	03/01/2023
7	Patrick Appenteng	Manager	Asuogyaman	Akosombo	Centre Manager	03/01/2023
8	Charles Teye	Principal Manager	North East Region	MCSD – Tema	Deputy Head	03/01/2023
9	Anthony Appiah	Principal Manager	Savannah Region	FSSD - Tema	Fish Stocks & Statistics Unit	03/ 01/2023
10	Philip Adu Obeng	Senior Manager	Northern Region	Savannah Region	Ag. Regional Director	03/01/2023
11	Samuel Owusu Donkor	Manager	Ashaiman	Western North	Centre Manager	03/01/2023
12	Joyce Lutterodt	Assistant Manager	Ashaiman	Ga West	Zonal Officer	03/01/2023
13	David Narteh Batsa	Assistant Manager	Ashaiman	Vea	Centre Manager	03/01/2023
14	Nettesheim Kwame Damoah	Assistant Manager	Central Region	Central Region	Ag. Regional Director	03/01/2023
15	Eleanor Naa Ayele Aryee	Senior Manager	Ashaiman	Ashaiman	Centre Manager	03/01/2023
16	Anthony Wasipe	Manager	Ashaiman	Head Office	IFMD	03/01/2023
17	Karimu Mahama	Assistant Manager	Northern	North East	Ag. Regional Director	03/01/2023
18	Richard Ametorworsor	Assistant Manager	Bono East	Bono East	Ag. Regional Director	03/01/2023
19	Edem Adzaku	Principal Manager	Central Region	Greater Accra Region	Zonal Officer	03/01/2023
20	Philothea Laurentia Yeboah	Principal Manager	Central Region	Greater Accra Region	Zonal Officer	03/01/2023
21	Felicia Agyei	Assistant Manager	FCWC	Greater Accra Region	Administration	03/01/2023
22	David Anum Sackey	Senior Manager	Ashaiman	FSSD	Gear Unit	
23	Daniel Essilfie-Quaye	Manager	PAC	MCS	Fisheries Officer	03/01/2023
24	Christiana Danso	Assistant Manager	Upper West Region	Ashanti Region	Fisheries Officer	01/03/2023
25	Frank Gyan Hewton	Assistant Manager	Head Office	Upper West Region	Fisheries Officer	01/03/2023
26	Linda Bana	Manager	Eastern Region	Head Office	MFMD	01/02/2023
27	Clara Ayambire	Assistant Manager	Head Office	Greater Accra Region	Administration	03/ 01/2023
28	Kennedy Boakye-Yiadom	Assistant Manager	Head Office	Greater Accra Region	Fisheries Officer	03/01/2023
29	Charles Arthur	Assistant Manager	Head Office	Greater Accra	Administration	01/02/2023
30	Osei Amponsah	Assistant Manager	Ahafo Region	Bono East Region	Fisheries Officer	01/02/2023
31	Abraham Nketiah	Assistant Manager	Upper East Region	Eastern Region	Fisheries Officer	01/02/2023

No	Name	Rank	Posting		Responsibility	Effective Date of Posting
			From	To		
32	Stephen Asempa	Assistant Manager	FSSD	Central Region	Fisheries Officer	03/01/2023
33	Isaac Owusu Nkansah	Assistant Manager	Northern Region	Eastern Region	HR	05/06/2023
34	John Kofi Effuah	Sen. Works Superintendent	Greater Accra Region	Head Office	Driver	12/06/2023
35	Richard Sappor Nanor	Yard Foreman	Head Office	Greater Accra Region	Driver	12/06/2023
36	Samuel Amponsah Yeboah	Assistant Manager	MCSD	Head Office	Transport	12/06/2023
37	Eric Tettey Quarshie	Driver Grade 1	Head Office	MCSD	Driver	12/06/2023
38	Philothea Laurentia Yebuah	Senior Manager	Greater Accra Region	Head Office	Post-Harvest and Trade	01/08/2023
39	Isaac Aidoo	Assistant Manager	Bono Region	Head Office	HRMD	01/08/2023
40	Doris Yemoley Mensah	Assistant Manager	Ashanti Region	Greater Accra	General Admin	01/08/2023
41	Kwame Issifu	Senior Manager	Bono Region	Bono Region	Dormaa Hatchery	01/08/2023
42	Josephine Kplomdedie Amable	Assistant Manager	Savannah Region	Akosombo Centre	Account	04/09/2023
43	Ivan Venkonwine Kaleo	Senior Manager	Northern Region	Bono Region	Aquaculture	04/09/2023
44	Cynthia K. Doku	Assistant Manager	Head Office	MCSD	Account	01/08/2023
45	Linda Yeboah	Assistant Manager	Head Office	FSSD	General Admin	01/08/2023
46	Nana Kwame Okyere Larbi	Assistant Manager	Head Office	MCSD	General Admin	01/08/2023
47	Saud Ahmed	Assistant Manager	Head Office	Head Office	Post-Harvest & Trade	01/08/2023
48	Isaiah Nana Kwofie	Assistant Manager	Head Office	Head Office	PBM&E	21/08/2023
49	Justice Addel Salifu	Assistant Manager	Head Office	Head Office	PBM&E	21/08/2023
50	Sayibu Baby Azaratu	Principal Technical Assistant	Yeji Centre	Ashanti Region		03/07/2023
51	Wendell Quartey-Papafio	Principal Manager	Volta Region	Oti Region	Ag. Regional Director	04/12/2023
52	Victor Adri	Assistant Manager	Oti Region	Eastern Region	Zonal Officer	14/12/2023

8.1.5.2 Promotions

The Commission successfully conducted the 2023 staff promotion interview between October and November 2023 for 147 officers, made up of 88 professionals and 59 sub-professionals. At the end of the interview a total of 108 were successful and promoted to their next grades.

Table 8. 6: Distribution of the Officers Interviewed by Region, Sex and Professional Class

Region	Sex		Professional Class		Total
	Male	Female	Professional	Sub-Professional	
Ahafo	-	-	-	-	-
Ashanti (including PAC)	7	3	7	3	10
Bono East (Including Yeji)	4	1	3	2	5
Bono	4	2	3	3	6
Central	7	1	3	5	8
Eastern (including Akosombo)	3	4	4	3	7
Greater Accra (including Head office, FSSD, MCSD & Ashaiman)	49	27	51	25	76
North East	2	-	1	1	2
Northern	2	2	2	2	4
Oti	1	-	1	-	1
Savannah	2	-	2	-	2
Upper East	2	2	2	2	4
Upper West	3	2	1	4	5
Volta	3	4	3	4	7
Western North	-	-	-	-	-
Western	6	4	5	5	10
Total	95	52	88	59	147

8.1.5.3 Staff Exits

In 2023, forty (40) officers exited the Commission through retirement (10), resignation/ vacation of post (23), leave of absence (2) and death (5).

Table 8. 7: Details of Exited Staff in 2023

S/N	Full Name	M/F	Grade	Date	Reason For Exit		Leave of Absence	Death
					Retirement	Resignation		
1	Mathew Coffie Oyih	M	Director	05/04/2023	√			
2	Ranford Norberwor	M	Principal Technical Assistant	15/04/2023		√		
3	Aikins James Kofi	M	Driver	23/04/2023	√			
4	Yalim Tindani	M	Asst. Chief Tech. Assist	14/06/2023	√			
5	Paul Bannerman	M	Deputy Executive Director	19/06/2023	√			
6	Joseph Badu Kotey	M	Principal Technical Assistant	15/07/2023	√			
7	Kwara Nsorbayeli	M	Assistant Security Guard	10/08/2023	√			
8	Stephen Odame Antwi	M	Yard Foreman	23/09/2023	√			
9	Samuel Bawuah	M	Assistant Chief Animal Production	07/10/2023	√			
10	Margaret Mensah	F	Chief Technical Assistant	01/11/2023	√			
11	Joseph Baaful	M	Data Collector	08/01/2023				√
12	Godsway Mawulawoe Attah	M	Chief Artisan	01/08/2023				√
13	Weku Borteye	M	Principal Technical Assistant	25/08/2023				√
14	Nana Kwame Okyere Larbi	M	Assistant Corporate Affairs Manager	23/09/2023				√
15	Foli Agbenorwosi Komla	M	Deputy Director	09/10/2023				√
16	Prisca Ayirijienna	F	Assistant Fisheries Manager	25/09/2023			√	
17	Florence Edwina Bodzie	F	Chief Artisan	01/08/2023			√	
18	Sayibu Rafiatu Lahri	F	Assistant Admin. Manager	05/01/2023		√		
19	Joyce Okyere Edudzie	F	Assistant Admin. Manager	12/1/2023		√		
20	Samuel Abankwa Kussi	M	Assistant Admin. Manager	10/01/2023		√		
21	Daniel Kwaku Owusu	M	Assistant Admin. Manager	2/14/2023		√		
22	Golding Bayeliba Abass	M	Assistant Admin. Manager	1/3/2023		√		
23	Samuel Adjei	M	Data Collector	06/01/2023		√		
24	Portia Ofosuwa	F	Assistant Fisheries Manager	09/01/2023		√		
25	Caroline Ama Fiagbolo	F	Assistant Fisheries Manager	13/01/2023		√		
26	Vicentia Borteley Bortey	F	Assistant Fisheries Manager	15/05/2023		√		
27	Beatrice Kyerea Mintah	F	Assistant Fisheries Manager	30/05/2023		√		
28	Jennifer Kwoyigah	F	Assistant HR Manager	27/06/2023		√		
29	Pearl Audrey Aburam	F	Assistant Corporate Affairs Manager	31/07/2023		√		
30	Siba Mohammed Maswud	M	Assistant Fisheries Manager	01/09/2023		√		
31	Louis Acheampong	M	Assistant Admin.	01/09/2023		√		

S/N	Full Name	M/F	Grade	Date	Reason For Exit Retirement	Resignation	Leave of Absence	Death
	Asiedu		Manager					
32	Daniel Agabe	M	Assistant Finance Manager	01/27/2023		√		
33	Christiana Danso	F	Assistant Fisheries Manager	27/09/2023		√		
34	Bortey Nketiah Alabi-Doku	M	Assist. Admin. Manager	01/10/2023		√		
35	Gloria Okine	F	Assist. Corporate Affairs Manager	01/10/2023		√		
36	Iddrisu Mohammed Hashim	M	Assistant Corporate Affairs Manager	16/10/2023		√		
37	Robert Sampson Jnr	M	Assistant PM&E Manager	01/10/2023		√		
38	Isaac Nii Attoah Okine	F	Assistant Fisheries Manager	27/09/2023		√		
39	Cynthia Tetteh	F	Assistant Finance Manager	01/11/2023		√		
40	Gifty Abass	F	Assistant Finance Manager	01/12/2022		√		

8.1.6 Staff Capacity Enhancement

The Fisheries Commission undertook various trainings for some staff in 2023 to help enhance their capacity for service delivery. Of a total staff strength of 524, four hundred and eighty-one (481) staff benefitted from either a Workshop or Training Programme, as per reports received. This figure comprised 302 males and 179 females, some of who benefitted from more than one training programme during the reporting period.

Table 8. 8: Trainings and Workshops Recorded

No	Cost Centre	Number Trained		Gender		Total
		Mid-Year	End-of-year	Male	Female	
1	Head office - HR	188	78	156	110	266
2	Western North Region	8		7	1	8
3	Ahafo Region	3		1	2	3
4	Eastern Region	34	35	43	26	69
5	North East Region	7	7	12	2	14
6	Oti Region	11		6	5	11
7	Savannah Region	11		10	1	11
8	Upper East Region	8	3	8	3	11
9	Upper West Region		10	7	3	10
10	Bono	18		12	6	18
11	Central	11		8	3	11
12	Yeji	11		6	5	11
13	Northern		20	14	6	20
14	Western	18		12	6	18
Total		328	153	302	179	481

8.1.7 Other Activities

This section reports on other activities facilitated by the Human Resource Division of the Commission.

8.1.7.1 Staff Durbar

Both the Head office and regional offices reported on staff durbars held during the year. Among the key issues discussed are staff attendance and punctuality to work, office logistics such as computers, furniture, office accommodation, staff appraisal, training of staff etc.

8.1.7.2 Staff Performance Appraisal Planning Phase Report

The planning phase of the 2023 Staff Performance Appraisal was started in the first quarter of the year to

enable staff to set targets to be achieved for the year. In the Mid-year staff targets set were reviewed. A memo was sent to all Regional Directors and Divisional/Unit Heads to conduct the end of year appraisal. Appraisal scores were collected by the HR Division from all regions and Divisions. The Scores were collated and forwarded to the Fair Wages and Salaries Commission by 31st December, 2023 as requested. Response from staff on the completion of the appraisal form was not encouraging as some supervisors were not enthused about the process and therefore did not submit scores for some of their staff and some staff also complained of inability to complete the form due to lack of understanding, resulting in delays in the submission of forms to the HR Division to conduct analysis and report on the exercise.

8.1.7.3 Annual Leave Management

Leave attendance received from the various regions as at the end of the year is shown in Table 8. 9. Some of the reasons cited for not embarking on Leave as scheduled were, busy work schedule and not having enough staff.

Table 8. 9: Leave Recorded

No	Cost Centre	No. of officers who went on leave
1	Ahafo	2
2	Central	16
3	Eastern	26
4	North East	6
5	Northern	8
6	Oti	5
7	Savannah	4
8	Upper East	6
9	Western North	4
10	Bono	4
11	Ashaiman	11
12	Upper West	12
13	Head Office	49
Total		153

8.1.7.4 Staff Attendance

Analysis from the attendance register at the Head Office shows that staff attendance to work was encouraging during the reporting period. Most staff signed-in the attendance book in the morning when they report to work, but fail to signed-out at the close of work. A further analysis on the Regional Staff Attendance report shows that the staff have been regular and punctual at work. The Regions being mostly dominated by field work schedules, noted from the reports that staff reported to work averagely between 7:20hrs and 9:00hrs and closed between 17:00hrs and 17:30hrs. Moreover, depending on the exigencies of the task at hand, staff spent extra 2 or more hours to complete assigned tasks. In addition, there were instances where staff undertook official field duties on the weekends but failed to record in the attendance books. It was also reported that, minimal absenteeism was recorded to have occurred during the reporting period. The following were some recommendations sampled from the regional attendance report

1. Reiterate clear guidelines regarding attendance expectations, including procedures for reporting absences and consequences for repeated absenteeism.
2. Inclusion of weekend days on which official duties are conducted as working days for staff for subsequent period.
3. Provide flexible work arrangements: Evaluate the feasibility of remote work options to accommodate staff personal circumstances and reduce instances of late arrivals or absenteeism.
4. Address underlying issues: Conduct staff surveys or feedback sessions to understand potential underlying causes of absenteeism or late arrivals.
5. Address any systemic issues, such as work overload, lack of motivation, or poor work-life balance

8.2 Finance

Table 8. 10 indicates the 2023 Total Resource Envelope of the Ministry of Fisheries and Aquaculture Development (MoFAD) from four (4) funding sources, namely; Government of Ghana (GoG), Internally Generated Funds (IGF), Annual Budget Fund Allocation (ABFA) and Development Partner Fund (DPF). GoG, IGF, ABFA and DPF contributed 10.96%, 61.10%, 13.13% and 14.81% respectively to the Total Resource Envelope of **GH¢213,308,812.00**. The total resource envelope of 2023, compared to that of 2022 increased by 166.23%.

Table 8. 10: 2023 and 2022 Total Resource Envelope by Funding Source

Funding Source	2023		2022	
	Amount (GH¢)	Percentage	Amount (GH¢)	Percentage
GoG	23,369,872.00	10.96	20,817,000.00	25.98
IGF	130,338,940.00	61.10	50,818,000.00	63.43
ABFA	28,000,000.00	13.13	2,000,000.00	2.50
DPF	31,600,000.00	14.81	6,486,000.00	8.10
Total	213,308,812.00	100.00	80,121,000.00	100.00

Under Economic Classification, the shares of Compensation of Employee (CoE), Goods and Services (G&S) and Capital Expenditure (CAPEX) were **GH¢19,219,853.00** (9.01%), **GH¢72,895,923.00** (34.17%) and **GH¢121,193,036.00** (56.82%) respectively (Table 8. 11).

Table 8. 11: 2023 Sector Budget Allotment

Item	Economic Classification			Total	% share
	CoE	G&S	CAPEX		
Total Budget	19,219,853.00	72,895,923.00	121,193,036.00	213,308,812.00	100.00
o/w Ministry	2,921,871.00	50,418,608.00	43,840,950.00	97,181,429.00	45.56
o/w FC	15,429,478.00	20,499,300.00	13,396,261.00	49,325,039.00	23.12
o/w NPFS	868,504.00	1,978,015.00	63,955,825.00	66,802,344.00	31.32

In terms of internal allotment, the Ministry, the Fisheries Commission (FC) and the National Premix Fuel Secretariat (NPFS) received **GH¢97,181,429.00** (representing 45.56%), **GH¢49,325,039.00** (representing 23.12%) and **GH¢66,802,344.00** (representing 31.32%) respectively to carry out planned operations (Table 8. 11).

8.2.1 2023 Financial Performance by Economic Classification

The Fisheries Commission was allotted **GH¢49,325,039.00** (representing 23.12%) of the Total Appropriation to the Sector Ministry and its Agencies. Of this allotment, CoE, G&S and CAPEX accounted for 31.28%, 41.56% and 27.16% respectively. Table 8. 12 summarizes the financial performance of the Commission by Economic Classification and Funding Source for 2022 and 2023.

Table 8. 12: 2022-2023 FC Financial Performance by Economic Classification

Expenditure Item	2022		2023				
	Approved Budget / Appropriation	Actual Payment	Approved Budget / Appropriation	Amount Released	Actual Expenditure	Actual Payment	% Utilized (of Approved Budget)
Compensation of Employees							
o/w GoG	12,144,100.00	11,682,958.94	15,429,478.00	19,621,845.19	19,621,845.19	19,621,845.19	127.17%
sub-total	12,144,100.00	11,682,958.94	15,429,478.00	19,621,845.19	19,621,845.19	19,621,845.19	127.17%
Use of Goods and Services							
o/w GoG	899,663.00	54,500.00	404,910.00	213,589.00	167,846.00	124,846.00	30.83%
o/w IGF	15,348,173.00	11,994,312.00	20,094,390.00	20,093,688.00	19,967,600.02	19,620,543.83	97.64%
sub-total	16,247,836.00	12,048,812.00	20,499,300.00	20,307,277.00	20,135,446.02	19,745,389.83	96.32%
Capital Expenditure							
o/w IGF	10,133,379.00	3,801,120.00	13,396,261.00	9,897,753.15	9,868,093.87	8,808,765.55	65.76%
sub-total	10,133,379.00	3,801,120.00	13,396,261.00	9,897,753.15	9,868,093.87	8,808,765.55	65.76%
Total	38,525,315.00	27,532,890.94	49,325,039.00	49,826,875.34	49,625,385.08	48,176,000.57	97.67%

As presented in Table 8. 12, 2023 Actual Expenditures for CoE, G&S and CAPEX accounted for 127.17%, 96.32% and 65.76% respectively of the allotments. The over-expenditure, as recorded under CoE was as a result of 30% salary adjustment for government institutions on the Single Spine Salary Structure (SSSS) approved for implementation in 2023.

In summary, 97.67% of the allotted funds to the Commission was utilized. As recorded in Table 8. 12, utilization in 2023 (97.67%) was higher compared to 2022 (71.47%). This was mainly due to improved Revenue Mobilization in 2023 and the 30% salary adjustment implemented in 2023.

8.2.2 2023 Financial Performance by Budget Programmes

The Fisheries Commission implemented five (5) budget programmes, namely; Management and Administration (denoted as M&A); Fisheries Resource Management (denoted as FRM); Aquaculture Development (denoted as AD); Monitoring, Control and Surveillance (denoted as MCS); and Aquatic Animal Health and Post-Harvest Management (AAH&PHM). These programmes were allotted 30.73%, 27.64%, 30.68%, 7.89% and 3.06% respectively of the total allotment of **GHC49,325,039.00** to the Commission to carry-out planned operations and payment of salaries.

As indicated in

Table 8. 13, actual payment recorded were within approved ceilings for all budget programmes, except Fisheries Resource Management (which exceeded by 14.07%) and Fisheries Law Enforcement (which exceeded by 22.66%). Exceeded expenditures for these programmes can be attributed to the 30% salary adjustment for government institutions on SSSS approved for implementation in 2023. Total Expenditure for the Commission (measured as Actual Payments) for 2023 accounted for 97.67% of the Approved Budget.

Table 8. 13: 2022-2023 FC Financial Performance by Programmes

Budget Programme	2022		2023				
	Approved Budget / Appropriation	Actual Payment	Approved Budget / Appropriation	Amount Released	Actual Expenditure	Actual Payment	% Utilized (of Approved Budget)
Management and Administration	10,057,996.00	8,153,562.00	15,157,275.00	14,127,659.96	14,097,659.96	13,876,871.96	91.55%
Fisheries Resource Management	9,996,946.00	7,398,282.52	13,631,829.00	15,964,018.05	15,894,311.79	15,549,264.90	114.07%
Aquaculture Development	13,026,087.00	8,122,604.43	15,134,229.00	13,249,790.13	13,171,047.13	12,574,455.51	83.09%
Fisheries Law Enforcement	4,008,232.00	3,003,230.99	3,890,110.00	4,829,542.21	4,811,542.21	4,771,543.21	122.66%
Aquatic Animal Health and Post-Harvest Management	1,436,054.00	855,211.00	1,511,598.00	1,655,865.00	1,650,824.00	1,403,865.00	92.87%
Total	38,525,315.00	27,532,890.94	49,325,041.00	49,826,875.35	49,625,385.09	48,176,000.58	97.67%

8.3 Audit

The Internal Audit Unit is an advisory body mandated to provide an in-house, independent, objective assurance and consulting activity designed to add value and improve the operations of the Commission in accordance with the Public Financial Management Act, 2016 (Act 921) and the Internal Audit Agency Act, 2003 (Act 658). To achieve this, the Unit carried-out the following:

8.3.1 Audit Committee Meetings

The Committee met five (5) times within the year under review. The Committee discussed observation raised in the 2021 and 2022 Auditor-General's Management Letters, 2021 and 2022 Report of the Auditor-General and fourth quarter of 2022, first to third quarter 2023 Internal Audit Reports of the Fisheries Commission. Out of the seventy (70) observations raised by both internal and external audit on the above-mentioned reports, sixty-eight (68) were fully resolved while two (2) are partially resolved. The Committee also advised management to strengthen its controls to minimize its occurrence and also implement strategic measures to ensure sanity in the financial administration of the Commission.

8.3.2 Submission of Performance Reports to Relevant Agencies

The Internal Audit submitted its Strategic Audit Plan (2024-2026) and Risk Based Internal Audit (RBIA) Work Plan (2024), First to Third Quarter 2023 Internal Audit Reports and 2023 Annual Internal Audit Performance Report to the relevant stakeholders as stipulated in Section 83(7) of the Public Financial Management Act, 2016 (Act 921).

8.3.3 Internal Audit Assignment

The Unit carried out some routine audit operations to improve efficiency in the Commission. They include:

8.3.3.1 Procurement Audit and Stocktaking Exercise

Based on the approved 2023 Internal Audit Work Plan, we carried out audit on procurement covering the period 01 January to 31 December 2022 and end of year (2022) stocktaking exercise with the objective to ensure that compliance with the acts and ensuring value for money is achieved.

8.3.3.2 Follow up Audit on the recommendation in the Auditor-General's Management Letter

A follow up audit was undertaken on the recommendation of the Auditor-General's Management Letter of the Fisheries Commission Head Office, Regional and Cost Centres for the year ended 31st December 2022 so as to ensure that, the recommendation is fully implemented.

8.3.3.3 Revenue (IGF) Management Audit

Revenue management audit was conducted in accordance with the approved 2023 Risk-Based Internal Audit Work Plan for the period January to December 2022 in order to ensure that, revenue collected are banked within the stipulated time and relevant and accurate records are maintained.

8.3.3.4 Expenditure (Cash) Management Audit

Cash management audit was also conducted at the Head office of the Commission for the period January 2022 to March 2023 with the objective to ensure judicious use of the Government scarce resources and also to ensure that accurate and complete documents are maintained.

8.3.3.5 ESPV Validation and Headcount

Electronic Salary Payment Voucher (ESPV) validation and headcounts of the Commission was conducted as part of Government Expenditure Rationalization Measures, for the period September 2022 to July, 2023 with the objective to eliminate ghost names in the payroll system.

8.4 Procurement

In line with provisions in the Public Procurement Act, 2003 (Act 663) as Amended 2016 (Act 914) Section 19(1) "The head of a Procurement Entity (Ministry, Department, Agency, Metropolitan, Municipal and District Assembly) shall establish a procurement unit within the entity which shall be headed and staffed by qualified procurement personnel." The Procurement Unit ensures that, all procurement activities are carried out in accordance with the provisions of the Public Procurement Act. That is, the FC Procurement Unit facilitated the implementation of the 2023 annual procurement plan which was classified as goods, works, and services and was funded with appropriated funds during the period under review. Key activities undertaken in 2023 include the following:

8.4.1 Entity Tender Committee (ETC) Meeting

In 2023, six (6) entity tender committee meetings were held. The first meeting was held on the 19th January 2023 to review the 2023 Annual Procurement Plan submitted to the Public Procurement Authority (PPA), in accordance with the Procurement Act (Act 663) as Amended 2016 (Act 914). Other meetings were held to approve the evaluation report for the supply of office equipment and fish hatchery equipment, supply and installation of office furniture and toners, renovation of Fisheries Scientific Survey Division (FSSD) and Monitoring Control Surveillance Division (MCSD) block at Tema and renovation and filtration system at Aquaculture Demonstration Centre (hatchery) at Ashaiman.

8.4.2 Field Visits to Project Sites

Monitoring visits were undertaken to project sites nationwide to inspect construction and renovation works and provide the necessary inputs where needed. Project sites visited included the Public Hatcheries at Dormaa-Ahenkro, Civil works are 100% completed, Sefwi-Wiawso is 70% work completed, FSSD and MCSD 100% work completed, Tema Community 18 Bangalore 100% completed, renovation work at Ashaiman hatchery is 80% completed.

8.4.3 Procurement of Works and Goods

Summary of Works and Goods are presented in Table 8. 14.

Table 8. 14: Status of Works and Goods procured

No	Contract Description	Contract Start Date	Estimated Comp. Date	Contract Amt. (GHS)	Payment	Outstanding	Fund Source	% of Work Completed	Procurement Method	Remarks
WORKS										
1	Renovation of Bungalow at Tema Comm. 18 for fisheries Commission	08/05/23	30/09/23	160,505.70	100%	-	IGF	100%	Price Quotation	
2	Renovation of FSSD & MCS office block at Tema for fisheries Commission	30/05/23	31/12/23	1,780,370.86	100%	-	IGF	100%	Restricted Tendering	Building has been handed over
3	Renovation of Boys Quarters bungalow Baatsonaa for Fisheries Commission	05/05/23	30/09/23	89,802.50	100%	-	IGF	100%	Price Quotation	
4	Renovation of Filtration System at Aquaculture Demonstration Centre (hatchery) at Ashaiman for Fisheries Commission	10/10/23	14/12/24	1,134,057.18	45%	725,711.08	IGF	60%	Restricted Tendering	
5	Rehabilitation of 3 Bedroom Bungalow hatchery and Ancillary Facilities at Sefwi	06/12/23	20/03/24	697,950.56	No payment	697,950.56	IGF	70%	Restricted Tendering	

No	Contract Description	Contract Start Date	Estimated Comp. Date	Contract Amt. (GHS)	Payment	Outstanding	Fund Source	% of Work Completed	Procurement Method	Remarks
	Wiawso									
GOODS										
1	Procurement of Toiletries	31/05/23	07/06/23	99,034.00	Paid	N0	IGF	100%	Price Quotation	Delivered
2	Procurement of Air-Conditioners	16/06/23	23/06/23	76,965.00	Paid	N0	IGF	100%		Delivered, distributed and installed
3	Procurement of Car tyres and Batteries	20/09/23	27/09/23	82,295.20	Paid	N0	IGF	100%		
4	Procurement of Stationeries	09/03/23	16/03/23	99,798.40	Paid	N0	IGF	100%		
5	Procurement of Office Equipment	22/05/23	29/05/23	61,092.72	Paid	N0	IGF	100%		
6	Supply and installation of office Equipment	15/06/23	15/07/23	2,748,249.66	2,421,918.92	326,330.74	IGF	100%	NCT	
7	Supply and installation of Furniture	25/04/23	25/05/23	638,500.00	Paid	N0		100%		
8	Supply of Toners	21/04/23	21/05/23	158,839.20	Paid	N0	IGF	100%		
9	Supply and delivery of Hatchery Materials, Chemicals and Equipment	07/07/23	07/08/23	1,269,769.18	700,000.00	569,769.18	IGF	100%		
10	Procurement of Vehicles	15/12/23	30/12/23	1,110,000.00	Paid	No	IGF	100%	Single Source	
11	Procurement of items for Canoe Registration	11/08/23	18/08/23	82,020.00	Paid	No	IGF	100%	Price Quotation	
12	Procurement of Network Firewall	26/06/23	26/07/23	328,201.12	Paid	No	IGF	100%	Single source	

NB:

PQ: Price Quotation

NCT: National Competitive Tendering

IGF: Internally Generated Fund

RT: Restricted Tendering

8.5 Policy, Planning, Budgeting, Monitoring and Evaluation

The Planning, Monitoring and Evaluation (PME) Division is responsible for setting the strategic direction, planning activities, budgeting resources, and monitoring and evaluating all programs and operations of the Fisheries Commission. The following operations were carried out in 2023.

- Preparation of 2022 Annual and 2023 Periodic Reports;
- Facilitation of 2023 Budget Defence and 2024 Budget Preparation;
- Monitoring of Programmes and on-going Projects; and
- Coordination of Strategic Plan Development

8.5.1 Preparation of Annual and Other Periodic Performance Reports

This section provides information on performance reports prepared during the reporting period.

8.5.1.1 Preparation of 2022 FC Annual Performance Report

The Planning, Monitoring and Evaluation Division coordinated the Preparation and Finalization of the 2022 Fisheries Commission Annual Performance Report (APR) from 26th February to 4th March 2023 at the Jefkings Hotel, Dodowa. Selected Divisions, Units and Regions participated in the report writing session. The draft 2022 FC APR was circulated to Divisional/Unit Heads and some Regional Directors for proof reading and validation before it was finalized. The Final Report was circulated.

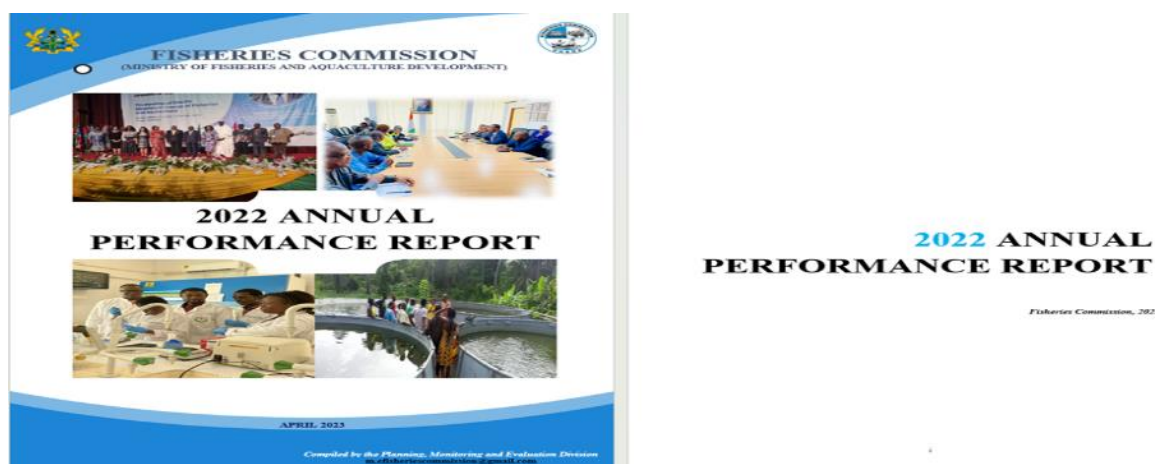


Figure 8. 1: Cover page of 2022 APR

8.5.1.2 Preparation of 2023 FC Periodic Reports

The Division also compiled and prepared four (4) periodic reports during the year under review. These are the first, second, mid-year and third quarter reports to track progress across all commission activities related to targets.

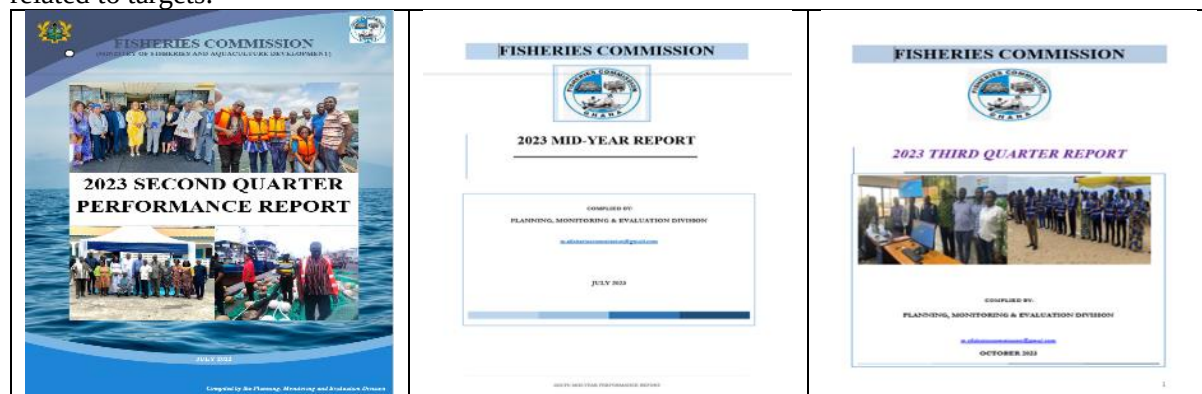


Figure 8. 2: 2023 Periodic Reports

8.5.2 Preparation of 2024 Sector Budget

The Planning, Monitoring and Evaluation Division facilitated the preparation of the 2024 budget of the Fisheries Commission between September and December 2023. It coordinated the annual operational planning and budgeting process across all departments, ensuring alignment with policy priorities and efficient resource allocation. The Budget Preparation Process included, but not limited to, revenue projection; submission of inputs into MoFAD Policy and Technical Hearing; development of planned operations under the five (5) budget programmes; costing of the operations; capturing of the cost estimates on the Hyperion; preparation of the 2023-2026 PBB; and presentation and defence of FC Budget to the Parliamentary Select Committee of Food, Agriculture and Cocoa Affairs. Total Approved Budget for the Commission in 2024 was **GHC90,701,918.18**.



Figure 8. 3: Budget Defence Presentation

8.5.3 Monitoring of Programmes and Projects

The Planning, Monitoring and Evaluation Division of the Fisheries Commission, as part of its mandate, conducted the 2022 Monitoring of Projects and Programmes in May 2023. The exercise was conducted by two (2) Teams for the Northern and Southern Zones. The Northern Zone covered nine (9) regions, namely; Ashanti (including PAC), Bono (including Dormaa Hatchery), Ahafo, Bono-East, Savannah, Northern, North-East, Upper East (including Vea Hatchery) and Upper West, while the Southern Zone covered seven (7) regions, namely: Greater Accra, Volta, Oti, Central, Eastern, Western and Western-North. The exercise covered the following areas; (i) Budget Implementation, (ii) GIFMIS, (iii) 2022 Workplan Implementation Status, (iv) Upgrade of New Hatcheries, (v) Operations of Existing Hatcheries, (vi) Aquaculture for Food and Jobs (AFJ) project, (vii) Performance Reporting, (viii) Re-zonation/Creation of Additional Zones, and (ix) Initiatives/ Collaborations. Key issues identified during the exercise and brought to the attention of Management are indicated in Table 8. 15.

Table 8. 15: Key Issues for the attention of Management

No	Key Issue	Proposed Recommendation
1	Establishment of Public Hatchery at Dormaa-Ahenkro as Cost Centre	Management should write to CAGD and GIFMIS Secretariat to set-up this Hatchery on GIFMIS as an independent Cost Centre
2	Payments of processed financial memos: GIFMIS generated report on budget performance (as @ 22.05.2023) shows limited payments of processed financial memos (see appendix 1) from Head Office which is affecting fisheries activities at the local level.	Management should consider payments to the regions as a priority upon processing of their respective memos. This will go a long way to deepen fisheries operations at the local level and enhance visibility of the Commission.
3	Creation of new zones by regions: All regions visited have proposed for approval of new zones to enhance fisheries operations	Management should consider for approval proposals on new zones from regions (see appendix 2 for collated zones). This will help in the adequate allocation of quarterly release of funds to the regions and stations.
4	Use of General Services staff for Technical	Management should take a decision (use of general

No	Key Issue	Proposed Recommendation
	works at the zonal level	service staff for technical work) on this issue and communicate appropriately
5	Payment of T&T to officers at the regions for fisheries extension service delivery (focus on general services staff being used for technical work)	A decision on issue no. 4 will inform the decision on this issue.

8.5.4 Preparation of Strategic Plan

The Division continued with the development of the 10-year Fisheries Commission Strategic Plan. The Plan is intended for the guidance of all stakeholders in the fisheries sector. The division is leading a team to develop a strategic plan for the Commission. The plan is to enable the Commission to set its long-term goal and objectives and design appropriate actions to achieve the objectives. The strategic plan will have a ten years' time frame and all annual plans and programmes derive their source from it. The strategic objectives and related targets will form the basis for developing a monitoring framework to track progress towards the achievement of the long-term goals.

8.6 Fisheries Commission Board

The 7th Governing Board of the Fisheries Commission is mandated to oversee the management of the Fisheries Commission (FC) towards the achievement of its primary objective to sustainable exploitation and management of Ghana's fisheries resources to ensure a thriving fisheries industry that assures availability of fish for consumption and trade and sustained livelihoods.

Members also participated in some technical activities and meetings of the Commission such as stakeholder engagements at both the artisanal and industrial fisheries level. Other activities for which the Board participated included the 39th Farmers' Day Celebration in Tarkwa, 2023 National Fish Festival and the 4th Quarter staff Durbar of FC.

Table 8.16: Statistics of activities of the 7th Governing Board of the Fisheries Commission for 2023

Activity	Number	Remarks
Regular Board Meetings	4	General Board meetings
Emergency Board Meetings	3	- To approve establishment ceilings and vacancies for FC - Meet industry on impact of the Akosombo Dam spillage
Field trip	2	- Visit to Apam to observe post-closed season data collection by fisheries officers - Visit to RnB farms for familiarization
Retreat	1	- Board retreat with Management of FC to assess performance of 2023 planned activities

The FC Board in 2023 approved a number of items for the management and operations of the Fisheries Commission. Details of approved items are shown in Table 8.17.

s/no	Item	Date approved	Remarks
1	New rates for DSA and fuel allocation	25 th April, 2023	Implemented
2	New DSA rates for Board members	9 th and 10 th August, 2023	Implemented
3	Establishment ceilings and vacancies for FC	9 th October, 2023	Implemented
4	2023 FC Promotion Interview Report	8 th December, 2023	Implemented
5	2023 Productivity Allowance for FC staff	9 th December, 2023	Implemented

CHAPTER NINE

COLLABORATIONS

9.0 Introduction

This chapter demonstrates the cooperation between Fisheries Commission and other partners, including Fish for Development, which is supported by the Norwegian government, Resilient Aquatic Food System Initiative, AHAA PROJECT: Biosecurity Management Plan (BMPs) for farms and Multi-Partner Trust Fund (MPTF) project.

Summary of the major program/project implementation accomplishments for the year 2023 are indicated in this chapter.

Key Projects Collaboration Performance Highlights

- i. Draft Ghana National Aquaculture Development Plan (GNADP 2024 – 2028) developed
- ii. 5-member committee set-up to supervise a growth performance test on some selected formulated feeds that were presented at the R&B workshop in Gomaa Nsuatre
- iii. Four communities (Langbinsi, Nalerigu, Nansoni and Tombu) water reservoirs were selected to benefit from this Resilient Aquatic Food Systems Initiative project.
- iv. 4 planked canoes, 8 metal cage frames, 8 inner nets, 4 outer protective nets, 8 hapa nets, 56 drum floaters and 24 concrete anchors were transported to the North East Region for installation under Resilient Aquatic Food Systems Initiative/ project
- v. 48,000 pieces of tilapia (*Oreochromis niloticus*) fingerlings and 200 bags of feed were supplied to Resilient Aquatic Food Systems Initiative/ project

9.1 Norwegian Fish for Development Project

9.1.1 Ghana National Aquaculture Development Plan (GNADP: 2024 – 2028)

The draft of the Ghana National Aquaculture Development Plan (GNADP 2024 – 2028), the annual action plan and monitoring & evaluation aspects were worked on to finalize the plan. Inputs received from other stakeholder organizations during the validation workshop in November, 2022 were also incorporated into the final draft. The final draft of the GNADP was completed and submitted to the Ministry of Fisheries and Aquaculture development for ministerial approval.

9.1.2 Alternative Feed Formulation for on-Farm Fish Feed Production Using Local Raw Materials

The Ghana Aquaculture Association and the Fisheries Commission under the support of the Norwegian Fish for Development Project sought to develop a feed formulation using locally available raw materials capable of supporting commercial fish farming at a lower cost of producing fish. In view of this, a 3-day workshop was organized at the R & B Farms in Gomaa Nsuatre in the Central Region that brought together researchers, academia, fish farmers and regulators to review and develop quality and efficient feed formulations for the aquaculture industry. The workshop was aimed at identifying a feed formulation that is nutritionally-balanced, has a low Feed Conversion Ratio (FCR), can induce fast growth rate, is cost effective and affordable, and can float on water even without the use of an extruder.

A 5-member committee was set-up to supervise a growth performance test on some selected formulated feeds that were presented at the workshop. The committee is to develop a comprehensive budget for the testing of the feeds, collect and analyse data from the experiment, prepare and submit a comprehensive report on them to FC and the Project Management of Fish for development for informed decision making.

9.1.3 Other achievements

- Seven (7) staff of FSSD trained in stock assessment, statistics and R-programming. Two new models for stock assessment (JABBA and SPICT) were introduced to the team to explore with the current available data. Based on the training, staff from the FSSD will be presenting the stock assessment results to the Scientific and Technical Committee (STC) which also includes fisheries data for 2023, based on the new stock assessment models. The IMR team will assist the FC in this work during the Scientific and Technical Committee (STC) meeting in 2024.
- An advanced draft of a Data Management Strategy for the FC was ready by the end of 2023. It is expected that the report will be delivered to the FC early in 2024.
- Some R-Scripts for extraction and analysis of catch data from the artisanal fisheries have been developed. These scripts can be used for preparations of data for future stock assessment exercises.
- Three (3) staffs from FSSD and MCS successfully completed an intensive three weeks of training as part of a master level course in Fish Capture Technology, given by the Danish Technical Scientific and Technical Committee (STC) University, DTU, with the training conducted in Hirtshals, Denmark. The candidates should have a good understanding of how to design and analyze data using R-Scripts from fishing gear trials. This will be a good foundation for the planned gear survey in Ghana with the research vessel Dr. Fridtjof Nansen in June 2024.
- Under the aquaculture part of the project, major dissemination of our activities were published particularly under Outcomes 4 and 5 as we sought to synchronise our understanding of the challenges facing the aquaculture sector in Ghana and to proffer solutions in science-based peer-reviewed publications:
 - Stakeholder perspectives on the 2023 Ghana National Aquaculture Development Plan: An integration within the ecosystem approach framework. <https://onlinelibrary.wiley.com/doi/10.1002/aff2.135>
 - Why fish farming on Lake Volta needs a radical rethink. <https://thefishsite.com/articles/why-fish-farming-on-lake-volta-needs-a-radical-rethink-kofitsyo-cudjoe>
 - Fish for development baseline study to map the disease occurrence in tilapia farms on the Lake Volta. <https://www.vetinst.no/rapporter-og-publikasjoner/rapporter/2022/fish-for-development-baseline-study-to-map-the-disease-occurrence-in-tilapia-farms-on-lake-volta>
 - Understanding tilapia mortalities and fish health management in Lake Volta: a systematic approach. <https://doi.org/10.3389/fsufs.2023.1249898>
 - Molecular epidemiology and current management of Infectious Spleen and Kidney Necrosis Virus (ISKNV) infection in Ghanaian cultured tilapia <https://doi.org/10.1016/j.aquaculture.2023.740330>
- Further comprehensive capacity training given in Abbassa involved aquaculture husbandry practices, breeding, nutrition and feeding, fish health management and biosecurity, sampling and laboratory diagnostics.

- Training in field epidemiology survey tools and outbreak investigations were carried out in Accra

9.2 Resilient Aquatic Food Systems Initiative

Resilient Aquatic Foods System for Healthy People and Planet Project is one of the initiatives of the Consultative Group on International Agricultural Research (CGIAR). This initiative aims at building the resilient of aquatic food systems to realize their full potential for nature, people and climate by tackling systemic challenges such as data gaps, power asymmetric, water resource management, limited research investment and missed opportunities for scaling through agricultural innovation systems. International Water Management Institute (IWMI) is co-leading the implementation of new Initiative in eleven (11) countries, namely Bangladesh, Cambodia, Ghana, India, Kenya, Malawi, Myanmar, Nigeria, Solomon Islands, Timor Leste and Zambia.

In Ghana, the IWMI is collaborating with Water Research Institute and Fisheries Commission to implement the Resilient Aquatic Food Systems Project by introducing fish culture on small water bodies in North East Region of Ghana. Four communities (Langbinsi, Nalerigu, Nansoni and Tombu) water reservoirs were selected to benefit from this project.

9.2.1. Transporting and Installation of Cages in Langbinsi, Nalerigu, Nansoni and Tombu Dams in the North East Region

A total of four (4) planked canoes, eight (8) metal cage frames, eight (8) inner nets, four (4) outer protective nets, eight (8) hapa nets, fifty-six (56) drum floaters and twenty-four (24) concrete anchors were transported to the North East Region for installation (Figure 9. 1).



Figure 9. 1: Materials transported to North East Region

9.2.2 Fixing of Cages at Langbinsi, Nalerigu, Nansoni and Tombu Dams.

The installation of the cages was conducted on different days for the respective communities. The installation also served as a practical training for the youth who participated fully in all the processes. The women in Nalerugu were not left out in the fixing of the drum-floaters on the metal frames. The installation started with fixing of the drum floaters on the metal frames, assembling of cages, and fixing of production nets (Figure 9. 2)



Fixing of inner production nets

Figure 9. 2: Fixing of Cages in Project Communities

9.2.3 Launching of Cages at Langbinsi, Nalerigu, Nansoni and Tombu Dams

The assembled two-in-one cages were launched on all the small water bodies in the four communities. The cages were pulled to its position (Deepest part of the reservoir) before the production nets were fixed on them. (Figure 9. 3)



Figure 9. 3: Launching cages in position at Langbinsi

9.2.4 Supply of Fingerlings and Fish Feed

Forty-eight thousand (48,000) pieces of tilapia (*Oreochromis niloticus*) fingerlings (Fig. 6) of average weight of two grams were procured from the Ashaiman Demonstration Centre and transported to the selected communities. The fingerlings were packaged at 500 pieces per pack resulting in ninety-six (96) packs. The packs were oxygenated to aid in metabolic activities of the fingerlings for the entire journey.



Figure 9. 4: Stocking of cages with fingerlings in the Langbinsi dam

Two hundred (200) bags of fish feed (Figure 9. 5) were procured from Ranaan Fish feed at Prampram. The breakdown of feed was as follows:

- Tilapia starter (0.5–0.8mm) – 20 bags
- Tilapia pre-grower (PG 40) – 40 bags
- Tilapia grower 33 (3.0mm) – 40 bags
- Tilapia grower 30 (4.5mm) – 100 bags
- Total – 200 bags



Figure 9. 5: Dr. Ahiah interacting with some Youth Group at Nansoni

9.2 Review of Ghana Aquaculture Guidelines and Code of Practice

Stakeholder consultation was held as a validation workshop for the Ghana Aquaculture Guidelines and Code of Practice. The workshop was funded by Resilient Aquatic Food Systems Initiative, as it relates to aquaculture policy analysis, policy assessment, and policy support. It was led by two Ghanaian Consultants, Dr. Kofi Abban and Mr. Lionel Awity, recruited by the donor.

The Policy action supports the implementation of the National Aquaculture Policy in Ghana by focusing on the development of the National Guidelines for the Introduction of Exotic Fish Species and Strains and the review and re-drafting of the National Aquaculture Code of Practice and Guidelines.

9.3 AHSS PROJECT: Biosecurity Management Plans (BMPs) For Farms

A workshop was organized by the Animal Health System Strengthening (AHSS) Project, a UK overseas development assistance project managed by Department for Environment, Food and Rural Affairs (DEFRA)-UK, and spearheaded by the Centre for Environment, Fisheries and Aquaculture Science (CEFAS), an agency of the UK DEFRA. All the zonal officers who participated in Biosecurity Training were tasked to develop a Biosecurity Management Plan (BMP) for a selected farm within their operational area. A virtual meeting was organized between the Fish Health Team and the DEFRA Team on 2nd August 2023 in which the BMPs for the aquaculture establishments were presented. The presentations generated a lot of discussions among the Ghana and UK teams that resulted in relevant inputs into the BMPs. It was agreed that Veterinarians would continue to sensitize farmers in the delivery of their veterinary services.

CHAPTER TEN

CHALLENGES AND WAY FORWARD

10.1 Challenges and Way forward

Challenges faced in the implementation of programmes and projects in the reporting period are outlined in Table 10. 1 with recommendations.

Table 10. 1: Sector Challenges and Recommendations

CHALLENGE	SPECIFIC AREA	ACTIONS TO BE TAKEN
GENERAL		
Inadequate logistical supply such as computers and accessories, vehicles and motorbikes among others at both FC Regional and Head Office.	Head Office, Regions and stations.	Procure computers and accessories, motorbikes and other logistics for regional offices, operational zones and stations to enhance their work.
		Procure new vehicles to replace obsolete vehicles at the Head Office, Regions and Stations.
Inadequate and untimely release of funds to support extension work and other planned activities		Increase budgetary allocations and release funds timely s to cost centres of the FC for implementation of planned activities
Limited capacity of extension officers in terms of skill and numbers to effectively implement plan activities at the regional and zonal levels		Train extension officers to improve extension service delivery at farm levels Recruit additional extension officers to augment existing strength
Encroachment of FC assets including lands and buildings. eg. Lawra, Cape Coast, Yeji, Volta Region etc.		Take measures to reclaim all encroached FC assets including lands and buildings. Finalize documentation processes on all FC lands to secure ownership
Under-estimation of production data due to the limited number of extension staff and unwillingness of some large-scale aquaculture farms to provide accurate production data to field Officers	Head office and Regional Offices	Enforce regulation 67 of Fisheries Regulations, 2010 (L. I. 1968) relating to aquaculture record keeping Improve the capacity of extension officers to enhance the collection of production data at farm levels
Inadequate fisheries infrastructure and office space to enhance productivity		Improve fisheries and aquaculture infrastructure for the modernization of the sector Provide office space and accommodation across national, regional and zonal offices
AQUACULTURE		
Limited access to reagents to run FC- laboratories	Across all regions.	Prioritise the procurement of laboratory reagents to for effective operation of the labs
High cost of aquaculture inputs such as fish feed		Enhance the capacity of farmers on local feed formulation
Limited access to credit facilities and insurance package for industry players		Facilitate the creation of insurance packages and loan facilities for farmers through the banks and other financial institutions
Uncoordinated permitting systems for aquaculture operations		Facilitate the creation of one stop shop aquaculture permitting/licensing system to streamline the

CHALLENGE	SPECIFIC AREA	ACTIONS TO BE TAKEN
		permitting processes.
Weak institutional linkages between the industry and academia for extension, training and research purposes		Strengthen institutional linkages between industry and academia
Indiscriminate use and abuse of antibiotics in the industry is a growing concern		Train/sensitize farmers on the use of antibiotics
Overdependency on limited species for culture fisheries		Support research into diversification of cultured fish species
CAPTURE		
Over exploitation of fish stocks in all water bodies	Across all coastal and inland capture regions	Coordinate with international and regional bodies such as the FAO, FCWC and ICCAT for the effective management of shared fisheries resources. Intensify fisheries law enforcement to curb IUU fishing practices Continue the implementation of Co-management policy for the fisheries sector to enhance voluntary compliance Continue implementation of ongoing sustainable fisheries management measures such as the Closed Season, moratorium on new marine canoe entrants and ministerial trawl gear directive
Lack of patrol boat for travelling to the Island communities for education, sensitization and data collection	Oti Region	Procure/hire patrol boat for travelling to Island communities
Inadequate security at the office building at Axim due to open access.	Western Region	The perimeter of the office building at Axim should be fenced
Inadequate data collection regime on fish post-harvest management	Across all sectors	Establish fisheries post-harvest database
PREMIX		
Limited access to premix fuel by fishermen due to issues of diversion and hoarding	Inland and coastal regions	Premix fuel automation and distribution of Canoe Identification Cards should be completed to curtail the diversion