

SUSTAINABLE FISHERIES MANAGEMENT PROJECT (SFMP)

Technical Brief: The Rationale and Impact of a Proposed Second Fishing Holiday for the Artisanal Fisheries of Ghana



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For more information on the Ghana Sustainable Fisheries Management Project, contact:

USAID/Ghana Sustainable Fisheries Management Project Coastal Resources Center Graduate School of Oceanography University of Rhode Island 220 South Ferry Rd. Narragansett, RI 02882 USA Tel: 401-874-6224 Fax: 401-874-6920 Email: info@crc.uri.edu

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Cover Photo: Fishermen along Ghana's coast. Credit: Coastal Resources Center.

Detailed Partner Contact Information:

USAID/Ghana Sustainable Fisheries Management Project (SFMP) 10 Obodai St., Mempeasem, East Legon, Accra, Ghana

Telephone: +233 0302 542497 Fax: +233 0302 542498

Maurice Knight Kofi Agbogah Nii Odenkey Abbey Bakari Nyari Brian Crawford Ellis Ekekpi Chief of Party Senior Fisheries Advisor Communications Specialist M&E Specialist Project Manager, CRC USAID AOR Email: <u>maurice@crcuri.org</u> Email: <u>kagbogah@henmpoano.org</u> Email: <u>nii.sfmp@crcuri.org</u> Email: <u>hardinyari.sfmp@crcuri.org</u> Email: <u>brian@crc.uri.edu</u> Email: <u>eekekpi@usaid.gov</u>

Kofi.Agbogah <u>kagbogah@henmpoano.org</u> Stephen Kankam <u>skankam@henmpoano.org</u> Hen Mpoano 38 J. Cross Cole St. Windy Ridge Takoradi, Ghana 233 312 020 701

Andre de Jager

adejager@snvworld.org SNV Netherlands Development Organisation #161, 10 Maseru Road, E. Legon, Accra, Ghana

233 30 701 2440 Donkris Mevuta

Kyei Yamoah info@fonghana.org

Friends of the Nation

Parks and Gardens Adiembra-Sekondi, Ghana 233 312 046 180 Resonance Global (formerly SSG Advisors) 182 Main Street Burlington, VT 05401 +1 (802) 735-1162 Thomas Buck tom@ssg-advisors.com

Victoria C. Koomson cewefia@gmail.com

CEWEFIA B342 Bronyibima Estate Elmina, Ghana 233 024 427 8377

Lydia Sasu daawomen@daawomen.org

DAA Darkuman Junction, Kaneshie Odokor Highway Accra, Ghana 233 302 315894

For additional information on partner activities:

CEWEFIA:	http://cewefia.weebly.com/
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ACRONYMS

FAO/CECAF Food and Agriculture Organization Fishery Committee for the Eastern Central		
	Atlantic	
FC	Fisheries Commission	
FEU	Fisheries Enforcement Unit	
GNCFC	Ghana National Canoe Fishermen Council	
GIFA	The Ghana Inshore Fisheries Association	
GITA	Ghana Industrial Fisheries Association	
IUU	Illegal, unreported and unregulated	
MOFAD	Ministry of Fisheries and Aquaculture Development	
NAFPTA	National Fish Processors and Traders Association	
NMFMP	National Marine Fisheries Management Plan	
SFMP	Sustainable Fisheries Management Project	
STWG	Science and Technical Working Group	

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INTRODUCTION AND SUMMARY

This technical brief lays out the rationale and likely impacts of implementing a second traditional fishing holiday by the canoe fleet as one contribution to a suite of management measures needed to end overfishing and rebuild fish stocks. It is a pathway to improved landings of fish that have been on the decline for over two decades.

This fishing effort reduction measure is one of several measures mandated by the National Fisheries Management Plan for the marine sector adopted in 2015. The second fishing holiday has the support of key national fisheries stakeholder associations including the Ghana National Canoe Fishermen's Council and the National Fish Processors and Traders Association.

There are few short term socio-economic impacts that will occur as a result of the implementation of a second fishing holiday as fishermen can still fish five days a week) to earn income and put food on the family table. The benefits from implementing this policy are positive. A second fishing holiday translates into approximately a one-sixth or 17 percent reduction in fishing effort. While insufficient by itself to end overfishing, rebuild fish stocks and ultimately increase fish landings, over the medium to long term the second fishing holiday combined with other effort reduction measures could increase small pelagic catches more than fourfold the current annual landings of 20,000MT to as high as 90,000MT. This would result in gross revenues from sales of these fish in coastal communities increasing to over GHS 200,000,000 (~\$50 million) at current landing beach prices. This translates to approximately GHS 7 per fishing day per fishermen in additional revenues which can make a significant contribution to reversing increasing poverty trends in fishing communities due to the collapse of the fishery.

This policy can be easily enforced mainly at the landing beach level, although at-sea enforcement can occur as well. Given the commitments from national fisheries associations and many traditional leaders to assist in its enforcement, the probability of high compliance and successful implementation is strong. This is one of the easier effort reduction measures to implement, and if successful, can be expected to reinforce other good practices and effort reduction measures that will be required by fisherfolk to return Ghana's marine fisheries to a heathy and profitable status.

It is recommended that the Ministry of Fisheries and Aquaculture Development issue a public notice of a fisheries regulation for an additional non-fishing day for the Western, Central, Greater Accra and Volta regions on Sunday each week, as well as Tuesday as a non-fishing day for Western, Central and Greater Accra, and Saturday as non-fishing day for the Volta region.

RATIONAL FOR EFFORT REDUCTION

More than 100,000 fishermen processors and traders earn their livelihood directly from the marine fisheries sector. In addition, it is estimated that about 10% of the total population of Ghanaians depend directly or indirectly on fish and this translates to about 2.9 million people of the current population of 29 million. Fish is the preferred source of animal protein in Ghana where about 75% of the total domestic production of fish is consumed locally, representing about 60% of animal protein intake. The small pelagic fishery, consisting mainly of round sardinella (Sardinella aurita), flat sardinella Sardinella maderensis, anchovies (Engraulis encrasicolus) and mackerel (Scomber colias) make up between 70 to 80% of the total marine fish landings and are of major importance to the canoe fleet that lands more than 80% of the total small pelagic fish catch. More than eighty percent of the canoe fleet landings consist of the small pelagic species and the canoe sector makes up the majority of the

employment in the marine fisheries sector. These statistics demonstrate that marine fish and fish products, especially the small pelagics and canoe sector, play a very important role in the national economy. Fisheries can contribute significantly to employment, food security and poverty reduction objectives of the national government if managed properly.

In spite of the important contribution marine fisheries provide to the national economy, the marine demersal and small pelagic resources are considered severely overfished (Lazar, N.,

Yankson K, Blay J., Ofori-Danson P., Markwei, P., Agbogah, K., Bannerman, P., Sotor, M., Yamoah, K. K., Bilisini, W. B. (2016), Lazar, N., Yankson K., Blay, J., Ofori-Danson, P., Markwei, P., Agbogah, K., Bannerman, P., Sotor, M., Yamoah, K. K., Bilisini, W. B. (2017); FAO/CECAF, 2015). This situation results in the loss of tens of thousands of metric tons of high nutritional quality, low-cost and locally produced food protein supply due to poor management and overfishing. The declines in catches are directly affecting the livelihoods of over a

Tens of thousands of metric tons of high nutritional quality, lowcost and locally produced food protein supply is being lost due to overfishing, directly affecting the livelihoods of over a hundred thousand fisherfolk and increasing poverty in fishing communities.

hundred thousand fisherfolk and many more that rely indirectly on the fishery. The result is a loss of overall profitability in the sector, a loss of locally produced food supply, and increasing poverty in coastal fishing communities.

The small pelagic resources, particularly sardinella, are on the verge of collapse. Annual landings have been in decline for more than a decade as fishing effort has increased (Fig. 1). This drastic decline in landings is due primarily to overfishing and overcapacity of the fishing fleet. Fishing pressure is driven largely by the artisanal fleet operating under open access rules using bigger and more efficient fishing gear and technologies.

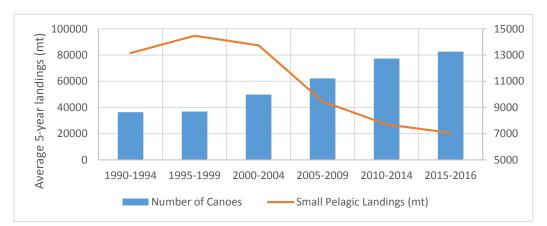
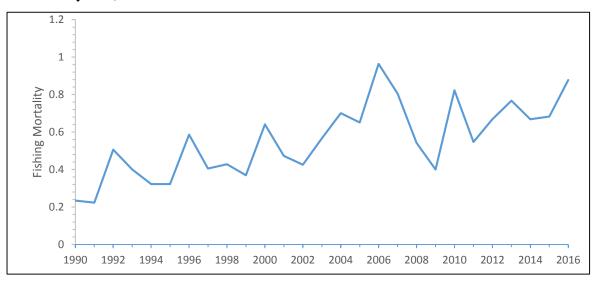


Figure 1 Landings of small pelagic stocks (Sardinella, Anchovies and Mackerel) in orange and effort in number of canoes targeting small pelagics from 1990 to 2016 in Ghana

(SOURCE: Lazar, N., Yankson K., Blay, J., Ofori-Danson, P., Markwei, P., Agbogah, K., Bannerman, P., Sotor, M., Yamoah, K. K., Bilisini, W. B. (2017)

Overfishing is still occurring (i.e. the level of fishing mortality or fishing effort greatly exceeds what is needed to sustain biomass at levels that produce maximum yields (Figure 2). This has resulted in the small pelagic stocks also being classified as severely overfished



(Figure 3). (i.e. the biomass of stocks in the ocean is well below what is needed to sustain maximum yields)

Figure 2 Trends of fishing mortality of small pelagic stocks (Sardinella, Anchovies and Mackerel) from 1990 to 2016 in Ghana.

(SOURCE: Lazar, N., Yankson K., Blay, J., Ofori-Danson, P., Markwei, P., Agbogah, K., Bannerman, P., Sotor, M., Yamoah, K. K., Bilisini, W. B. (2017)

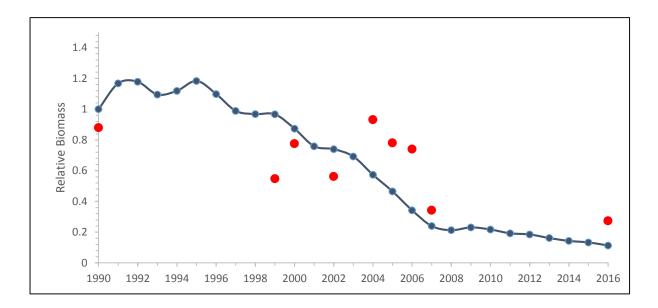


Figure 3 Model estimates of relative biomass trends of small pelagic fish stocks (blue line) and acoustic survey point estimates (red dots) from the acoustic surveys from R/V Fridtjof Nansen (1990-2016).

(SOURCE: Lazar, N., Yankson K., Blay, J., Ofori-Danson, P., Markwei, P., Agbogah, K., Bannerman, P., Sotor, M., Yamoah, K. K., Bilisini, W. B. (2017) "current fishing effort is well beyond the level of sustainability for the small pelagic stocks. In the absence of effort control measures, stocks will continue to decline with diminishing economic returns, leading to further deterioration of social conditions in fishing communities."

The conclusion of the Science and Technical Working Group as stated in the report (Lazar, N., Yankson K., Blay, J., Ofori-Danson, P., Markwei, P., Agbogah, K., Bannerman, P., Sotor, M., Yamoah, K. K., Bilisini, W. B. (2017) on the status of the small pelagic stocks is that;

The STWG estimated current biomass and fishing mortality levels and recommends targets to achieve maximum sustained yields of fish (Table 1).

Table 1. Estimates of current biomass, fishing mortality rates and management reference

Biological reference points 2016

Biological reference points	2016	
B _{msy}	315,200	
F _{msy}	0.40	
B _{current}	21,750 tons	
F _{current}	0.88	

(SOURCE: Lazar, N., Yankson K., Blay, J., Ofori-Danson, P., Markwei, P., Agbogah, K., Bannerman, P., Sotor, M., Yamoah, K. K., Bilisini, W. B. (2017)

One of the major contributing factors to the drastic decline in Ghana's small pelagic stock is overcapacity in the fishing fleet that results in the overfishing described earlier. The current race to catch the last fish is a direct result of the open access of the fisheries that put no restrictions on new entries into the canoe fleet and the absence of other sufficient regulatory measures to restrict overall fleet catch and effort to within sustainable levels. This has resulted in an increased canoe fleet over time, with current numbers showing more than double the fleet size since 1980. Results from the recent Fisheries Commission canoe registration and embossment exercise show that the canoe fleet has increased in excess of 14,200 canoes in 2017 compared to 12,700 in the 2016 canoe frame survey (FC, Personal. Communication)

This growing trend under free and open access represents a record high in the fleet numbers while the small pelagic fisheries stock reaches near collapse, and landings reach all-time lows. Not only has the number of canoes increased but so did their efficiency by growth over the past decade or so in the size of the canoes,

Small pelagic stocks are likely to collapse completely in the near future without a reduction in fishing pressure.

fishing nets, and the horsepower of their outboard motors. According to a fishery profile study conducted by SFMP, the fishing power of a purse seine canoe has almost doubled since 1980s (Asare et al. 2015). The increased capacity and efficiency have resulted in sever overfishing and is driving fishermen to spend more hours/days at sea as they struggle to make fishing profitable.

Using the information in the STWG¹ report on the status of the small pelagic stocks in Ghana, an extrapolation of the data by SFMP technical advisor reveals that stocks are likely to collapse completely in the near future without a reduction in fishing pressure (Figure 4), and demonstrates the need for immediate interventions to halt and reverse this trend.

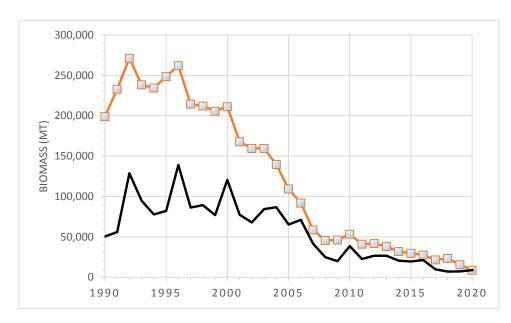


Figure 4 Status quo projection of the small pelagic stocks (orange line and Box points) with catch (black line) kept constant at >20,000 mt per year.

As a response to overfishing and in order to reverse the declining trends of fish landings, the Ministry of Fisheries and Aquaculture Development (MoFAD) and the Fisheries Commission

(FC) approved and gazetted in October 2015 a National Fisheries Management Plan for the marine sector. The plan calls for a series of management measures to address overfishing and overcapacity, among other measures. Implementation was first put in motion by establishing a three-month seasonal closure for the industrial trawlers (November 2016 and February-March 2017). It also sets out specific targets for 2017 to manage the artisanal (canoe) fishing including effort control measures:

The National Fisheries Management Plan adopted in 2015 by MoFAD and the Fisheries Commission calls for management measures to address overfishing and overcapacity including increasing fishing holidays from one to two days per week.

C1.1 Survey and registration of active canoes.

C1.2 Increase the traditional one day per week fishing holiday to two (2) days per week.

- C1.3 Control of new entrants to the fishery.
- C.1.5 Implement a co-management framework.

¹ STWG: The Scientific Technical Working Group (STWG) is an ad--- hoc scientific group with an overarching mission to provide science--- based status of the stock and propose management advice, which assures long--- term sustainability of the stocks based on the best available scientific information

As part of the plan's call for a co-management framework, the Ghana National Canoe Fishermen Council (GNCFC), the Ghana Inshore Fisheries Association (GIFA) and the Ghana Industrial Fisheries Association (GITA) have been actively involved in the consultation process for rolling out effective implementation of the plan. They recognize that in order to improve the conditions of the fisheries they depend on and increase business opportunities for their communities, fisheries management and conservation is the only way to a better and more prosperous future of the industry. These national associations have formally endorsed the implementation of the second weekly fishing holiday indicating that implementation of this regulatory measure is demand driven with widespread (but not unanimous) support within the fishing industry.

THE ROLE OF THE FISHERMAN IN FISHERIES MANAGEMENT

As has been demonstrated elsewhere in the world, through the collective engagement of stakeholders, government and research institutions in applying sufficient effort reduction or catch control measures to the fishery, it is possible to reverse the declining trends now seen in Ghana. The major canoe sector representative body, the Ghana National Canoe Fishermen Council (GNCFC), can play an important role in rebuilding depleted fish stocks by partnering with the Fisheries Commission in the efficient implementation of the measures approved in the National Fisheries Management Plan. The collaborative approach allows fishermen to become an active partner in the implementation of management initiatives. Without increased

involvement of fishermen and broader public engagement, there is a risk for continued noncompliance with current or new fisheries management efforts. On the contrary, their support for a second fishing holiday should result in high compliance with this measure and therefore effectively contribute to effort reduction.

Fisherfolk support for a second fishing holiday should result in high compliance with this measure and therefore effectively contribute to effort reduction.

Fishermen in Ghana and elsewhere in the world have long observed traditional fisheries management initiatives to support the conservation of the fisheries stocks. Often, these approaches directly involve community leaders and leadership of traditional authorities to regulate access to the marine fisheries. Throughout the coast of Ghana, fishermen observe one day per-week as a non-fishing day and use this time to repair nets, boats, resolve conflict in the fishing communities and address other pertinent issues to their livelihood. In other regions the non-fishing day is used to bury the dead and other customary rights. The specific day observed as a non-fishing day varies from region to region (Table 2). Traditional fishing holidays were rather used as a socio-cultural practice rather a resource management tool.

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

Table 2 Varying non fishing days across the coastal regions of Ghana

In addition, before annual festivals some fishing communities observe a ban on fishing activities for about two weeks. This ban can be either on a specific fish species or a total ban

on fishing prior to the festival. Chief fishermen, as leaders of fishing communities, perform rituals that precedes festival bans. In other communities, polluting the beach is a disrespect to the gods and who ever does that fears not landing any catch since they will be cursed. In these communities these traditional rules are fully complied with and further establish the key role of traditional authorities in policy formulation and implementation of best fisheries management practices. Fishermen and other stakeholders in communities comply with these measures since they dare not defy the gods and traditions of their ancestors.

Chief fishermen are tasked with settling disputes amongst fishermen, distributing fishing inputs and enforcing the aforementioned traditional rules along the landing beaches. They are empowered by the traditional chiefs in the fishing communities to regulate fishing activities at landing beaches as well as to perform the required rituals at these sites before any fishing activity takes place. They grant access to new canoes and account for vessels that go to sea. These traditional laws have been observed over the years and fishermen voluntarily comply. The role of the traditional authority and chief fisherman in modern fisheries management initiatives should be seen as an opportunity as their support for a management measures such as the second fishing holiday can greatly increase likelihood of high compliance. They can play a role in supporting enforcement, especially if this is established as a formally declared and legally constituted fishing regulation and not just a statement endorsing this as a traditional practice. The success of any fisheries management plan depends on effective collaboration between policy makers and traditional authorities coupled with direct engagement of the local community.

PUBLIC CONSULTATION ON ADDITIONAL TRADITIONAL FISHING HOLIDAY

The Ghana National Canoe Fishermen Council (GNCFC) met on July 8th, 2016 to discuss support to the Fisheries Commission in implementing fisheries management measures as adopted in the National Marine Fisheries Management Plan (NMFMP 2015-2019). The GNCFC focused on actions that would, in a timely manner, actively contribute to achieving the objectives of the national fisheries management plan through voluntary compliance and self-governance. This will relieve the government of potentially substantial development and regulatory responsibilities that would place additional burdens on an already understaffed and under-funded MoFAD and Fisheries Commission.

The GNCFC led the organization and facilitation of a series of dialogues across the coast with partial support from the USAID/Ghana Sustainable Fisheries Management Project. These meetings included fishermen, chief fishermen, women processors and wives of chief fishermen who play key role in the sale and distribution of fish across the various landing sites. Named 'fisher-to-fisher', or F2F, the dialogues organized these fisherfolk with the objective of increasing their capacity for self-governance and support of Fisheries Commission initiatives directly addressing sustainable fisheries resource management.

As part of the F2F (Fisher to Fisher) initiative conducted by SFMP, a broad consultation took place in all coastal regions to gather input of stakeholders' preference on the second fishing holiday. The meetings included representatives of the artisanal and the women processors. Following the regional meetings, a national meeting was held to consolidate and build consensus on the preferred additional day of the week for each region. Six regional F2F dialogues were held across the coastal communities of Ghana with a total of 177 Chief fishermen and 120 women from GNCFC and the National Fish Processors and Traders Association (NAFPTA) in attendance (Table 3). This was augmented by further dialogues involving 707 broader stakeholder groups which included fishermen and other stakeholders in all coastal regions.

Region		Date held	Participants		Agreement to
			Male	Female	Compact
Western	Takoradi	Dec 13, 2016	44	10	Yes
vv estern	Axim	Dec 14, 2016	23	3	Yes
Central	Cape Coast	Jan 11, 2017	28	25	Yes
Greater	Accra Central	Feb 1, 2017	44	29	Yes
Accra	Sege	Feb 2, 2017	14	29	Yes
Volta	Keta	Feb 3, 2017	24	24	Yes

 Table 3 Regional F2F training events for Chief fishermen and fish processors and traders across the four (4) coastal regions in Ghana

As a result of these regional engagements, stakeholders across all four (4) coastal regions of Ghana signed a National Compact highlighting their commitment and readiness to implement the objectives of the National Fisheries Management Plan (NFMP) including a second fishing holiday (see annex). Fishers in the Western, Central and Greater Accra Regions agreed to add Sunday to the existing traditional fishing holiday per-week in fulfillment of Section C1.2 of the NFMP. They also agreed to adopt

Stakeholders across all four (4) coastal regions of Ghana signed a National Compact highlighting their commitment and readiness to implement the objectives of the National Fisheries Management Plan including a second fishing holiday.

traditional management practices such as swearing to the sea to adopt responsible fishing practices, invoking a strong traditional commitment. In the Volta region where fishermen observed different fishing holidays or ritual days (Table 2), a consensus was built to choose Saturday and Sunday as the two non-fishing days per-week. Already in implementation, some Chief Fishermen in the Volta region have moved forward to enforce the rule by reporting to the police thirteen (13) fishermen who violated their agreement. In summary, all of the regional canoe associations, upon further discussion with fishermen in their respective regions have now endorsed a two days a week fishing holiday (see copies of letters of endorsement submitted with this brief in Annex). Other groups such as FoN and the Fisheries Alliance have endorsed and actively advocating for the implementation of the additional holiday.

In order to help enforce laws as well as effectively support the NMFMP, Chief Fishermen are now requesting the Fisheries Commission to authorize them to assist the FEU and Marine

police by reporting cases where fishers do not observe the adoption of these new non-fishing days as well as other infractions. They recognize the critical role that the declaration of additional non-fishing days will play in contributing to the sustainable management of small pelagic fisheries resources. Some Chief Fishermen in the Volta region are already regularly reporting fishermen who are involved in light fishing, in some cases leading to the arrest of the perpetrators

Chief Fishermen are requesting the Fisheries Commission to authorize them to assist the FEU and Marine Police, by reporting cases where fishers do not observe the adoption of new nonfishing days. by naval officers. In other regions, Chief Fishermen also agreed to combat IUU and have asked for direct assistance from the Fisheries Enforcement Unit (FEU) of the Fisheries Commission. Women processors and traders have also built a consensus to reject bad fish and report processors who use chemicals or dynamite to harvest fish. This indicates a growing demand and support among fisheries stakeholders for the implementation of fisheries management measures to reverse the declining trends in landings. This increases the likelihood that a demand driven regulation, the second fishing holiday, with the backing of influential local leadership at the beach landing level, will have high compliance and high likelihood of effective implementation.

LEGAL BASIS FOR A SECOND FISHING HOLIDAY

The Minister has the authority under Fisheries Act 625 of 2002, Section 59 to make provisions necessary for regulating artisanal fishing and under Section 81, the Commission can declare closed seasons for designated areas. The weekly fishing holidays or fishing closures can be considered a necessary provision for regulating the artisanal fishery (reducing excessive fishing effort) and is a measure already contained in the approved and gazetted National Fisheries Management Plan (2015-2019). The weekly fishing holidays can also be considered as a form of seasonal closure and cover the specified area of all of Ghana's marine waters. Such closures are required to be gazetted under the Act so a Ministerial Directive on additional fishing holidays should be gazetted as well.

IMPACT OF AN ADDITIONAL NON FISHING DAY

Biological impact

If fishing mortality (i.e. fishing effort) is reduced to the target reference point recommended by the STWG (Lazar et al. , 2017), beginning in 2018 (Figure 5), the SFMP technical advisor has estimated that there is a high confidence that the small pelagic landings can reach 90,000 MT by 2030 (to be reviewed at the next STWG meeting) .With current landings at approximately 20,000MT, this represents a more than fourfold increase in current annual landings, adding approximately 70,000 MT of high quality low cost locally produced, food protein supply into the local food supply chain. This will help offset the high level of fish importation into the country and could result in a substantial reduction in imports over current levels.

This buildup of annually produced wild caught fish supply is likely to be much faster and a higher level of buildup of locally produced annual fish food supply compared to projected increases from aquaculture development over the same period.

The addition of a single traditional non-fishing day, from one to two days per week, will contribute to the large task of effort reduction and begin the stock rebuilding process. As an additional fishing holiday will reduce fishing days allowed from the current 6 days to 5 days a week, assuming all else remains constant, this will represent a one-sixth or approximately 17 percent reduction in fishing effort.

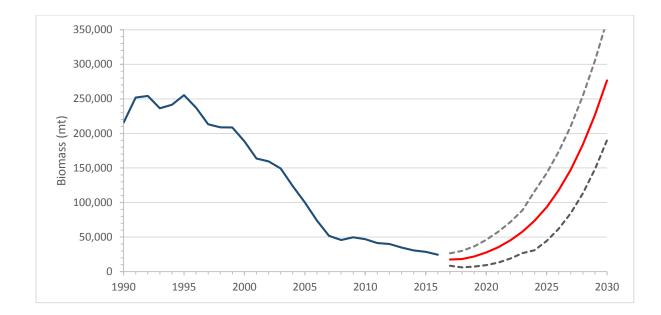


Figure 5 Changes in annual landings if target fishing mortality (effort) targets are reached.

However, a second fishing holiday is not sufficient by itself to end overfishing and as current fishing effort is far beyond the sustainable level and fish stocks are at a very low level of abundance. An additional single day of non-fishing is not based on the spawning regime or other biological factors of the ecosystem. An additional one-day ban does not allow ample time for fish to spawn before capture. However, it does effectively double the number of non-fishing days during the year and therefore will make a contribution to the recovery of the stock.

The additional one day a week fishing holiday, increasing to two per week, is a good start along the path of sustainability as it is a relatively simple measure to implement and can be enforced at the landing beach level. With support of chief fishermen and other traditional authorities currently demonstrated, likelihood of successful

An additional one day a week fishing holiday is a good start along the path of fisheries sustainability as it is a relatively simple measure to implement.

implementation is high. Success with this simple measure is likely to contribute to additional attitudinal and behavior changes necessary to "right-size" fishing effort at sustainable levels. This will require full implementation of other measures in the national fisheries management plan such as a cap and then ultimate reduction in the number of canoes, reduction if not elimination of illegal fishing, and likely other measures such as a one month or more closed season during the spawning period of the small pelagics by all fleets including the canoes.

Socio-Economic impact

Observing an additional non-fishing day each week will likely not have adverse impact on the livelihood and income of fishermen. In some cases, it could have positive social benefits by providing additional time off in each week as an opportunity for the fishermen to rest, mend their nets and time to attend to social obligations and family issues within their communities. A five-day work per week is a standard,

If landings increased by 4.5 times the current level, current revenues from small pelagic landings can increase from GHS 60,000,000 per year to GHS 270,000,000 per year by 2030. relatively common and fair labor practice among businesses in Ghana.

While it is difficult to estimate the direct contribution of the additional fishing holiday to eventual increases in landings and revenues, we can make some approximations assuming the fishing mortality rates are brought down to the target reference points needed for a sustainable fishery. The additional fishing holiday contributes to this result. Assuming implementation of the second fishing holiday and other measures are used to achieve the target, and as earlier estimated that landings increased by 4.5 times the current level, and at a price of 3 GHS per kg of small pelagic fish, current revenues from small pelagic landings could increase from GHS 60,000,000 per year at current landing levels to GHS 270,000,000 per year by 2030. This represents an increase of GHS 210,000,000 per year in additional revenues being injected into coastal fishing communities annually. With approximately 100,000 fishermen along the coast, this is an additional GHS 2,700 per fishermen per year, over GHS 7 per day, and enough revenue to likely pull tens of thousands of coastal fisherfolk out of poverty, reversing the increasing poverty trends occurring now due to the collapse of the fishery. As the second fishing holiday contributes approximately 17 percent to the effort reduction target, this measure can be viewed as contributing to 17 percent of these overall increased landings and revenues. It will contribute to measures outlined in Ghana's Fisheries and Aquaculture Development plan which aims at increasing revenue and profitability in capture fisheries by at least US\$50 million per year from improved management of all stocks.

RECOMMENDATIONS

Based on the decision by fishers, fish processors and Chief Fishermen in all regions, supported by the Ghana National Canoe Fishermen's Council and its leadership as well as the National Fish Processors and Traders Association (NAFPTA), it is recommended that the Ministry of Fisheries and Aquaculture Development immediately issue public notice that for

all canoe vessels operating in marine waters, that an additional non-fishing day for Western, Central, Greater Accra and Volta is declared on Sunday each week in those areas. The Ministry of Fisheries and Aquaculture Development should further codify in regulation as well, Tuesday as a non-fishing day for Western, Central and Greater Accra regions, and Saturday as non-fishing day for the Volta region. Further, the notice should also recognize the responsibility of the traditional authorities, through the Chief

The stakeholders of the fishing sector of Ghana recommend that the Ministry of Fisheries and Aquaculture Development close fishing to the artisanal fishing canoes on **Sundays** nationwide, and codify into law the traditional non-fishing day on **Tuesdays** for the Western, Central and Greater Accra regions, and **Saturdays** for the Volta region.

Fishermen in each region, to communicate this to all fisherfolk, and assist the Fisheries Commission to enforce the decision through their traditional mechanisms. It is important that these traditional fishing holidays be codified into a legally binding fisheries regulation so as to strengthen the ability of traditional authorities in fishing communities to assist the Fisheries Commission and other law enforcement authorities in their effective implementation.

Consistency of the fishing holidays across all regions would be the ideal recommendation as that would be easiest to enforce and prevent vessels from one region just transferring local to another region that has an open closure during their region's regional closure. The only outlier in full consistency on which days to declare the second holiday is in the Volta region which prefers that regionally consistent Saturday and Sunday holiday rather than Tuesday and Sunday. There is some risk that some vessels from other regions traveled to the Volta region on Saturday in order to fish, or Volta vessels travel to other regions on Tuesday. However, this would be costly time consuming and impractical and we believe the likelihood of this is low and if it does occur, would have a negligible impact. The directive could be phrased in a way to also prohibit this practice, stating that canoe vessels registered in a region must abide by the fishing holidays of the region of registration, regardless of fishing or landing location of the canoe.

The directive should define what a fishing holiday as follows; no fishing at sea on those days and no landing of catches on those days as well. The traditional non fishing day is sometimes defined locally as no fishing or no landing of catch, so a precise and consistent definition should be included in the directive and must be clear to fisher folk and law enforcement authorities specifically what this means, to aid in more effective monitoring, control and enforcement.

The additional holiday and which days of the week the holidays should occur have reached broad consensus among the canoe fishery leadership and membership, although not necessarily unanimous among all fisher folk. However, it is further recommended this regulation go into effect 60 days after publishing of the public notice. This will allow time for an intensive communications campaign by the Fisheries Commission and Canoe Council to membership, and among law enforcement groups of why and when this regulation officially goes into effect. It is further recommended that when the first new fishing holiday goes into effect, that ceremonies by traditional authorities and the Fisheries Commission celebrating the start of the measure be implemented and encouraged in fishing communities and landing sites all along the coast.

REFERENCES

- Asare, C., Nortey, D.D.N., Lazar N, Kankam, S. and Agbogah, K. (2015). Results of field survey for the small pelagic fisheries profile. The USAID/Ghana Sustainable Fisheries Management Project (SFMP), Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island and Hen Mpoano, Windy Ridge – Takoradi. GH2014_ACT020_HM 52 pp.
- Dovlo, E., Amador, K., Nkrumah, B. et al (2016). Report on the 2016 Ghana Marine Canoe Frame Survey. MFRD Info Report no. 36.
- FAO Fishery Committee for the Eastern Central Atlantic/Comité des pêches pour l'Atlantique Centre-Est. 2015. Report of the FAO/CECAF Working Group on the Assessment of Small Pelagic Fish – Subgroup South, 2014. CECAF/ECAF Series/COPACE/PACE Séries. No. 12/74 Rome, FAO. 172 pp.
- Fisheries Act 625 of 2002. Fisheries and Aquaculture Sector Development Plan (2011 2016). Ministry of Fisheries and Aquaculture Development and the Fisheries Commission.
- Lazar, N., Yankson K, Blay J., Ofori-Danson P., Markwei, P., Agbogah, K., Bannerman, P., Sotor, M., Yamoah, K. K., Bilisini, W. B. (2016) Rebuilding Depleted Small Pelagic Stocks in Ghana. A Closed Fishing Season Proposal to the Ministry of Fisheries and Aquaculture Development. The Scientific and Technical Working Group. The USAID/Ghana Sustainable Fisheries Management Project (SFMP). Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island. GH2014_SCI002_CRC 17 pp.
- Lazar, N., Yankson K., Blay, J., Ofori-Danson, P., Markwei, P., Agbogah, K., Bannerman, P., Sotor, M., Yamoah, K. K., Bilisini, W. B. (2017). Status of the small pelagic stocks in Ghana - 2016. Scientific and Technical Working Group. USAID/Ghana Sustainable Fisheries Management Project (SFMP). Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island. GH2014_ACT150_CRC. 16 pp.
- National Fisheries Management Plan for the Marine Sector (2015 -- 2019). Ministry of Fisheries and Aquaculture Development and the Fisheries Commission. (as published in the official gazette of Ghana.)
- Nunoo, F. K. E., Asiedu, B., Olauson, J., Intsiful, G. (2015). Achieving sustainable fisheries management: A critical look at traditional fisheries management in the marine artisanal fisheries of Ghana, West Africa. *JENRM*, 2 (1): 15-23.

ANNEX COPIES OF LETTERS OF ENDORSEMENT

Ghana National Fishermen Council, Volta Region

GHANA NATIONAL BANKERS: G.C.B., KETA A. D. B., DENU



(VOLTA REGION BRANCH)

FISHERMEN COUNCIL P. O. BOX 68 KETA - V/R

OUR REF.

28th December, 2017.

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THE EXECUTIVE SECRETARIAT GHANA NATIONAL CANOE FISHERMEN COUNCIL G.N.C.F.C. NATIONAL SECRETARIAT ACCRA.

Dear Sir,

ADOPTION OF SATURDAY AND SUNDAY AS OUR TWO DAYS FISHING HOLIDAY IN OUR SOUTHERN VOLTA MARINE WATERS (TABOO DAYS)

This is to inform the National Secretariat of the Ghana National Canoe Fishermen Council that after discussing at length of the above subject matter, we the Southern Volta Marine Fishermen Council consciously <u>AGREED</u> to adopt Saturdays and Sundays to be our fishing holidays known as Taboo Days.

The two days fishing holiday commence from Fuveme, Atiteti to Aflao. That this will less the time for fishing and also allow fishes to rest and reproduce without any disturbances for a short period. In view of this we the Southern Volta Marine Fishermen, <u>APPEAL</u> to the National Secretariat of the Ghana National Canoe Fishermen Council (G.N.C.F.C.) Accra to inform the Greater Addra Fishermen Council especially the Ada fishermen to deceased from entering our Marine Waters from Fuveme, Atiteti and its surroundings to enable our two day fishing holiday to work effectively.

We the Southern Volta Marine Regional Executive Council is by this letter informing the National Secretariat to communicate with the Fisheries Commission for its implementation as soon as applicable to achieve a sustainable fishing, also let it be announced on local medias in our various media stations both Municipal and District level. Thank you.

Yours in the service of the Nation

Togbi Seth Abotsi Regional Chairman G.N. C.F.C Adina

Tel: 8243115407

NU MATIONAL CALL

Togbi **Easting A** Caovi Gada Regional Secretary G.N. C.F.C Abutiakope

Togbi Seth Kadey Agbo Regional Vice Chairman G.N. C.F.C Dzelukope

Tel: 0247899828

Tel: 0246607439

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Your Ref.....

THE EXECUTIVE SECRETARY GHANA NATIONAL CANOE FISHERMEN COUNCIL NATONAL SECRETARIAT ACCRA.

Ghana National Canoe Fishermen Council, Western Region

Dear Sir.

OUR Ref...

ADOPTION OF SUNDAY AS ADDITIONAL FISHING HOLIDAY TO THAT OF THE TRADITIONAL FISHING HOLIDAY OF TUESDAY

This is to inform the National Secretariat of Ghana National Canoe Fishermen Council that, after discussing at length of the above subject matter of adding another one fishing holiday to that of the original Tuesday that had been in existence for a number of years past, the Western Regional Branch of the council has come into a conclusion and agreed to adopt SUNDAY as additional fishing holiday in the fishing industry in the country. They believe this will less time for fishing and to some extent reduce fishing effort which will allow fishes to rest and reproduce without disturbances for short period of time.

The Regional Council is by this letter informing the National Secretariat to communicate with the Fisheries Commission to see to its implementation as soon as possible to achieve a sustainable fishery.

We write on behalf of all fishermen in Western Region.

Thank You.

Yours In the Service of the Fishing

Dec. 2017

Date:

Industry

NANA KOJO KONDUAH CHAIRMAN-WESTERN REGION

GNCFC –W/R is an umbrella association of artisanal fishers and interest groups in western regisof Ghana affiliated to the National Canoe Council. Its mission is to mobilize, educate and encourage fisherto adopt responsible and sustainable fisheries practices and contribute to food security in Ghama

Ghana National Canoe Fishermen Council, Greater Accra

GHANA NATIONAL CANOE FISHERMEN COUNCIL (GREATER ACCRA REGION)

BANKERS: G. C. B. LTD. HIGH STREET,-AC. H.F.C, BANK RIDGE-AC. Our Ref.:....



P. O. BOX GP 14867, ACCRA TEL.: 0244 748951, 0243 283044

Date: 0.8/01/2018

THE EXECUTIVE SECRETARY GHANA NATIONAL CANOE FISHERMEN COUNCIL NATIONAL SECRETARIAT ACCRA

Dear Sir,

Your Ref.:....

ADOPTION OF SUNDAY AS AN EXTRA FISHING HOLIDAY

We hereby write to inform the National Secretariat of Ghana National Canoe Fishermen Council that, after a long deliberation of the above subject matter of adding an extra fishing holiday to the already existing Tuesday that had been in existence for a number of years past, Fishermen of Greater Accra region has come into conclusion and agreed to adopt Sunday as an additional fishing holiday to the already existing one.

We believe this additional holiday will give the juvenile fishes enough time to grow and replace the adult ones in the sea. This will also reduce fishing effort which will allow fishes to rest and reproduce without disturbances for a short period of time.

The Greater Accra regional council is therefore informing the National Secretariat to communicate with Fisheries Commission to see to its implementation within the shortest possible time to help achieve sustainable fishery in the country.

Thank you for your usual co-operation and we look forward to hearing from you soon.

Yours Faithfully,

Nii Djamlodja VI (Chairman)

National Fish Processors and Traders Association



THE EXECUTIVE SECRETARY GHANA NATIONAL CANOE FISHERMEN COUNCIL NATIONAL SECRETARIAT ACCRA Dear Sir,

ADOPTION OF SUNDAY AS AN EXTRA FISHING HOLIDAY.

We hereby write to inform the National Secretariat of Ghana National Canoe Fishermen Council (GNCFC) that, after a long deliberation of the above subject matter of adding an extra fishing holiday to the already existing Tuesday that had been in existence for a number of years past. NAFPTA has come into conclusion and supports the idea of setting aside Sunday as an additional fishing holiday to the already existing one. We believe this additional holiday will give the juvenile fishes enough time to grow and replace the adult ones in the sea. This will also reduce fishing effort which will allow fishes to rest and reproduce without disturbances for a short period of time.

The National Fish Processors and Traders Association (NAFPTA) is therefore informing the National Secretariat of the GNCFC to communicate with the Fisheries Commission to see to its implementation within the shortest possible time to help achieve sustainable fishery in the country. Thank you for your usual cooperation and we look forward to hearing from you soon.