Cogent Social Sciences

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/oass20

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To cite this article: Samuel Nyavor, Sandra Amposah, Victor Owusu & Kwame John Boateng (2023) Compensation payment for fisherfolk during closed-season fishing: Lessons from small-scale fisherfolk in Ghana, Cogent Social Sciences, 9:2, 2282502, DOI: 10.1080/23311886.2023.2282502

To link to this article: https://doi.org/10.1080/23311886.2023.2282502

Nyavor et al., *Cogent Social Sciences* (2023), 9: 2282502
https://doi.org/10.1080/23311886.2023.2282502

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GEOGRAPHY | RESEARCH ARTICLE

Compensation payment for fisherfolk during closed-season fishing: Lessons from small-scale fisherfolk in Ghana

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Received: 03 April 2023
Accepted: 08 November 2023

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Reviewing editor:
Michael Hardman, University of Salford, United kingdom

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Abstract: This study contributes to the literature on marine conservation, fisheries management, and coastal development. The study investigated the distribution mechanism of government -led compensation payment schemes for small-scale coastal fisherfolk in Ghana during the closed season. We also sought to explore the perception of fisherfolk concerning equity and fairness in the distribution of the compensation scheme. The empirical data consisted of 220 household surveys and 20 in-depth interviews with relevant stakeholders from the Central Region of Ghana. The findings from our study indicate that significant controversies exist about the selection of beneficiaries for compensation payment. There is a lack of transparency in the compensation schemes targeting criteria. The distribution process was widely perceived to be unfair. The results from the study show that there are high levels of politics and nepotism in compensation distribution. Access to compensation packages is largely influenced by political party affiliation. A more transparent and precisely targeted scheme may go a long way to improving perceptions of fairness

Samuel Nyavor

ABOUT THE AUTHOR

Victor Owusu is a lecturer at the Department of Geography Education, University of Education, Winneba (UEW), Winneba in Ghana. Dr Owusu is a development geographer with special interest in the study of coastal livelihoods and rural development. His research and teaching interests include coastal livelihoods, sustainable tourism and rural development. The current paper forms part of the research theme: Towards healthy, sustainable, and inclusive coastal spaces in West Africa. The main focus has been on overfishing, marine conservation, and new oil exploration impacts on fisheries and livelihoods. I have also investigated how climate change is occurring in coastal communities and the corresponding mitigation strategies being deployed in response to the threats of climate change. Since the outbreak of the COVID-19 pandemic I have explored the social-cultural perceptions of the pandemic and its implication on adherence to safety protocols, and impact on local economies.

PUBLIC INTEREST STATEMENT

The study was designed to gain understanding of the newly introduced compensation payments for fisherfolk during close season in Ghana. The study is based on household surveys of fishers and interviews with chief fishers, government officials and Non -governmental Organizations(NGOs). The findings show that the compensation distribution for small-scale fisherfolk is associated with many challenges including ineffective management, weak governance, and local elite capture. We found that government distributed bags of rice (kg) and cooking oil for fisherfolk. However significant controversies existed about the selection of beneficiaries for the scheme. The distribution was marred by political interferences and nepotism. A more transparent and precisely targeted scheme may go a long way to improving perceptions of fairness and compliance of close season. The study calls for the introduction of alternative livelihoods for fishing households during the close season.

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Subjects: Geography; Geography; Cultural Geography; Economic Geography; Social Geography; Environmental Geography; Development Geography

Keywords: Small-scale fisheries; closed season; conservation payment; marine sustainability; coastal Ghana

1. Introduction

Small-scale fishing (SSF) and its related activities such as processing and trading are vital in providing food security. According to the World Bank (2016), fisheries contribute significantly to socioeconomic development and poverty alleviation in Africa. The sector contributes to food and nutrition security and provides jobs, mainly for coastal populations, who are often among the poorest and most vulnerable (Hasselberg et al., 2020; Owusu & Andriesse, 2022; Yang et al., 2019).

SSF which is the focus of this study refers to fishing and its related activities, such as processing and trading, operated by individuals and families in coastal communities (Owusu & Andriesse, 2022).

The marine and coastal resources in Ghana have been a consistent mainstay of the coastal economy, providing vital nutrition, income, and livelihood support to many coastal fishing communities (Hasselberg et al., 2020; Ofori-Danson et al., 2019). The fisheries sector employs about 10% of the active workforce of the population as fishers, processors, boat owners, boat builders, and others in subsidiary jobs. The direct workforce for the industry includes about 140,000 fishermen in the four coastal regions, and 4,474 persons employed in the fishing and aquaculture industry (Fisheries Commission, 2022). It serves as a source of food and an inexpensive source of protein for the population. Significantly, fish constitutes 60% of the animal protein consumed in Ghana (Ministry of Fisheries & Aquaculture Development, 2016).

Over the past few years, the capacity of the marine fisheries sector to support the livelihoods of coastal fishing communities has been under threat due to depleted fish stock. The depletion of fish stock has been attributed to overfishing, illegal fishing activities, activities of industrial trawlers, climate change, and offshore petroleum production (Adjei & Overå, 2019; Amadu et al., 2021; Freduah et al., 2018; March & Failler, 2022; Owusu, 2019; Owusu et al., 2023; Siabi-Mensah & Twum, 2020).

In response to depleted marine fish stock, since 2016 the government has introduced various regulations towards the protection of fisheries and coastal livelihoods including implementation of the closed season. The first closed season was implemented for the industrial trawler sector in 2016. The policy was subsequently extended to the small-scale or artisanal fisheries sector in 2019. Since 2019, three closed fishing seasons have been enforced for the SSF sector. The first closed season was implemented between May 15 and 15 June 2019. The other two closed seasons were implemented in July 2021 and 2022. The conservation area covers 13,987 km2, including portions of Accra, Tema, Winneba, Apam, Cape Coast, Sekondi-Takoradi, and Axim (Ofori-Danson et al., 2019).

The closed fishing season is very important to increase fish catch and conserve fish and other marine species. This notwithstanding, there is the need to compensate the fishers whose livelihood depends on fishing. In recognition of the socioeconomic hardships imposed by the temporal fishing bans, the government in 2021 started a compensation scheme for fishing households during the closed season.

Several authors including Kwadzo (2022), Adom et al. (2019), Ofori-Danson et al. (2019), and Owusu and Andriesse (2020), investigated the effects of the closed season on the livelihoods, food,

and nutritional security of coastal fisherfolk in Ghana. Owusu et al. (2023) also examined the factors influencing compliance with the closed season in Ghana. This study contributes to the literature on marine conservation, fisheries management, and coastal governance by exploring compensation payment schemes for small-scale coastal fisherfolk in Ghana during temporal fishing bans. Compensation payments are adopted to achieve both social and ecological objectives mainly in developing countries (Bladon et al., 2018). We focus on the government-led compensation scheme for small-scale fisherfolk during the closed season in Ghana. The study investigated the distribution mechanism of compensation schemes for small-scale coastal fishing communities. We also sought to explore the perception of fisherfolk concerning equity and fairness in the distribution of the compensation scheme.

The empirical data gathered comprised 220 household surveys and 20 in-depth interviews with stakeholders at the local district, regional, and national levels. There is an anticipation that the results presented here will aid fisheries managers and stakeholders in making an informed decision regarding implementing compensation payment in future closed seasons. The rest of the paper is organized as follows: the next section presents the study's theoretical framework, followed by the study areas and research methodology description. After that, the results and discussion are presented, highlighting the implications of our findings for improving the distribution of compensation payment in coastal fishing communities, and finally, ends with the conclusion.

2. Closed season, conservation payment, and marine sustainability

According to Apetorgbor (2018), the closed season refers to the stopping of fishing during the spawning period of the fish. It is a way of reducing fishing pressure on stocks when they are most productive in terms of allowing the fish to lay their eggs to replace the lost population due to fishing and other natural causes (Apetorgbor, 2018; Arendse et al., 2007; Bucaram et al., 2018; Rola et al., 2018). A closed season will be most successful when other types of fishing pressure are controlled such as the use of illegal small mesh size nets, light fishing, the use of poisons and toxic chemicals, and dynamite or other explosives (Owusu & Andriesse, 2020). The closed season has been implemented in several other countries including the Philippines, Senegal, Guinea Conakry, and Mauritania (Bladon et al., 2018; Brillo et al., 2019; Marcusi et al., 2021; Mingle, 2019; Yankson et al., 2016). Although the closed fishing season aims to restore depleted fish stock, its implementation imposes socio-economic hardships that affect fisherfolk whose income are directly dependent on their employment in the fisheries sector (Kwadzo, 2022; Marcusi et al., 2021). The seasonal closures mean no work for the fisherfolk, which can cause financial burdens due to a decreased number of working days and lost income (Kwadzo, 2022). Chimba and G examined the impact of the closed fishing season on the livelihood of fishers focusing on Stratum 1 of Kafue Fishery in Zambia. They found that the majority of the fishers were negatively impacted by the closed fishing season considering that there were no viable alternative income-generating activities. According to Ofori-Danson et al. (2019) and Kwadzo (2022) the closed season in Ghana resulted in a temporary loss of household income and livelihood for canoe fishing households. Ofori-Danson et al. (2019) found that fish processors and other related businesses (transport, sale of nets, fuel, ice block producers, etc.) were found to be confronted with several socio-economic impacts including an increase in fish price; reduced availability of fish in the diet; reduction in social activities; the inability of parents to care for children; and a perceived increase in poverty and negative nutritional impacts. A closed season without any form of monetary or in-kind support can result in an exit from the fishery. Since part of the most productive time for fishing is closed (Corrêa et al., 2014).

To ensure compliance with fishing bans and to support the fishing households whose livelihood depends on fishing; conservation payments and other forms of incentive packages are provided for the coastal communities who depend on fishing and its related activities as their main source of livelihood. Cash and non-cash payments are increasingly used in marine resource management and conservation as a way to protect fishery stocks, increase compliance, and compensate for

losses incurred during fishing bans (Bladon et al., 2018; Corrêa et al., 2014; Haldar & Ali, 2014a). A conservation payment is a monetary or in-kind payment used in resource management to incentivize behavioural change or compensate for losses incurred as a result of the intervention (Bladon et al., 2018). Conservation payments are not only meant to cater for loss of income but also to ensure that there is compliance. Conservation payments in the form of food and cash are provided to small-scale fisherfolk in Bangladesh and Brazil during the temporal ban on fishing (Bladon et al., 2018; Corrêa et al., 2014). Despite these positive intentions, conservation payments have been associated with several challenges that undermine efforts to reduce economic hardship and achieve environmental sustainability.

In their study on the ecological and social targeting of a compensation scheme for SSF in Bangladesh, Bladon et al. (2018) found that the distribution was widely perceived to be unfair. Corrêa et al. (2014) also investigated the perverse incentives in fishery management in the Brazilian Amazon in South America. They found that fishers continued to fish during the closed season even though they received cash compensation due to a lack of enforcement. As indicated by Barley et al. (2014), the support for seasonal closures from fisherfolk, based on local knowledge is more likely to meet fishery and conservation goals. If conservation payment distribution is equitable and fair, it will lead to compliance from fisherfolk and the community as a whole (Bladon et al., 2018). This will in turn lead to the expected positive impacts on fish stock leading to reduced economic hardship for the fishing households and improving the social well-being of the coastal households (Figure 1). On the other hand, if equity and fairness are not ensured in the distribution of the incentive package compliance will be difficult and that could lead to unsustainable marine capture. Owusu and Adjei delved into politics, power, and unequal access to fisheries subsidies among small-scale coastal fisher folk in Ghana. They concluded that the distribution of fuel subsidies among SSF is fraught with political interferences, corruption, and local elite capture which undermines the effectiveness of the subsidy to achieve social and ecological objectives.

This study is one of the first studies to document the compensation payment distribution among the SSF in Ghana. The study investigated how the beneficiaries of the payments were identified, the various stakeholders involved in the management of the distribution, and the perception of fairness and equity in the distribution.

3. Study Context and Research Methodology

3.1. Overview of marine fishery in Ghana

Ghana is endowed with a coastline of about 550 km long and a maritime area, comprising a territorial sea of 12 nautical miles (mm) and the Exclusive Economic Zone (EEZ) of 228,000 km^2. The marine capture fisheries are by far the most important concerning total fish landings accounting for 80 percent of total fish catch with an annual average fish production of 300,000

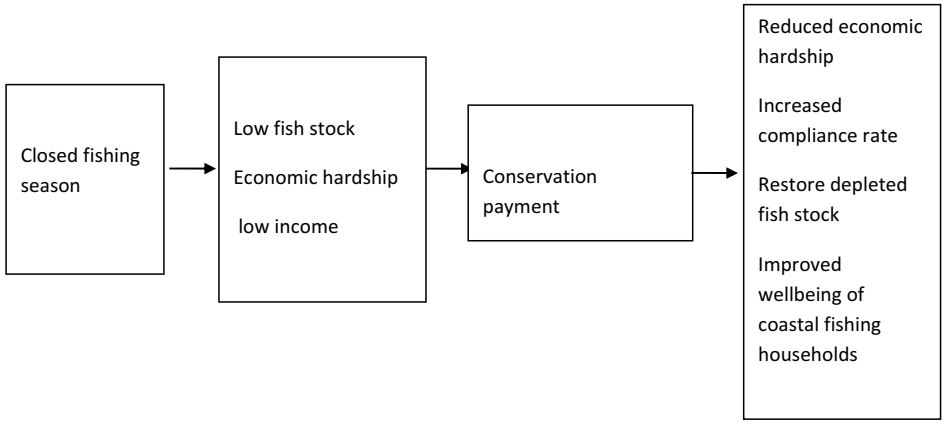

Figure 1. Analytical underpinning.

metric tons (Fisheries Commission, 2022). The marine fisheries capture sector is made up of three main types of fishing fleets. This includes; industrial vessels, semi-industrial and artisanal canoes. Artisanal fishing or the small-scale fisheries sector is characterized by low—technology, and low investment and is operated by individual members from coastal communities (Afoakwa et al., 2018). This sector contributes the largest in terms of marine fish volumes. The artisanal is estimated to contribute about 80 percent of the total annual marine fish catch by volume (Afoakwa et al., 2018). The canoes are classified by their size and the type of gear used. The mid-sized vessels range between 6 to 11 m long with a crew of between 2 to 11 fishers. They are synonymous with bottom-set, drifting gill nets, beach seine nets, and line fishing (Afoakwa et al., 2018). Depending on the size and capacity, the canoes can be propelled by paddle or with 8hp and 40hp outboard motors. The large canoe ranges between 12-19 m long and 1.2–2.4 m wide and are propelled by an outboard motor with an engine capacity between 25 to 40hp (Afoakwa et al., 2018). Depending on the capacity of the vessel, it can carry between 10 to 25 crew members and more recently fishers have adopted the use of more sophisticated and modern gadgets like fish finders and Global Positioning Systems (GPS) to aid fishing activities (Afoakwa et al., 2018).

Fishing is the main occupation of the people in the coastal areas of the Central Region, with 3,855 canoes, and 97 landing beaches (MoFAD, 2016). The study focuses on the coastal towns of Winneba and Apam in the Central Region of Ghana. Winneba and Apam, both lying along the Atlantic coast of Ghana in the Central Region were selected for this study because the two communities are prominent fishing communities in Ghana. The fisherfolk in these communities were, also, among the beneficiaries of the government-led compensation payment during the closed season. The two communities were selected because they are among the country's most active and largest fish landing sites, have a high dependence on fishing livelihoods, and have recent concerns about declining fisheries (Owusu et al., 2023).

Winneba is a coastal town in southern Ghana. It is located in the Central Region and serves as the capital of the Effutu Municipal (Figure 2). Winneba lies on latitude 5°22'01.5"N and longitude 0° 37'52.2"W along the Gulf of Guinea. Winneba is situated 56 km west of Accra, Ghana's capital city, and 140 km from Cape Coast. Winneba is a vibrant fishing area with five landing sites, 4270 fishermen, and 436 canoes (MoFAD, 2016). The main fishing grounds include Eyipey, Winneba, Esuakyir, Warabeba, and Akosua Village. Mackerel, kingfish, tuna, sea bream, and herring are some of the types of fish species caught in Winneba (MoFAD, 2016). The men are responsible for fishing while the women are involved in fish processing and marketing. Other activities along the coast include salt mining. The inhabitants also rely on coconut palms and tourism as a result of its beaches (Owusu et al., 2022).

Apam is a coastal town located along the Atlantic Ocean in Ghana. It is the capital of the Gomoa West District in the Central Region of Ghana and is located approximately 68 km east of the Central Regional capital, Cape Coast, and about 69 km southwest of Accra. It lies on the coordinates 5° 18'17.91"N, 0°42'34.89"W, and 5°14'47.33"N, 0°46'35.27"W. According to MoFAD (2016), ten landing sites, 4,062 fishermen, and 298 canoes are registered in the community to support the fishing industry. The primary fishing season in Apam waters is between August and December, and some of the commonly caught fish include threadfin (*Galeoides decadactylus*) and burrito (*Brachydeuterus auritus)* (MoFAD, 2016). The community is predominantly a marine fishing center. Hen Mpoano and Environmental Justice Foundation, (EFJ), are some of the NGOs operating at Apam.

3.2. Research Methodology

3.2.1. Data collection

The study adopted the concurrent triangulation mixed-method approach to examine the compensation distribution mechanism as well as the fisherfolk's perception regarding equity and fairness in the compensation payment during the closed fishing season. The mixed-method approach involves gathering, analyzing, and integrating both quantitative and qualitative data. The

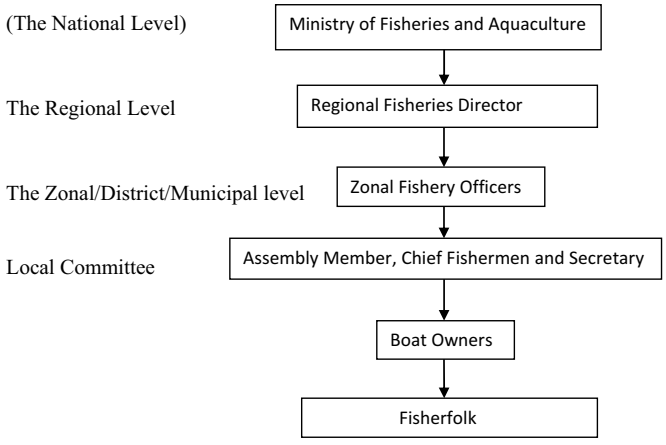

Figure 2. A framework of compensation payment distribution.

concurrent triangulation design uses separate quantitative and qualitative methods in the same study as a way of offsetting the weaknesses of using only one method. The authors collected both qualitative and quantitative data to give an in-depth explanation and better understanding of the research problem. The use of both quantitative and qualitative approaches complements each other and facilitates cross-validation (Creswell, 2014).

The primary data is made up of 220 fisherfolk households surveys and 20 interviews with stakeholders in the fisheries sector. The surveys and interviews were conducted between August and September 2022 in Ghana. Two hundred and twenty surveys were conducted in the communities of Winneba in the Effutu Municipality and Apam in the Gomoa West District. The individual in-depth interviews ($n = 20$), were conducted with government officials ($n = 6$), community leaders ($n = 4$), fish traders and processors ($n = 8$), and chief fishermen ($n = 2$) to gain insights about marine conservation and compensation schemes. The major themes in the interview guide were the socio-demographic information on respondents, closed fishing season, marine sustainability, compensation schemes, fairness, and equity.

The survey questionnaire was divided into four broad thematic areas of inquiry covering basic socio-economic and demographic information, fisheries livelihoods, closed seasons, and compensation payment. Some of the main questions asked included but were not limited to; fishing activities (technique and tools, domestic or commercial, and experience), awareness of the closed season policy, effects of the closed season on fishing households, mode of distribution of compensation payment, types of compensation received and perception of fairness. The questionnaire included closed, open, and multiple-choice questions. The closed and multiple-choice questions allowed respondents to select specific choices of answers, while the open-ended questions permitted the participants the opportunity to freely talk about their experiences and knowledge related to the SSF and coastal development. The questionnaire survey lasted between 50 to 60 minutes on average per person.

3.2.2. Sampling method

Respondents for the surveys and interviews were selected through purposive and snowballing sampling techniques. We began with purposive sampling to identify key informants and subsequently used snowball sampling to expand the sample size. The paper employed the purposive sampling technique to select community leaders, government officials, and an official from an NGO. These groups of stakeholders were selected because of their knowledge and

experience within coastal fishing communities regarding fisheries management and coastal livelihoods.

Snowballing sampling technique was used to administer the household survey by asking participants to recommend other potential respondents considered to have the requisite knowledge about the issues under investigation. Due to the migratory nature of fisherfolk, the snowballing sampling technique serves as a suitable approach to identify fishers who are residents of the study communities (Ekumah, 2013). Moreover, the lack of official data on the number of fisherfolk in Ghana's small-scale fisheries rules out probability sampling techniques (Adjei & Overå, 2019).

Snowball and purposive sampling are efficient techniques for gathering data in fishery communities known for their strong social connectivity. These sampling techniques are efficient data-gathering methods used by several authors to investigate fisheries livelihoods and coastal development in the Global South (Adjei & Overå, 2019; Adjei et al., 2023; Penney et al., 2017).

3.2.3. Data analysis

The quantitative data obtained was manually coded and categorized into themes. The coded data were then entered into the Statistical Package for the Social Sciences (SPSS) software version 23.0 and Microsoft Excel to undertake the descriptive statistical analysis. We employed descriptive statistics to summarise and present the results of the study. Descriptive statistics were presented in the form of charts, percentages, and tables.

The interviews were audio-recorded with the permission of the respondents and later translated verbatim. The transcribed data was manually coded, and organized into relevant themes based on the study's objectives. Selected narratives from the in-depth interviews were presented as direct quotations to illustrate key findings. Direct field observation of the coastal environments and fishing activities further provided a depth of information.

We collected secondary data from published and unpublished reports, online news media, articles, and other internet sources to support the analysis of the study

4. Results

The respondents have large household numbers. Household with members between 4–6 people constituted 56% and 59 % in Winneba and Apam respectively. Those with more than 7 household members made up 35% in Winneba and 30% in Apam. 63% of respondents in Winneba reported monthly incomes of between 100GHS to 500GHS from fishing during the open season and 58% at Apam said they make between 100GHS to 500GHS during the open season. The majority of the fisherfolk in the study areas have no alternative work apart from fishing (Table 1).

4.1. Awareness and compliance of closed season

According to the municipal fisheries officer, the close season is one of the various management measures instituted by the Fisheries Commission to restore depleted fish stocks. Other management measures to curb the unprecedented decline in fish stock include stronger enforcement of Act 625, amended 880, and intensified educational campaigns to fisherfolks on Illegal, Unregulated, and Unreported Fishing (IUU).

All the surveyed respondents confirmed that they were aware of the closed season policy (Table 2). This is due to extensive education and stakeholder engagement carried out by the Ministry of Fisheries and Aquaculture Development, and the other stakeholders such as NGOs through various platforms. The Municipal Fisheries Officer at Winneba reported that they made a series of announcements to inform the coastal communities about the temporal fishing bans.

A community leader in Apam opined:

The numerous announcements from the radio and television also informed me about the closed season. Moreso NGOs such as the "Hen Mpoano" played a vital role in educating us about the closed season. (Community leader, Apam)

Table 1. Characteristics of the study sites and persons interviewed

Study areas	**Winneba (*n* = 120)**	**Apam (*n* = 100)**
Variables	**%**	**%**
Age		
Below 20	13	15
21–39	49	51
40–59	28	26
60 and above	10	8
Marital status		
Single	23	27
Married	77	73
Educational level		
Elementary	64	67
Secondary	2	2
Tertiary	2	2
No formal education	32	29
Household number		
1–3	9	11
4–6	56	59
7 and above	35	30
Fishing experience		
Less than 5years	12	9
5 to 10years	20	17
11 to 15years	15	16
Over 15years	53	58
Type of fisher		
Boat Owner	10	8
Captain	16	16
Crew member	74	76
Monthly income		
100–500	63	58
600–1000	34	39
NA	3	3
Job beside fishing		
Yes	21	8
No	79	92

Exchange rate: USD 1 = GHS 9 as of August 2022.

The Gomoa West Fisheries Commissioner also confirmed NGO officials educated the fisherfolk on the importance of the closed fishing season. The success in the awareness level can also be attributed to the leadership of the fisherfolk such as the chief fishermen and their executives at both Winneba and Apam. The fisherfolk mentioned that the local fisheries leaders including the chief fisher regularly updated them about the closed season policy.

The results from Table 2 show a high compliance rate in both study areas. There was 100% compliance among fisherfolk in both study areas. The chief fisher and other interviewed community leaders confirmed the total compliance with the fishing ban. This was also confirmed by the Municipal Fisheries Officers at Winneba and Apam. Regarding the effects of the closed season, 91% of respondents in both Winneba and Apam reported negative experiences during the closed-season fishing. The closed season exposed the respondents to economic hardship and suffering. Many fishers complained that apart from the government-led intervention, there was no other intervention from any NGO or other institutions. The Gomoa West District fisheries officer confirmed that even though NGOs are working in the coastal areas, there was no assistance from them during the season. Also, it is evident from Table 1 that the majority of respondents do not have any other job besides fishing. This implies that they are dependent on the sea for their livelihoods.

This is illustrative of the statement below;

My only source of livelihood was closed. How do you expect me to survive? I incurred a debt of over one thousand Ghana cedis (2000) during the ban on fishing. (Canoe owner, Apam)

Table 2. Survey results (*n* = 220 households)

	Winneba (*n*=120)	**Apam (*n*=100)**
Variables		
Awareness of the closed		
Season		
Yes	100	100
No Closed season compliance	-	-
Yes	98	99
No	2	1
Were you affected by the		
Closed season?		
Yes	90	96
No	10	4
Awareness of compensation		
payment during the closed		
Season by the government		
Yes	100	100
No	-	-
Did you receive any compensation?		
payment from the government		
during the period?		
Yes	55	56
No	45	44
Was the compensation payment sufficient?		
Yes	-	-
No	100	100

Another fisher also pointed out that:

The close season resulted in jobless, this has made life very difficult for me. I have lost a lot of money as a result of the fishing ban, this has compelled most of us to resort to borrowing from banks to survive. (Fisher, Winneba)

4.2. The compensation payment distribution mechanism

The national government has provided support to the fisheries sector through several

subsidy programs. These include; fishing port construction and renovation, subsidies for the fish landing site infrastructure, tax exemptions for fisheries inputs, subsidies for fishing gear and engines (selected fishing nets and outboard motors), and the premix fuel subsidy program (Yaotse & Boakye, 2020). The subsidy on the premix fuel amounts to between 60% to 70% of the actual market price of the fuel (Sackey-Mensah, 2013; Tobey et al., 2016). In 2020, the government of Ghana distributed 300 subsidized outboard motors to fishermen in coastal Ghana. The fishers paid 60% of the cost, while the government paid the remaining 40 % (Nyarko, 2020). In 2022, the government distributed 6000 wire mesh, 1,710 chest freezers, 1,150 outboard motors, and 20,000 pieces of basin meant for both fishers and fish processors (Ghanaweb, 2013).

The recently introduced compensation scheme by the government seeks to ameliorate the hardship of fishing households during the temporal ban on fishing. The compensation scheme includes food items made up of 20,000 bags of rice and 8,333 cooking oils distributed to fisherfolk during the 2022 close season (Ghanaweb, 2013). The household survey and interviews confirmed rice and cooking oil were the main items distributed during the closed season. Figure 2 explains the framework for the distribution of compensation payments.

Interviews with the fisherfolk, canoe owners, and district fisheries officers indicated that a compiled list of canoe owners was used to distribute the items. The Ministry of Fisheries and Aquaculture Development delivers compensation payment items to the Regional Fisheries Officers. The Regional Fisheries officers upon receiving the items, forward them to the District Fisheries Officers/Zonal officers through their respective Municipal and District Chief Executives. The local committees oversee the distribution. The committee comprises the Assembly Members, the Chief Fishermen, and the Local Secretaries. The secretary of the committee compiles the names of canoe owners. The list of canoe owners was used to distribute the items. Interviewed canoe owners at both Apam and Winneba confirmed that their local leaders registered them before the distribution of items. Upon receiving the items, canoe owners distributed the items to their crew members. Beneficiaries in both study areas confirmed that they were called and given the items by their canoe owners. Similar institutional arrangements have been reported in Bangladesh where- each local council is invited to put forward a list of jakta fishers, which is finalized through a complex process at various levels of government for conservation payments (Haldar & Ali, 2014a).

According to the fisheries officer of the Effutu municipality, the municipality received one hundred and seventy (170) cartons of oil and two hundred (200) bags of rice. Interviewed canoe owners reported that they were given one bag of rice (5 kg) and a bottle of cooking oil to share with their crew members. The Municipal fisheries officers also lend credence to this when they confirmed that rice and oil were the main items distributed. Fisherfolk in Bangladesh also receive rice and wheat as well as some support for alternative income generation activities during the closed season (Haldar & Ali, 2014a; Islam et al., 2016).

The major challenge reported by the fisherfolk was the small quantities of items distributed. According to fisherfolk, the number of items received was very small and woefully inadequate. The municipal fisheries officers acknowledged that not all eligible fisherfolk received the items. Results

from the household surveys and interviews confirmed that the quantity of rice and cooking oil received was not enough to satisfy everyone. Over 40% of surveyed fisherfolk reported not receiving any of the items distributed. Another 95% of compensation recipients reported that the compensation provided was not sufficient.

A captain and fisher at Apam opined;

Are you talking about that small quantity of rice and oil, I didn't get anything. They said it was finished. The government should ensure that all fisherfolk are catered for during the closed season. (Captain and Fisher, Apam)

Another fisher in Winneba also commented;

The items distributed were a big insult to us. How can seven of us be given a 5 kg bag of rice and a bottle of cooking oil to share and depend on for one month?

Interviewed fish traders and processors also reported that, when fishermen don't go fishing, their work also ceases. They therefore find it difficult to take care of their families during the closed season:

My husband owns a canoe, and our only source of income is from fisheries, so the closed season affected us. I think the closed season policy is bad. What do they expect us to eat? my family depends solely on the sea for survival. They should have included fish traders and processors in the distribution of the food items. What my husband received is woefully inadequate. (Fish trader and processor, Apam)

Another fish trader and processor also opined;

The closed season affected my work, I couldn't get any fish to process and sell. Many of the women in this community, including myself do not have any work besides fish processing and trading. Therefore, when the government announced the closed season, we were expecting some form of cash compensation to support our families. (Fish trader and processor, Winneba)

The findings above were supported by the regional fisheries officer at Cape Coast who alluded to the fact that the received items for compensation payment were not enough to cater to all fisherfolk.

According to the Central regional fisheries officer, other items were distributed on a pilot basis, either for free or on a subsidized basis. Some of the items distributed includes fishing nets and outboard motors for fishers. Instead of the fishers buying an outboard motor at a market price of twenty-eight thousand Ghana cedis (GHS 28,000), they bought it at fourteen thousand Ghana cedis (GHS 14,000) translating into a 50% discount. Fish racks, deep freezers, aluminium pans, and other fish processing items were given to fish processors as part of relief items.

4.3. Perception of equity and fairness in the compensation distribution

The results from the household survey coupled with the interviews confirm that the distribution was not done fairly. Even though more than half of the respondents in both study communities received the compensation payment, the approach of distribution was widely perceived to be unfair. Political interferences and corruption were reported by fisherfolk as the main reasons for the unequal distribution of food items.

It was reported that political party members of the ruling government "hijacked" the distribution. They did not allow the local distribution committee to do their work. The following extracts from our interviews with fishers aptly speak to the findings presented above:

They said the items are coming from their party, and so, those who are not members of the "party" will not be given them. (Canoe owner, Winneba).

Even people who have never touched the net received items and those of us for whom the things were meant never received anything. The distribution of the items is full of politics, how can I describe this to be fair? (Canoe owner and fisher, Apam).

The extracts above reveal that the distribution of compensation payment at the community level is highly politicized and access to it is largely influenced by political party affiliation. This finding is supported by Owusu and Adjei (2021) who argued that access to vital subsidized fishing inputs such as premix fuel, fishing net, and outboard motors are highly characterized by unequal power relations between the politically connected and the less connected within the fishing communities. In Bangladesh, the process of selecting and distributing food compensation to hilsa fishers during the closed season was found to be associated with political interference where government and fisheries officers include more people from their constituency to get a larger food allocation to benefit their supporters to help them win political power (Bladon et al., 2018; Haldar & Ali, 2014a). Subsidies constitute "a visible way to deliver benefits in exchange for political support", and therefore have a strong political logic to be retained (Victor, 2009, p. 19).

The fishers reveal that they are dissatisfied with the compensation payment distribution process. They were of the view that the distribution was marked with corruption and nepotism. It was reported that some officials requested money from the fisherfolks before giving them the items. Some of the fisherfolk alleged that they were asked to pay money to increase their chance of being selected to receive the items.

I was asked to pay an amount of twenty-five Ghana cedis (GHS 25) for the items. When I sent the money, I was told the items had finished. (Fisher, Winneba)

Another fisher opined;

We were asked to register with our national identity cards which I did. But when the items were brought, I was told I was not part of the recipients (Canoe owner and fisher, Apam).

Another canoe owner at Apam who received some of the items had this to say:

We do not know the number of items brought for distribution. I was just called to come and receive the items on behalf of my crew members.

Pagiola et al. (2005) argued that even when interventions are specifically targeted for social objectives, benefits may still fail to reach the "right" individuals. Poudyal et al. (2016) found households with more political and economic power and those with greater food security were more likely to be identified as eligible for compensation.

5. Discussion

The study sought to show how the beneficiaries of government-led compensation payments were selected, and the various stakeholders involved in the management of the distribution. We also investigated fisherfolk's perception of fairness and equity in the distribution.

The study reveals that significant controversies exist about the selection of beneficiaries for compensation payment during the closed season. Government officials relied on data provided by the local committees that is made up of (Assembly members, chief fishermen, and local secretaries) for distribution. The quantities of items that fisherfolk receive were determined by the local committees of the respective fishing communities. Without any formal rules governing the quantities of items to be given to each fisher, the local committees use their powers

and discretion to determine the quantities that are allocated to each fisher. This arrangement is similar among coastal fishing communities in the Central Region, where the chief fisherman compiles the names of the canoes and their owners and uses the list for the premix fuel distribution (Abane et al., 2013). Important household characteristics such as assets (ownership of land, house, etc), household income, food security, and household number are not considered in selecting beneficiaries. The lack of official data on the number of fisherfolk working in the various coastal communities made it difficult to determine those who are most vulnerable and dependent on fishing and its related activities for compensation payment. There is a lack of transparency in the selection of beneficiaries for compensation scheme payment. Poudyal et al. (2016) found that households who were negatively affected by the climate mechanism REDD+ in Madagascar did not receive compensation due to local elite capture. In Bangladesh, Bladon et al. (2018) found that compensation distribution for hilsa fishers was more spatial rather than based on the household characteristics that are supposed to determine eligibility for compensation.

Fisheries subsidies (monetary or in-kind) serve as important livelihood support, especially for low-income small-scale fisherfolk in developing countries. However, the highest share of subsidies is given to the wealthier fisherfolk, instead of the low-income fishers in coastal communities (Sumaila et al., 2016; Owusu & Adjei, 2021). The results from the study show that there are high levels of political interference and corruption in the compensation distribution. We see that access to compensation packages is characterized by nepotism and political interference. Those with more political power can capture and control the distribution and access to compensation payments (Owusu and Adjei, 2021). That is, access to compensation packages is based on political affiliation. Failure to consider distributional and fairness issues can undermine the impacts of conservation initiatives that seek to achieve the dual objective of poverty reduction and ecological sustainability (Jones & Milner-Gullard 2010). Whilst politicization of the fisheries subsidy is a major problem in Ghana, it may be very difficult to get rid of political party members in the distribution committee as various governments have used other subsidy programs such as premix fuel as a political tool to influence/manipulate fisherfolk to win their votes (Owusu and Adjei, 2021; Tanner et al., 2014; Victor, 2009). There are obvious impacts of fishery subsidies on fisherfolk incomes, well-being, and marine sustainability. How such benefits are distributed will have equity consequences that can influence compliance (Owusu & Adjei, 2021; Sumaila et al., 2013).

Compensation payments that fail to reach the “right” individuals during the closed season can contribute to overfishing and undermines sustainable fishery management practices (Corrêa et al., 2014, Owusu and Adjei, 2021; Tanner et al., 2014; Sumaila et al., 2013; Okafor-Yarwood & Belhabib, 2020; Schuhbauer et al., 2020). Fisherfolk who didn’t receive the compensation payment can engage in illegal fishing during the open season which is counterproductive to rebuilding depleted fish stocks. As our results illustrate, the unequal distribution of compensation payments increases the financial burden on the vulnerable fisherfolk. Such fishers borrow money from the bank to cater to their families during the closed season. These fishers may adopt various means including unsustainable fishing practices during the open season to defray their debt. According to Owusu and Andriesse (2020), fishers are more likely to engage in illegal fishing activities during the open season to offset their debt. It is also important to emphasize that those who received the compensation payment can also be engaged in unsustainable fishing practices. As noted by Corrêa et al. (2014) cash compensation payment for fishers in the Brazil Amazon during the closed seasons encouraged more new entrants into the fishery without the corresponding ecological outcome.

Based on the findings from the study, we provide two implications for improving the sustainability of fishery resources and fisherfolk livelihoods: the provision of alternative and supplemental livelihoods and the introduction of an effective credit system. Specific programs that target

livelihood-related capacity building, improved access to credit, and education on savings mechanisms would improve coastal communities' well-being.

As part of the unsustainable relief items distributed, other alternative and supplemental livelihood training should be extended to fisherfolk to ensure income diversification and sustainability of the closed fishing season. The provision of alternative livelihoods improves fisherfolk's income and well-being (Yang et al., 2019). The government must create the enabling conditions -by providing the necessary facilities and logistics to train and enhance the capacity of fisherfolk to enable them to adopt alternative and supplemental livelihoods. However, since the majority of fisherfolk still prefer to continue fishing even in the face of depleted fish stock, it is important to view these alternative livelihoods as a supplement to their income rather than a complete substitution for another job. Fishing in Ghana is not just an economic activity that generates income for fisherfolk but is a way of life that is embedded in the culture of the people along the coast and cannot, therefore, be easily substituted with another job (Owusu et al., 2023). Depending on individuals' specific needs as well as the prevailing economic opportunities in coastal communities fisherfolk could be trained in works such as carpentry, mason, dressmaking, hairdressing, livestock rearing, and fish farming. This will not only help them during the closed season fishing but will help reduce pressure on the fish stock due to overfishing. In Bangladesh, the government provides alternative income-generating activities in the forms of livestock rearing and small business operations to support fisherfolk in addition to food compensation payments during the closed season (Haldar & Ali, 2014a).

There should be better-coordinated management strategies by the national government and concerned stakeholders to provide incentives that contribute directly to improving small-scale coastal fisheries. Involved government agencies should demonstrate more political will to improve access to credit. There is a need for a separate policy that includes incentive packages like soft loans with low interest devoid of any bureaucratic application process so that fisherfolk can invest in small businesses and other handicraft work. Existing programs like the Village Saving and Loan Association (VSLA) schemes must be made more visible to fisherfolk to enable them to access them. Research has shown that the VSLA model has become a practical, easily accessible, and relevant tool for poor farming communities in terms of their household and farm-level expenditure, especially in Northern Ghana (Kwarteng & Sarfo-Mensah, 2019). For the VSLA to work effectively, however, adequate education of local fisherfolk on the benefits associated with the scheme is needed (Owusu et al., 2022).

6. Conclusion

In this paper, we investigated large-scale government-led compensation packages for coastal fishing communities during seasonal closures in Ghana. The results of the empirical investigation show that working towards the twin goals of reducing overfishing and improving the standards of living of coastal fishing communities has proven to be challenging. The findings show that the compensation distribution for small-scale fisherfolk is associated with many challenges including ineffective management, weak governance, and local elite capture. The results suggest that the mode of distribution was not fair even though there was a high compliance rate. A more transparent and precisely targeted scheme may go a long way to improving perceptions of fairness and compliance (Bladon et al., 2018; Sakai, 2017).

Even though there is a high compliance rate with the closed season policy, the government should undertake extensive stakeholder consultations with the fisherfolk and other concerned stakeholders before rolling out the future closed season with compensation payments. This will help both parties to settle on the right period for the fishing bans and the type of subsidies preferred by fisherfolk. The government needs to work closely with relevant stakeholders in the small-scale fisheries, and the local coastal communities to achieve sustainable development of fisheries resources and the fisherfolk livelihoods.

Finally, researchers are encouraged to undertake more studies into the closed season and particularly, the compensation payment. This will help improve the closed season policy and the compensation payment process.

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Disclosure statement
No potential conflict of interest was reported by the author(s).

Supplemental data
Supplemental data for this article can be accessed online at https://doi.org/10.1080/23311886.2023.2282502

Citation information
Cite this article as: Compensation payment for fisherfolk during closed-season fishing: Lessons from small-scale fisherfolk in Ghana, Samuel Nyavor, Sandra Amposah, Victor Owusu & Kwame John Boateng, *Cogent Social Sciences* (2023), 9: 2282502.

References

Abane, H., Akonor, E., Ekumah, E., & Adjei, J. (2013). Four governance case studies and their implications for Ghana fisheries Sector, *USAID-URI Integrated coastal and fisheries governance (ICFG) initiative*. Narragansett RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island.

Adjei, M., & Overå, R. (2019). Opposing discourses on the offshore coexistence of the petroleum industry and small-scale fisheries in Ghana. *Extractive Industry & Society*, *6*(1), 190–197. https://doi.org/10.1016/j.exis.2018.09.006

Adjei, M., Owusu, V., & Essian, R. S. (2023). The role of socioeconomic factors, psychological motivations, and social networks in women's participation in community-based fishery management in Ghana. *Coastal Management*, *51*(3), 211–230. https://doi.org/10.1080/08920753.2023.2211373

Adom, D., Sekyere, P. A., & Yarney, L. (2019). A return to the Ghanaian cultural values of closed fishing season in Ghana's artisanal marine fishing: An essential means of restoring small pelagic fish stocks. *Transylvanian Review of Systematic and Ecological Research*, *21*(3), 95–110. https://doi.org/10.2478/trser-2019-0020

Afoakwa, R., Osei Mensah, B. D., & Effah, E. (2018). *Sustainable fisheries management Project (SFMP): A guide on illegal fishing activities in*. USAID. http://www.crc.uri.edu/projects_page/ghanasfmp/

Amadu, I., Armah, F. A., Aheto, D. W., & Adongo, C. A. (2021). A study on livelihood resilience in the small-scale fisheries of Ghana using a structural equation modeling approach. *Ocean & Coastal Management*, *215*, 105952. https://doi.org/10.1016/j.ocecoaman.2021.105952

Apetorgbor, S. (2018). Closed season brief. The USAID/Ghana sustainable fisheries management project (SFMP). Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island

Arendse, C. J., Govender, A., & Branch, M. G. (2007). Are closed season fishing an effective means of increasing reproductive output?: A per-recruit simulation using the Limpet Cymbula Granatina as a case history. *Fisheries Research*, *85*(s 1–2), 93–100. https://doi.org/10.1016/j.fishres.2007.01.001

Barley, K., Kincaid, G., & Rofi, A. (2014). Why fishers want a closed area in their fishing grounds: Exploring perceptions and attitudes to sustainable fisheries and conservation 10 years- post closure in Labrador, Canada. *Marine Policy*, *46*(5), 84–90. https://doi.org/10.1016/j.marpol.2014.01.007

Bladon, A. J., Mohammed, E. Y., Hossain, B., Kibria, G., Ali, L., Milner-Gulland, E. J., & Puebla, I. (2018). Evaluating the ecological and social targeting of a compensation scheme in Bangladesh. *PLoS One*, *13*(6), e0197809. https://doi.org/10.1371/journal.pone.0197809

Brillo, B. B., Jalotjot, H., Cervantes, C., & Rola, A. (2019). Impact on income and livelihood of fisheries workers: Closed fishing season policy for sardines in Zamboanga Peninsula, Philippines. *Journal of Coastal Conservation*, *23*(6), 1057–1067. https://doi.org/10.1007/s11852-019-00713-y

Bucaram, S. J., Hearn, A., Trujillo, A. M., Rentería, W., Bustamante, R. H., Morán, G., Reck, G., & García, J. L. (2018). Assessing fishing effects inside and outside an MPA: The impact of the Galapagos marine Reserve on the industrial pelagic tuna fisheries during the first decade of operation. *Marine Policy*, *87*, 212–225. https://doi.org/10.1016/j.marpol.2017.10.002

Corrêa, M., de Almeida, A., Kahn, J. R., Carlos, F., & de Carvalho, E. (2014). Perverse incentives in fishery management: The case of the defeso in the Brazilian Amazon. *Ecological Economics*, *106*, 186–194. https://doi.org/10.1016/j.ecolecon.2014.07.023

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed MethodsApproaches* (4th ed.). SAGE Publications.

Ekumah, E. K. (2013). Four governance case studies and their implications for Ghana fisheries sector premix case studies in the Central Region. https://pdf.usaid.gov/pdf_docs/pa00jpr1.pdf

Fisheries Commission. (2022). Annual performance report. Ministry of fisheries and Aquaculture Development. Ministry of Fisheries and Aquaculture Development.

Freduah, G., Fidelman, P., & Smith, T. F. (2018). Mobilizing adaptive capacity to multiple stressors: Insights from small-scale coastal fisheries in the western Region of Ghana. *Geoforum*, *91*, 61–72. https://doi.org/10.1016/j.geoforum.2018.02.026

Ghanaweb. (2013). Closed season: Government to provide alternative livelihood training for 8,000 fishers. https://www.ghanaweb.com/GhanaHomePage/NewsArchive/Closed-Season-Government-to-provide-alternative-livelihood-training-for-8-000-fishers-1748720

Haldar, G. C., & Ali, L. (2014a). *The cost of compensation. Transaction and administration costs of hilsa fish*

management in Bangladesh. IIED. https://pubs.iied.org/15522IIED

Hasselberg, A. E., Aakre, I., Scholtens, J., Overa, J., Kolding, J., Bank, M. S., Atter, A., & Kjellevold, M. (2020). Fish for food and nutrition security in Ghana: Challenges and opportunities. *Global Food Security*, *26*, 100380. https://doi.org/10.1016/j.gfs.2020.100380

Islam, M. M., Mohammed, E. Y., & Ali, L. (2016). Economic incentives for sustainable hilsa fishing in Bangladesh: An analysis of the legal and institutional framework. *Marine Policy*, *68*(6), 8–22. https://doi.org/10.1016/j.marpol.2016.02.005

Kwadzo, M. (2022). Effects of the closed fishing season on the livelihood of FisheriesWorkers: A case study of fisheries Workers in Elmina in the Central Region of Ghana. *World Journal of Agricultural Research*, *10*(4), 102–110.

Kwarteng, A. T., & Sarfo-Mensah, P. (2019). The impact of savings groups on female agency: Insights from village savings and loans associations in Northern Ghana. *Asian Journal of Agriculture and Rural Development*, *9*(2), 133–146. https://doi.org/10.18488/journal.1005/2019.9.2/1005.2.133.146

March, A., & Failler, P. (2022). Small-scale fisheries development in Africa: Lessons learned and best practices for enhancing food security and livelihoods. *Marine Policy*, *136*, 104925. https://doi.org/10.1016/j.marpol.2021.104925

Marcusi, E. D., Rafon, J. K. A., & Marcusi, E. S. (2021). Impact of the closed fishing season on commercial fishers of Davao Gulf, Mindanao, Philippines. *Ocean and Coast Management*, *217*, 105997. https://doi.org/10.1016/j.ocecoaman.2021.105997

Mingle, J., (2019). Closed season fishing: Aftermath and lessons learnt 2019. https://www.gbcghanaonline.com/commentary/closed-fishing-season-aftermath-and-lessons-learnt/2019/

Ministry of Fisheries and Aquaculture Development. (2016). Ghana marine canoe frame survey. Information report no.35. Fisheries Scientific Survey Division, Fisheries Commission, http://rhody.crc.uri.edu/gfa/wpcontent/uploads/sites/10/2018/04/Final-2016-Canoe-Frame-Survey-Report.pdf

Nyarko, R. K. (2020). Fisheries ministry distributes 300 outboard motors to fishermen in Central Region. Joy News. https://www.myjoyonline.com/fisheries-ministry-distributes-300-outboard-motors-to-fishermen-in-central-region/

Ofori-Danson, P. K., Asiedu, B., Amponsah, S. K. K., & Crawford, B. (2019). *Assessment of the socio-economic, food security and nutrition impacts of the 2019 CanoeFishery closed fishing season in Ghana. USAID/Ghana sustainable fisheries ManagementProject*. Coastal Resources Center, Graduate School of Oceanography,University of Rhode Island.

Okafor-Yarwood, I., & Belhabib, D. (2020). The duplicity of the European Union common fisheries policy in third countries: Evidence from the Gulf of Guinea. *Ocean & Coastal Management*, *184*, 104953. https://doi.org/10.1016/j.ocecoaman.2019.104953

Owusu, V. (2019). Impacts of the petroleum industry on the livelihoods of fisherfolk in Ghana: A case study of the Western Region. *Extractive Industries and Societies*, *6*(4), 1256–1264. https://doi.org/10.1016/j.exis.2019.11.002

Owusu, V., Adu-Boahen, K., Kyeremeh, S., Damalie, L., & Eshun, P. (2023). *Factors influencing compliance of closed season in Ghana; lessons from small-scale fishing in the Central Region of Ghana*. Humanities and Social Sciences Communication.

Owusu, V., & Andriesse, E. (2020). From open access regime to closed fishing season: Lessons from small-scale coastal fisheries in the western Region of Ghana. *Marine Policy*, *2020*, 104162. https://doi.org/10.1016/j.marpol.2020.104162

Owusu, V., & Andriesse, E. (2022). Local differentiation and adapting to climate change in coastal Ghana. *Geographical Review*, *113*(3), 1–22. https://doi.org/10.1080/00167428.2021.2023530

Owusu, V., Boafo, Y. A., Adjei, M., & Boateng, R. (2022). The COVID-19 pandemic and coastal fishery livelihood systems: Socio-economic implications for small-scale fisherfolk in Winneba, Ghana. In S. D. Brunn & D. Gilbreath (Eds.), *COVID-19 and a World of Ad Hoc Geographies*. Springer. https://doi.org/10.1007/978-3-030-94350-9_89

Pagiola, S., Arcenas, A., & Platais, G. (2005). Can payments for environmental services help reduce poverty? An exploration of the issues and the evidence to date from Latin America. *World Development*, *33*(2), 237–253. https://doi.org/10.1016/j.worlddev.2004.07.011

Penney, R., Wilson, G., & Rodwell, L. (2017). Managing sino-Ghanaian fishery relations: A political ecology approach. *Marine Policy*, *79*, 46–53. https://doi.org/10.1016/j.marpol.2017.02.008

Poudyal, M., Ramamonjisoa, B. S., Hockley, N., Rakotonarivo, O. S., Gibbons, J. M., Mandimbiniaina, R., Rasoamanana, A., & Jones, J. P. G. (2016). Can REDD+ social safeguards reach the 'right' people? Lessons from Madagascar. *Global Environmental Change*, *37*, 31–42. https://doi.org/10.1016/j.gloenvcha.2016.01.004

Rola, C. A., Narvaez, T. A., Abdon Naguit, M. R., Elazegui, D. D., Brillo, B. B. C., Paunlagui, M. M., Jalotjot, H. C., & Cervantes, C. P. (2018). Impact of the closed fishing season policy for sardines in Zamboanga Peninsula, Philippines. *Marine Policy*, *87*, 40–50. https://doi.org/10.1016/j.marpol.2017.09.029

Sackey-Mensah, R. (2013). Fuel subsidy in Ghana's marine artisanal fisheries sector [Final Project]. http://www.unuftp.is/static/fellows/document/rebecca12prf.pdf

Sakai, Y. (2017). Subsidies, fisheries management, and stock depletion. *Land Economics*, *93*(1), 165–178. https://doi.org/10.3368/le.93.1.165

Schuhbauer, A., Skerritt, D. J., Ebrahim, N., Le Manach, F., & Sumaila, U. R. (2020). The global fisheries subsidies divide between small-and large-scale fisheries. *Frontiers in Marine Science*, *7*, 792. https://doi.org/10.3389/fmars.2020.539214

Siabi-Mensah, M., & Twum, D., (2020). Stakeholders in the fishing industry complain about Saiko activities by foreign vessels. https://gna.org.gh/2020/02/stakeholders-in-the-fishing-industry-complain-about-saiko-activities-by-foeign-vessels/

Sumaila, U. R., Dyck, A., & Cheung, W. W. (2013). Fisheries subsidies and potential catch loss in SIDS exclusive economic zones: Food security implications. *Environment and Development Economics*, *18*(4), 427–439. https://doi.org/10.1017/S1355770X13000156

Sumaila, U. R., Lam, V., Le Manach, F., Swartz, W., & Pauly, D. (2016). Global fisheries subsidies: An updated estimate. *Marine Policy*, *69*, 189–193. https://doi.org/10.1016/j.marpol.2015.12.026

Tanner, T., Mensah, A., Lawson, E. T., Gordon, C., Godfrey-Wood, R., & Cannon, T. (2014). The political economy of climate compatible development: Artisanal fisheries and climate change in Ghana. *IDS Working Papers*, *2014*(446), 1–30. https://doi.org/10.1111/j.2040-0209.2014.00446.x

Tobey, J., Normanyo, A. K., Osei, P., Beran, K., & Crawford, B. (2016). *Subsidies in Ghana's marine artisanal fisheries sector. USAID/Ghana sustainable fisheries management Project (SFMP)*. Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island.

Victor, D. (2009). *The politics of fossil fuel subsidies*. International Institute for Sustainable Development, Global Subsidies Initiative.

World Bank. (2016). Safety and sustainability for small-scale fishers in West Africa. https://www.worldbank.org/en/news/feature/2016/05/16/safety-and-sustainability-for-small-scale-fishers-in-west-africa.

Yang, J., Owusu, V., Andriesse, E., & Dziwornu Ablo, A. (2019). In-Situ Adaptation and Coastal Vulnerabilities in Ghana and Tanzania. *Journal of Environment & Development*, *28*(3), 282–308. https://doi.org/10.1177/1070496519852992

Yankson, L. N. 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)*. Coastal Resource Center, Graduate School of Oceanography, University of Rhode Island.

Yaotse, K., & Boakye, B. (2020). Resolving the challenges of premix fuel: A Review of Ghana's premix fuel supply chain. Africa Centre for Energy Policy (ACEP). Retrieved August 21, 2021, From http://www.Jstor.org/stable/resrep31190.