

## A Review of Fisheries-Related Human Migration in the Gulf of Guinea

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### Abstract

Migration of fishers and fish workers is common in Africa. It affects the ways the people use and manage natural resources. This paper examines and reviews fisheries driven human migrations in the Gulf of Guinea and offer insight into the developmental implications underlying the immigrant and emigrants fishing activities. Fisheries driven human migration has deep historical in the Gulf of Guinea. It probably started in the sub-region before 15<sup>th</sup> century. With most fisheries being small-scale, they are exploited under some sort of open access regime, sometimes enforced by modern governments, even though traditionally social mechanisms may have existed to restrict such access. It was realized that migration has both positive and negative effects on communities of destinations as well as migrants' home countries. Migrants contribute to the GDP of their destination countries and also support their families back. There have been conflicts as results of migrants fishing and in some cases resulted in political interferences. Migrants have limited privileges in some destinations. Migrants in some cases have no rights to own a land. Drawing on some of the generalities across the twelve countries that make up the Gulf of Guinea, Ghana, Cote d'Ivoire, and Nigeria are documented and perceived to have had major fisheries-driven human migrations in the sub-region. Traditionally, it is assumed that population is the main driven force behind migration. However, it observed that fisheries-related human migration has other main triggers. Seasonality of fisheries resources due to climate changes and upwelling regimes along the hot spots of Gulf of Guinea coast is possibly the most significant cause of fisherfolks seasonal migration which normally last for a period of 6 months. Socio-economic standings and political stability are major determining factors of long or permanent fisheries-related migration. Long-term migration of fishers spans over years. Fisheries driven migration is male-dominated and it has a clear gender-labour division in the sub-region. The few women who migrate with their husbands are mainly fish processors and fish mongers. The prospects for continued fishers and fish workers migration is high and it anticipated that seasonality of different fisheries regime will dictate the pace tempo-spatial dynamics of the fisher folks mobility. As there is no clear sign of a halt to fisheries related- human migration in the Gulf of Guinea, the need to raise public awareness and to improve knowledge on the danger of HIV/AIDS on their household and livelihood among fisher folks is also crucial.

**Keywords:** Immigrants; Emigrants; Fish processors; Fishmongers; HIV/AIDS; Destinations

### Introduction

#### An overview of key migration trends in West Africa

Africa has historical records of migration dating back to the early 1600. The concept of migration implies to move, either temporarily or permanently, from one place or area to another. It is regarded as one of the most important demographic factors affecting environment, yet it is also one of the most difficult to adequately assess [1].

African migration was principally in search of security, new and fertile land for settlement and farming before the arrival of the Europeans [2]. This was however, altered when the Europeans started expeditions to Africa. The governance instituted changed the motivation and composition of migration by introducing and enforcing various blends of political and economic structures, imposing tax regimes and establishing territorial boundaries. Moreover, Adepoju [2] observed that, series of economic and recruitment policies such as compulsory recruitment, contract and forced labour legislation and agreements were employed to stimulate regional labour migration from Mali, Togo and Upper Volta (now Burkina Faso) to road networks, plantations and mines in Gold Coast (now Ghana) and Ivory Coast. Labour migration was facilitated with improved transportation system including maritime development that reduced the hazards of journeys that hampered long distance migrations. This subsequently resulted in simulation and alteration of large-scale population movements, giving rise to the male-dominated, seasonal and cross-border migration which subsequently became institutionalized.

Globally, fisheries are vital resources to mankind. It is a source of protein to several millions of people. It is food and livelihood for many coastal and inland populations. Glantz [3] (1992) and Bakun [4] reported that many fisheries regimes fluctuate dramatically from year to year due to climatic variability. Upwelling systems is important factor that create seasonal availability of fish in different locations along the coast. Livelihoods of many fishers, fish processors, and traders are affected since their business boom or fall is determined by seasonal upwelling. In sub-Saharan Africa, moving in search of resources is a common characteristic of many artisanal fisheries. Stotz [5] reported that temporary migration to places where fish is available is a prevalent feature of artisanal fisheries worldwide. The migration of fishermen is a process that has been shaped by historical patterns of resource availability, in addition to economic and political factors rather than simply a reaction to recent human population pressure [6].

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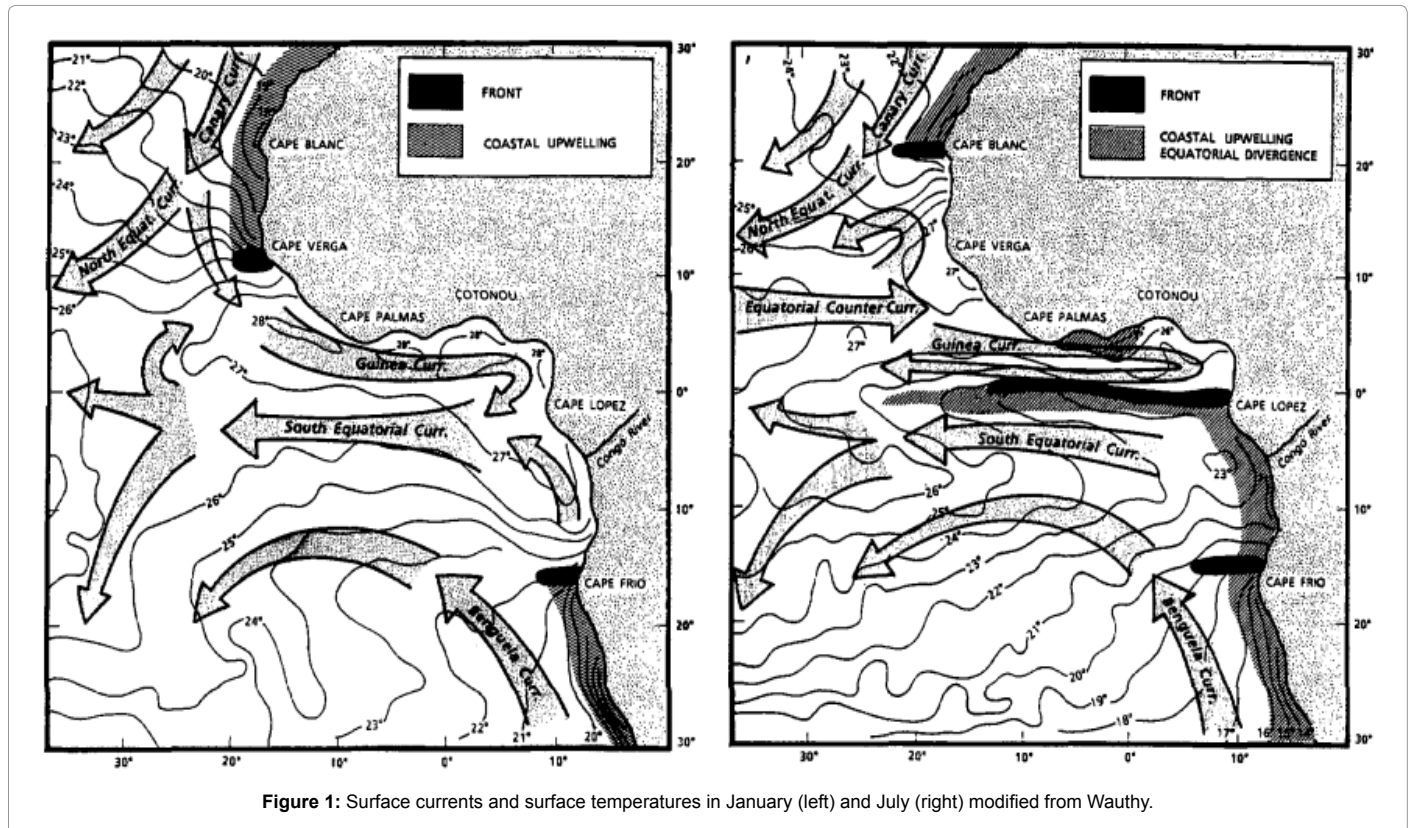


Figure 1: Surface currents and surface temperatures in January (left) and July (right) modified from Wauthy.

## Gulf of Guinea

The Gulf of Guinea is part of the tropical regions of the Atlantic Ocean with a mean warm surface water temperature being greater than 24°C. The Gulf of Guinea has a body of water from south Atlantic central water underlying the warm and low saline surface water [7]. The zones of rapid changes in temperature (thermocline) and the salinity (halocline) separate the two water masses. Seasonal vertical oscillations of the thermocline result in equatorial and coastal upwelling. This has a major impact on the regional fisheries, and the location of upwelling zones affects the distribution and abundance of fishery resources in the area.

The Gulf of Guinea is influenced by three major current systems namely the Benguela, the South Equatorial and the Guinea Currents [7]. Four major marine seasons can be experienced in the surface-water layer of the Gulf of Guinea as it is under the influence of both, the northern and southern climate; starting from a long, warm season from February to May, followed by a long, cold season from June to October, and then a short, warm season from November to mid-December, and finally, a short, cold season from mid-December to January. The second season (long, cold) features an upwelling along the equator (“equatorial divergence”) and along the north and south coasts of the Gulf of Guinea. With seasonal shifting of two active oceanic fronts, the upwelling follows them in the direction of the poles and brings about alternation zones (areas swept by the passage of these fronts). One of these, to the North, extends from Cape Verga (Guinea) to Cape Blanc (Mauritania). Its southern counterpart stretches from Cape Lopez (Gabon) to Cape Frio (Angola). During the northern winter, the northern front is located around Cape Verga, the southern front around Cape Frio (see [8] as shown in Figure 1). During the southern winter these frontal zones are shifted, the first up to Cape Blanc, the second

as far as Cape Lopez (Figure 2). At the same time, upwelling is also observed between Cape Palmas (Côte d’Ivoire) and Cotonou (Benin).

The Gulf of Guinea is of high fisheries importance to its bordering countries, especially as far as artisanal fisheries are concerned. FAO [9] reported that the total marine catch from the Gulf of Guinea (Guinea-Bissau to Gabon) totaled 925, 560 metric tons. The shares in the landings of the countries were as follows: Benin, 7779 t; Cameroon, 51847 t; Côte d’Ivoire, 43586 t; Equatorial Guinea, 6637 t; Gabon, 19162 t; Ghana 223575 t; Guinea, 82127 t; Guinea-Bissau, 6404 t; Liberia, 7070; Nigeria, 281200 t; Sierra Leone, 175185 t; Togo, 20988 t.

## Small-scale fisheries in West Africa

Small-scale fishery accounts for the majority of fish catches in Africa [10]. In West African countries such as Ghana, small-scale fishers also provide the majority of the national fisheries catch. Fish caught by small-scale fishers likely contribute a quarter of the total protein intake in Africa, and small-scale fishing communities play a vital role in nutrition, trade, and economic activity [11]. Small-scale fishers use smaller boats and gear, and land smaller quantities of fish than large-scale/ commercial fishing boats. Along the West African coast, the craft frequently used by small-scale fishers is a large dug-out wooden canoe. It was even suggested that small-scale fishing communities may have higher rates of fertility and population growth [12]. Higher fertility in fishing communities has been linked to the heavy demands of labour in fishing. Existing research also suggests that small-scale fishing communities may have lower incomes and income stability due to wide seasonal fluctuations in the availability of fish.

As in the rural agricultural sector in Africa, some view the population-poverty-environment nexus as a threat to the sustainable use and development of the region’s fishery as well as land resources

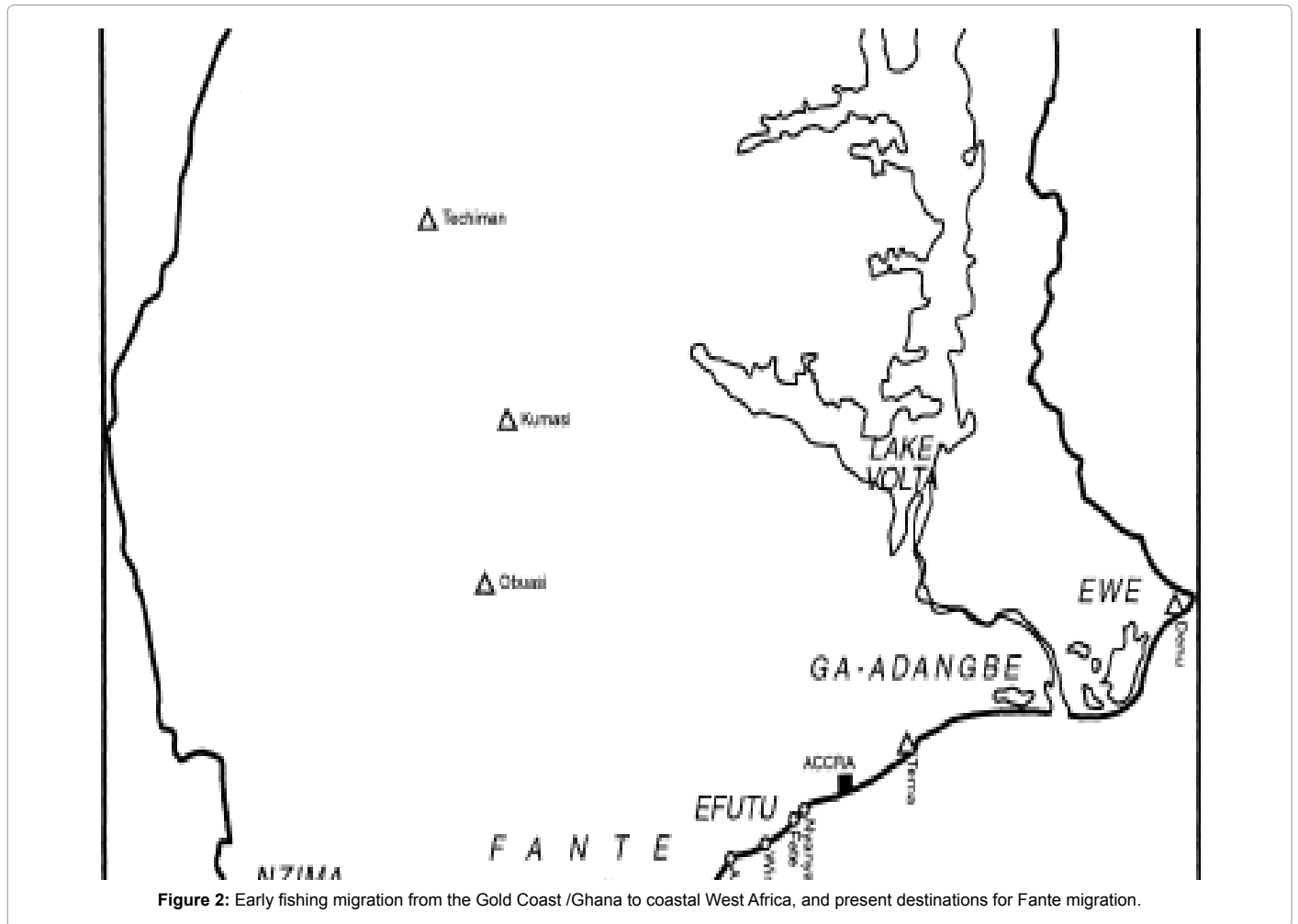


Figure 2: Early fishing migration from the Gold Coast /Ghana to coastal West Africa, and present destinations for Fante migration.

[11,13]. It has been reported that “no one ever becomes a full-time maritime fisherman other than under duress”. Thus describing circumstances among small-scale fisher folk in Ghana, Togo and Benin as “being precisely that of localized overpopulation leading to a type of colonizing behavior,” which led to their migration to other “underpopulated” coastal areas in West Africa [14]?

### Review aim and objectives

This paper sets out to examine the development of fisheries-related human migration in the Gulf of Guinea and outlines developmental implications underlying the immigrant and emigrants fishing activities.

The specific objectives of the study included:

1. To underscore the current and historical patterns and trends of fisheries-related migration development in the Gulf of Guinea
2. To characterize the fisheries-related human migration in the Gulf of Guinea
3. To study the fisheries-related human migration in Ghana and Nigeria
4. To analyze the developmental implications of the fisheries-related human migration on both emigrant and immigrant nations.

## Development of Fisheries –Related Human Migration in West Africa and Gulf of Guinea

### What is fisheries-related human migration?

Fisheries-related human migration is defined as temporary or permanent movement of fisher folks, fish processors, fish traders and fisheries workers from one defined location, mainly a coastal state including fishing areas, to another coastal zone/destination with movement being mainly and primarily, though not exclusively, as a result of shift in fisheries and fishing activities. The movement could also be driven by economic and political factors in addition to the fisheries resource availability and also by population pressure. Fisheries-related human migration has strong spatio-temporal dynamics and thus needs a lot of systems to assess and monitor it.

### Historical development

At the beginning of twentieth century, Fante expanded their fisheries expansion into the coastal areas of the Ivory Coast [15]. For a long period the Fante (and Nzima) had first and foremost been known as rubber traders in the Ivory Coast, but when this trade collapsed, many of them invested in fisheries [16]. Through the finance of these traders, Fante fishermen and fish traders were able to invest in equipment and travel to start fishing in the Ivory Coast, where marine fish resources were largely unexploited. The fish was marketed in Abidjan, but some



of the fish was also transported into Ghana by Fante women who cooperated with the fishermen. Other groups of fishing migrants arrived later. Ewe beach seine fishermen have been in the Abidjan area since the 1930s, while Ga line fishermen started settling there in the 1970s [16].

The fisher folks gradually continued to settle further westwards. The first Fante fishermen started coming to Liberia in the 1920s [17], whereas their arrival further west in the 1940s and 1950s have been documented in Sierra Leone [18], Guinea [19] and Gambia [20]. The local population in these areas did not fish much, except from the lagoons, and with the development of harbours in Monrovia, Freetown and Conakry, Ghanaian fishermen found new opportunities in new urban fish markets. Towards the east, as in Benin, the Anlo-Ewe was the first group of migrant fishermen to start settling in the 1920s. They were later followed by Ada and Fante fishermen [21]. Ewe fishermen from Ghana were also the first to arrive in Nigeria [22]. In these areas, the fisheries migrants were informed and supported financially by relatives who already were established merchants, and who therefore knew that there was a need for the fish supply that their relatives could provide [23].

### Current fisheries-related human migration and their characteristics

The act of moving from one's home country/place to another destination (emigration) is diversified in the sub-region. The sub-Saharan Africa has both countries of immigration and emigration as well as those that combine both; some also serve as transit routes for migrants. Tawari [24] in her study on the Igbabele fishing camp in Brass LGA of the oil rich Bayelsa State, Nigeria reported that there were nationals from Ghana, Togo, Cameroon and people from different States of Nigeria. Each people group had a leader.

Moreover, the major traditional countries of immigration are Côte d'Ivoire and Ghana [2]. Nigeria also became a major migration receiving country when they started oil production in the early 1970s. The main labour exporting countries have still remained Burkina Faso, Mali, Guinea Conakry, Cape Verde and Togo. However, the situation in Cape Verde is unique wherein the Diaspora outnumbered the resident population [25]. Senegal is emigration and immigration country, labour exporting and labour receiving country. Senegal has thus become a transit country for migrants seeking to enter the Europe countries via Las Palmas to Spain. When economic conditions deteriorated in Ghana in late 1960s and also in Nigeria in the middle 1980s, the two countries then turned labour exporting countries [2]. A significant amount of brain circulation took place between Ghana, Gambia and Nigeria; Togo and Côte d'Ivoire; Burkina Faso, Senegal and Côte d'Ivoire, and countries with shared colonial legacy. Since the late eighties, traditional labour importing, richer countries in the sub-region (Côte d'Ivoire) and hitherto attractive destinations for migrants (Nigeria) have experienced political and economic crises, which also spurred out-migration of their nationals. Until the early 80s, few Nigerian professional emigrated because domestic working conditions were attractive and internationally competitive. The collapse of oil price, a sharp decline in oil revenue, rapid deterioration in living and working conditions, wage freeze, devalued national currency, declining real incomes, authoritarian military rule and the vacillating economic situation fuelled large-scale emigration of skilled and unskilled workers abroad [2].

### Drivers of fisheries-related human migrations

Coastal fisheries resources are characterized by significant temporal and spatial fluctuations. Many marine fish stocks migrate seasonally

over large distances. Consequently, migration in sub-Saharan Africa is often an integral part of the fishing profession and could thus be seen as a social adaptation to a complex environment. Migration of fisher folk in coastal environments can be treated as a voluntary process. Even though resources decline can certainly be a factor which affects the decision to fish elsewhere or relocate, migration is however, not judged to be necessary for explicit survival, in comparison with floods, hurricanes or war, as mentioned above. Furthermore, former works on environmental degradation suggest that it is rarely the sole factor determining migration among fisherfolk [6,26,27,28].

### Case Studies in Ghana and Nigeria

#### Ghana-Fante/Moree migratory fisheries

**Historical patterns of migration by Moree fishers:** Fisheries migration within West Africa is over centuries. Fantes (Ghana) long-distance and long-term fisheries migration to countries like Côte d'Ivoire, Liberia, Guinea, Sierra Leone, Senegal, Togo, Benin, and Nigeria began about 100 years ago. Figure 2 [15,19,27] shows the historical expansion of fisher-migrants from Ghana. It also shows the main areas in West Africa where Fante migrants presently are fishing, as well as the main migration destinations abroad in 1999 for migrants from Moree.

Fishing and migration among coastal communities like Moree in Ghana has deep and long historical roots. People have been fishing in rivers and lagoons along the coast of Ghana long before Europeans started writing about it in the 15th century. However, it is reported that marine fishing and coastal trade by sea developed mainly with the arrival of European traders [29]. The report postulated that because of lack of natural harbours in West Africa, the Europeans hired fishermen as canoemen to transport people and goods from their ships across the rough surf to the beaches, and vice-versa. Since the coastal population had their own canoes modified to get them across the surf, it was assumed that the canoes were not earlier used for seafaring [29]. The canoe-men's and later fishermen's selective adoption of European technology, such as the sail and the beach seine, enabled them to fish farther out at sea and to obtain larger catches. The canoemen also organized themselves in companies, either working on a regular basis for a particular trading company, or hiring themselves out to load and unload goods for various ships. This experience probably was very important for the way fishermen came to organize themselves in fishing companies [30-32]. The canoemen were also employed in such great numbers that they established their own communities. In Aneho (located today within Togo), for example, the Fante canoemen established a community with their own leaders probably as early as 1650 [29]. Their type of organization was quite similar to today's migrant fishing communities. Through their experience as canoemen, the Fante also gained more knowledge about the seasonal migration or movements of fish and about fish markets and they established social and commercial contacts that could serve as entry points to these resources and niches.

Fante canoemen and fishermen migrated seasonally and also for more permanent settlement. Christensen [33] reported that in a new and accurate description of the Coast of Guinea, William Bosman in 1721 wrote that there were thousands of Fante fishermen who, in addition to fishing, used their canoes in trade along the coast. Between the late 1700s and mid-1800s the Fante introduced sea-fishing to other peoples along the coast (Ga-Adangbe and Anlo-Ewe), who were mainly farmers supplementing their diet with fish from lagoons and

rivers [14,34-36]. Seasonal and long-term migration thus has been an integral part of Fante fisheries for at least 200 years.

**Current patterns of fishery migration from Moree:** Currently, fishery migration from Moree to other places may be seasonal and short-term (in a matter of few weeks or months) as well as long-term (6 months to several years). Longer-term migration occurs when the destination is another country, such as Cote d'Ivoire. Our survey indicated a division between short and long-term migrants. More than 50% of migrants may go on short-term expeditions lasting between 1 and 3 months. Among the remaining migrants, the largest portion stayed away for 6 months while a smaller proportion stayed away for 4 years or more. Migration is undertaken both by men and women, since many men travel with their wives on their expeditions to perform housekeeping and fish processing activities. In addition, many women may migrate alone, or often take their daughters with them, to take up fish-processing activities elsewhere. According to a survey, the most common migration destinations for migrants within Ghana were fishing areas in the western region (61%) [6]. Only one-quarter go to other places in the Central Region and an even smaller proportion go east toward the Greater Accra Region. The most common international destinations are Cote d'Ivoire (especially the town of Sassandra) and Benin. Their study also suggests that migrants tend to return to the same communities or places where they have relatives. Women on the whole used a wider network of relations compared to men, who relied on non-relatives more than women. Fishing crews travel to their destination by water in their canoes, while women generally take land routes by bus and meet their male relatives at the migration destination [37,38].

### Nigeria migratory fisheries

**Sources of origin:** Nigeria is the most populous nation in Africa and has diversified economy. Fisher folks in Nigeria are of different ethnic groups comprising indigenous and non-indigenous people. In Chad and Kainji/Jebba Lake Basins in Northern Nigeria, Malians, Chadian and Cameroonians are the main Non-Nigerians involved in fishing in the lake. They also fish in the Niger/Benue confluence at Lokoja (middle of Nigeria), whilst the Nigerian coastal waters is also seasonally fished by Ghanaian migrant fishermen. Fishers have long time generations in which parents pass on fishing skills and tradition to their children [39]. A study on 25 lagoon and 10 marine fishing communities of Lagos State has shown that there is a strong migration of ethnic groups within Nigeria [40]. The main tribe in the study area were the Ijebus who are natives of the state (59.1%). Migrants from other parts of Nigeria included the Ilajes (25.3%); Ijaws and Urhobos (1.9%). The Eguns (22.7% and 15% in lagoon and marine fishing communities, respectively) and Aganrins (10%) are non-Nigerians whose grand parents have resettled for long in the fishing communities and now claim to be Nigerians. Ghanaian migrant fishermen who came for the fishing season made up 8.4% of the sample size in marine fishing communities [40].

**Demographic characteristics of migratory fishermen:** The household structure in the fishing communities is usually large due to the polygamous nature of the marital status of the fishermen. On the average, fisherman marry between two to three wives who will assist him in sales and processing of the fish catch. A migratory fisherman usually, has a compound which consists of four or more number of huts. A hut for each of the wives and one for the husband, but they all eat from the 'same pot' and can therefore be described as a single household. They also operate the extended family system. This household is similar to what operates in the places of origin of fishermen.

Households in fishing communities in Nigeria are mostly male-headed. According to the data collected by Fregene [38], from a sample of 210 households, female headed households were 35 (16.67%). The female heads were either de jure or de facto. De jure female households are mostly widows without an adult male son of social and productive age. On the other hand, de facto female heads are essentially those whose husbands work away from the fishing enterprise and were not permanently living in the community leaving their wives to manage the fishing enterprise [41]. The coastal fishermen were more exposed to formal education than the lagoon fisherfolks. On the contrary; most of the women from both lagoon and coastal communities had no form of education. Female-headed households had smaller household size when compared to households with males head because of the need for fishing labour. During the off fishing season, migrant fishermen in the west coast (marine) of Lagos State are involved in farming cassava and coconut. Foreigners and women are allowed to own land. In the marine coastal communities, women are involved as fish mongers, petty trading and farming. Migrants are not allowed to purchase land; therefore their only source of livelihood is fishing [40].

### Developmental Implications of Fisheries-Related Migration in Gulf Of Guinea

#### Declining fish stock and sustainability of fishing as a livelihood

It has been reported that people's livelihoods are primarily affected by seasonality, over which they have limited or no control [42]. Also, livelihood is only sustainable when it can cope with and recover from stresses and shocks maintain or enhance its capabilities and assets, while not undermining the natural resource base [43]. However, in fisheries, human activities for the past three decades have adversely affected the ecosystem, which is critical for breeding, nursery, feeding, growth and migration to marine finfish and shellfish species. In some water bodies, the economic impact of excessive fishing effort and exploitation, and declining fish stocks leave fishermen and their dependents potentially with an ever-declining source of income. Diminishing fish stocks means local marine fishermen using canoes have to fish further out to sea. The rural fisher folks are now faces a bleak future as they face the likelihood of losing their livelihood over time. Due to the constant reduction in fish stocks and inadequacy of most of the coastal areas for small-scale agriculture, the last options for the improvement of their livelihood conditions entails to migrate to other areas within or outside the country. Unfortunately, the fisheries institutions and other relevant government institutions have not been able to effectively monitor and control the utilization of fishery resources of water bodies.

#### Impact of period and length of migration on fishing households

Migration can expose migrants to increased risk of physical and mental health problems [44]. Illness puts additional stresses on households, preventing them from accumulating assets derived from fishing income. Premature death robs fishing communities of the traditional fisheries knowledge gained by experience and reduces incentives for long-term and inter-generational stewardship of resources. The HIV/AIDS which is global pandemic also threatens the sustainability of fisheries by eclipsing the futures of many fisher folks. If the fishing communities of developing countries that account for 95% of the world's fisher folk and supply more than half the world's fish are adversely impacted by HIV/AIDS, then the global supply of fish, particularly to lower-income consumers, may be jeopardized.

It has been reported that fishing communities are often among the highest-risk groups in countries with high overall rates of HIV/AIDS prevalence [45]. Such vulnerability to HIV/AIDS stems from complex, interacting causes that may include the mobility of many fisher folks, the time fishermen spend away from their spouses, their access to daily cash income in an overall context of poverty and vulnerability, their demographic profile, the ready availability of commercial sex in fishing ports and the subcultures of risk taking and hyper-masculinity among some fishermen [2]. Some marine fishermen usually do not move with their wives when they migrate seasonally (3 months) to fishing grounds. The women stay at home to care for the children and are actively involved in fish processing as fishmongers. However, Lagoon fishermen usually move with their wives especially when they are newlywed or if the women gave them money on credit to purchase the fishing inputs as they migrate seasonally from one fishing ground to another. The continual absence of the fishermen over the years has the possibility of increasing the number of female-headed households and household poverty level. This is because the fisherman may likely settle in the new community of destination, marry another wife and later abandon the previous one. The children of migrant fishermen have limited possibilities of attending primary schools due to nature of their parents' occupation which warrants older male children to move along with their parents from one fishing community to another.

### Socio-economic and political impacts

Migrants increasingly face constraints in their utilization of fisheries and market niches when they travel abroad to some parts of West Africa state. These constraints are related to pressure on fish resources largely by the international industrial fishing fleet, but in most cases the constraints have been linked to political conflicts, both at local and national levels. One can mention the expulsion of one million Ghanaians from Nigeria in the early 1980s and the civil wars in Liberia and Sierra Leone in the 1990s. Again, before the war in Liberia, Ghanaian migrants were responsible for 90 per cent of the country's artisanal fish catch [46]. The fishermen who caught this fish and the traders who were involved in processing had to escape from the war in 1990, and very few, if any, have returned to Liberia.

The eruption of violence between the indigenous population and immigrant fishing communities in recent years in some West Africa countries can be traced to the general overall decline in fisheries resources [27]. There have been cases of some governments in the sub region reacting to increasing unemployment among fisher folk by blaming and expelling immigrant fishers. Another example of political conflict affecting migrant fishermen is the regular hostility against migrants by Ivorian authorities. US Department of State [47] reported that in December 1998, Ghanaian fishers were driven out from parts of southwest of Cote d'Ivoire and had their settlements burned by the indigenous people.

### Conclusion

Human migration is a considerable issue for many coastal societies, which affect the ways that people use and manage natural resources. From this study and the reviews carried out, it is clear that seasonal variation of fisheries resources due to climate changes and upwelling regimes is the main cause of fisheries-related human migration in the Gulf of Guinea. An emerging concern apart from the climate change and upwelling regimes is the ever-declining fisheries resource. Enhanced and modernized fishing inputs have also greatly influenced fishers and fish workers migration in the last century. Three countries namely Ghana, Nigeria and Cote d'Ivoire along the Gulf of Guinea

have experienced much of fisheries-related human migration. This can be contributed partially to fisheries, economic booms, and open opportunities that existed in the countries.

Migrant fishermen are at disadvantage in the destination country, despite the fact they may have settled for more than a hundred years (like the Eguns and Aganrins of Lagos State west coast). Due to lack of skills other than fishing and appropriate fishing inputs, inland fishermen have continued to migrate to various water bodies which have been over exploited, while industrial development and trawlers have destroyed the marine fishing grounds of artisanal fishermen. It is also unfortunate that in this period of the 21st century some fishermen do not see the need to educate their children, but prefer to use them as cheap sources of labour, while others lack the financial means to train their children

According to the migrant fishermen, there are more fish species (shining nose, barracuda and croakers) and bigger in sizes in Nigerian waters compared to those in Keta (Ghana). There is a larger market in Nigeria for fish due to the country's large population. Ghanaians bring fish (like catfishes) to sell in Nigeria and Republic of Benin. This is because the Ewes and Eguns do not eat non-scaly fish. Considering the high cost of fishing inputs especially the drag net ('dogbo') and Ghanaian dug-out canoe, the fishermen who cannot afford the cost and others who come because they owe some debt back in Ghana will come to work in fishing companies as a labourers. The lack of alternative sources of livelihood and other skills except that of fishing learnt from their fathers, will continue to encourage those have not been adequately educated to continue as migrant fishermen.

In the light of this, it will be interesting to carry out future studies that will examine current fisheries mobility and come out with relevant statistics on migrant fishermen activities and possibly identify other sources of alternative livelihood to empower fishers and fish workers to survive during off-fishing season within national jurisdictions.

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### References

1. Curran SR (2002) Migration, social capital and the environment: considering migrant selectivity and networks in relation to coastal ecosystems. *Population and Development Review* 28: 89-125
2. Adepaju A (2005) Migration in West Africa Labour migration. A paper prepared for the Policy Analysis and Research Programme of the Global Commission on International Migration.
3. Glantz MH (1992) *Climate Variability, Climate Change and Fisheries*. Cambridge, UK: Cambridge University.
4. Bakun A (1998) *Ocean Triads and Radical Interdecadal Stock Variability: Bane and Boon for Fishery Management Science*.
5. Stotz W (1997) *Las áreas de manejo en la Ley de Pesca y Acuicultura: primeras experiencias y evaluaciones de la utilidad de esta herramienta para el recurso loco*. *Estudios Oceanológicos*. 16: 67-86
6. Marquette CM, Koranteng KA, Overa R, Aryeetey EBD (2002) Small-scale fisheries, population dynamics, and resource use in Africa: the case of Moree, Ghana. *Ambio*; 31: 324-36
7. Schneider W (1990) *FAO species identification sheets for fishery purposes. Field guide to the commercial marine resources of the Gulf of Guinea*. Prepared and published with the support of the FAO Regional Office for Africa. Rome, FAO.268
8. Wauthy B (1983). Introduction à la climatologie du Golfe de Guinée. *Océanogr. trop.* 18: 103-38



9. Food and Agricultural Organization of the United Nations (FAO). Global capture production 1950-2009.
10. Food and Agricultural Organization of the United Nations (FAO) (1996) Fisheries and Aquaculture in Sub-Saharan Africa. Situation and Outlook in 1996. Food and Agricultural Organization of the United Nations (FAO), Fisheries Department, Rome.
11. World Resources Institute (WRI) (1996) United Nations Environment Programme (UNEP), United Nations Development Programme (UNDP) and World Bank. World Resources New York, Oxford: 1996-1997
12. Bortei-Doku AE (2000). Moree Individual Survey on Small Scale Fisheries, Population Dynamics and Fisheries Management. Final Report prepared for project on Small Scale Fisheries in Africa, Demographic Dynamics and Resource Management, Institute of Social Statistical and Economic Research (ISSER), University of Ghana, Legon, Ghana.
13. Jameson S, McManus JW, Spalding MD (1995) State of the Reefs Regional and Global Perspectives. International Coral Reef Initiative Executive Secretariat. Background Paper. National Oceanic and Atmospheric Association (NOAA) Office of Global Programs.
14. Jorion P (1988) Going out or staying home: seasonal movements and migration strategies among Xwla and Anlo-Ewe Fishermen. *Marit. Anthropol. Stud.* 1: 129-155.
15. Delauney K (1995). Les Pecheurs Ghanéens (Fante et Ewe) sur le Littoral Ivoirien. Histoire de la Pêche Piroguière Maritime en Côte-d'Ivoire au Xxe Siècle. PhD Thesis, Centre de Recherches Africaines, Université de Paris I-Pantheon-Sorbonne, Paris. France. (In French)
16. Delauney K, Chauveau, JP, Jul-Larsen E, Chaboud C (editors) (2000) Histoire d'une révélation. In: Les Pêches Piroguières en Afrique de l'Ouest: Puvors, Mobilités, Marchés. Karthala, Paris. (In French).
17. Haakonsen JM, Haakonsen J, Diaw MC (editors) (1991) Artisanal fisheries and fishermen's migrations in Liberia. In: Fishermen's Migrations in West Africa. Food and Agricultural Organization of the United Nations and Programme for Integrated Development of Artisanal Fisheries in West Africa (IDAF), IDAF/WP/36, Cotonou
18. Wagner K (1991) Fishermen's migrations in Sierra Leone. A case study of Tombo fishing village. In: Fishermen's Migrations in West Africa. Haakonsen, J. and Diaw, M.C. (Editors). Food and Agricultural Organization of the United Nations and Programme for Integrated Development of Artisanal Fisheries in West Africa (IDAF), IDAF/WP/36, Cotonou
19. Boujou S (2000) Pêche continentale et migration: Contrôle politique et contrôle social des migrations de pêche nationaux dans la société guinéenne. In: Les Pêches Piroguières en Afrique de l'Ouest: Puvors, Mobilités, Marchés. Chauveau, J.-P., Jul-Larsen, E. and Chaboud, C. (Edts). Karthala, Paris. (In French).
20. Everett GV (1991) Note on the artisanal fishery of the Gambia, and the movement of fishermen. In: Fishermen's Migrations in West Africa. Haakonsen, J, Diaw, M.C. (Edts). Food and Agricultural Organization of the United Nations and Programme for Integrated Development of Artisanal Fisheries in West Africa (IDAF), IDAF/WP/36, Cotonou
21. Diaw MC (1992) Ethnogenesis, mobility and politics in the history of West African canoe fishermen. In: Fishing for Development: Small-Scale Fisheries in Africa. Tvedten I, Hersoug B (Edts). The Nordic Africa Institute, Uppsala
22. Ijff A (1991) Migration in artisanal marine fisheries in Nigeria. In: Fishermen's Migrations in West Africa. Haakonsen, J, Diaw MC (Edts). Food and Agricultural Organization of the United Nations and Programme for Integrated Development of Artisanal Fisheries in West Africa (IDAF), IDAF/WP/36, Cotonou.
23. Jul-Larsen E (1994) Migrant Fishermen in Congo: Tradition and Modernity. Chr. Michelsen Institute (CMI) Report No. 6, Chr. Michelsen Institute, Bergen.
24. Tawari F (2002) Dissemination of Research Findings on Nomadic Education in Nigeria (The Migrant Fishermen Education Experience): Issues and Directions; at the International Conference organised by International Extension College (IEC) Cambridge And Sponsored by The Department For International Development (DFID) at Rock View Hotel Abuja-Nigeria.
25. Carling J (2002) Country Profile: Cape Verde: Towards the end of emigration?" in migration Policy Institute, Migration Information Source.
26. Jul-Larsen E, Kassibo B (2001) Fishing at Home and Abroad: Access to Waters in Niger's Central Delta and the Effects of Work Migration. Benjaminsen and C Lund (Editors). Politics, Property and Production in the West African Sahel Understanding Natural Resources Management. Nordic Africa Institute, Uppsala. 208-232.
27. Overa R (2001) Institutions, Mobility and Resilience in the Fante Migratory Fisheries of West Africa. CIM Working Paper 2001: 2. Christian Michelsen Institute, Bergen, Norway
28. Cassels S, Curran SR, Kramer R (2005) Do Migrants Degrade Coastal Environments? Migration, Natural Resource Extraction and Poverty in North Sulawesi, Indonesia. *Human Ecology* 33: 329-363
29. Law R (1989) Between the sea and the lagoons: the interaction of maritime and in-land navigation on the precolonial slave coast. *Cahiers d'Etudes Africaines* 114: 209-237
30. Hill P (1970) Studies in Rural Capitalism in West Africa. Cambridge University Press, Cambridge
31. Gutkind PCW (1989) The Canoemen of the Gold Coast (Ghana). A survey and an exploration in precolonial African labour history. *Cahiers d'Etudes africaines* 115-116: 339-376
32. Nukunya GK (1989) The Anlo-Ewe and full-time maritime fishing: another view. *Marit. Anthropol. Stud.* 2: 154-173.
33. Christensen JB (1977) Motor power and women power: technological and economic change among the Fanti fishermen of Ghana. In: Those Who Live From the Sea. A Study in Maritime Anthropology. Smith EM. (Edts.). West Publishing, New York
34. Lawson RM, Kwei EA (1974) African Entrepreneurship and Economic Growth. A Case Study of the Fishing Industry in Ghana. Ghana University Press, Accra
35. Vercrijse E (1984) The Penetration of Capitalism: A West African Case Study. Zed Books, London
36. Robertson CC (1984) Sharing the Same Bowl: A Socio-economic History of Women and Class in Accra, Ghana. Indiana University Press, Bloomington
37. Overa R (1992) Fish Mammies: The Role of Women in the Artisanal Fishery Sector of Ghana. Ms Thesis, University of Bergen, Bergen, Norway.
38. Overa R (1998) Partners and Competitor: Gendered Entrepreneurship in Ghanaian Canoe Fisheries. PhD Thesis, University of Bergen, Bergen, Norway
39. Sustainable Fisheries Livelihoods Programme (SFLP) (2002) Contribution of Fisheries Research to the Improvement of Livelihoods in West African Communities, Case Study: Nigeria, SFPL/DFID-FAO 59
40. Fregene BT (2002) Poverty Assessment of Fishing Communities of Lagos State, Nigeria, University of Ibadan, Nigeria (Unpublished Ph. D. Thesis)
41. World Bank (1996). Nigeria: Poverty in the Midst of Plenty. The Challenge of Growth with Inclusion Report No. 14733 UNI 129
42. Department for International Development (DFID) (1999) Sustainable Livelihood Guidance Sheet
43. Chamber R., Conway GC (1992) Sustainable Livelihoods: Practical Concepts for the Twenty-First Century, IDS Discussion Paper 296
44. UNFPA (2005) International Migration and the Millennium Development Goals, United Nations Population Fund, New York, U.S.A 251
45. Allison E (2005) The fisheries sector, livelihoods and poverty reduction in eastern and southern Africa. In F. Ellis and A.H. Freeman. (Edts). Rural Livelihoods and Poverty Reduction Policies. Oxon: Routledge. pp. 256-273
46. Haakonsen JM (1988) Socio-economic aspects of Ghana's canoe fisheries. In: Fishermen's Migrations in West Africa. Haakonsen J and Diaw MC. (Edts.). Food and Agricultural Organization of the United Nations and Programme for Integrated Development of Artisanal Fisheries in West Africa (IDAF), IDAF/WP/36, Cotonou
47. US Department of State (2000) Country Reports on Human Rights Practices for 1999: Côte d'Ivoire, Bureau of Democracy, Human Rights and Labour, US Department of State, Washington DC