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# SUSTAINABLE FISHERIES MANAGEMENT PROJECT (SFMP)

## National Fisheries Dialogue



NOVEMBER 2 – 4, 2015

THE  
UNIVERSITY  
OF RHODE ISLAND  
GRADUATE SCHOOL  
OF OCEANOGRAPHY



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**Citation:** Hen Mpoano. (2015). The USAID/Ghana Sustainable Fisheries Management Project (SFMP), National Fisheries Dialogue, November 2 – 4, 2015. Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island and Hen Mpoano, Windy Ridge, East Tanokrom – Western Region. GH2014\_POL006\_HM. 54 pp.

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Prepared for USAID/Ghana under Cooperative Agreement (AID-641-A-15-00001), awarded on October 22, 2014 to the University of Rhode Island, and entitled the USAID/Ghana Sustainable Fisheries Management Project (SFMP).

This document is made possible by the support of the American People through the United States Agency for International Development (USAID). The views expressed and opinions contained in this report are those of the SFMP team and are not intended as statements of policy of either USAID or the cooperating organizations. As such, the contents of this report are the sole responsibility of the SFMP team and do not necessarily reflect the views of USAID or the United States Government.

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## **ACRONYMS**

AG	Attorney General
APW	Ali-Poli-Watsa
CEWEFIA	Central and Western Fish Mongers Improvement Association
CSOs	Civil Society Organizations
DAA	Development Action Association
EPA	Environmental Protection Agency
FC	Fisheries Commission
FDA	Food and Drugs Authority
FEU	Fisheries Enforcement Unit
FGD	Focus Group Discussion
FtF	Feed the Future
GIFA	Ghana Inshore Fishers Association
GITA	Ghana Industrial Trawlers Association
GNCFC	Ghana National Canoe Fishermens Council
GSI	Gonadosomatic index
GTA	Ghana Tuna Association
ICCAT	International Committee for the Conservation of Atlantic Tunas
ICFG	Integrated Coastal and Fisheries Governance
IUU	Illegal Unreported and Unregulated
MoFAD	Ministry of Fisheries and Aquaculture Development
MCS	Monitoring Control and Surveillance
MDAs	Ministries Department and Agencies
M&E	Monitoring and Evaluation
MP	Member of Parliament
MSY	Maximum Sustainable Yield
MT	Metric Tonnes
NAFPTA	National Fish Processors and Traders Association
NAFAG	National Fisheries Association of Ghana
NCCE	National Commission for Civic Education
NGOs	Non-Governmental Organizations
NM	Nautical Miles
NMFMP	National Marine Fisheries Management Plan
OC	Operational Committee
SFMP	Ghana Sustainable Fisheries Management Project

SNV	Netherlands Development Organization
STWG	Scientific and Technical Working Group
TCPD	Town and Country Planning Department
UCC	University of Cape Coast
USAID	United States Agency for International Development
URI	University of Rhode Island
VMS	Vessel Monitoring System
WARFP	West Africa Regional Fisheries Project

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**Figure 1 Group Picture of Dialogue Participants**

*Fish are gravid between August and September. During this time smoking does not really preserve the fish for long because as they are so fatty due to the eggs. When we smoke the fish they burst open and they are not attractive on the market. I will suggest that the closed season be around this time although coincides with our bumper season. If we close the season, then the bumper/major harvest will shift to December - January. There is always fish glut during the bumper season and because we cannot preserve the fish for long we are forced to sell at very low prices. We can practice this closed season for 3 years and see the outcome”.*

**Emelia Abaka-Edu** (Fish Processor, Axim)

## **EXECUTIVE SUMMARY**

The Ministry of Fisheries and Aquaculture Development (MoFAD) and its implementing Agency, the Fisheries Commission (FC) on November 2 – 4, 2015 engaged fisheries stakeholders at Cape Coast to discuss the content of the newly gazetted National Marine Fisheries Management Plan (NMFMP) and how it could be effectively implemented to rebuild Ghana's dwindling marine fisheries.

The dialogue funded by USAID/ Ghana Sustainable Fisheries Management Project (SFMP) brought together key stakeholders including industry representatives: Canoe Fishers (GNCFC); Inshore Fishers (GIFA); Industrial and Trawlers (GITA) and National Association of Women Processors (NAFPTA). Others included Academia, Traditional Authorities, Parliamentarians, World Bank, European Union, and USAID, local NGOs and other civil society groups.

### **Dialogue Objectives**

- Provide a platform for fisheries stakeholders' representatives to know about the approved National Marine Fisheries Plan and to make recommendations on modalities for operationalizing and implementing the plan,
- Establish a platform for strengthening collaborations between national and grassroots level fisheries stakeholders and,
- Explore opportunities for stakeholders to contribute to collective decision-making processes.

### **Highlights of Opening Remarks**

The Minister for Fisheries and Aquaculture Development, Honorable Sherry Ayittey highlighted the importance of the fisheries sector to the economy and social fabric of Ghana. She stressed the need for continued involvement of fisher folks in the decision-making process noting that rebuilding the fisheries will require an effective effort control and the implementation of closed seasons as well as declaring some areas of the marine habitat as protected areas.

The World Bank WARFP Task Team Leader Dr. Nyaneba Nkrumah summarized the story of the fishery today noting that Ghana's main protein comes from fish and fisher folk families rely on fish to meet their incomes and subsistence. Fish has brought real wealth to many but currently there is enormous demand for fish and yet there is limited amount of fish in the ocean. The Ghanaian fishing fleet was getting more sophisticated while the use of illegal equipment is on the rise while the stocks were dwindling and fish are caught before they can reproduce.

Take Home Message:

- If we do nothing the fish stocks will decline to the point of no return.
- Doing something is for people who have vision, who are progressive and who want a positive change.
- The management plan is a part of that process of doing something.

Key questions:

- What does the plan hope to accomplish?
- Will the plan make a real difference to the fish stock?
- Who will benefit? Who will lose out?
- What do the fisher folk think about the plan given that they are the ones who will be most affected by the proposed changes?

- How can it be implemented? How can it be enforced?
- How can communities help with this enforcement?
- How can they be supported in that change?
- Collective decision on the way forward will bring about a truly sustainable fishery in Ghana.

### **Status of the Small Pelagic Stocks**

The SFMP/Scientific and Technical Working Group presented their preliminary findings of status of fish stocks (small pelagic species - including sardinella, anchovies and mackerel).

#### **Key findings:**

- Small pelagic fish stocks were severely overfished and this state of affairs meant that the abundance of fish in the sea had been depleted to the extent that maximum sustainable yields could not be attained.
- Fishing effort (number of boats) was still too high and causing the ‘overfishing’ on already depleted stocks. Under these conditions, the small pelagics cannot reproduce to rebuild themselves and increase their abundance and yield in the future.
- They warned that the stocks are near collapse and have been overfished for more than 15 years.
- STWG recommended immediate action to avoid irreparable harm to the fishery resources and the industry.

### **Lessons from the Philippines Study Tour**

A group representing stakeholders, government agencies and NGOs sponsored to the Philippines by the USAID/SFMP and World Bank/WARFP shared lessons from the study tour on fisheries management practices as obtains in that country.

#### **Lessons learned:**

- The close cooperation among government, fishing industry, scientists and NGOs led to a seasonal closure that has started to result in increased catches.
- The first closed season in the Philippines in 2011 yielded a 30% increase in tonnage of fish caught.
- The effort of fisheries protection agencies is also augmented by extensive citizen watch group covering the entire coastline.

### **National Marine Fisheries Management Plan**

The Fisheries Commission presented the contents of the NMFMP and strategies for its implementation.

#### **Management issues addressed in the plan:**

- Excessive fishing effort exerted in all fisheries
- Inadequate information on the biology of the stocks
- Inadequate and weak enforcement of existing regulations
- Low levels of protection of marine biodiversity
- Inappropriate procedures in certifying fish for export

**Key objectives of the plan:**

- Reduce the excessive pressure on fish stocks to ensure exploitation within biologically acceptable levels
- Protect marine habitats and bio-diversity and ensure enforcement of legislation.
- Contribute to enhancing export opportunities and strengthening value addition
- Strengthen participatory decision making in fisheries management and
- Meet regional and international obligations in the fisheries

**Response by Stakeholder Groups to the NMFMP**

Stakeholder provided comments on the plan to key decision makers present at the dialogue including the Minister of MOFAD, Chairman of the Fisheries Commission and some members of the Parliamentary Select Committee for Agriculture which is also responsible for fisheries, among others. Highlights of presentations by syndicate groups are as follows:

**Ghana National Canoe Fishermen Council (GNCFC)**

- Maintain the existing fleet with no new additions or replacement
- Close access to certain areas in addition to the closed season.
- Periodic review of the plan.
- Periodic review of the strategy of implementation
- Establish insurance and pension schemes for fishermen and women
- Support formation of cooperatives for access to finance and modern fishing technologies
- Involve fishermen and women processors in research and management

**Ghana Inshore Fishers Association (GIFA)/Ghana Industrial Trawlers Association (GITA)**

- Audit the vessel license register to take out inactive boats
- Compensation for vessel buy-back should be encouraging enough for voluntary sign-up
- Stakeholder involvement in implementation of the Plan is key for ownership
- A multi-sectoral approach should be used for plan implementation and roles of institutions clarified
- Fines for fisheries offences should be reformatory and recoverable and be quoted in Ghana Cedis
- Urgent need for a research vessel to provide better science to inform decision-making
- Support collaborative research into gears and fish conservation areas as well as impact of land based activities on the marine environment
- Collaborate with neighboring countries on common closed seasons

**National Fish Processors and Traders Association (NAFPTA)**

- Minimize political interference in every aspect of the fisheries.
- Support women to advocate against illegal fishing practices
- Provide on-the-spot test-kits at the landing sites to facilitate fish inspection.
- Demonstrate unflinching commitment to the enforcement of the fisheries laws
- Institute watchdog committees at the beaches to support effective law enforcement
- Establish information centers at landing sites
- Intensify education at the beach level on the effect of harmful fishing practices
- Provide development centers to promote improved fish processing techniques

- Organize training in fish handling, processing storage and packaging to increase export value
- Provide microfinance schemes for fish processors and traders
- Establish group insurance schemes for fisher folks including processors
- Establish a mechanism for assessment and payment of taxes
- Ensure good supply of water at landing sites.
- Ensure improved storage facilities
- Ensure hygiene and sanitation along the supply chain.

### **Academia/NGOs/CSOs**

- Implementation of the Plan should not be politicized.
- Translate key sections of the plan into local languages
- Consider alternative and or complementary livelihood options when implementing closed season.
- Define clearly, the roles of collaborating agencies to avoid conflicts of overlapping jurisdiction.
- Work closely with district assemblies, NGOs and CSOs in the implementation of the plan.
- Deepen stakeholder engagements/consultations on when and how closed seasons should be effected.
- Clearly outline stakeholder engagement processes
- Define a Monitoring & Evaluation framework to measure progress of plan implementation.
- Source and ring-fence funds for the implementation of the Plan
- Involve National Commission for Civic Education in information dissemination and plan implementation.
- Acquire a research vessel to help stakeholders understand better the status of the stocks.

### **General Conclusions**

Participants supported the implementation of a closed season as noted in the Plan. As emphasized by Professor Martin Tsamenyi, a renowned maritime legal expert and advisor to the Ministry, a major requirement for effective closed season is the declaration of dates and duration of the closure and which fishing fleets and species it covers. This must be approved by the Minister and then gazette, after which, implementation can begin. As there was no consensus among stakeholders on which of the fleets the closure is meant for, the period for the closure and when implementation should begin, continued dialogue with stakeholders is required to develop a consensus and put the closure into practice. As noted by several presenters at the dialogue, this is a good practice worldwide and demonstrated to be effective in rebuilding fish stocks. The good news emanating from the dialogue is that everyone agreed that business as usual must end and change is needed, and that if other nations can implement such measures, Ghana too can.

### **Next Steps**

For the implementation of the plan, it was agreed that:

Based on the requirements of the NMFMP, MoFAD/FC should set up an operational committee (OC) to be responsible for the implementation of the Plan. The committee shall have a maximum of 6-10 persons and shall be responsible for providing advice concerning the implementation, review, monitoring and enforcement of NMFMP. The committee shall meet monthly and in carrying out its activities, it shall seek advice from appropriate working

groups such as the STWG and any other stakeholder groups. The OC shall have four working sub-committees with detailed terms of reference:

- Scientific and monitoring sub-committee
- Legal affairs sub-committee
- Communication sub-committee
- Enforcement sub-committee

A widespread communications campaign should be implemented to widely disseminate the contents of the approved and gazetted plan to all stakeholder groups and landing sites. In addition, more discussions need to be held with stakeholders to develop a broad consensus of the operational details for implementing a seasonal closure as called for in the management plan. The USAID/ Ghana Sustainable Fisheries Management Project pledged to support such efforts by the MOFAD and Fisheries Commission.

## **1.0 BACKGROUND**

### **1.1 Rebuilding Ghana’s Marine Fish Stocks – the challenges**

On October 21, 2014, USAID/Ghana awarded the Coastal Resources Center (CRC) at the University of Rhode Island (URI) a cooperative agreement (AID-641-A-15-00001) to implement the USAID/Ghana Sustainable Fisheries Management Project (SFMP). The estimated cost of the award over its five-year life is US\$ 23,987,826 from USAID with match commitments from URI and partners of US\$ 4,797,565.

URI leads a team of core implementing partners including two intimately involved in the previous URI-led USAID/Ghana ICFG Initiative: Friends of the Nation and Hen Mpoano, as well as a new partner, SNV Ghana (Netherlands Development Organization). Supporting partners include the Central and Western Fish Mongers Improvement Association (CEWEFIA) and Daasgift Quality Foundation, Development Action Association (DAA), SSG Advisors and Spatial Solutions Key government project beneficiaries and partners are The Ministry of Fisheries and Aquaculture Development (MOFAD) and the Fisheries Commission (FC), the University of Cape Coast and the Town and Country Planning Department (TCPD) in the Central and Western Regions.

The SFMP design builds on the gains and lessons learned by the USAID/Ghana Integrated Coastal and Fisheries Governance (ICFG) initiative and scales up ICFG’s successful model for improving governance in the fisheries sector. It places greater emphasis on national policy initiatives, with investment of significant financial resources in building the capacity of the FC, key beneficiary government agencies, fisheries stakeholder groups and civil society organizations. The project is designed to improve fisheries management and strengthen governance to have positive impacts on fisheries resources and the people that depend on marine ecosystem goods and services. The SFMP also complements the WARF Project

The problem in Ghana’s Marine fisheries sector is complex, tragic, and too-common—severely overexploited fisheries put at risk tens of thousands of metric tons of local food fish supply and threaten the livelihoods of over 130,000 people and many more fisheries resource dependent households. Ghana’s open access to fisheries has resulted in extreme overcapitalization of fleets and exacerbated by poor governance, weak enforcement of rules and a fuel subsidy.

The SFMP supports the Government of Ghana’s fisheries development policies and objectives and squarely aims to assist the country to end overfishing and rebuild targeted fish stocks as a central goal. Adoption of sustainable fishing practices and reduced exploitation to end overfishing is the only way Ghana can maintain the sustainability of its marine fisheries

in order to increase its wild-caught local marine food fish supply and bring greater profitability to the fishery, with the potential to benefit two million people indirectly.

The National Marine Fisheries Management Plan (2015-2019) has recommendations on a closed season among others for demersal and small pelagics fisheries and implementation actions need to be developed and coordinated. SFMP is supporting the MoFAD on the development of an implementation plan including outreach and communications to stakeholders on how and when management measures will go into effect. Working closely with MOFAD and the FC, there will be engagements with stakeholders to discuss how the management measures already incorporated into the national marine fisheries management plan will be rolled out, and additional actions in the near, medium and long term that could also be implemented to rebuild the fishery.

This extensive communications campaign back to stakeholders on the implementation of planned actions will help generate the public support and informed constituency for implementation and ensure high voluntary compliance.

The dialogue agenda was planned with the MOFAD/FC to particularly socialize the contents of the NMFMP and how it can be operationalized with inputs and support from all stakeholders.

## **1.2 National Fisheries Dialogues (Policy issues)**

The SFMP will continue and expand the scope ICFG's successful national dialogues that engaged an array of fisheries stakeholders. The project will apply creative approaches to bring together innovative thinkers from diverse institutions interested in the small scale fisheries sector, e.g. rural banks, telecommunications firms, chain store operators and social enterprise venture capitalists in addition to the more conventional fisheries stakeholders to promote out-of-the-box thinking for solutions to fisheries sector issues.

Ghana small pelagic species, composed mainly of *Sardinella aurita* and *Sardinella maderensis*, are the main source of animal protein for the majority of coastal populations. However, the stock has already experienced signs of collapse and spatial shifts driven mainly by overfishing and climate change. Recent stock assessments of small pelagics reported that these stocks are severely overfished and that overfishing continues to exacerbate beyond the level of sustainability.

The SFMP will suggest attributes of management that include flexibility and adaptability while engaging stakeholders to make tough decisions to end overfishing and reverse the trends toward sustainable growth and avoid the catastrophic collapse. This part of shared responsibility concepts has not historically been part of fisheries management in Ghana but they are proven successful and sustainable in many parts of the world. In the United States, Brazil and Philippines overfishing has ended for many fish stocks, and once depleted species of small pelagics are now once again thriving and supporting increased fishing levels and expanding in abundance and geographic range. For example, in the U.S. the estimated economic value of rebuilding fish populations to healthy and sustainable levels includes a \$31 billion increase in annual sales and support for 500,000 new jobs.

The idea of the dialogue is to build a general consensus of the way forward, particularly in the short term. Hopefully consensus can be reached quickly with recommendations formulated and put forth to FC for action via regulatory provisions as stipulated in the Fisheries Act. Meetings will also be needed among other communications channels, to then let stakeholders know what final decisions have been reached and when new rules will go into effect.



**Figure 2 discussions on fisheries dialogue**



## 2.0 DIALOGUE PRESENTATIONS

### 2.1 Profile of the Small pelagic fisheries



**Stephen Kankam**  
Program Coordinator  
Hen Mpoano,  
Takoradi

**Figure 3 Stephen Kankam**



**Cephass Asare**  
Program Officer  
Hen Mpoano,  
Takoradi

**Figure 4 Cephass Asare**

Stephen Kankam and Cephass Asare took turns on day 1 and 2 respectively to present the demographics of the small pelagic fishing industry in Ghana based on data collected for a detailed profile of the small pelagic fisheries in Ghana. Among other objectives, the profile is to support:

- Short and long term fisheries management planning
- Fisheries Commission with an updated information on both fishermen and fish processors
- Understanding of the social dynamics of the small pelagic fishery.

Their presentations told the story of a fish processor from Axim who was asking for fisher's voice be heard and given a seat at the decision making table. The presentation also outlined the heterogeneous nature of the small pelagic fisheries in Ghana and the need to consider all these diversities at all stages of fisheries management planning and implementation.

#### **Take home messages:**

- The small pelagic fishery employs active fishermen with ages ranging from 18 to 50 years. Nationwide, the dominant fishing ages range between 40 to 50 years and about 47% have no formal education while the other half have only basic classroom education.
- Fishermen in the artisanal sector migrate all year round in search of fish and migrations may be short term (within local coastal boundaries) or long term to neighbouring West African countries.
- Family size among fishermen was usually high with some having 15 children with multiple wives.
- Fishing remains a lifelong business for fishermen - they live and die as fishermen. Some graduate from crew to captain to canoe owners
- The small pelagic fish are harvested mainly with canoe size ranging between 12 and 16 meters and deploying purse net (APW)
- Although some gears are associated with ethnicity (e.g, beach seine is associated with the Ewes while Fantes are noted for purse seines and Dangbes, Line and Hook). Over the years gear association with ethnicity is diminishing
- Clay, bricks and steel drums are the preferred materials for the construction of fish smoking ovens. However, clay is the most preferred. The choice and size of a smoking unit is influenced by the availability of space in the fishing communities.
- Majority of fishermen have the perception that from 1960 to present (2015) fish catch/landings has declined in their communities.

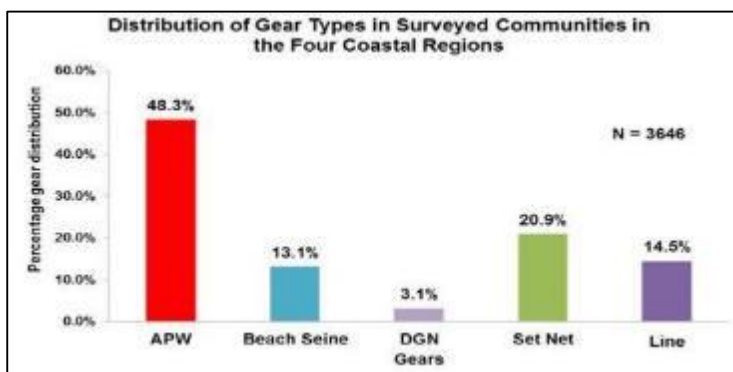
- The heterogeneous nature of the small pelagic fisheries should be acknowledged and considered at all stages of planning, management and implementation within the fisheries.
- Fisher’s voices and concerns should be incorporated in decision making.

**Selected Slides**



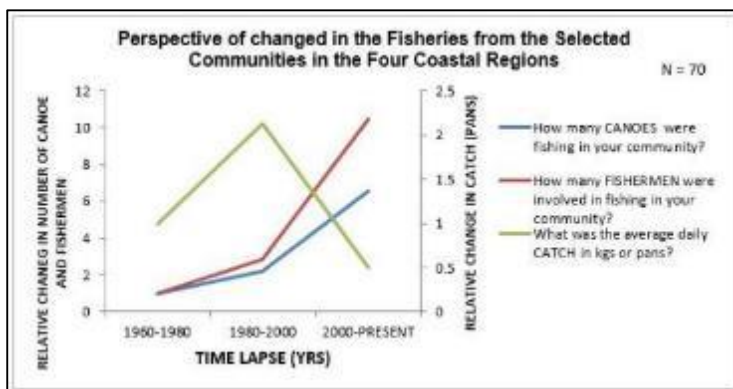
This slide shows the migration pattern of fishermen during the peak and lean season. The red arrows show migration during the lean season and the blue represents the peak fishing season in July and August.

**Figure 5 migration pattern of fishermen**



APW is the predominate gear used by artisanal fishermen to harvest the small pelagics. These gear target school of fish and it is usually deployed manually by a crew of 10 to 25 fishermen.

**Figure 6 Distribution of gear types**



The sector, according to fishers’ perception experienced a sharp decline in the 90s whilst effort quadrupled within the same time frame.

**Figure 7 Sharp decline in fishers perception**

## 2.2 Scientific Technical Working Group (STWG) State of stock



**Prof. Kwabina Yankson**  
Dept of Fisheries and Aquatic  
Sciences, University of Cape  
Coast

**Figure 8 Prof. Kwabina Yankson**

Prof. Yankson introduced the work of the SFMP Scientific and Technical Working Group (STWG) on the status of the small pelagic stocks. He pointed to the need to rebuild the stocks and what the Maximum Sustainable Yield (MSY) should be for the small pelagic stocks. Prof. Yankson concluded with an outline of steps to be taken towards successful rebuilding of the stocks as has been done in other countries.

### **Take home messages:**

- The small pelagic fishery in Ghana has high implication for food security. It is cheap and affordable protein source which constitute 60% of animal protein in the diet of average Ghanaian. Hence the importance placed on it by the US government through their Feed the Future (FtF) Program of which the SFMP is part of.
- Small pelagics are small size, surface to mid water swimming fish (including sardinella species, anchovies, and mackerel). The stock abounds from Morocco to South Africa in the Atlantic Ocean; they are seasonal migratory species and move in schools between the inshore to the edge of continental shelf. Pollution and temperature affect the availability. They prefer clear saline water with temperatures 24° Celsius and below. Juveniles tend to stay in nursery areas inshore and join adults offshore when mature.
- Sardinella reaches maturity at 2 years and measure up to 15 cm. The expected life span of sardinella is between 5 to 6 years. A matured female can lay up to over 50000 eggs.
- Sardinellas thrive on the availability of zooplankton, especially the copepods. Their spawning coincides with the major upwelling season – July and August, in Ghana.
- Over the past decade, the landings of the small pelagics have shown a steady decline due to various reasons, both natural and man-made. Despite this catch decline, fishing effort continues to increase.
- In Ghana, the small pelagic stocks are severely overfished; and the fishing mortality rate remains in excess of the sustainable level and if this trend continues, the stock will collapse as well as the fishery.
- It is possible to reverse this trend and rebuild the stock as other countries that have experienced similar situations been able to reverse the decline. This can only be possible if:
  - we work together
  - we improve our science and data collection and management
  - fishermen employ good fishing practices
  - authorities institute closed seasons, reduce fishing days and limit boats numbers
  - improve law enforcement

## Selected Slides

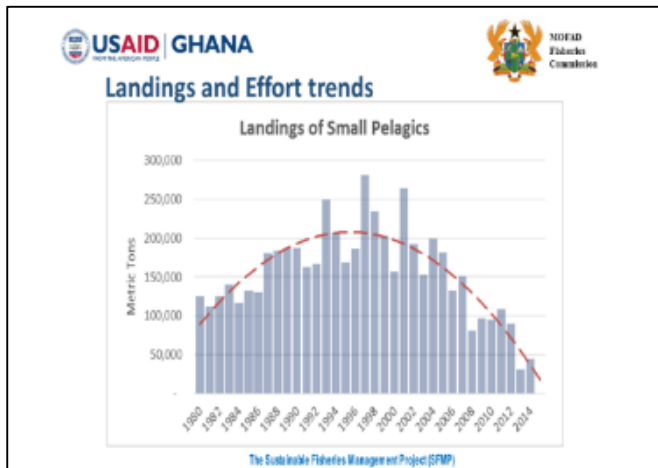


Figure 9 Change in catch of small pelagic fish species

Change in catch of small pelagic fish species since 1980. The catch peaked in the '80s and '90s, and steadily declined. The small pelagics are the most important fish for local communities and for food security.

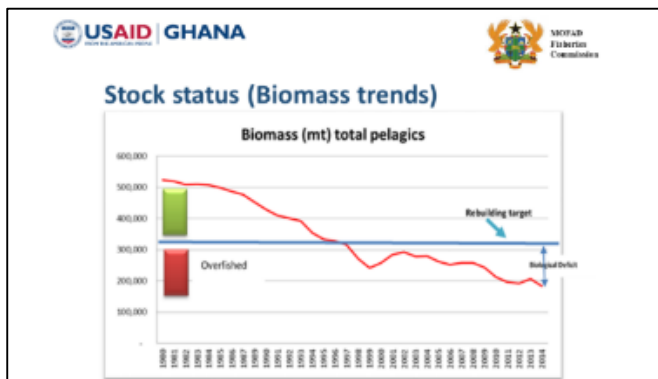


Figure 10 Biomass trends

The canoe fleet depends heavily on the small pelagic resource. Currently, the biomass trend indicates that, the small pelagic resource is highly overfished. The stock needs to be rebuilt from the current 200,000 MT to 300,000MT.

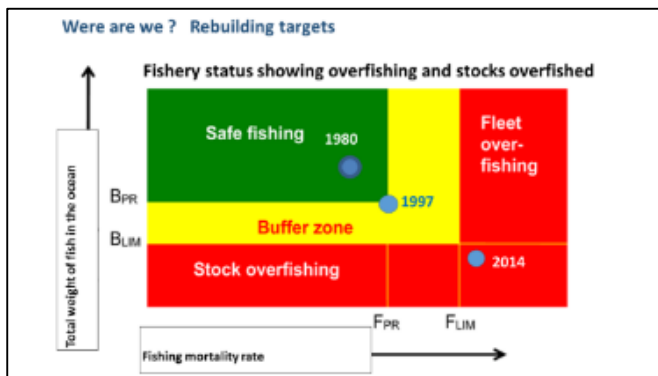


Figure 11 Traffic light approach for status of small pelagics

Currently the small pelagic stock resources is overfished and if this is not addressed will lead to the eventual collapse of the fishery. This slide adopts the traffic light approach to explain status of the small pelagic stock from the 1980 through to 2014.



**Figure 12 Discussions**

### **2.3 Philippine Study Tour – Lessons for Ghana Marine Fisheries Management**



**Najih Lazar**  
Senior Fisheries  
Advisor, SFMP



**Andrew Tetteh**  
Inshore Fisherman  
Sekondi



**Papa Yaw  
Atobrah**  
Director, Fisheries  
Commission  
Central Region



**Emelia  
Abaka-Edu**  
Fish Processor,  
Axim



**Kojo Sortoh**  
National Vice-  
Chairman, GIFA

**Figure 13 Representatives of various fisheries stakeholders**

As part of SFMP’s stock rebuilding strategy, representatives of various fisheries stakeholder groups went on a study tour to the Philippines to see at firsthand how their nested governance system approach to fisheries management works. Representative of the tour participants took turn to share their experience and lessons learned with dialogue participants. These lessons are presented below.

#### **Take Home Messages**

*Andrews Tetteh*

- The fisheries authorities in the Philippines are in constant consultation with fishermen
- Canoe registration is done by district

- Commercial trawlers are not allowed to operate in the municipal fishery waters (exclusive to artisanal fishers)
- Net length is used to classify the vessels (commercial or artisanal)
- Fish landed is tested to ensure they are not caught with chemicals or dynamite
- Fish are allowed to spawn at least once before they are caught.

*Kojo Sortoh*

- Fish are handled hygienically and the landing beaches are very clean
- There are toilet and bathroom facilities at the landing beaches

*Emelia Abaka-Edu*

- Fisher associations are vibrant and ensure their concerns get across to the government
- Fishermen ensure fish is well preserved with ice before landing
- Fish is well packaged after processing to add value before sale

*Papa Yaw Atobrah*

- Enforcement is decentralized in the Philippines; 0 to 15 NM is designated as the municipal sea and 15 NM upward is designated the Provincial sea
- Education is a critical part of their enforcement
- Political interference is limited

*Najih Lazar*

- Mode of fisheries management is all-inclusive



**Figure 14 Emelia Abaka-Edu, National Vice-person for NAFPTA, making a presentation at the Dialogue**

## 2.4 National Marine Fisheries Management Plan



**Paul Bannerman**  
Deputy Director, Fisheries  
Statistical Survey Division  
Tema

Mr Bannerman presented the National Marine Fisheries Management Plan (NMFMP).

### Take home messages:

- The total marine catch has fluctuated over the last two decades but shows a drastic decline as well as mean sizes of fish
- environmental factors such as upwelling and unexpected interactions
- manmade activities including overcapacity, overfishing, use of illegal methods and gears and wasteful fishing practices leading to post harvest losses
- Fisheries management in Ghana is confronted with the following key issues:
- inadequate information on fisheries biology and stocks
- excessive fishing effort exerted in all fisheries
- weak enforcement of fisheries regulations
- low level of protection of marine biodiversity
- inappropriate procedures in certifying fishing export
- To address the decline and man-made activities having a negative effect on fish resources, the government as enshrined in the Fisheries Act Section 42 must come up with a management plan to reverse and improve issues threatening food security, livelihood and also to meet international obligations. This has led to the development of a national plan (2015 – 2019) to stop overfishing and rebuild depleted stock to improve people’s livelihoods.
- The plan has been gazette after various engagements with stakeholders like the National Fisheries Association of Ghana (NAFAG) which is an umbrella body for GNCFC, GITA, GIFA, GTA; regional consultations with fishermen along the coast; feedback from various MDAs including the EPA, AG-Office, Ministry of interior (Marine Police), Universities and NGOs.
- A number of measures have been outlined in the plan to address the issues facing the fisheries.

For example:

- **reducing excessive fishing effort exerted in all fisheries:** there will be 50 percent reduction in fishing days for trawlers; the number and capacity of vessels will be controlled; inactive boats will be deleted from the registry database, violators of fisheries laws and regulations will have their licenses cancelled; replacement scheme will be put in place for registered vessels; strict adherence to current ICCAT capacity limits allocated to Ghana etc.

- **inadequate information on fisheries biology and stock:** data collection regulation aimed at gathering fisheries data through recruitment and training of and deployment of personnel will be developed; a research plan will be developed and assessment of key commercial fish stock will be undertaken
- **weak enforcement of fisheries regulations:** VMS system will be maintained and upgraded; strict enforcement of provisions in the Fisheries Act to eliminate IUU fishing; there will be effective collaboration with regional bodies on MCS strategies to combat IUU fishing; ensure enforcement presence through increasing the number of surveillance hours per month from 144 hours to 240 hours by year 3 of the plan; improving the efficiency of prosecution through training of prosecutors, judges and creation of fisheries tribunal and establishment of dispute resolution mechanisms; the Fisheries enforcement Unit (FEU) will also be adequately resourced with capacity building of staff.
- **low level of protection of marine biodiversity:** designate marine habitat protection areas, through research along the coast to protect nursery areas and spawning grounds, mainly in estuaries and mangrove areas; active collaboration with government through MDAs, research institutes, Universities and NGOs in protecting the marine resources.
- **reducing post-harvest losses and improvement of livelihoods:** promoting of community group involvement in post-harvest and facilitating business opportunities through improving landing facilities to increase food safety and hygiene; facilitate the creation of traders' associations to access micro-credit financial schemes to enhance fish production and marketing; improve social interventions through the implementation of insurance and pension schemes for fishermen
- In conclusion, he stated that a Management Operational Committee will be formed to implement the FMP. The plan will also be subject to annual review in collaboration with all key stakeholders and backed with a financial plan.



## Selected slides

In summary the key issues are:

- Excessive fishing effort exerted in all fisheries
- Inadequate information on Fisheries Biology and Stocks.
- Weak enforcement of Fisheries Regulations
- Low levels of protection of marine Biodiversity

This slide gives a summary of the key issues contributing to the stock decline being experienced in the Ghanaian marine fishery

**Figure 15 Summary**

- TO ADDRESS THE DECLINES AND MAN-MADE ACTIVITIES HAVING A NEGATIVE EFFECT ON FISH RESOURCES, THE GOVT AS ENshrined IN THE ACT SECTION 42 MUST COME UP WITH A MANAGEMENT PLAN TO REVERSE AND IMPROVE ISSUES THREATENING FOOD SECURITY, LIVELIHOODS AND ALSO TO MEET INTERNATIONAL OBLIGATIONS
- THE GOVT THEN DEVELOPED A NATIONAL PLAN (2015-2019) TO STOP OVERFISHING AND REBUILD DEPLETED STOCKS TO IMPROVE PEOPLE'S LIVELIHOODS

The Fisheries Act calls for a management plan that addresses the management of the fisheries resources using a holistic approach. The Fisheries Management Plan was developed based on this premise. It is a four-year plan to improve people's livelihood by stopping overfishing and rebuilding depleted fish stock.

**Figure 16 Management Plan**

Summary of sustainable levels in relation to current fleet numbers from computations based of catch and effort data from the fishery – "Shaeffers" model MSY

	No of units in 2014	MSY mt	Units required to sustain fishery
Artisanal	>12000	239,913	9,095
Inshore	403	13,713	272
Industrial	107	30,637	48

To achieve the goal of the plan and harvest the fish stock at a sustainable rate, the current fleet size must be capped. This slide gives a summary of the current fleet size, the required MSY in metric tonnes and the required fishing fleet to achieve it.

**Figure 17 Summary of current fleet size**

## **2.5 Stakeholder Presentations on the implementation of the National Fisheries Management Plan and Anticipated Challenges**

The various fisheries stakeholder, after a brainstorming session, presented their recommendations for the successful implementation of the management plan. The recommendations were presented on Day 2 for the consideration of the sector minister, Hon. Sherry Ayittey. These recommendations are presented here.

### ***National Fish Processors and Trader's Association (NAFPTA)***

- Establish information centers at the landing sites
- Minimize political interference in every aspect of the fisheries.
- Support women to advocate against illegal fishing practices by men
- Commit to enforcing the fisheries laws
- Provide on-the-spot test-kits at the landing sites to investigate chemical use
- Institute watch dog committees at the beaches
- Provide development centers for improved fish processing techniques
- Organize training in fish handling, storage and packaging to increase export value.
- Intensify education at beach level on the effect of harmful fishing practices.
- Provide microfinance schemes for fish processors and traders
- Establish group insurance schemes
- Establish a mechanism for assessment and payment of taxes
- Ensure good supply of water and sanitation at landing sites and improved storage

### ***Ghana National Canoe Fishermen Council (GNCFC)***

- Maintain the existing fleet with no new additions or replacement
- Closed access in addition to the close season.
- Periodic review of the implementation plan.
- Establish pension and insurance scheme for fishermen and women
- Support formation of cooperatives for access to finance and modern fishing technologies
- Involve fishermen and women processors in fisheries research and management.

### ***Ghana Inshore Trawlers Association (GITA) and Ghana Industrial Fishers Association (GIFA)***

- Audit the vessel license register to take out inactive boats
- Compensation for vessel buy-back should be encouraging enough for voluntarily sign-up
- Stakeholder involvement in plan implementation is key for ownership
- A multi-sectorial approach should be used for the plan implementation as well as roles clarified.
- Fines for fisheries offences should be reformatory and recoverable and be quoted in Ghana Cedis
- Urgent need for a research vessel
- Collaborative research into gears and fish conservation areas as well as impact of land based activities on the marine environment
- Collaborate with neighboring countries on common close seasons

### *Other stakeholders (NGOs, Universities)*

- Collaborating agencies role should be clearly defined to avoid conflicts resulting from overlapping jurisdiction.
- Stakeholder engagement processes should be clearly outlined.
- Define M&E framework to measure progress.
- Translate portions of the plan into local languages.
- Implementation of the management plan should not be politicized.
- Source and ring-fence funds for the implementation of the plan
- Alternative livelihood options should be considered during implementing close season.
- Deepen stakeholder engagements and consultations in deciding when and how the close season should be effected
- NCCE should be involved in information dissemination of the plan implementation.
- FC should work closely with district assemblies, NGOs and CSOs in the plan implementation
- Acquire a research vessel to help stakeholders understand better the status of the stocks.

## **2.6 Discussion: Small pelagic fisheries overview and the NMFMP**

### **Question:**

**Andrews Tetteh:** How do we ensure that the gains from sale of premix are well accounted for and not just used by a few committee members? How do we address the issue of light fishing and trawler that land juvenile fish?

### **Response:**

**Samuel Quatey:** The law is being worked on to make the premix committee liable; women should be included in the premix committee. The trawler land juvenile because of the possible mid-water trawl they do. Gradually things will be sanitized. *“Rome was not built in a day.”*

**Capt. Emmanuel Kwafo:** *Saiko* must stop to save our fisheries. Canoe supply vessels with undersize mesh at sea to fish juvenile.

### **Question:**

**Gift Asmah:** How did they get to the point they are now in the Philippines?

### **Response:**

**Sortoh Mensah:** The people have the power to elect their mayor and also the power to promote a community from district to Municipal and demote back to district based on performance.

**Emelia Abaka-Edu:** Research contributed to the management of fisheries in the Philippines.

**Najih Lazar:** Communication was a key component of the management of fisheries in the Philippines

### **Question:**

**Justice Odoi:** How do we incorporate the 5 year Fisheries Management Plan into the 40-year Development plan?

**Jerome Deamesi:** The Sea is a shared resource; how do we incorporate oil and gas into the NMFMP?

**Response:**

**Mr. Godfrey Baidoo-Tsibu:** The fisheries law frowns on IUU so does the EU because of the disadvantage it puts local fishermen. We can use our local market to say no to *Saiko* fishing.

**Question:**

**Hon. Gabriel Essilfie (MP for Shama):** Is the management plan going to make sure that all the landing sites are monitored to ensure control? So long as fishermen can land anywhere we cannot monitor. It is ok to perform the skit before policy makers but it will be more effective when it is done in the communities. Is there a provision to take it to the grassroots? Replicate it in the communities to make our work easier. I will advise that political promises should be fulfilled and the purchase of a research vessel should be seriously considered.

**Hon. Kobby Okyere Darko (MP for Takoradi):** The vessels donated to the various monitoring agencies should be converted to a research vessel. Results in coastal communities are poor and no vocational schools to help them take up sustainable alternative livelihood. Cold store built should be commissioned.

**Response:**

**Samuel Quatey:** Coastal lands are under MDAs and not under fisheries but we should work to protect them. The cold stores are being commissioned. Alternative livelihood requires holistic education, including vocational training. Effort reduction is part of the WARFP component. The Fisheries Commission Board is taking the purchase of a research vessel seriously. A communications expert has been contracted to help with education and communication vans being procured for effective communication. Due to the many and dispersed landing sites it is difficult to police but the Ministry is working on a co-management policy which will allow fishers to be involved in the monitoring of their beaches

**Question/Comments:**

**Kofi Agbogah:** How will the insurance scheme look like? Who will pay for the insurance; fishermen or government?

**Godfrey Baidoo-Tsibu:** How do you intend to see capping of fleet happen?

**Emelia Abaka-Edu:** We fisher-folk will contribute towards our own insurance and pension scheme.

**Nana Joojo Solomon:** We the custodians of the various landing beaches would ensure that no new canoes come in once the register is made available to the Chief Fishermen.

**Comments/Suggestions**

- There should be feedback into the community after research has been done
- Dissemination of information should go down to the grassroots.
- Migration of fishermen will continue until the law begins to work
- Fishermen no longer marry many wives like they did in times back
- Fishermen marry as much as 5 wives
- **DAA women:** Closed season and closed areas work in Gambia; the fishermen not only harvest the resources in Gambia but they also advice the minister on fisheries issues. Because of this fish species not seen in Ghana in a long while are found in Gambia. This tells us that contributions from fishers should all be considered.
- **Emelia Abaka-Edu (Fish Processor):** Fish are gravid between August and September. During this time smoking does not really preserve the fish for long because as they are so fatty due to the eggs. When we smoke the fish they burst open and they are not

attractive on the market. Based on this I will suggest that the close season should be around this time although coincides with our bumper season. If we close the season, then the bumper/major harvest will shift to December to January. There is always fish glut during the bumper season and because we cannot preserve the fish for long we are forced to sell at very low prices. We can practice this closed season for 3 years and see the outcome.

- **Godfrey Baidoo-Tsibu:** Many agree to the idea of closed season but how many are willing to put in the sacrifice?
- **Andrews Tetteh** (Fisherman): Prof's presentation has opened my eyes. July to October is the time gravid fish spawn.
- **Justice Odoi:** (USAID) Natural resources in general are facing similar problems. Forest are being lost at alarming proportions because they exceeded their allowable cut. Fishery is facing the same problem because we are exceeding their allowable catch.
- **Prof. Kobina Yankson:** Closed season needs to be discussed with all stakeholders and also support with scientific evidence.
- **Samuel Quatey:** Closed season is for trawlers. The Tuna vessels have their closed season and regulated by ICCAT. The canoes have their fishing holiday (Tuesdays) and we are looking at adding a day to it.
- **Prof Kobina Yankson:** Let us be patient until we reach a consensus as to the approach.
- **Thomas Insaidoo:** Light is used to navigate and communicate in the Philippines. They use light to indicate if a vessel is fishing or not but it is not used to aggregate fish.
- **Lydia Sasu:** The law should be communicated at the grassroots.
- **Godfrey Baidoo-Tsibu:** Value addition to fish should be considered
- **Kojo Sortoh:** The law translated into the local language will help but policy makers should be involved in the education of the citizens on the law.
- **Andrews Tetteh:** Ineffectiveness of the law compounds our fisheries problem. The premix fuel proceeds are being misappropriated and no one is being held accountable. The premix committees have been given the right to spend 43% of the premix proceeds without accounting for it.
- **Chief** (Regional House of Chiefs): There should be closed areas in addition to closed seasons. Water bodies that feed the ocean with nutrients such as Pra and Ankobra Rivers should be pollution free from mining activities and the Law should protect our water bodies.
- **Godfrey Baidoo-Tsibu:** We have to share information with neighbouring countries. Capping means we should have a register that is transparent and information should be made available so boats coming from other countries will be known and identified. This will help with control at the landing beach.
- **Thomas Insaidoo:** Dealing with IUU means we have to punish offenders with deterrent fines.
- **Godfrey Baidoo-Tsibu:** Ghana has raised the bar in terms of sanctions to meet international standards. We must be in tune with other countries so that Ghana is not seen as a safe haven.



Figure 18 a skit on the for a collaborative approach to fisheries management.

## 3.0 CHALLENGES IN MANAGING THE SMALL PELAGIC FISHERIES

### 3.1 Challenges in Managing the Small Pelagics: Global Lessons in Fisheries Management



**Martin Tsamenyi**

Director and Professor of Law,  
Australian National Centre for Ocean  
Resources and Security,  
University of Wollongong, Australia

Prof. Tsamenyi highlighted the challenging nature of small pelagic fisheries management globally. He outlined some of the international best practices that can be adopted in managing the small pelagic fisheries in Ghana.

**Take home messages:**

- The sustainable management of small pelagic fisheries is one of the most challenging globally owing to the multi-species nature of the fisheries.
- Some of the challenges of management in the small pelagics fisheries includes:
- **Biological:** small pelagic species are short lived species; they are harvested in large quantities; they are characterized by natural variation; they are transboundary in nature; they are close to shore and are targeted by both commercial and artisanal fleet; they form the diet of other large pelagics and many other predators.
- **Socio-economic:** it is a way of life and sustains large coastal centers; it serves as a major source of protein for many coastal communities; the fleet dynamics within the small pelagic fisheries is highly complex; it is characterized by conflict within the fishery and external conflict due to pollution and oil and gas development.
- **Political:** the sector is highly political due to the large electoral power this sector wields.
- Although the sector faces a number of challenges, there are however international best management practices that can be followed. All fisheries are not the same and solutions need to be tailored to the circumstances of every country. There is no one-size-fits-all solution to managing the small pelagics.

## Selected Slides

### Management Challenges



- Data poor
- Inadequate knowledge
- Management interventions
  - Degree of mesh size to protect juveniles
  - Prohibited gears
- Gear conflicts
- Enforcement challenges
  - Illegal fishing
  - Conflict with enforcement agencies

Figure 19 Management challenges

Implement fisheries management plan is never a smooth sail. It comes with some challenges that must be anticipated and planned for. These including poor fisheries data, inadequate knowledge of the fisheries, gear conflict among fishing vessels and enforcement challenges as outlined by this slide.

### International Best Practice

- More attention to research
  - to determine stock structures
  - to determine the Total Allowable Catch (TAC)
  - To evaluate effectiveness of management actions



Figure 20 International best practices

There are international best practices that can be followed to ensure that the management plan is successful.

Some of these best practices are summarized in the next two slides.

### International Best Practice

- Stock rebuilding management actions can be very painful in the short term
- Stakeholder support makes it easier for effective management actions to be taken
- Education and outreach strategy



Figure 21 International best practices

The international best practices should be adopted and tailored to the fisheries of the country as there is no one-size-fits-all solution to managing the small pelagics



### 3.2 Legal Procedures for Implementing the NFMP



**Martin Tsamenyi**  
Director and Professor of Law,  
Australian National Centre for Ocean  
Resources and Security,  
University of Wollongong, Australia

**Figure 22 Martin Tsamenyi**

Prof. Tsamenyi's second presentation outlined the legislative requirements for the development and implementation of the Fisheries Management Plan as specified in the Fisheries Act 2002. The underlying principles of the plan, its content, and the steps followed in the development of the plan.

#### **Take home messages:**

- The legislative requirements for the development and implementation of the fisheries Management Plan are specified in the Fisheries Act 2002. Section 42 of the Fisheries Act requires that a fishery plan prepared by the Commission for the management and development of the fisheries shall
  - (a) be based on the best scientific information available
  - (b) ensure the optimum utilization of the fishery resources but avoid over exploitation and
  - (c) be consistent with good management principles.The content of the plan shall follow the prescription of section 43 of the Fisheries Act; go through a consultation process with all stakeholders affected by the plan and an approval process as detailed out in Section 44 of the Fisheries Act.
- The Fisheries Management Plan is a government policy and not a legislative instrument. It does not have the force of law and hence for it to be effective, enabling legislations such as the Fisheries Act must be enforced.
- In the short term many measures under the Plan can be implemented immediately under the current legislation.
- The Fisheries Act 2002 is currently under major revision through the WARFP to give comprehensive effect to the Fisheries Management Plan.

## Selected Slides

**Content of fishery plan**

Section 43- Fisheries Act 2002

A fishery plan shall:

- identify the fishery resource and its characteristics, including its economic and social value and interrelationship with other species in the ecosystem
- assess the present state of exploitation of each resource
- taking into account relevant biological, social, and economic factors, determine the potential average annual yields from the resource
- determine the total allowable catch

Sample content of the National Marine Fisheries Management Plan as prescribed in Section 43 of the Fisheries Act 2002.

**Figure 23 Sample content of the National Marine Fisheries Management Plan**

**Closed seasons  
(s.84 Fisheries Act 2002)**

(1) The Commission may by notice in the *Gazette* declare closed seasons, including their duration, for fishing in specified areas of the coastal waters or the reverie system.

(2) A declaration made under subsection (1) shall be given all reasonable publicity and, where possible, shall be given in advance of the closed season.

(3) A closed season declared by an international body of which Ghana is a member shall be regarded as a closed season declared under this Act

The current Fisheries Act provides a guideline for the declaration of closed season for the fisheries by the Fisheries Commission.

**Figure 24 guideline for the declaration of closed season**

Management Action	Means of Implementation
▪ 0% reduction in fishing days for trawlers (scaled annually)	• Licensing Conditions under Fisheries Act 2002
▪ Control the number and capacity of vessels	• Policy/management • License conditions • New legislation
▪ Deletion of inactive boats	• Policy/management • New legislation
▪ Cancellation of licences for violators of fisheries laws and regulations	• Fisheries (Amendment) Act 2014 and Fisheries (Amendment) Regulations 2015
▪ Replacement scheme for registered vessels	• Policy/management • New legislation

Some of the management action as detailed out in the plan and means of implementation.

**Figure 25 Management action**

### 3.3 Discussion: challenges in managing the small pelagic fisheries

#### Question:

**Gifty Asmah:** Was your (Prof Tsamenyi) input taken into consideration when developing the management plan?

**Chief:** Closed season should go hand in gloves with closed areas. Ministry of Mines should be brought on board because of the mining activities in our water bodies.

How do we plan to stop light, carbide and dynamite fishing? Should samples be taken when fish are landed and taken to Food and Drugs Authority (FDA) for testing and the vessel owner found to fish with these chemicals dealt with?

#### Response:

**Martin Tsamenyi:** This is the first management plan for Ghana's fisheries but we have to start from somewhere and the plan is a good start although it is not perfect because of so many loopholes. Why do fishers infringe the fisheries law? If we can answer, then we can solve many of the problems. It could be that:

- i. Fishers do not understand the law
- ii. Fisher understand but the punishment is not deterrent
- iii. The politicization of the industry
- iv. Because fish is diminishing and you have lots of people chasing little fish hence they are compelled to fish wrongly to get an advantage.

The issues are complex but remember enforcers of the fisheries law are your friends.

**Samuel Quatey:** The Chief said it right; there should be an inter-ministerial agencies intervention. Pollution is affecting the spawning ground of the fish.

**Godfrey Baidoo-Tsibu:** Some fishermen use chemicals in fishing. Let us help ourselves to eliminate them.

**Chris Ackon:** It is difficult to have people come forward; the same situation is faced in the forestry sector. Social responsibility agreement is used in the forestry. This get the people committed to force other to do right because once the right things are done some royalty come to their communities.

## 4.0 OPERATIONALIZATION OF THE NATIONAL FISHERIES MANAGEMENT PLAN

Participants on Day 3 of the dialogue were divided into 4 groups to discuss aspects of Plan and its operationalization:

- Group 1 legal and institutional framework;
- Group 2 communication framework
- Group 3 research and monitoring and evaluation framework; and
- Group 4 enforcement and compliance framework.

Each group was provided with a set of guiding questions for discussion and reported back to the plenary. The presentation and issues raised during the plenary are presented here.



Figure 26 Communication framework breakout group

#### 4.1 Report from the 'Legal and Institutional Framework' breakout group

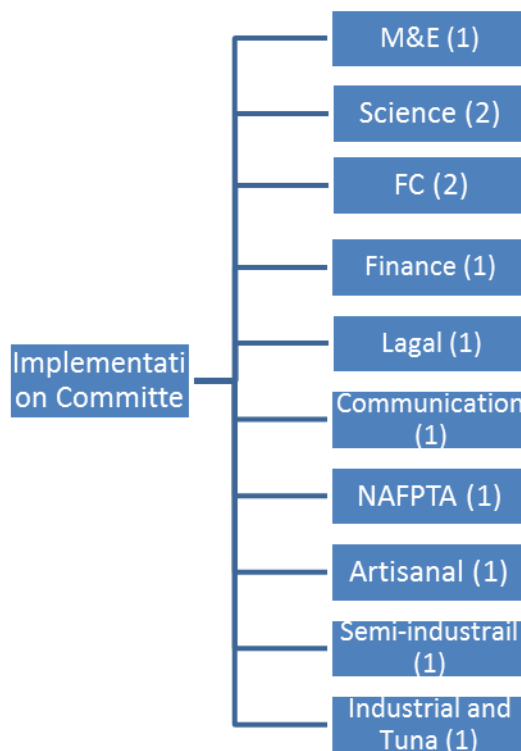
##### *Process for change of the Management Plan*

- Stakeholder engagement along the entire change process
- Change must be supported by science and socio-economics
- Yearly review recommended for M&E and evaluation should be done every 2 years
- Trigger for change emanates from the stakeholders and the scientific committees
- In consultation with the Commission, and the Minister, the committee initiates action.

##### *Function or Role of the Implementation Committee*

- Collate key issues arising from the implementation of the plan
- Develop annual operational plan
- Monitor performance of the plan
- Prepare periodic reports
- Organize and oversee research
- Provide advisory services to sector policy
- the committee should be in place and functional by March 2016

##### *Structure of the Implementation Committee*



##### *Time Frame for formation of Implementation Committee*

## 4.2 Report from the 'Communication Framework' breakout group

Table 1 Communication Framework' breakout group

Stakeholders	Strategies	Tools	Logistics	Duration	Remarks
Fishers Fishermen Fish processors/ marketers	Focus group discussions with various fisher folk groups: GITA, GIFA, GNCFC, NAFPTA (made up of different groups along the coast) Community / landing beach level meetings Chief fishermen Fishermen	Drama / sketches during meetings Radio drama/documentaries, panel discussions TV documentaries, panel discussions Radio Jingles News Posters at landing sites	Megaphones at landing beaches	Continuous process Intensive Campaign starts from February – December Initial engagements 21 <sup>st</sup> November-Worlds Fisheries Day 4 <sup>th</sup> December-National Farmers Day	The objective is for fishers to buy-in to the plan to become agents of change Understand the need for full compliance of the plan Cooperate with law enforcement agencies Suggest better ways of ensuring full implementation Obtain feedback on improving the plan
Traditional authorities Chiefs and Queens	These group will form part of the chief fishermen group discussions				Understand the issue and see the need to contribute to its implementation

Stakeholders	Strategies	Tools	Logistics	Duration	Remarks
Law Enforcement Agencies (Navy, Police, Marine police, District Assembly)	Focus Group Discussion (FGDs)				Understand behaviour of affected communities towards its implementation Understand the need to ensure full implementation of the plan without fear or favour Obtain feedback from constituents on ways of improving the plan
Policymakers Parliamentarians MOFAD, FC. Select committee on Food and Agriculture, Cabinet	Stakeholder meetings			MPs- participate in landing beach meetings MOFAD/ FC Periodic meetings Select committees/ Cabinet, Yearly meetings/reviews	Understand the plan and contribute to its implementation at the local levels
Others Mining Companies Politicians, Youth, General public	TV/ Radio Discussions News articles				Understand the effect of their activities on the sea especially those around the estuaries

#### 4.3 Report from the Research, Monitoring and Evaluation Framework group

**Background:** The Fisheries Commission has a number of field enumerators who conduct weekly stock surveys at selected landing sites. However; the Commission is constrained by low numbers of trained enumerators, a need for in-depth research and a research vessel among others.

Areas of research needed to support the successful implementation of the plan; key points and indicators are presented in the table below:

**Table 2 Research, Monitoring and Evaluation Framework group**

Research Area	Research Agenda	Monitoring Indicators
Fisheries	Catch, Effort (number of trips), Gear types, Selectivity, Crew size	Production per vessel, Days at Sea, Gear per vessel
Biological	Nationwide sampling on a daily basis, Determination of spawning pattern, Fecundity, Length/weight data	GSI (Gonadosomatic index), Mean weight, Mean length
Ecological	Sea Surface Temperature (SST), Salinity, Upwelling trends, Climate change, Spawning and nursery grounds, Ecosystem health, Pollution levels (plastics and heavy metals), Post-Harvest Technology, Sustainable sources of fuel wood, Determination of Marine Protected Areas	Measures of SST, Upwelling index, Salinity, Rates of sea level rise, Heavy metal concentrations, Plastics, Mangrove cove, Turbidity, Marine Protected Areas
Socio-economics	Income levels, Poverty levels, Inter and intra sectoral conflicts, Alternative livelihoods, Impact of closed seasons and other gear, restrictions on livelihoods of stakeholders, Nutrition and stunting levels from community to national level, Contribution of youth groups, fishermen and fish processors to the success of fisheries policy implementation	Number of reported conflicts, Number of stakeholder interactions, Number of alternatively resolved disputes, Income levels, Employment opportunities, Stunting ratio, anaemia levels, Shifts in patterns of fish consumption by households
Policy	Avenues for compensation during closures Impacts of closure at all stakeholder levels Regional interaction/collaboration Inter-agency collaboration Explore effective ways of disseminating information at all stakeholder levels Strengths and weaknesses of previous policy interventions Effectiveness of monitoring systems	Number and types of collaborative agreements/partnerships Changes in attitude before and after implementation of agreements Number of successful policies implemented



### **When should research begin or end?**

We recommend that research should begin as soon as possible and should be continuous; without a time limit as fishery practices and gears constantly evolves to fit changes in the fishery.

### **When should be the reporting period?**

We recommend a monthly progress report at the community or district level; with semi-annual and annual reports submitted to relevant agencies. However, all information should be disseminated at all stakeholder levels.

### **Resources needed**

- Human
- Financial
- Political
- Logistics

## **4.4 Report from the Enforcement and Compliance Framework group**

**Background:** For enforcement to be effective the following logistics are required:

- Vehicle (for personnel and seized items)
- Policing equipment:
  - anti-riot gears
  - canopies
  - crowd disposal equipment
  - camping equipment
  - accommodation
  - speedboats and naval ships
  - communication and surveillance equipment
  - competence related capacity building to use the equipment
  - training in fisheries law and its enforcement
  - testing kit to determine chemically caught fish
  - adequate financial support
  - education of the populace on fisheries laws with particular attention to the co-management teams, the chief fishermen and *Konkohema* institutions.

**Table 3 Enforce closed season and foster high compliance**

How do we implement and enforce closed season and other provisions in the plan?	What local structures are needed to foster high compliance?
<ul style="list-style-type: none"> <li>• Broad stakeholders’ consultation at all levels (National, Regional, and community)</li> <li>• Season should be closed to all fleet (from canoes to Industrial vessels)</li> <li>• Take census of fishermen; provide alternative livelihood that are sustainable</li> <li>• Closed season is covered in the act so its enforcement should be like other provisions.</li> </ul> <p>Toll free line dedicated to the enforcement.</p> <ul style="list-style-type: none"> <li>• information provided by callers should be confidential</li> <li>• toll free line should be centralized at MCS/FEU but can be dispatched to other enforcers</li> <li>• Government should make resources available for swift response</li> <li>• Recruit, train and retain personnel.</li> </ul>	<ul style="list-style-type: none"> <li>• Community based co-management units</li> <li>• proposed vigilante groups</li> <li>• chief Fisherman and Elders</li> <li>• There should be a lot of education and sensitization before commencement of the plan. Therefore, as soon as implementation starts enforcement starts as well.</li> </ul>

#### 4.5 Discussion: Operationalization of the National Fisheries Management Plan

##### Comments, Questions and Responses:

- Will the committee be advisory?
- CSO should be included
- Gender composition of the committee should be considered
- **Sam Quaatey:** Association in fisheries are gender specific
- **Queronica Quartey:** women play important role and should be consciously brought on board.
- **Sam Quaatey:** There should be research into MPAs. The plan should be looked at beyond the closed season.
- **Baidoo-Tsibu:** Where are we going to get the people to do the research?
- **Najih Lazar:** The agenda stresses collaborative research effort to involve all.
- **Lydia Sasu:** Is there a component for socio-economic research.
- **Thomas Insaideo:** Are we looking at protein impact of closed season?
- **Queronica Quartey:** Youth integration should be looked at. Will the research look at international agreements so far?
- **Denis Aheto:** Climate change impact should not be ignored and should form part of our research agenda. The profitability of the sector should also be looked at as well as evolution of past government policies.
- **Baidoo-Tsibu:** The entire management plan revolves around the MCS. We should look at the cost implication of the MCS.
- **Rebecca Amoh-Aboagye:** We should focus on strengthening inter-regional management organisations

- **Stephen Kankam:** How do we link the role of implementation committee to the communication strategy?
- **Rebecca Amoh-Aboagye:** There was a communication plan that was presented to cabinet before the management plan itself was approved
- **Baidoo-Tsibu:** There is a subcommittee on communication in the implementation committee
- **Najih Lazar:** There can be multiple subcommittees but a control committee that oversees these subcommittees would be good.
- **James Azamesu:** Communication should target specific audiences. There should be identifiable target group.
- **Doris Yeboah:** Target of policy should go beyond MPs to the seat of government.
- **Baidoo-Tsibu:** FEU is a risky business; there should be motivation for officers.
- **Prof. John Blay:** We should focus on activities happening here and make it work
- **Najih Lazar:** Enforcement should look at education and extension.
- **Chairperson:** Communication and enforcement work hand in hand.
- **Sam Manu:** Documentation should be circulated to everyone
- **Alex Sabah:** Fisheries communicators used under the ICFG proved effective. This can be replicated to help with communication.

## **5.0 DIALOGUE OUTCOMES AND WAY FORWARD**

### **5.1 Outcomes**

The Dialogue provided a well-timed platform for discussion and deliberation on the implementation of the National Marine Fisheries Management Plan.

The dialogue successfully brought key stakeholders to the table to discuss in detail the Management Plan developed by the Fisheries Commission to address the challenges in Ghana's marine fisheries sector. While participants did not reach a consensus on which of the fleets the close season is meant for, the period for the closure and when implementation should begin; they all however agreed to the implementation of a closed season.

The presentations and discussion helped stakeholders to understand why the management plan was developed and the management actions that will be taken. They also brought to bare the complexities of managing the fisheries and the need for collaboration to overcome these complexities.

Stakeholders called on the Ministry of Fisheries and Aquaculture Development and Fisheries Commission to take the global lesson in fisheries management seriously so as to ensure the successful implementation of the Plan.

### **5.2 The Way Forward**

The way forward for the implementation of the management plan is the formation of the Operational Committee (OC) to implement the plan and recommendations from the dialogue.

## ANNEX 1: PARTICIPANTS LIST

No	Name	Institution	Designation
1	Acqinas Quansah	Central Region Co-ord Council	Regional Minister
2	Michael Takyi	CEWEFIA	M&E/BDS
3	Juliet Buabeng	CEWEFIA	Administrative Officer
4	Josephine Addo	CEWEFIA	Project Officer
5	Victoria Koomson	CEWEFIA	Project Coordinator
6	Diana Otuteye	CEWEFIA Women Group	Fish Processor
7	Brian Crawford	CRC-URI/SFMP	Chief of Party – SFMP
8	Sister-Hope Asmah	Daasgift Quality Foundation	Comms. Officer
9	Gifty B. Asmah	Daasgift Quality Foundation	Exec. Director
10	Margaret Mensah	Development Action Association	Fish Processor
11	Lydia Sasu	Development Action Association	Executive Director
12	Nancy A. Out	Development Action Association	Finance & Admin
13	Simon Kofi Gyimah	Dept. Fish/Aquatic Sci /UCC	Student
14	Jeminah E. Kassah	Dept. Fish/Aquatic Sci /UCC	Phd Student
15	Christopher Ackon	European Union Delegation	Program Officer
16	Scott Apawodza	Fisheries Commission	Regional Director
17	Paul Bannerman	Fisheries Commission	Deputy Director
18	Samuel Manu	Fisheries Commission	Deputy Director
19	Yaw Attobrah	Fisheries Commission	Regional Director
20	Francis Akorlor	Fisheries Commission	Regional Director
21	Alex Y. Sabah	Fisheries Commission	Regional Director
22	Matilda Quist	Fisheries Commission	Deputy Director
23	James Azamesu	Fisheries Commission	Comms. Officer
24	Doris Yeboah	Fisheries Commission	Asst Director
25	Thomas Insaidoo	Fisheries Commission	Deputy Director
26	Capt. Emmanuel Kwafo	Fisheries Enforcement Unit (FEU)	Coordinator
27	Kwesi Johnson	Friends of the Nation	Coordinator
28	D.Y. Mevuta	Friends of the Nation	Exe. Director
29	Kyei Yamoah	Friends of the Nation	Program Manager
30	Jerome Deamesi	Ghana Indus.Trawlers Ass. (GITA)	Member
31	Emmanuel Botchway	Ghana Inshore Fish. Assoc. (GIFA)	Secretary
32	Danny Kirk-Mensah	Ghana Inshore Fish. Assoc. (GIFA)	Vice President
33	Andrew Tetteh	Ghana Inshore Fish. Assoc. (GIFA)	Ex. Member
34	Kojo Sortor Mensah	Ghana Inshore Fish. Assoc. (GIFA)	National Vice President
35	Fifi Robertson	Ghana Inshore Fish. Assoc. (GIFA)	Member
36	Andrew Tetteh	Ghana Inshore Fish. Assoc. (GIFA)	Executive Member
37	Nii Djamloja VI	Ghana Nat. Canoe Fish'mens Council.	G/A Cha

No	Name	Institution	Designation
38	Nana Kofi Susu	Ghana Nat. Canoe Fish'mens Counc.	Ag. Chief Fisherman
39	Mike Abaka-Edu	Ghana Nat. Canoe Fish'mens Counc.	Reg. Secretary – WR
40	Nana Obrenu Dabum III	Ghana Nat. Canoe Fish'mens Counc.	Exe. Member
41	John D. Eshun	Ghana Nat. Canoe Fish'mens Counc.	P.R.O
42	Nana Kojo Konduah	Ghana Nat. Canoe Fish'mens Counc.	Chief Fisherman
43	Nana Jojo Solomon	Ghana Nat. Canoe Fish'mens Counc.	Chief Fisherman
44	Nana K. Duncan	Ghana Nat. Canoe Fish'mens Counc.	Chief Fisherman
45	Nii Tetteh Bortei	Ghana Nat. Canoe Fish'mens Counc.	Chief Fisherman
46	Kofi Agbogah	Hen Mpoano	Director
47	Cephas Asare	Hen Mpoano	Program Officer
48	Stephen Kankam	Hen Mpoano	Program Coordinator
49	Rebecca Aboagye (Mrs)	Min. of Fisheries & Aquac. Dev	Chief Director
50	Flt/Lt M.G. Tackey	Nat. Fish. Assoc.of Ghana (NAFAG)	President
51	Simon Agah	Nat. Fish. Assoc.of Ghana (NAFAG)	1 <sup>st</sup> Vice President
52	Apostle Dr. Queronica Q. Quartey	Nat. Fish Proc/Trad. Asso (NAFPTA)	Technical Advisor
53	Diana Nsarkor	Nat. Fish Proc/Trad. Asso (NAFPTA)	Ex. Member
54	Emelia Abaka-Edu	Nat. Fish Proc/Trad. Asso (NAFPTA)	National Vice President
55	Theresa Freeman	Nat. Fish Proc/Trad. Asso (NAFPTA)	Reg.nal Vice President
56	Peace Abla Gavor	Nat. Fish Proc/Trad. Asso (NAFPTA)	C/R Chairpersons
57	Ruby Adukpoh	Nat. Fish Proc/Trad. Asso (NAFPTA)	Secretary V/R
58	Stella Quartey	Nat. Fish Proc/Trad. Asso (NAFPTA)	Fish Processor
59	Prince Addico	Nat. Fish. Assoc. of Ghana (NAFAG)	Executive Member
60	Hon. Gaberiel essifie	Member of Parliament - Shama	Chair-Agric Committee
61	Yaw Frimpong Addo	Member of Parliament-Manso Adubia	Member- Agric Comm
62	Kobby Okyre Darko Mensah	Member of Parliament- Takoradi	Member- Subsidiary Legislation Committee
63	Nafisa Antaru	SFMP/CRC	Administrator
64	Patricia Aba Mensah	SFMP/CRC	Comms Officer
65	Najih Lazar	SFMP/CRC	Snr Fisheries Advisor
66	Sarah Agbey	SNV	Senior Advisor
67	Andra de jager	SNV	Country Director
68	Nii Tachie-Atoo	SSG/SFMP	Partnership Specialist
69	Francis Oppong	Traditional Ruler	Okyeame
70	Mama Ewui III	Traditional Ruler	Queenmother
71	Nana A.K. Kodie IV	Traditional Ruler	Omanhene

No	Name	Institution	Designation
72	Togbi Agbotadua	Traditional Ruler, Angloga	Traditional Ruler
73	Donald Berces	URI /USA	Fulbright Scholar
74	Prof. Kobina Yankson	Univ. of Cape Coast (DFAS)	Professor
75	John Blay	Univ. of Cape Coast (DFAS)	Professor
76	Godfred Ameyaw	Univ. of Cape Coast (DFAS)	Project Officer
77	Denis Aheto	Univ. of Cape Coast (DFAS)	Snr Lecturer
78	Robert Buzzard	USAID	Advisor
79	Justice Odoi	USAID	Envir. Specialist
80	Nyaneba Nkrumah	World Bank Accra	Technical Team Leader
81	Shirley addo	Press - Daily Graphic	Reporter
82	David Tetteh	Press - Ghanaian times	Reporter
83	Jonathan donkor	Press - GNA	Reporter
84	Adam Ibrahim	Press - Joy FM	Reporter
85	Usman Abdullah	Press - Joy FM	Reporter
86	Agnes Gyabeng	Press Ahomka FM	Reporter
87	Bojo Dei	Press ATL FM	Reporter
88	Asana Gordon	Press Daily Heritage	Reporter
89	Charles Smith	Press GBC – Radio	Reporter
90	Thomas Donkor Dela	Press GTV	Reporter
91	Kingsley N. Buadu	Press GTV	Reporter
92	Adu Gyamfo Marfo	Press Hot FM	Reporter
93	Magdelin Abrobrah	Press Today	Reporter
94	Ellen Aidoo	Press Radio Peace	Reporter

## ANNEX 2: AGENDA

Dialogue Agenda		
Dialogue Objectives:		
<ul style="list-style-type: none"> <li>• Provide a platform for fisheries stakeholders' representatives to know about the approved National Marine Fisheries Plan and to make recommendations on modalities for operationalizing and implementing the plan,</li> <li>• Establish a platform for strengthening collaborations between national and grassroots level fisheries stakeholders and,</li> <li>• Explore opportunities for stakeholders to contribute to collective decision-making processes</li> </ul>		
Monday 2 November 2015		Facilitator – SFMP)
DAY 1	Session I	
10:00	Arrival and Registration of Selected Stakeholder Groups	SFMP
10:20	Opening Prayer/ Introductions/DialogueObjectives	Kofi Agbogah/ Hen Mpoano –SFMP
10:50	Profile of small pelagic fisheries	Stephen Kankam/ Hen Mpoano
11:20	Overview of Status of the Small Pelagic stocks	Prof. Kobina Yankson/ UCC, SFMP/STWG
11.50	Philippines Study Tour Case Study-Lessons for Ghana: Panel Discussion on Marine Fisheries Management	FC/GIFA/GNCFC/NAPFT A /SFMP
12:20	BREAK	
12:35	Overview of the National Marine Fisheries Management Plan	Paul Bannerman/Fisheries Commission
1:05	General Discussions/Task for Session	Chair: Member, FC Board
1:30	LUNCH	
DAY 1	Session II Meeting of Stakeholder Groups:	GNFCC/GIFA/GITA/ NAFPTA
2:30	Discussion in small groups on recommendations for implementing and anticipated challenges for implementation of National Marine Fisheries Management Plan	Facilitator SFMP
3:30	Stakeholder Goups Prepare Key Talking Points/Presentations for Day 2	Facilitator SFMP/FC
4:00	BREAK	
4:15	Preparations for Day II Presentation (cntd)	Facilitator SFMP/FC
4:45	Wrap up Day I, & Adjourn	Facilitator SFMP/FC



Dialogue Agenda		
5:15	Check in	<i>Chair: SFMP</i>
DAY 2 AM	Tuesday, 3 November 2015 Session 1	Facilitator Fisheries Commission
8.30	Registration of Participants	SFMP
9.00	Arrival of Fisheries Minister / Regional Minister	
9.15	Opening Prayer	
9.20	Workshop Objectives/ Group Introductions	Facilitator SFMP
9.40	Short skit on actions for rebuilding stocks	Drama Troupe
10.00	National Policy Framework for Fisheries Management <i>the National Marine Fisheries Management Plan</i>	Fisheries Commission
10:30	Stakeholders Views on NMFMP	Stakeholder Representatives
	<i>Chair: Hon. Kobby Otchere Darko Mensah MP Takoradi and Member, Subsidiary Legislation of Parliament</i>	
11.00	COFFEE BREAK	
11.15	Challenges in Managing the Small Pelagic Fisheries Small Pelagic Fisheries Profile  Status of the Small stocks  Global Lessons in Fisheries Management	SFMP Prof. K. Yankson – STWG Prof. Martin Tsamenyi
12:15	Open Forum/Discussions	Facilitator - Fisheries Comm
	<i>Chair: Hon Gabriel K. Essilfie, MP Shama, Chairman, Food &amp; Agric Committee of Parliament</i>	
12.45	LUNCH	
DAY 2 PM	Tuesday, 3 November 2015 Session II	Facilitator - Fisheries Comm
	OFFICIAL CEREMONY	
1.30	Cultural Display	
1.45	Welcome Address	Hon. Aquinas T. Quansah (MP), Central Regional Minister

Dialogue Agenda		
1.55	Introductory remarks-	Dr. Brian Crawford Chief of Party, SFMP
2.00	Statement by Representatives	USAID/Ghana, World Bank, European Union
2.25	<i>Interlude</i>	
2.35	Keynote Remarks	Hon. Sherry Ayittey, Minister –MoFAD
2.55	<i>Short Break/Group photograph/Snacks</i>	
3.15	Plenary discussions on the way forward	
2.55	<i>Short Break/Group photograph/Snacks</i>	
3.15	Plenary discussions on the way forward	
3.45	Legal procedures for implementing the NMFP and additional management measures as may be needed in the future	Prof. M. Tsamenyi
4.05	Conclusions/Summary of Day 2	Fisheries Commission
4.20	Adjournment	
	<i>Session Chair: (Chairman Fisheries Commission, Mr. Benson Nutsukpui</i>	
DAY 3	Wednesday 4 November 2015	
8.30am	Registration	SFMP
9.00am	Opening Prayer	
9.05	Operationalizing the NFMP, additional planning requirements needed	Fisheries Commission/SFMP
	<i>Session Chair Mrs Rebecca Amoh-Aboagye (Chief Director MoFAD)</i>	
12.30p m	LUNCH	
<i>Departures</i>		

# ANNEX 3: SUMMARY OF THE MANAGEMENT PLAN



## MINISTRY OF FISHERIES AND AQUACULTURE DEVELOPMENT FISHERIES COMMISSION

### The National Marine Fisheries Management Plan (2015 - 2019)

TOWARDS A SUSTAINABLE FISHERY

#### FACT SHEET

#### Key Management Issues

- Excessive fishing effort exerted in all fisheries
- Inadequate information on fisheries biology and stocks.
- Inadequate regulations and weak enforcement of existing regulations
- Low levels of protection of marine biodiversity
- Inappropriate procedures in certifying fish for export



GHANAIAN MAJOR FISHING FLEET IN SNAPSHOT			
YEAR	1990	2000	2015
Canoes	8,052	8,610	11,057
Inshore	323	244	204
Trawlers (industrial)	43	55	93
Tuna	36	39	43
<b>TOTAL</b>	<b>8,454</b>	<b>8,948</b>	<b>11,397</b>

#### Profile of the Marine Fisheries Sector

Type	Number of vessels	Volume of catch (mt)
<b>Marine</b>		
Motorized canoes	6,405	172,300
Non-motorized canoes	4,808	81,900
<b>Total canoes</b>	<b>11,213</b>	<b>254,200</b>
Semi-industrial	240	6,100
Trawlers	72	18,500
Tuna	37	65,000
<b>Grand total</b>	<b>11,562</b>	<b>343,800</b>

Fleet	Maximum Sustainable Yields in MT (annual)	Number of vessels required to sustain resources	Current number of vessels (2013)
Artisanal	239,912	9,095	12,728
Inshore	13,713	272	358
Industrial	30,637	48	89

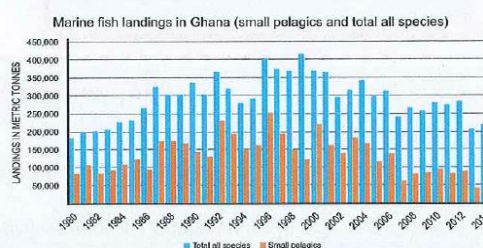


Figure 27 Summary of management plan



## MINISTRY OF FISHERIES AND AQUACULTURE DEVELOPMENT FISHERIES COMMISSION

### The Fisheries Management Plan of Ghana (Marine Sector)

The Ministry of Fisheries and Aquaculture Development and the Fisheries Commission have developed a Fisheries Management Plan in accordance with the Fisheries Act of 2002 and with stakeholder consultation in order to address issues identified for the marine fisheries sector.

"The Ghana Government is fully committed to implementing a robust fisheries management plan to ensure long-term conservation of its fish stocks while at the same time contributing to improved food safety at a national level; in support of the Blue Economy" NMFP, 2015

#### Goal

Rebuild fish stocks to enhance the socio-economic conditions of fishing communities, create employment, improve food security, contribute to GDP and foreign exchange earnings within national and international frameworks and standards

#### Key Objectives

- Reduce the excessive pressure on fish stocks
- Ensure fish stocks are exploited within biologically acceptable levels
- Ensure effective fisheries legislation is implemented
- Strengthen participatory decision making in fisheries
- Meet regional and international obligations in fisheries

### Key Actions in the Management Plan

#### All Fleets

- Creation of habitat protection areas for spawning grounds in estuaries/ mangroves

#### Trawlers

- Achieve a 50% reduction in fishing days over the next 5 years (scaled annually).
- Control the number and capacity of vessels.
- Reduce fishing effort through strict implementation of the sanctions framework under the Fisheries (Amendment) Act 2014.

#### Canoes

- Survey and registration of active canoes
- Increase the traditional one day per week fishing holiday to 2 days per week.
- Control/ moratorium on new entrants to the fishery
- Improved social intervention through the implementation of an insurance and pension scheme for fishermen;
- Implementation of co-management for the artisanal sector
- Modernization of the fleet by using innovative materials to control increasing effort (no. of canoes)

#### Tuna Fleet

- Strict adherence to current ICCAT capacity limits
- Development of FAD Management Plan and logbook
- Strict adherence to the ICCAT BET and swordfish quota
- Bycatch mitigation measures and shark catches

### Implementation Arrangements

#### The Fisheries Commission

- Establishment of a Fisheries Management Operation committee.
- Develop the capacity of the staff of FC for effective implementation
- Periodically review the plan
- Collaborate with competent authorities and major stakeholders for implementation
- Coordinate effort of all relevant stakeholders to implement plan

#### Ministry of Fisheries (MOFAD)

- Obtain cabinet and parliamentary approval for the implementation
- Solicit financial resources for the implementation
- Provide supervisory role over the implementing institutions
- Promote sub regional, regional and international co-operation in fisheries management

Figure 28 Summary of management plan

# ANNEX 4: FACT SHEET ON STATUS OF SMALL PELAGIC RESOURCES IN GHANA



## FACT SHEET

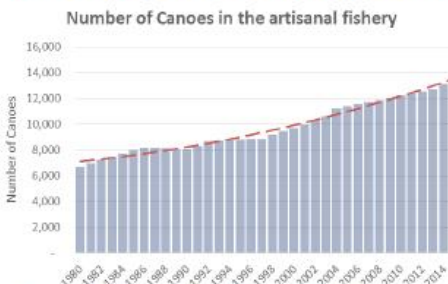


### TOWARDS A SUSTAINABLE FISHERY:

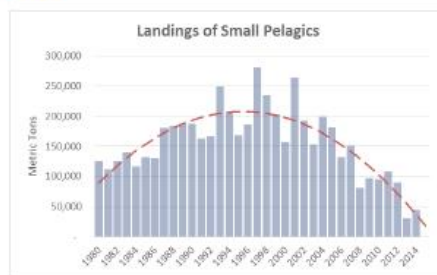
#### Stock Status of Small Pelagic Resources in Ghana

The small pelagic resources (Sardinella, Anchovies and Mackerel) is very important to the local economy and directly employs about 135,000 fishers in the marine fisheries sub-sector alone—92% of whom are artisanal fishers, including about 20% women who are not only heavily involved in processing and marketing of the fish, but play critical roles in fishing households. Fish accounts for about 60% of animal protein in local diets and small pelagics are the most widely consumed local fish; therefore, ensuring a sustainable supply of marine fish is vital to food security in Ghana

#### Changes in Landings and Fleets



The number of canoes doubled since 1980 and continue to increase under open access. This sector comprises 12,728 canoes contributing about 65% of the annual landings (all species) estimated at 254,000mt in 2014 (source: FC-FSSD)



Landings of most important species of the small pelagic resources (Sardinella, Anchovies and Mackerel) have been decreasing sharply since 2007 and have reached in 2014 about 15% of the maximum landings realized in 1996. This trend will soon lead to the collapse of the resources and the fisheries sector

#### Status of the Stock:

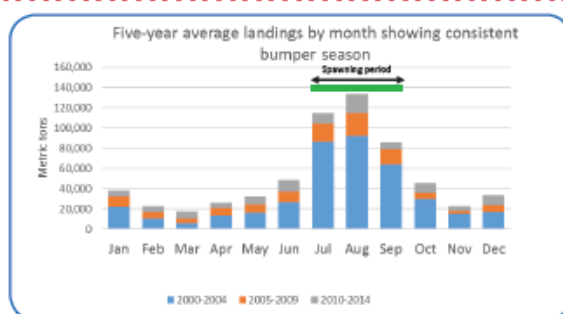
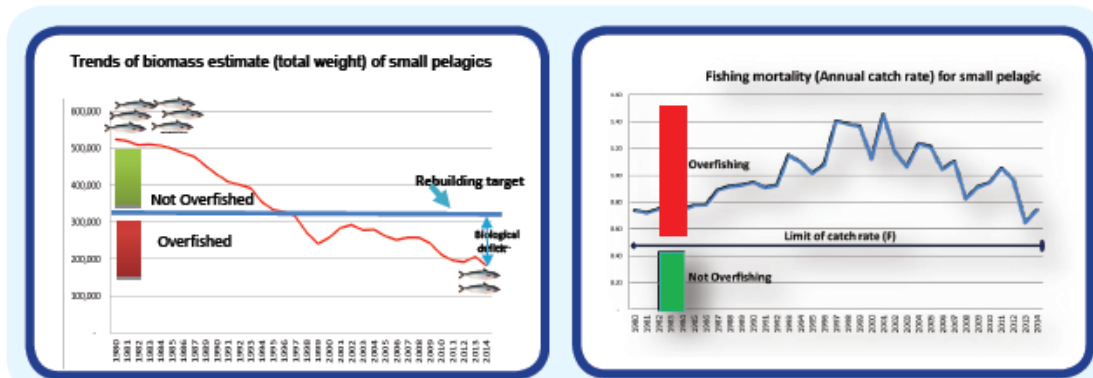


The Scientific and Technical Working Group (STWG) concluded that small pelagic resources in Ghana are severely overfished and overfishing continues to occur.

- Current fishing pressure (F) on small pelagic fish stocks was estimated at 0.74, well above the acceptable level of fishing pressure estimated at 0.4. This situation is caused by excess fishing effort (number of boats and fishing trips).
- The current total biomass (weight of fish in the ocean) of small pelagics is estimated to be the lowest in more than 30 years. Biomass was reduced by 68% from high levels in the 1980s and is unable to produce a Maximum Sustainable Yield (MSY).

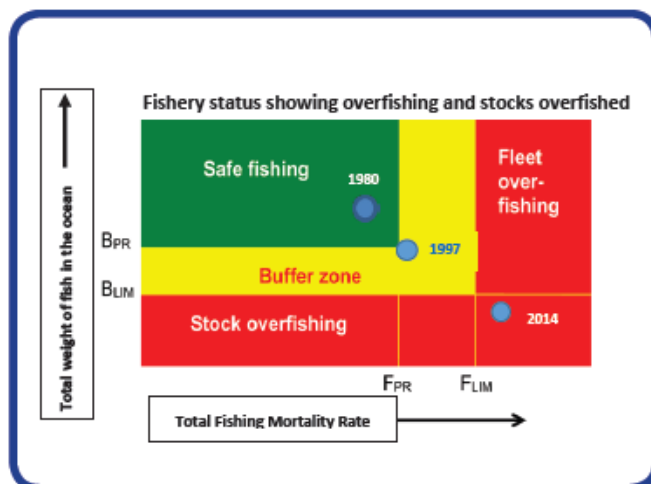
The STWG noted that the artisanal sector is much affected by the natural changes in catch rates of small pelagics, which is greatly influenced by the strength of seasonal upwelling.

Figure 29 Fact sheet on small pelagics



Based on five-year average (2010-2014), about 65% of the landings are realized during the bumper season (July-August-September). This season coincides with the spawning period of sardinella and anchovies.

Fish aggregate and move inshore during this season due to strong upwelling (deep cold water rises toward the surface) rich in food for fish. After fish lay their eggs, they move back to deeper water and disperse until next upwelling period.



The small pelagic stocks were healthy in early 1980s but fishing effort (number of active boats) was above the sustainable level.

Open access allowed fishing pressure to increase. This caused the stock to go down and move from the green (safe fishing zone) to red and dangerous zone.

We need to go back to the green zone by reducing fishing pressure (F). A standard practice worldwide is closing the fishery for few months during the spawning season to allow fish to spawn and grow, then control landings and discards.

SFMP is funded by USAID/Ghana and implemented by CRC-URI with a consortium of partners: Hen Mpoano, Friends of the Nation, SNI, SSG Advisors, Daasgift, DAA, CEWEFLA, Spatial Solutions

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Figure 30 Fact sheet on small pelagics