

## MIGRATORY MOVEMENTS IN MARINE FISHERIES, SENEGAL

## A QUANTITATIVE STUDY\*

by

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INTRODUCTION

Canoe fishing is the most dynamic element of the Senegalese maritime fishery sector. This activity, open to technological and organizational innovation, has since independence, undergone a considerable upheaval emphasized by the evolution of landings (80, 000 t in 1965 to 200,000 t in 1988). The adoption of new fishing techniques (especially the purse seine, the longlines, the cuttlefish pot), the motorisation of the canoe fleet and improved conditions in preserving the catch (ice in holds) are all well-known and well-documented features of Senegalese canoe fishing today. (Chaboud and Kebe 1986). Another remarkable aspect of this activity is the long documented existence of migration movements of various scales along the Senegalese coastline or towards neighbouring countries (Gambia, Guinea Bissau, Guinea, Mauritania) (Chaboud and al. 1988) up until 1989. One can state, without doubt, that Senegal is the second source of fishermen migrations after Ghana in West Africa (Chaboud 1989).

In the following study we will attempt to quantify as closely as possible the internal migratory phenomenon for one reference year, bringing out its seasonal aspect, the fishing techniques concerned, the places of origin and destination. In the second part, we will attempt to analyse this phenomenon, emphasizing significative particularities such as differential ethnic strategies, the impact of the spreading of fishing techniques and know-how, the consequences on relationships among fishermen's communities. In conclusion, we will put forward several ideas on the kind of studies to be undertaken in order to better understand this phenomenon.

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ExA

## 1. EXTENT OF MIGRATORY PHENOMENON IN SENEGAL

### 1.1. Methodological aspects

Quantifying fishermen migrations is not easy. Administrative population censuses are not of much help as they only give information on the population "by right" (1). They cannot therefore, be of help in measuring short-term migrations. In addition, the fishermen are not portrayed as a particular socio professional category : they are lumped together with agriculturalists and livestock breeders in one single group. Also, as migrant fishermen often settle on the outskirts of villages with a sedentary population, in precarious and "non formal" conditions, their numbers is likely to be under-estimated in village counts (2).

Confronted with this lack of information on such an important and recognized phenomenon, yet faced with the necessity to measure its extent (3) the CRODT/ISRA has, since 1980, decided on carrying out inventories of the canoe fleet twice a year; during these operations, the origins of the canoes are taken into account in order to chart migration flows (SOCECO-PECHART, 1982, 1983, 1985, 1990a, 1990b, 1990c).

Migrations are therefore apprehended through canoe movements. Complementary information is collected about the activities (4), the fishing techniques used and motorization.

The investigation is carried out over a minimal length of time (usually a week) so as to avoid double counts (5).

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1. This means those individuals counted according to their usual place of residence, including those absent for less than six months.
  2. The fishermen show a certain mistrust (often justified) towards official counts. Numerous fruitless attempts to register the canoes proves this.
  3. Especially in order to be able to extrapolate the fishery statistics over the whole coastline.
  4. Any craft having taken part in fishing in the month preceding the investigation is considered as "active".
  5. There are no efficient means by which to identify individual craft. Registration of the canoes would be a great help in improving the enumeration system in artisanal fishery.

Estimation of the workforce directly employed in fishing cannot be immediate. It entails an estimation of average crews per type of fishing unit. Jobs indirectly linked to migration can only be commented upon qualitatively, considering information available.

### 1.2. Migration movements charted over one year (1983)

We have chosen the year 1983, for which we have exhaustive information on canoe migrations along the entire coastline, for May and September. Figures 1 and 2 are charts where the migration movements brought to light. They show a predominantly north-south movement.

The total number of migrating canoes rises to 1,110 in May and falls to 800 in September, which shows a decrease in migrations during the rainy season. For these two periods the migration rate of the canoe fleet falls from 25 % to 17 %.

Annex 1 portrays the migratory pattern during the cold season in Senegal. For each place investigated and for every region, rates of emigration and immigration have been computed in order to bring out the particularities of each village and region.

$$\text{Rate of emigration} = \frac{\text{Total number of migrating canoes originating in one place or region}}{\text{Total number of native canoes in the place or region}}$$

$$\text{Rate of immigration} = \frac{\text{Total number of canoes coming from other places or regions}}{\text{Total number of canoes to be found in the one place or region.}}$$

Table 1 shows that the main consequence of migration movements is a concentration of the canoe fleet : 47 places of origin compared to 26 places of destination.

The ten main places of origin are (in decreasing order of importance).

Place	Rate (%) of emigration	Percentage of total number of migrant canoes	Regions
Saint Louis	47	47	Grande Côte
Mbour	20	8	Petite Côte
Bassoul	100	5	Sine Saloum
Yenne	61	4,5	Cap Vert
Dionewar	66	3,4	Sine Saloum
Ndayane	60	3,2	Petite Côte
Guereo	61	2,2	Petite Côte
Bassar	100	2,2	Sine Saloum
Tassinere	91	1,8	Grande Côte
Pilote	78	1,6	Grande Côte

Guet-Ndar (Saint-Louis) represents 50 % of the total migration flow. The other places of origin are of lesser importance : however, it is to be noted that for most of them the rate of out migration is higher than that of Saint-Louis.

The ten main places of destination are as follows :

Place	Rate (%) of immigration	Percentage of total number of migrant canoes	Regions
Kayar	68	35	Grande Côte
Joal	63	30	Petite Côte
Kafountine	84	5	Casamance
Boucotte	100	5	Casamance
Mbour	12	4,7	Petite Côte
Missirah	92	3,1	Sine Saloum
Pte St. Georges	100	2,1	Casamance
Yoff	7	2,1	Cap Vert
Soumbédioune	10	1,9	Cap Vert
Hann	17	1,8	Cap Vert

Two places (Kayar and Joal) receive 65 % of migrant canoes.

Among the other destinations listed, one should note the peculiarity of a few maritime and estuarian centres in Casamance that have an immigration rate higher than 90 %.

The analysis of intra and inter-regional migrations allows the highlighting of movement specificities according to distance and to bring out the particularities of the different maritime regions. Complete information is given in table 2 (month of May) and in figure 2 (May and September). In this figure the types of gear concerned are also indicated.

Table 3 indicates the intra and inter-regional rates of immigration and out migration (6). A Regional typology seems to take shape.

The Grand Côte is undoubtedly the region where the migratory vocation of fishermen is the most obvious : 40 % of the canoes originating there do migrate. This migration is more or less internal to the region (28 % of the craft). In Cap Vert, fishermen rarely migrate (8 %) but when they do, it is towards other regions (Casamance and Petite Côte in particular). Migrations from petite-Côte are moderate (22 %) and mainly local. Finally the Sine Saloum region is characterized by quite large-scale migrations (30 %) mainly towards other regions (Petite-Côte: 18 %, Casamance : 7 %). Migrations from Casamance (32 %) remain totally internal to the region.

Of all the coastal regions, Casamance, with a total immigration rate of 78 % and an inter-regional rate of 68 %, is undoubtedly the host region that depends the most on migrant fishermen.

The two other regions where total immigration rates are relatively high are Petite Côte (34 %) and Grande Côte (32 %). However, a difference exists between the two areas : in the latter, the migrations are essentially of internal origin, while in the former they originate from all the other coastal regions (except Casamance).

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6. These rates are defined as precedently. The intra-regional rates are relative to flows within the coastal regions : the inter-regional rates refer to flows between regions.

All types of fishing to be found in Senegal are concerned by migration, though they do vary. In May 1983, the percentage of migrant canoes per fishing type was :

Fishing Technique	% Migrants canoes
Purse seine (net canoe)	24 %
Purse seine (fish canoe)	23 %
Surrounding gillnet	67 %
Beach seine	11 %
Lines - set nets - traps	24 %
All the types of gear	25 %

It seems that only two fishing techniques stand out : the beach seine and the surrounding gillnet. The latter is mainly used by Nyominka fishermen from the Saloum islands whenever they migrate to Petite Côte. The low rate noted for beach seining should be interpreted with caution as this type of gear is mostly used during the hot season. It is noticed however, that a large number of beach seines remain behind, especially in the Cap Vert region.

An estimation of the directly employed workforce (that is, the crews), can be given using the average size of crew per fishing type (7). Out of 23,148 directly employed in May 1983, 5,214 (22 %) were migrants.

### 1.3. Dynamics of medium-term migration (1981 - 1990)

For the three main coastal regions (Grande Côte, Cap Vert, Petite Côte), we have tried to determine whether the evolutionary tendencies of the dry season migration pattern were noticeable in the medium term. In order to do this, we have used those years for which information was available, in order to compute global intra and inter-regional rates of immigration for each region (table 4).

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7. The average crew is 4 fishermen for line -set net-cuttle fish canoes, 28 for purse seines, 30 for beach seines and 8 for surrounding gillnets.

Examination of the results clearly underlines the great stability of regional canoe fleets up until 1989. The rates of immigration appear relatively constant for the Grande Côte and the Petite Côte, with a slight increase for the latter. Cap Vert is the only region to experience a significant rise in the global rate of immigration. This is due to canoes coming from other regions (inter-regional immigration rate rose from 3,5 % in 1983 to 13,5 % in 1989). This increase is relative to the dynamics of commercial outlets in this region, which have experienced a considerable increase in beach prices.

For the year 1990 a marked increase in the number of canoes per region and in migratory flow can be observed : nearly 150 more canoes came to the Cap Vert region. This is due to the return of Senegalese fishermen from Mauritania the year before. In 1987, 307 canoes from Saint-Louis were counted in Mauritania. The rise in the number of canoes originating in Grande Côte between March 1989 and March 1990 is about 400. The difference (more or less one hundred canoes) may be explained by intensified migration from Senegal to Mauritania in 1989, but this hypothesis requires verification.

## 2. ANALYSIS OF THE MIGRATION PHENOMENON

### 2.1. Migrant fishermen communities and differential migration strategies

Migration movements along the Senegalese coast were already observed at the beginning of the century, during the first scientific attempt to study fishing and fish resources by the naturalist Abel Gruvel (8).

At that time he noted the considerable presence of Wolof fishermen from Guet-N'dar (Saint-Louis) in the Cap Vert region (especially at Rufisque) where they were taking advantage of commercial outlets allowed by the development of the trade economy (Gruvel, 1908). Lébou from Cap Vert and Wolof from Guet-N'dar were coming to the Petite Côte, where sedentary Sérère fishermen were still few. Estuarine fishery was quite active in Casamance, but only practiced in a significant manner by migrants. Among the latter, one may note the presence of Walo-walo (from northern Senegal), Lébou, and Wolof from Saint-Louis.

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8. Assigned to "the study and the organization of A.O.F. fisheries", by decision of Governor-General Roume in 1906.

Some marginal migrant groups from Mali such as the Bozo and the Somono originating in the Niger inner-Delta region must also be mentioned (9).

Although the fishing situation has undergone radical changes since then, it is nevertheless remarkable to observe that the Wolof from Guet-Ndar and the Lébou from Cap Vert continue to follow the migratory patterns described by Gruvel. However, the present situation differs somewhat owing to the arrival of new migrants (Sérère Nyominka from the Saloum islands), the development of large fishing centres which there were of little importance at the beginning of the century (10), and the development and later the hegemony of monetary economy.

Thus today three main communities (11) are responsible of maritime fishing migrations. They will be presented hereafter with emphasis on their particular migratory habits.

Guet-Ndar fishermen are the most specialized fishing community in Senegal. History and its consequences have caused them to rely on fishing for all their essential needs (12).

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9. However, these groups seem to have kept themselves to interfacial zones between the maritime and continental areas (Sine Saloum, Casamance). The long presence of Somono on upper Senegal River (upstream of Matam), is shown by the confusion often made by Sérère fishermen from Sine Saloum between the Subalbe, of Toucouleur ethnicity, and the Somono.
  10. Among which we can point out Kayar (where Gruvel only mentioned a few canoes) on Grande Côte, Hann (Yarakh) in Cap Vert, Mbour and Joal on Petite Côte, Kafountine in Casamance.
  11. The term "community" seems more adequate than that of "ethnic group" with relation to the Guet Ndar fishermen whose historical background indicates integration of members of different ethnic groups.
  12. The Guet Ndar were not always exclusively fishermen. When Saint-Louis was the commercial outlet to the Atlantic for produce collected along the river Senegal (arabic gum, leather, ivory, etc...), they served as longshoremen facilitating the unloading of large vessels unable to cross the bar ; they also served as boatmen on the river itself. With the decline of maritime commerce, they reconverted to river, then sea fishing. They differ from the other groups in that they no longer have access to land and have thus totally abandoned agriculture during the last century (Chauveau 1984).



The abundance of fish off Saint-Louis, determined by the pattern of maritime seasons, (13) does not suffice to guarantee them enough resources. The Guet Ndar population is also confronted with an over-density phenomenon. Rapid demographic growth having to be absorbed by a village unable to extend its boundaries much further.

Faced with these problems, Guet Ndarians have developed an opportunistic migration strategy whose aim is to make use of their know-how in fishing wherever economic, social and natural conditions allow them to. The range of fishing techniques mastered by these fishermen is remarkable in its diversity, enabling them to adapt to diverse conditions: at one time Guet Ndar fishermen were spread over an area ranging from Dakhla (Western Sahara, 24 ° N) to the Bijagos Islands (Guinea Bissau, 11° N), with incursions into the Gulf of Guinea as far as San Pedro (Diaw, com.pers.).

The Lébou form a more heterogenous group with regards to migration strategies. These seem to be conditioned by the fishing agriculture inter relationship as well as the access to the profitable commercial outlets in Cap Vert.

The Lébou from northern Cap Vert (Kayar village) do not seem tempted by migration. A few movements used to take place (near Yoff) or are still taking place (near Mboro), but at a very limited scale. This could be explained by the complementary fishing and market-gardening in the Niayes (14).

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13. Certain species are to be found in the cold season (November to May) when the upwelling generated by the north-east tradewinds is present. Others are more abundant in the rainy season when there is an increase in freshwater intakes from the river. However, the main factor of abundance of resources (where deep-sea pelagic fish are dominant) remains the upwelling in the cold season (Roy 1990).
  14. This is an area of hollows in the dunes stretching along the Grande Côte. The presence of shallow waters or pools allows market-gardening all year except for the last few months of the rainy season.

The Lébou from Cap Vert strictly speaking (from Dakar to Bargny) do not migrate much either. Dakar Lébous seem less and less involved in fishing while those living in the villages extending from Hann to Bargny are taking advantage of the commercial outlet offered by the Hann beach, where prices are significantly higher than those in the landing centres further south (Chaboud and Kebe 1989).

The Lébou south of the Cap Vert region and the Petite Côte have a more confirmed migratory vocation. Farming is practiced in the rainy season only, thus migrations in the dry season are complementary to the farming calendar. They have taken advantage of the development of Mbour and Joal, relatively near their village of origin. They also undertake migrations further afield towards Sine Saloun (15) and Casamance, where they use very selective fishing techniques (purse seines for sole and lobster (16)).

The Nyominka from the Saloum islands have turned to fishing migrations in more recent times. Commercial sea fishing has only lately become important to the inhabitants of the Gandoun islands. Fishing migrations are only one particular aspect of the multiform migrations (Nguyen Van Chi Bonnardel, 1977) they undertook when living conditions deteriorated in their villages, following the regression of farming and the shortage of freshwater (17). However, the Nyominka have long practiced estuarian and maritime navigation, going back to the time when their big transport canoes were actively trading along the "southern rivers" (Pelissier, 1966) and even as far as the Côte

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15. The Lebou migrations towards Sine Saloun are ancient. Gruvel mentions them and the term "lébou" is used by island fishermen to point at sea-going canoes. Today Lébou fishermen are mainly based in Missirah because of existing infrastructures and commercial facilities.
  16. Set net fishing of lobster in Casamance goes back to the arrival of fishermen from Yenne village, who had a supply contract with an export company in Cap Vert (Grands Viviers de Dakar) and who formed a cooperative of Yenn lobster fishermen.
  17. Rice cultivation, which was an important element of their agricultural production system, was abandoned about 15 years ago ; long -cycle brands of cereal seem to have been replaced by short-cycle ones, the surface of arable land is going down because of soil salinization. Finally, freshwater supply is getting scarcer.

d'Ivoire, it seems. Their fishing techniques (Chaboud and Laloe 1983) and to a lesser extent, the migratory sites they frequent, seem largely determined by the particular context of their islands of origin. When they migrate along the Petite Côte (especially to Joal), it is mainly to use the surrounding gillnet, (18) ("saïma"), the purse seine, the drift bottom gillnet, ("yolal") and the set gillnet for "yett" (19). Their fishing zones are concentrated off Pointe Sangomar, at the Saloum rivermouth. It would appear therefore that Nyominka migration to the Petite Côte is mainly inspired by commercial motivations and is a response to the islands' seclusion. The search for marine resources cannot be given as a determinant factor, their fishing zones often being closer to their villages of origin than to their migration sites.

Migrations towards Casamance appear inspired by other motivations. As a fact, it is noted that Nyominkas have preferred to settle in estuarine sites (Ponta Bassoul, Ponta Diogane) or at the mouth of "bolons" (20) leading to the littoral (Saloulou) and of which they are often the sole occupants.

It is also striking to note the similarity of chosen sites with their villages of origin : sheltered mangrove areas set back from the coast, allowing the mooring of canoes without beaching them (21). These migrations seem to correspond to a pattern of fishing colonization of certain parts of the Casamance environment for which Nyominka's techniques practised on the islands seemed well-adapted (beach seine, drift gillnet).

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18. They appear as having a quasi-monopoly of this technique.
  19. Cymbium pepo, a gasterpod mollusc, eaten as a seasoning after being fermented and dried. Fishing for this species is very active on the Petite Côte and at Dionewar (Saloum islands).
  20. Term of mandingo origin designed for sea channels communicating with the coast of the estuaries.
  21. Sea-going Nyominka canoes differ from those of the Lébou or from Saint-Louis. They are heavier (keel and sides made of "red-wood"), lower at stern and wider in the middle. These characteristics render them unsuitable for crossing the surf and beaching in rough areas.

This hypothesis is reinforced by a number of elements : the oldest settlements bear the names of their founders villages of origin (22). These settlements correspond to sites where (or go back to a time when) resource exploitation by Diola (23) fishermen was of little importance and interaction with other migrant communities seemed minimal.(24) The search for a resource still found in abundance seems to be the determinant factor here, commercial seclusion having been solved through different means (25).

## 2.2. Impact of migration

The analysis of these population movements effects is particularly interesting for the understanding of the historical and socio-economic dynamics of artisanal fisheries (Lawson, 1983).

The impact on fishing technology and know-how is obvious : those populations specialized in migrating are also those that best master fishing techniques. It is generally accepted that their presence contributes in the spreading of the latter among host populations.

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22. Ponta Bassoul was founded in 1928 according to information given to us by Bassoul fishermen.
  23. It should be noted that the Nyominka Sérère in Casamance have restricted themselves to fishing, whereas they were rice-growers in their villages of origin. Should this be interpreted as an avoidance of competition with the "diola" farmers or a mere choice for a specialization in fishing combined with migration ? We are unable to answer this question at the present time. However, we must note that up until recent times, fish resources in Basse Casamance were less exploited than agricultural land resources.
  24. Other migrant communities in the region (Lébou, Guet Ndar) were exploiting other resources.
  25. Among which are the transformation of beach seine catch (mainly mullet) into "tambadiang", later sold at Ziguinchor ; and the transport of valuable species in cold-storage canoes (equipped with ice-boxes) towards Ziguinchor, or better still, towards Ndangane in Sine Saloum where they are sent by road to Dakar.

Thus the widespread use of those types of craft most frequently found (Saint-Louis and Nyominka type canoes) is directly linked to fishermen migrations. The same applies to the adoption of fishing techniques such as the beach seine, the cast net, the "yolal", the "félé-félé" (26), in certain communities is undoubtedly related to the arrival of migrant fishermen already using such techniques (Chaboud and Laboe 1983, Diaw 1985).

Migratory movements generate important monetary and economic flows, making significant contribution to the local economies (fish supply, purchases from local craftsmen, participation in the village economy).

One cannot ignore, however, that competition, tension, and even conflicts may arise if migrants' interests being in contradiction with those of local fishermen.

Conflictual relationships between sedentary Kayar fishermen and migrants from Guet-Ndar concerning the use of set nets are a characteristic example of these difficulties :

"In 1985, conflict broke out between Lébou fishermen from Kayar and migrants from Guet-Ndar when an ancient ruling limiting the use of set nets was being violated. This is a classical example, combining, on one hand, technological incompatibilities between fixed and active gears (the migrants in this case were using bottom gillnets hindering the use of purse seines and handlines) and on the other, antagonistic community concepts related to rights of fishing space and the access to resources. Lébou peasant fishermen want to keep control over the exploitation of their "fishing territory" ; the migrants under accusation complain loudly that free access to the sea and to its resources is every Senegalese fisherman's right and which is necessary to perpetuate their activities and lifestyle" (Chaboud, 1989).

Conflicts have also been observed at Hann and on the Petite Côte between local and migrant fishermen. They more often than not concern the use of non-compatible fishing gears (set nets and drift nets for example).

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26. "Félé-félé" : surface drift gillnet.

CONCLUSION

This text does not pretend to treat all socio-economic aspects of fishermen migrations in Senegal. Many important questions need further analysis in order to really grasp this phenomenon, notably :

- labour migrations cannot be understood solely in reference to canoe migration patterns. Certain seasonal migrations take place from the interior to the coast and not along the coast. Fishing migrations do not only concern fishermen, but also merchants, craftsmen, and the processors ;
- is there a specific quality of migrant fishing units with regards to their economic organization, does this make them more efficient than others ?
- what is the determinism behind fishermen migrations ? Is it economic (search for commercial outlets), social (migration as a way to escape the constraints of the home-environment) or "natural" (search for fish) ?
- what are the repercussions of these migrations ?
- what processes underly fishing migrations : the setting-up of migration networks, fishermen and fishing units, individual migration patterns and those of the fishing units, the duration and repetitive nature of these individual or collective movements ?

Answers to the above can only be found if specific studies are undertaken about fishing migrations ; such studies must be pluridisciplinary in order to tackle the different aspects of the problem and to reach a relevant explanatory framework.

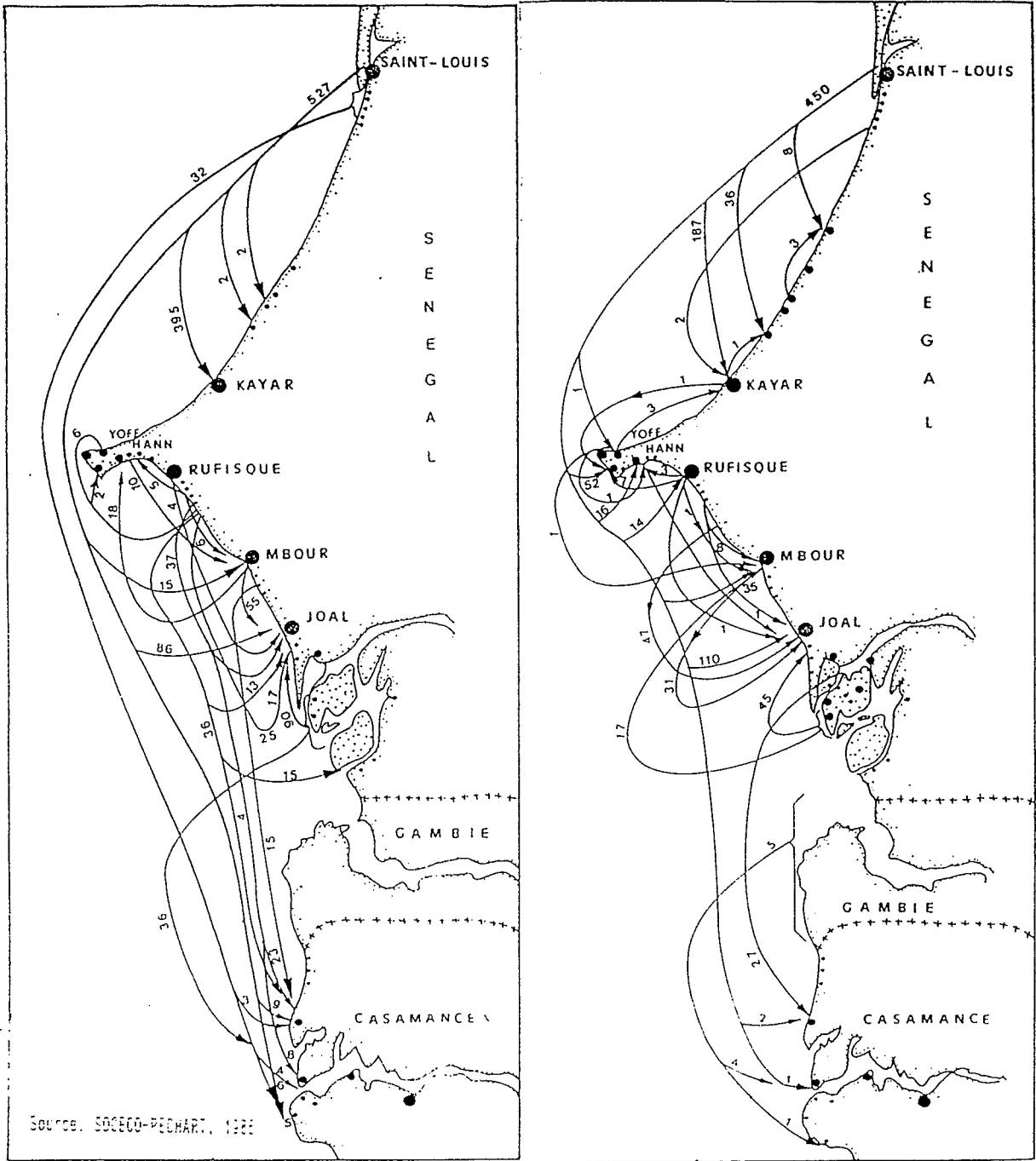
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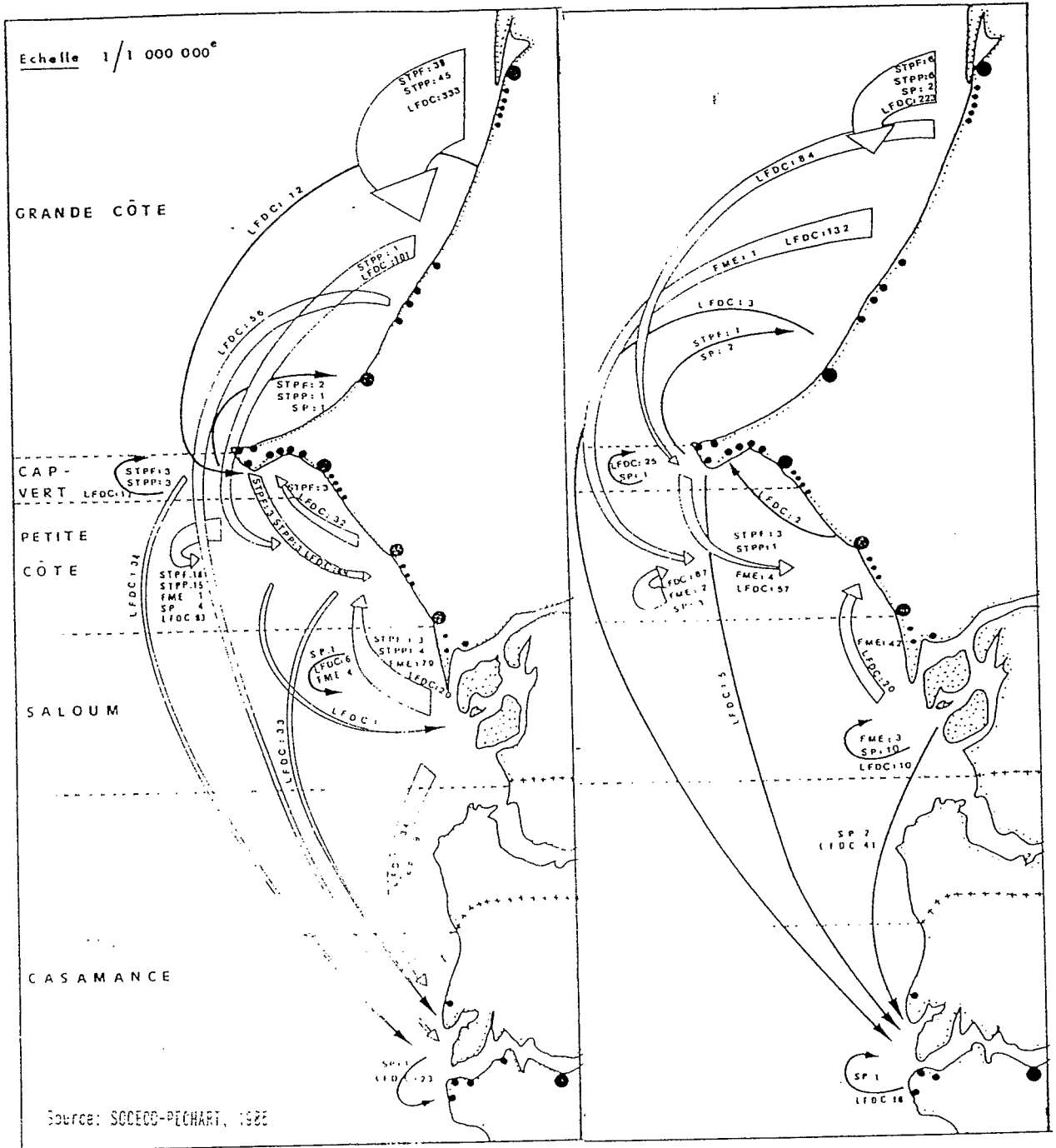


Source: SOCECO-PEDHART, 1982

MAY

SEPTEMBER

Figure 1. Canoe movements along the Senegalese coast-line :  
 May and September 1983  
 (Scale 1 : 1,000,000)



MAY

SEPTEMBER

Figure 2. Intra and inter-régional mouvements according to type of fishing gear : May and September 1983.

Table 1 : Migratory scheme during the cold season in Senegal (May 1983)

LIEUX	1 Pirogues présentes	2 Pirogues originaïres parties en migration	3 Pirogues extérieures venues en migration	4 effectif pirogues origi- naires (1+2-3)	5 solde migra- toire (2-3)	6 taux d'émigra- tion (2/4)	7 taux d'immigra- tion (3/1)
SAINT-LOUIS	576	527		1103	527	47,78%	
DOUNE-B	2	2		4	2	50,00%	
PILOTE	5	18		23	18	78,26%	
TASSINIÈRE	2	21		23	21	91,30%	
DIOGO		9		9	9	100,00%	
MBOUMBAYE	1			1	0		
MOUIT	2			2	0		
TARE	14			14	0		
THIOUGOUNE	8			8	0		
FASS BOYE	70		14	56	-14		20,00%
MBORO	3		3	0	-3		100,00%
KAYAR	579	1	396	184	-395	0,54%	68,39%
GRANDE COTE (FLUX INTER-REGIONS)	1262	578 170	413 5	1427 1427	165 165	40,50% 11,91%	32,75% 0,40%
CAMBERENE	3			3	0		
YOFF	319	6	24	301	-18	1,99%	7,52%
NGOR	79			79			
OUAKAM	83	3		86	3	3,49%	
SOUMBEDIOUNE	218	1	22	197	-21	0,51%	10,09%
ANSE BERNARD	71			71			
BEL AIR	74			74			
HANN	112	6	20	98	-14	6,12%	17,86%
THIAROYE	54	11	4	61	7	18,03%	7,41%
MBAO	19	4		23	4	17,39%	
RUFISQUE	108	7		115	7	6,09%	
BARGNY	62	11		73	11	15,07%	
SENDHOU	42	3		45	3	6,07%	
TENNE	31	49		80	49	61,25%	
NDITAKH	17			17			
NIANGAL	41	15		56	15	26,79%	
CAP VERT (FLUX INTER-REGIONS)	1333	116 93	70 47	1379 1379	46 46	8,41% 6,74%	5,25% 3,53%
KELLE	1	8		9			
TOUBAB DIALAW	17			17			
NDAYANE	24	36		60	36	60,00%	
POPENGUINE	10	3		13	3	23,08%	
GUEREO	20	32		52	32	61,54%	
SOMONE	10			10			
NGAPAROU	19	14		33	14	42,42%	
SALI	27	9		36	9	25,00%	
MBOUA	407	90	52	445	38	20,22%	12,78%
TROPICAL	10		1	9	-1		10,00%
NIANING	28	17	7	38	10	44,74%	25,00%
POITE SARENE	52	2		54	2	3,70%	
MBODIENNE	1			0	-1		100,00%
WARANG	2			2			
JOAL	524	4	333	195	-329	2,05%	63,55%
PETITE COTE (FLUX INTER-REGIONS)	1152	215 84	394 263	973 973	-179 -179	22,10% 0,63%	34,20% 22,83%

Source of data : SOCECO PECHART, 1985

Table 1 (cont.)

LIEUX	Pirogues présentes	1 Pirogues originares parties en migration	2 Pirogues extérieures venues en migration	3 effectif pirogues origi- naires (1+2-3)	4 solde migra- toire (2-3)	5 taux d'émigra- tion (2/4)	6 taux d'immigra- tion (3/1)	7	8
PALMARIN		42			42				
NDANGANE		47			47				
DJIFERE		25			25				
FOUNDIOUGNE		28			28				
NDOLETTE		4			4				
SOKONE		2		2	0	-2		100,00%	
MEDINA SANKOLI		7			7				
SANDIKOLI		7			7				
TOUBACOUTA		2	1		3	1	33,33%		
DIRNDA			3		3	3	100,00%		
BASSAR			25		25	25	100,00%		
BASSOUL			55		55	55	100,00%		
THIALANE			8		8	8	100,00%		
DASSILAM	1				1				
NEMABA	8				8				
SOUKOUTA	7				7				
MISSIRAH	38			35	3	-35		92,11%	
FALIA	1			1	0	-1		100,00%	
DIOGANE	6		10		16	10	62,50%		
DIONEWAR	19		38		57	38	66,67%		
NIODIOR	33		10		43	10	23,26%		
NGADIOR			8		8	8	100,00%		
DIOFANDOR	7			1	6	-1		14,29%	
SETANTI	60		2		62	2	3,23%		
SIWO			11		11	11	100,00%		
MAR-F			1		1	1	100,00%		
GUISWAR			1		1	1	100,00%		
DIOGAYE	10				10				
DJINAOR	23				23				
BAOUT	21				21				
FAMBINE	19				19				
DIAMENIADIO	8				8				
SINE SALOUM (FLUX INTER-REGIONS)	425	173	39	559	134	30,95%	9,18%		
		149	5	569	134	26,65%	1,18%		
ABENE	9	4	9	4	-5	100,00%	100,00%		
DIANNAH		2		2	2	100,00%			
KAFOUNTINE	65	11	55	21	-44	52,38%	84,62%		
KAYELO		1		1	1	100,00%			
BOKO		1		1	1	100,00%			
SALOULOU	16		14	2	-14		87,50%		
BOUNE	1			1					
MANTATE	2			2					
SANKOYE	7		7	0	-7		100,00%		
KARABANE	2			2					
DIOGUE	11		7	4	-7		63,64%		
KACHOUANE	2			2					
OURONG	4			4					
POINTE SAINT GEORGES	24		24	0	-24		100,00%		
ELINKINE	12		3	9	-3		25,00%		
NIKINE		4		4	4	100,00%			
ZIGUINCHOR	9	1		10	1	10,00%			
DIONGUE K.	4			4					
BOUDIEDIETE	4			4					
CAP SKIRRING	9		9	0	-9		100,00%		
DIEMBERING	8		8	0	-8		100,00%		
BOUCOTTE	54		54	0	-54		100,00%		
CASAMANCE (FLUX INTER-REGIONS)	243	24	190	77	-166	31,17%	78,19%		
		0	166	77	-166	0,00%	68,31%		
TOTAL	4415	1106	1106						

Source of data : SOCECO PECHART, 1985

Table 2. Intra and inter-regional migrations  
(May 1983)

	ORIGINE	GRANDE COTE	CAP VERT	PETITE COTE	SINE SALOUM	CASAMANCE	TOTAL	
	Pirogues origi- naires		1427	1379	973	559	73	4415
		pirogues migrantes						
DESTINATION	Pirogues présentes							
GRANDE COTE	1262	408	4	1	0	0	413	
CAP VERT	1333	12	23	35	0	0	70	
PETITE COTE	1152	102	55	131	106	0	394	
SINE SALOUM	425	0	0	15	24	0	39	
CASAMANCE	243	56	34	33	43	24	190	
TOTAL	4415	578	116	215	173	24	1106	

Source of data : SOCECO RECHART, 1985

Table 3. Rates of regional immigrations and emigration  
(May 1983)

ORIGINE	GRANDE COTE	CAP VERT	PETITE COTE	SINE SALOUM	CASA-MANCE	TAUX D'immigration global	intra régional	inter régional
DESTINATION								
GRANDE COTE tx émig.	28,59%	0,29%	0,10%	0,00%	0,00%			
tx émig.	32,33	0,32%	0,08%	0,00%	0,00%	32,73	32,33%	0,40%
CAP VERT tx emig.	0,84%	1,67%	3,60%	0,00%	0,00%			
tx immig.	0,90%	1,73%	2,63%	0,00%	0,00%	5,25	1,73%	3,53%
PETITE C. tx émig.	7,15%	3,99%	13,46%	18,96%	0,00%			
tx immig.	8,85%	4,77%	11,37%	9,20%	0,00%	34,20	11,37%	22,83%
SINE SALOUM tx émig.	0,00%	0,00%	1,54%	4,29%	0,00%			
tx immig.	0,00%	0,00%	3,53%	5,65%	0,00%	9,18	5,65%	3,53%
CASAMANCE tx émig.	3,92%	2,47%	3,39%	7,69%	32,88%			
tx immig.	23,05%	13,99%	13,58%	17,70%	9,88%	78,19	9,88%	68,31%
Taux d'emig. global	40,50%	8,41%	22,10%	30,95%	32,88%			
intra-régional	28,59%	1,67%	13,46%	4,29%	32,88%			
Inter-régional	11,91%	6,74%	8,63%	26,65%	0,00%			

Source of data : SOCECO PECHART, 1985

Table 4. Evolution of regional immigration rates between 1981 and 1989 cold seasons.

REGIONS	ANNEES	1981	1983	1985	1987	1988	1989	1990
!GRANDE COTE								
!Pirogues présentes		1072	1262	1297	1210	1025	1187	1393
!Pirogues venues en migration		376	413	393	383	438	423	478
!Taux global d'immigration		35,07%	32,73%	30,30%	31,65%	42,73%	35,64%	34,31%
!Pirogues de la même région			408	384	376	438	412	475
!Taux d'immigration intra-régional			32,33%	29,61%	31,07%	42,73%	34,71%	34,10%
!Pirogues d'autres régions			5	9	7	0	2	3
!Taux d'immigration inter-régional			0,40%	0,69%	0,58%	0,00%	0,17%	0,22%
!CAP VERT								
!Pirogues présentes		1372	1333	1360	1309	1412	1386	16,27
!Pirogues venues en migration		127	70	171	214	273	266	430
!Taux global d'immigration		9,26%	5,25%	12,57%	16,35%	19,33%	19,19%	26,43%
!Pirogues de la même région			23	58	76	65	79	99
!Taux d'immigration intra-régional			1,73%	4,26%	5,81%	4,60%	5,70%	6,08%
!Pirogues d'autres régions			47	113	138	208	187	331
!Taux d'immigration inter-régional			3,53%	8,31%	10,54%	14,73%	13,49%	20,34%
!PETITE COTE								
!Pirogues présentes		1007	1152	1242	1105	1334	1189	1448
!Pirogues venues en migration		335	394	554	476	541	453	537
!Taux global d'immigration		33,27%	34,20%	44,61%	43,08%	40,55%	38,10%	37,09%
!Pirogues de la même région			131	175	162	153	141	155
!Taux d'immigration inter-régional			11,37%	14,09%	14,66%	11,47%	11,86%	10,70%
!Pirogues d'autres régions		9,26%	263	379	314	388	312	382
!Taux d'immigration inter-régional			22,83%	30,52%	28,42%	29,09%	26,24%	26,38%

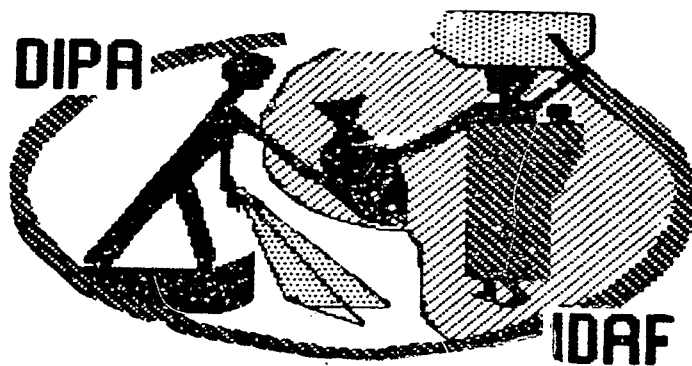
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