

Migration of Senegalese artisanal fishermen in West Africa: patterns and impacts **[WORD COUNT: 5000]**

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Migration of Senegalese artisanal fishermen in the West African sub-region. What impacts in the host countries?

Abstract

The objective of the article is to analyse the impacts of Senegalese migrant fishing in the West African space. Field surveys at the major departure and reception centres of Senegalese migrant fishermen have made it possible to identify socio-cultural and technological impacts, repercussions on fishing resources, contribution to food security, economic spin-offs and conflicts linked to their presence in Gambian, Guinean, Bissau-Guinean, Mauritanian and Leonese waters. At the socio-cultural level, research focused on the integration of Senegalese craftsmen in host countries. Overall, the analysis reveals a more or less successful integration depending on the host country. Senegalese artisanal fishers have contributed to the transfer of fishing technologies and artisanal processing of fishery products to local populations. Through the domestication of part of their catches and the payment of local taxes linked to fishing activities, Senegalese fishermen contribute to food security and the local economy of the host countries. Finally, the research reveals a fear among fishermen in host countries of a generalized decline in fishing potential with the frequent practice of illegal and unsustainable fishing. Despite the significant economic, financial, technological and social impact of Senegalese migrant fishing in reception centres, no policy has yet been implemented to improve their very precarious living conditions. This state of affairs is part of the more global problem of the lack of development of policies and measures specific to migrant fishers in West Africa.

Key words: Migrant fishers, Senegal, West Africa, impacts

Introduction

In recent decades, there has been a remarkable increase in Senegalese migratory flows to coastal African countries. This is mainly due to the depletion of fishery resources in their traditional fishing areas (Auger et al., 2009; Bâ, 2016; Bakhayokho, 1991). Adaptation to variations in the abundance of fish stocks (Failler, 2010; Binet et al., 2012; Failler, 2008) and search for new sources of income and have fuelled the phenomenon alongside the quest of young fishermen to escape from the family and social pressures and financial duties (Sall, 2006; Fontana A., 2013a; Diop et al., 1994). Mauritania, Guinea, Gambia, Guinea Bissau and Sierra Leone have become important production areas for Senegalese fishermen (Dème et al., 2012; Camara Y. et al., 2012; Dia, 2012). The catches made by Senegalese migrants in the EEZs of the countries mentioned above during the period 2006-2010 are around 204,300 tons annually (Failler and Binet et al., 2010). The settlement of Senegalese fishermen in host countries and the catches they make there generate socio-cultural, technological and economic impacts along with conflicting relationships that need to be analysed. These impacts – as well as the volumes taken by migratory fishing – remain unknown to policy makers (Failler et al.; Njock, 2008) although better knowledge is crucial for the effective management of fisheries and migrant fishers.

The objective of this article is to analyse the impacts generated by Senegalese migrant fishers in their host countries. The results come from field work carried out in the different ports of departure in Senegal (Saint-Louis, Mbour, Joal, Hann, Elinkine and Ziguinchor) and in the host countries (Mauritania, Gambia, Guinea, Guinea Bissau and Sierra Leone). The method consisted of conducting semi-structured interviews based on an interview guide.

This work approaches the migration of Senegalese fishermen from a new angle. It adds to the efforts of identification of the migrating sectors, and quantification of the volumes and values of catches, by focusing for the first time on the impacts in the host countries. In doing so, this work

provides a new reading of Senegalese migrant fisheries in West Africa. Beyond these impacts, the governance framework of migrant fisheries is also questioned.

The article is structured in two parts. The first part presents the general features of Senegalese migrant fisheries, including the main migration flows and the estimated volumes of fish caught in the EEZs of neighbouring countries. In the second part, the impacts of Senegalese migrant fishers are discussed from different angles: cultural aspects, local development, technological dimension and conflicts. The improvement of the living conditions of migrant fishermen in the host households and the governance of migrant fishery is addressed in the conclusion.

1. Overview of Senegalese fishers' migration in West Africa

1.1. Major Senegalese migratory flows

In the last few decades, the increasing scarcity of fisheries resources in Senegalese waters has pushed Senegalese artisanal fishers to redeploy their fishing effort over almost the entire West African coastline. In total, 14 of the 27 migratory movements that characterize West African migrant fishing are carried out by Senegalese artisanal fishers (Failler et al., 2012). Due to their versatility and technicality (Samba et al., 2012), Senegalese artisanal fishers are involved in all sectors (Table 1), the main ones being small pelagic coastal, coastal demersal and coastal rays and sharks.

Table 1 : Summary table of the main senegalese migrations in the CSRP area

Foster home	Supply chain	Target species
Mauritania	Small Coastal pelagics	Sardinella
	Coastal demersal	Red carp, Grouper, Sea Bream, Porgy,
	Cephalopods	Octopus
Gambia	Small Coastal pelagics	Ethmalosa, sardinella
	Coastal demersal	Sole, Shrimp, barracuda
Guinea Bissau	Small Coastal pelagics	Ethmalosa, sardinella
	Coastal demersal	Red Carp, Grouper, Sea Bream, Porgy, sole
	Selachian	Rays and shark
Guinea	Coastal demersal	Grouper, Catfish, Sea Bream, Red Carp, sole
	Selachian	Rays and shark
Sierra Leone	Costal demersal	Catfish, sole, Sea Bream, Red Carp

Most of the Senegalese migrants' fisheries for small pelagic species are carried out in Gambian and, even more, in Mauritanian waters¹. As for Senegalese migrants' demersal fisheries, five channels have been identified in Gambia, Guinea, Guinea Bissau and Mauritania. Finally, the Senegalese migrants' fisheries for rays and sharks extends to Guinea, Guinea-Bissau and Mauritania.

Mauritania is the main host country for Senegalese fishermen in terms of both the volumes landed and the number of fishing units mobilized. The combination of factors in regard to Mauritania's fishing potential in small coastal pelagic species, geographical proximity and the multi-use of the targeted species (i.e. fresh consumption, artisanal processing and fishmeal) are at the origin of the development of a culture of mobility of Senegalese fishermen (particularly from Saint-Louis).

¹ The main species caught in Mauritania are round and flat sardinella.

The increasing scarcity of resources and declining yields are causing Senegalese migrant fishers to move from a seasonal situation to sedentary settlements in the host countries (especially Mauritania and Guinea Bissau). This explains the large volumes caught by Senegalese fishermen.

1.2. Catch volumes and values of Senegalese migrants' fisheries

The total annual volume of catches made by Senegalese migrant fishermen in the EEZs of neighbouring countries is estimated at 204,300 tons over the period 2006-2010, which represents about 70% of the catches of all migrant sectors in West Africa (Failler, 2012). This figure is quite revealing of the importance of migratory fishing in the context of depleted stocks in Senegalese waters. From this point of view, migrants' fishing appears to be a real form of resilience for Senegalese fishermen.

The annual monetary value of Senegalese catches is estimated at €249,500,000; this corresponds to 75% of the total value of migratory fishing that is estimated at €330 million (Table 2) over the period considered (Failler, 2012).

Table 2 : Volumes and values of catches made by Senegalese migrant fishing in the CSR area

Countries considered*	Target species*	Catch estimate	Average price t/€	Value of catches €
GAM	DEM	13 000	2 500	32 500 000
GAM	SP	5 000	250	1 250 000
GAM	SHR	1 500	4 000	6 000 000
GBI	DEM	36 000	2 500	90 000 000
GBI	SHA	5 000	200	1 000 000
GUI	SHA	1 500	2 500	3 750 000
GUI	DEM	4 000	2 500	10 000 000
MAU	SP	77 000	250	19 250 000
MAU	SP	30 000	250	7 500 000
MAU	DEM	10 000	2 500	25 000 000
MAU	DEM	7 500	2 500	18 750 000
MAU	OCT	3 800	2 500	9 500 000
SLE	DEM	4 000	2 500	10 000 000
SLE	DEM	6 000	2 500	15 000 000
		204 300		249 500 000

* Codes Target species: **SHA**: Sharks; **SP**: Small pelagics; **DEM**: Demersal; **SHR**: Shrimp; **OCT**: Octopus

* Codes countries considered: **GAM**: Gambia; **MAU**: Mauritania; **SLE**: Sierra Leone; **GUI**: Guinea ; **GBI**: Guinea Bissau

This supremacy of Senegalese fishermen in the West African sub-region can be explained by an ancient tradition of fishermen's trade; this has allowed the development of diversified fishing techniques that take into account the ecology and ethology of the species (Dème, 2018; Samba et al., 2018; Fontana A., 2013b). It can also be explained by the number of fishing units mobilized in the different migrant sectors from the different ports of the country. In 2009, nearly 68% of the 222 rotating seine units registered in Saint-Louis (i.e. 150) were operating in Mauritania². In Mbour, 72% of the 243 ice pirogues (i.e. 175) and 15 of the 97 sole set nets are involved in migrant fisheries³ (Dème et al., 2012). About 50 out of 74 of the Joal-based icebreaker pirogues operate in Guinea

² Thanks to the purchase of a fishing licence.

³ The formers are deployed in Guinea (108 in 2009) and Guinea Bissau (67) while the latter operate in Guinea.

Bissau under fishing licences⁴. At the port of Hann, 30 ice pirogues are deployed in Guinea and Guinea Bissau⁵. The artisanal fishing ports of southern Senegal are also active. Ziguinchor deploys 75 of the 107 ice-refrigerated units recorded in 2009 in Guinean and Guinea-Bissau waters, while from Elinkine, 60 fishing units are involved in the migratory shark and rays fish chains (Dème et al., 2012) in Guinea-Bissau and Leonese waters.

Ghanaian, Guinean and Leonese migratory fishing is mainly concentrated on small pelagics, i.e. species of low commercial value (with an average price of 250 Euros per ton) for their local market. Senegalese migrants, instead, are strongly involved in demersal fisheries (average price of 2,500 Euros per ton for the targeted species) to supply export markets (Failler et al., 2012). The importance of volumes and values of catches of Senegalese migrant fishers generates different types of impacts as we show in the following section.

2. The impacts of the migration of Senegalese fishermen in the West African sub-region

2.1. The socio-cultural impacts

On the socio-cultural level, the impact was assessed through the level of social integration of Senegalese fishermen. The study reveals that, overall, they live in harmony with the host communities. However, Senegalese migrant fishermen do not have any decision-making power and cannot become members of any local socio-professional organisation. The reception centres inform them of the management measures adopted by the resident communities so that they can comply with them. The interests of Senegalese migrant fishers are defended by their own associations that work in close collaboration with the professional organisations of the host countries. In Guinea-Bissau, Senegalese fishermen remain on board of their pirogues during the fishing season or in camps for the purposes of artisanal processing of their catches (rays, sharks) (Richard Olivier et al., 1998). They use intermediaries for administrative formalities, including the acquisition of fishing licences. Some Senegalese fishermen who intend to settle down have moved to certain working-class neighbourhoods where they seem to be quite integrated. In Mauritania, mixed marriages are celebrated between Senegalese migrants and indigenous fishermen from the black African community.

Migrant fishermen from the same locality in Senegal organize themselves within an association. Mutual social assistance⁶ between members of the same association is required. Senegalese migrant fishermen are strongly involved in the construction of mosques and the organisation of religious events⁷ in their host area (e.g., Mauritania). The sharing of certain traditions and customs with the host populations – as it happens in Gambia and Mauritania – has also facilitated their integration. Despite differences in language and culture, migrant fishermen live in perfect symbiosis with the Guinean and Leonese populations, too.

Overall, Senegalese migrant fishermen remain attached to their origins and live in communities. Mutual aid is the rule and there are many religious associations (*dahiras*). Many of these fishermen bring their wives, who take care of the marketing of the catches made by their spouse's fishing unit and ensure, if necessary, the artisanal processing of the unsold and surplus production.

⁴ They target barracudas.

⁵ Other ice pirogues, based in Joal, fish illegally (i.e. without fishing licences) in the Bijagos archipelago, taking advantage of the porous maritime borders.

⁶ Funds mainly intended for funerals, loss of fishing equipment, and investments in their village of origin: construction of health huts and mosques, for example.

The vast majority of migrant fishermen repatriate their savings when they return home for major religious ceremonies⁸.

In all host countries, Senegalese migrant fishermen, as well as other foreign communities, have non-discriminatory access to health and education facilities. Some Senegalese fishermen have even gained access to land ownership. Highly concentrated around fishing centres to better secure their pirogues, nets and motors, Senegalese migrant fishermen live in a strong promiscuity that they share with host communities and other foreign communities. Very few migrant children live in the reception centres despite the school facilities available. They are left in the care of their grandparents or wives who remain in Senegal.

2.2. *Technological impacts*

The local populations of host countries are not oriented towards the sea and have for a long time limited themselves to subsistence fishing and, at best, to coastal fishing. Senegalese migrant fishermen have introduced some large-scale fishing techniques to meet not only local demand but also external markets. The purse seine, normal line, ice line pirogue, octopus line, drift gillnet, sole set net and bottom set gillnet have been introduced in Mauritania. The bottom drifting gillnet, set gillnet, longline and seelackee fishing have made their way into Guinea through Senegalese fishermen. The surface drifting gillnet, purse seine, handline, set gillnet and longline have been adopted by fishermen from Sierra Leone interaction with Senegalese migrants.

In Gambia, the few active local fishermen embark on migrant fishing units, including Senegalese units. In Guinea-Bissau, the technological contribution of Senegalese migrant fishermen remains marginal; technologies introduced by Guinean and Sierra Leonean communities remain dominant. Local fishermen have little financial capital to switch to new and more efficient fishing techniques.

Because of the relatively modest fishing equipment and their limited know-how, the activities of local West African fishermen continue to be mainly coastal. Remote fishing areas are generally frequented by Senegalese fishing units. The exclusive use of the line by Senegalese fishers operating in Guinea and Mauritania gives them access to certain species of high commercial value (white grouper, curlew, scabbardfish, sea bream, etc.) that are relatively absent in the landings of local fishermen.

Although fishing areas are not subject to discrimination between foreign and indigenous artisanal fishing units, some resources are, however, exclusively exploited by local communities. This has been the case, in particular, for mullet, curlew and chard in Mauritania since 2008 and rays and sharks in Sierra Leone. In some countries, access to certain fishery resources is subject to the payment of a fishing licence, the cost of which is much higher for foreign communities. This is the case, for example, for rays and sharks in Guinea.

While processed products – such as mullet *guedj*, *guedj* with bottarga and *tichtar* – are the result of local know-how in Mauritania, the other processed products available in the processing areas along the West African coast were introduced by the Senegalese community. These are essentially *guedj kong* and, *guedj butter* (*guedj* being fermented and dried fish), *metorah* and salt-dried (cut up, salted and dried fish). Thus, artisanal fish processing activities are mainly carried out by the wives of Senegalese migrant fishermen. The latter have, for a long time, ensured this processing of surplus production, before their wives joined them and took over.

⁸ The Senegalese population is overwhelmingly Muslim, accounting for 94 per cent of its population. This explains the importance given to religious ceremonies, the opportunity for fishermen to gather as a family in their villages of origin.

2.3. *Economic impacts*

Senegalese fishing communities are subject to the payment of various taxes in host countries. Some taxes are levied on behalf of the communes (e.g., communal fees, landing taxes, presence taxes) and others on behalf of the public treasury (as it happens for fishing licences). These fees consolidate communal budgets and part of the cost of fishing licences is paid to the ministry in charge of fisheries for the governance of the sector. The presence of the Senegalese artisanal fleet along the West African coast is a source of direct employment, through embarkation of seamen, and related jobs: provisioning of fishing materials and equipment, supply of fishing inputs (e.g., ice and food), purchase of packaging and hardware, repair of outboard motors, carpentry and carrying of fishery products. Other peripheral jobs generated by this fishing, such as catering, small trade, sale of water and fruit juices, are linked to the very presence of migrant fishermen on the territory of the host countries. The economic contribution of Senegalese migrants to the economies of host countries seems to be more important in Mauritania. Indeed, with very limited national production, the fishmeal factories in Nouadhibou are largely dependent on the catches of Senegalese fishermen. And by ripple effect, these factories generate a fairly significant number of jobs⁹ (Dia Abdou D., 2012).

Moreover, most of the export structures for fishery products in Gambia, Guinea, Guinea-Bissau, Mauritania and Sierra Leone are run by migrant fishermen, particularly Senegalese. The production of artisanal fishing units and the national industrial fleet remains low and is mainly oriented towards the local market. The foreign industrial fleet does not disembark in the host country.

In addition, faced with the strong fluctuations in national currencies (see Mauritanian ouguiya and Guinean franc), many fishermen secure their economies by purchasing fishing equipment (e.g., outboard motors, fishing nets and various accessories) and electronic devices (such as mobile phones, televisions, radios and satellite dishes). These purchases contribute greatly to the local economy and to the development of upstream fishing industries.

2.4. *Impacts on the resource*

Fishermen in host countries are concerned about a general decline in the fishing potential of the main species of commercial interest. The main indicators, in their view, are the distancing of their fishing areas, the decrease in the yield of their fishing units, the reduction in the size of the fish caught and the scarcity of certain species in their landings. However, they do not blame the Senegalese artisanal migrant fisheries alone, but rather free access to resources, the overcapacity of both artisanal and industrial fishing units and the use of non-selective fishing gear, which is generally prohibited.

Catches of juvenile fish are considerable, particularly in industrial fisheries landings, which do not respect minimum sizes. Illegal, Unreported and Unregulated fishing (IUU fishing), which is very important in Guinea, Guinea-Bissau and Sierra Leone, is another factor largely explaining the state of overexploitation of fishery resources in these countries. This practice is encouraged by the difficulties in enforcing regulatory measures due to the lack of appropriate means of surveillance in terms of personnel, means of navigation and electronic instruments. In addition, the fisheries agreements signed with the European Union and Asian countries, especially China, are particularly present in Guinea. The same is true of national and foreign artisanal fishing units, including Senegalese ones, which are heavily implicated in the destruction of shark and ray populations along the coast of Guinea-Bissau.

⁹ In 2011, this sector created just over 3 400 jobs, including 264 jobs in the factories (an average of 44 jobs per factory), 1 350 indirect jobs related to landing and handling tasks, and 1 800 direct jobs for the seamen on board the pirogues. Ninety-eight percent of the jobs in the plants are held by Mauritians (Tarbya, 2011).

2.5. *Conflictual relations*

The migration of Senegalese fishermen to neighbouring countries is not without conflict, even if they are rare. Non-compliance with local regulations by Senegalese fishermen are very often the cause of these conflicts. This is the case of the non-respect of fishing stops often decreed by Mauritanian fishermen to regulate the trips of purse seine fishing units. These local initiatives are refuted by Saint-Louisian artisanal seiners under the pretext of the absence of biological stop clauses in their fishing licences. In addition to regulations, fishing techniques are also often a source of conflict. The case of the octopus pots used by Mauritanian fishermen and the Senegalese octopus line is quite illustrative. As this is a frequent source of conflict, the problem was resolved by a decree against Senegalese fishermen banning octopus line in traditional areas.

Overall, interviews with fishermen (both migrant and sedentary) from the different countries show that Senegalese migrant fishermen apply the rules of fisheries resource management vigorously in the host countries. The conflicts that arise between Senegalese migrant fishermen and the fisheries administrations very often result from the lack of fishing licence(s), especially in this context of the tightening of national legislation and the creation of protected fishing zones in the various sub-regional waters. Thus, Senegalese migrant fishermen are occasionally boarded for their fishing equipment (pirogues, outboard motors, fishing nets) by the latter, in particular the fisheries administrations of Guinea-Bissau and Mauritania. In such cases, an amicable solution is often found thanks to the intervention of the Senegalese authorities.

3. **Conclusion**

In the eyes of Senegalese fishermen, migratory fishing is a means of resilience in a context of increasing scarcity of marine resources in the national EEZ and by a ripple effect of precariousness of the actors in the sector. With regard to the volumes of catches and the commercial values generated, migratory fishing is an important component of the Senegalese fishing economy. For the host countries, it generates positive impacts linked to the dissemination of know-how, but also economic spin-offs and a significant contribution to local food security.

However, despite the significant economic, financial, technological and social spin-offs of migratory fishing in the reception centres, no policy has yet been implemented to improve the living conditions of migrant fishermen. In most of the countries studied, migrant fishermen live in relatively precarious conditions. Senegalese migrant fishermen do not benefit from any legal protection and conflicts with indigenous fishermen are generally resolved to their disadvantage. They are not involved in decision-making, both in the management of resources and the organisation of reception centres, and are subject to the measures decided upon. Senegalese migrant fishermen are not members of any local professional association. This lack of social policies for Senegalese migrants in the reception centres is part of the more general problem of the absence of policies for the management of West African migrants' fisheries.

This article, like many previous works on West African migratory fishing, concludes by raising again the pressing need for the development of a policy for the management of migratory fishing in the sub-region. Such policies should lead to a good knowledge of the volumes of fish caught and landed in the fishing countries and in the countries of origin. For a better integration of foreign communities, the institution of social policies would allow an improvement of their framework. The Sub-Regional Fisheries Commission is presented as the favourable and appropriate framework for the concerted management of these migrations and their impacts at the sub-regional level.

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