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SUSTAINABLE FISHERIES MANAGEMENT PROJECT (SFMP)

REPORT OF THE SCIENTIFIC AND TECHNICAL WORKING GROUP MEETING

JULY 28-29, 2020

Ministry of Fisheries and Aquaculture Develoment (MOFAD)

THE UNIVERSITY OF RHODE ISLAND GRADUATE SCHOOL OF OCEANOGRAPHY | CRC COASTAL RESOURCES CENTER

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ACRONYMS

CPUE	Catch per Unit of Effort
FC	Fisheries Commission
FCWC	Fisheries Committee for the West Central Gulf of Guinea
FL	Fork Length
FON	Friends of the Nation
FSSD	Fisheries Scientific Survey Division
GITA	Ghana Industrial Trawlers Association
GNCFC	Ghana National Canoe Fishers Council
IUU	Illegal, Unreported and Unregulated
KNUST	Kwame Nkrumah Univerisity of Science and Technology
MCS	Monitoring, Control and Surveillance
M&E	Monitoring and Evaluation
MOFAD	Ministry of Fisheries and Aquaculture Development
MRD	Marine Resources Division
MSY	Maximum Sustainable Yield
NAFAG	National Fisheries Association of Ghana
NAFPTA	National Association of Fish Processors and Traders Association
SFMP	Sustainable Fisheries Management Project
SST	Sea Surface Temperature
STWG	Scientifique and Technical Working Group
TL	Total Length
UCC	Univeristy of Cape Coast
UG	University of Ghana
URI	University of Rhode Island
USAID	United States Agency for International Development

TABLE OF CONTENTS

LIST OF TABLES

MEETING PURPOSE AND OBJECTIVES

The meeting of the Science and Technical Working Group was held from July 28-29,2020 at the A&E Hotel in Accra, Ghana. Its main objectives were to:

- Update members on the status of Ghana's small pelagic and demersal fish stocks.
- Update members on biological impact of the closed season.
- Update members on socio-economic impact of the closed season.
- Make observations of socio-economic impacts on the artisanal closure of 2019 by FC.
- Present the trawl gear audits conducted by the FC (Board) and GITA.
- Present the evaluation methodologies of closed season by KNUST.
- Discuss adoption of the STWG as a formal scientific advisory body of the FC Board.
- Develop 2021 management recommendations.

DAY 1- JULY 28, 2020

Update on small pelagic and demersal stocks by Mr. Emmanuel Dovlo from FC-FSSD.

Key points:

- The stock assessment was based on a surplus production model using catch and effort data from 1990 to 2019. Landings were aggregated for all species combined by sub-sectors (artisanal, semi-industrial and industrial trawlers). Catch data by species were not available for 2019 at the time of this meeting. There were no estimates of biomass by species provided for this year, however the surplus production model was chosen as an alternative assessment method to estimate the Maximum Sustainable Yield (MSY) and fishing effort at MSY (fMSY) by sub-sector. This method was preferred by the Fisheries Commission for the development of the amendment of the Fisheries Management Plan (2020-2025).
- Results showed that all sub-sectors are harvesting well above the MSY and that the fishing effort is above the sustainable level.
- Declining CPUE for artisanal, industrial trawlers and semi-industrial sub-sectors.
- Model runs included four time series 10, 15, 20 and 30 years. The STWG suggested to consider the longest time series (1990-2019) to conserve historical context of landings and effort. It was also recommended to use Akaike Information Criteria for model selection and show of uncertainty.
- The model did not consider missing catch (Saiko and other IUU fishing) due to data availability and validity.
- IUU fishing must be captured and run some simulation to show impact of the status of the stocks.
- Dovlo, Lazar, Arizi to update the assessment and submit the final report by August 15, 2020.

Presentation of Socio-economic monitoring of the 2019 closed season by Prof. Patrick Ofori-Danson of University of Ghana.

Key points:

- Deep declines in fishing income as well as fish processing and fish trading during the closed season.
- Fishing made up 87% of the total income of fishing communities prior to the closure.

- Coastwide estimates, suggest that there was US$2.3 million per day loss in household income.
- There were no measurable changes in non-fishing livelihood activities reported during the periods before and during the closure, implying that non-fishing livelihoods were lacking as a coping strategy.
- Levels of moderate to severe hunger rose by 6.4 percentage points during the closure, impacting an estimated 2,560 households. Dietary diversity of women of reproductive age was significantly reduced during the closure.
- Result from the socio-economic monitoring must be shared with FC and other stakeholders.
- Fishers must call for the implementation of closed season voluntarily.
- Fishers have bought into the idea of the closed season as a tradition that has come to stay.
- Regulators, Scientists and Industry must agree on specific time for subsequent closures. i.e. Standardization of the time for closed season
- Government must work on the provision of support for fishers during closed season to to offset the socioeconomic impact of the closed seasons.
- All relevant scientific information must be made available to fisheries associations.
- Fisherfolks should be given adequate time to prepare against the closed season.
- A research vessel needed to collect data during closed season.

Presentation of the FC M&E unit's report on the socio-economic impacts and stakeholders' perception on the closed season by Hayward Gadry from FC.

Key points:

- Fishers unable to comply voluntarily to fisheries laws due to economic hardship and week enforcement.
- High catches recorded after the closed season was not as a result of the closed season.
- High compliance of the 2019 closed season by artisanal fishers due to the fact that May/June is an already existing holiday for fishers to mend their nets.
- A more detail study must be done to ascertain the impact of the closed season.
- The concept of closed season must be well understood by fishers to ensure voluntary compliance.
- Closed season should be implemented in combination with effective enforcement of existing laws including mesh size control, light fishing, use of dynamite, and chemicals in fishing, Saiko fishing etc.
- Poverty is increasing in fishing communities between 2013 – 2017 (eg. urban coastal from 6.4% to 10.1% and rural coastal 27.3% to 30.3%).

Presentation on the biological impacts of the 2019 closed season by Charles Darko FC-FSSD.

Key points:

- Study reported that the peak spawning for *Sardinella sp* was observed in late July 2020.
- Study reported that the peak spawning for anchovies and mackerel was observed in early August.

- Average price of fish experienced an increase soon after the closed season then it stabilized to normal market price.
- Participation of fishermen in the study was positive and should continue for future monitoring and assessment studies.
- Length frequencies of fish should have been presented in histogram for each of the species instead of mean lengths.
- Information obtained from the study must be used to establish closed season for 2021.
- UCC or FC must continue this data collection to emphasize the spawning period to inform subsequent closures.
- Various stakeholders must dialogue with traditional authorities on the best month for closure.
- FC-FSSD should explore avenues to prepare for the data collection for 2021 closed season and should not wait until MoFAD's announcement.

Presentation of the closed season communication material by Perfectual Labik of SFMP.

Key points:

- A six-minutes video on the participatory data collection for closed season monitoring was shown to the STWG. There were some technical difficulties in broadcasting it to the group connected via zoom.
- Infographics on closed season were also shown to the STWG. No comments.
- The STWG requested the SFMP to circulate a copy of the video to its members to provide feedback.
- Involvement of non-formal education commission to assist in future infographics.
- Infographics must be tested on the field with fishers before it gets finalized.

The meeting adjourned at 5:00 PM (GMT)

DAY 2 – JULY 29, 2020

Presentation on the trawl fishing gear audit by Joseph Yeboah from the Fisheries Commission.

Key points:

- A study was commissioned by the FC (Board) to examine the design and technical specifications of bottom trawls used by the industrial trawl vessels and make suggestions for improvement where necessary.
- Out of the 74 vessels licensed to fish in Ghanaian waters, 21 vessels were boarded from both Tema and Takoradi for the sea inspection. The operations commenced on 3rd July 2019. The normal practice was for a team member to spend about 5 days on each vessel and then transfer to another vessel to conduct similar exercise.
- Additional port inspections were made by the study team over 14 days inspecting 36 vessels.
- Two types of nets were identified:
    - Type 1: has heavy twine of 8 to 10 mm thickness, large meshes in the wings and high opening (40 meters). This net target small pelagics and is thought to be used for Saiko fishing.
    - Type 2: has mesh size between 150 and 300 mm in the wings, square and the belly and with low vertical opening (3-4 meters). This net is commonly used to catch demersal species.
- Further work is needed to disseminate the results to MoFAD and FC.
- Further selectivity studies should be designed to determine appropriate mesh size which should avoid catching juvenile or sub-legal fish.

Presentation on the evaluation of methodologies for monitoring the impact of fishing closed season by Dr. Benjamin Campion from KNUST and Dr. Evans Arizi from UCC.

Key points:

- Biological monitoring results of the closed season were found to be consistent with fishers' perceptions.
- Consider adding biodiversity indicators such as richness indicators
- Socio-economic monitoring results of the closed season were also found consistent with field observations and focus group discussions conducted by the investigators.
- Consider long-term monitoring plans to examine all aspects of future closed seasons.

Discussions and contributions by STWG.

- Closure in 2021 should be championed by fisher leaders since lessons from the 2019 closure suggested the leaders were influential for the high level of compliance.
- Most fishers do not have diversified livelihoods so depend solely on fishing.
- There is extreme poverty is rural coastal areas.
- Fishermen asked for assistance on how to plan for the next closed fishing season.
- Private cold store businesspeople should be encouraged to import fish at the right time to offset shortfalls during the closed season.

- Tourism business must be a considered alternative livelihood in fishing communities during closed season.
- Need for innovative ways in drying anchovies for better market value.
- Provide evidence of absence of pupils from school because their parents could not give them money for school during the closed season to justify extension of social interventions (eg. school feeding program) to the coastal communities to sustain closed season.
- Announcement of closed season should be made at least 6 months before the closure as required by law.
- Closed season must be for all fleets at the same period, except for tuna vessels.
- Complement closed season with enforcement of laws on IUU fishing.
- Discussions on inclusion of closure of lagoons and estuaries along with the sea at the same time was inconclusive.
- Premix subsidies can be used to sustain fishers during the closure.
- Closed season must be published in a gazette notice as required by the law.
- High proportions of juveniles in the saiko catch, which raises issues of gear selectivity, mesh size compliance, etc.
- In terms of numbers, small pelagics dominated saiko landings.
- Demersals dominated saiko landings in terms of species composition.
- By IUCN red list standards, 5% of saiko fish species landed are near threatened (NT) while another 5% of species are vulnerable (VU) with implications for conservation.
- Enforcement efforts should be stepped up to ensure the use of the right mesh size.
- Continuous research on gears to meet changing times.
- Gear policy should respond to emerging changes in the industry.
- Industry representatives on the FC Board must be persons nominated by fishing industry to represent their views.
- Formalize any research collaboration between the universities and FC
- Seasonal closures are ineffective without gear restrictions.
- Longer periods of closed season resulted in higher population growth rate.
- One month closed season per year alone with mesh size regulation and ban on Saiko fishing could revamp the fishery in about five years.
- Three months closed season per year without any mesh size regulations and banning of all forms of IUU fishing will not revamp the fishery.
- Scale up mesh size regulation.
- Closure must be complemented with enforcements on IUU fishing, including total ban on Saiko fishing.
- Fish spawning rates at different months should be considered in the model.
- Peak maturity of gonads was observed in July, August and September and confirms previous findings.
- Survival rate of the juvenile was better during the peak spawning period.
- Both the major and minor upwelling are important for productivity of the sea.
- Action was yet to be taken by the Ministry to respond to SFMP letter seeking the formalization of STWG.
- The Chairman of FC board suggested the resubmission of the request to the Ministry.

- STWG provides a forum for stakeholder to contribute scientific information to inform decision-making.

RECOMMENDATIONS

Based on the above, the STWG recommends the following:

1) Current effort towards ending **open access** and **reducing fishing effort** should be intensified in the artisanal and semi-industrial sub-sectors.

2) Current Maximum Sustainable Yield (**MSY**) for the industrial sub-sector is in excess of the sustainable level and therefore it should be reduced.

3) Align the current levels of fishing effort and capacity with Maximum Sustainable Yield (**MSY**). The number of trawlers should be reduced by at least 44%.

4) Closed season should be implemented concurrently for all fleets except tuna. This should be institutionalized over the next five years to coincide with the peak breeding season of small pelagics (July-August).

5) Early announcement (minimum of 6 months) for future closed seasons to give fishers adequate time to prepare for the closure.

6) Closed season should be implemented in combination with effective enforcement of existing laws including but not limited to mesh size control, light fishing, dynamite, chemicals, Saiko fishing etc. before and after the closure.

7) Trawl gears should be regulated; and as a matter of urgency, ensure that industrial trawlers target demersal fish only.

8) Formalize the STWG to serve as a scientific advisory body to the Fisheries Commission for the management of fisheries.

9) Consider investments and linkages to social intervention programmes (e.g. school feeding and Livelihood Empowerment Against Poverty-LEAP) to offset the socioeconomic impact of the closed seasons

Meeting adjourned at 15:00 (GMT)

Table 1 List of Participants

Name	Organization	
Raymond Babanawo	SFMP	In Person
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Michael Entrue	SFMP	In Person
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Charles Darko	FC	In Person
Kofi Amador	FC	In Person
Hayford Gadry	FC	In Person
Ernest Ansong	FC	In Person
Rebecca Sackey-Mensah	FC	In Person
Daniel Y Owusu	NAFAG	In Person
Nana Jojo Solomon	GNCFC	In Person
Nene Devine Obubuafo	GNCFC	In Person
Jerome Deamesi	GITA	In Person
Wradi Borley	NAFPTA	In Person
Elizabeth Effah	UCC	In Person
Evans Arizi	UCC	In Person
Patrick Ofori-Danson	UG	In Person
Benjamin Campion	KNUST	In Person
Kofi Amador	FSSD	In Person
Kwadwo Kyei Yamoah	FON	In Person
Ellis Ekpekpi	USAID	Via Zoom
Brian Crawford	URI (USA)	Via Zoom
Najih Lazar	URI (USA)	Via Zoom
Enoch Appiah	SFMP	Via Zoom
Kobina Yankson	UCC	Via Zoom
John Blay	UCC	Via Zoom
Isaac Okyere	UCC	Via Zoom
Emmanuel Dovlo	FC	Via Zoom
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