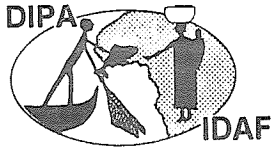


PROGRAMME FOR INTEGRATED DEVELOPMENT OF ARTISANAL FISHERIES IN WEST AFRICA

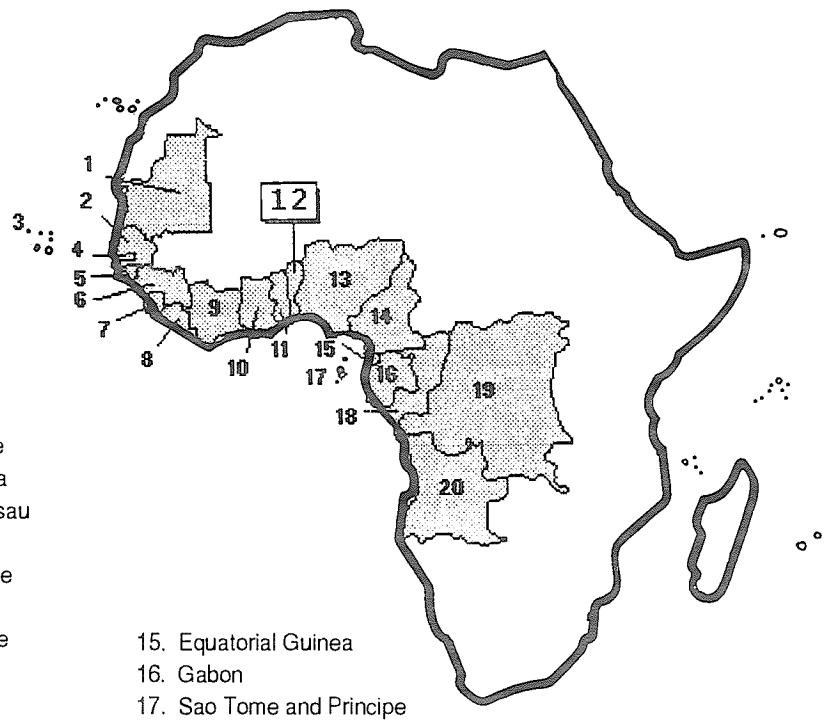
IDAF PROGRAMME

Technical Report N° 59

October 1994

Accidental Death and Destruction in Artisanal Canoes:

A retrospective study of the years 1989-1991 along the coast of Guinea (Conakry) West Africa



1. Mauritania
2. Senegal
3. Cape Verde
4. The Gambia
5. Guinea Bissau
6. Guinea
7. Sierra Leone
8. Liberia
9. Côte d'Ivoire
10. Ghana
11. Togo
12. **Benin**
13. Nigeria
14. Cameroon
15. Equatorial Guinea
16. Gabon
17. Sao Tome and Principe
18. Congo
19. Zaire
20. Angola

DANIDA

DEPARTMENT OF INTERNATIONAL DEVELOPMENT COOPERATION OF DENMARK

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Technical Report N° 59 October 1994

Accidental Death and Destruction in Artisanal Canoes:

A retrospective study of the years 1989-1991 along the coast of Guinea (Conakry) West Africa

by

Jan Peter Johnson (FAO)
and
Joachim AlphaTouré
(Office pour la Promotion de la Pêche Artisanale, Guinée)

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
Cotonou, October 1994

For bibliographic purposes this document
should be cited as follows:

J.P. Johnson, J.A. Touré., - Accidental death and destruction in artisanal canoes in 1994 Guinea (Conakry), 1989 - 1991. Cotonou, Programme for the Integrated Development of Artisanal Fisheries in West Africa, IDAF/WP/59. 21pages.

IDAF Project
FAO
P.O. Box 1369
Cotonou, Republic of Benin

Telex: 5291 FOODAGRI Fax: (229) 33.05.19 Tel: (229) 33.09.25

TABLE OF CONTENTS

1. SUMMARY

Fishing is well known to be a dangerous occupation, but little hard information has been gathered on the hazards of the artisanal canoe sector in West Africa. This report presents the results of a retrospective sea safety survey in Guinea, which covered the years 1989 - 1991. The investigation, commissionned by the Guinean national working group on artisanal safety at sea and executed with technical assistance from IDAF, used a specially adapted accident case study questionnaire to gather information for the relevant period from over 80 % of the marine artisanal sector in Guinea.

At a national level, 225 major canoe accidents were documented in the study, revealing a three year death toll of 110 persons, 68 reported injuries, and equipment losses corresponding to US $ 285,000. For reasons explained in the text, the number of death is thought to be considerably under reported. The fatalities are about evenly divided between fishing boats and transport canoes. The calculated death rate, all types of canoes combined, corresponds to 0,5 % of the 6894 registered fishermen dying each year in accidents at sea.

Suggestions are presented with respect to national authorities undertaking similar analyses of their artisanal sea safety situation on an annual basis.

2. Surviving at Sea

Fishing is an inherently dangerous occupation conducted in an environment which easily turns hostile, where men can survive only by virtue of good equipment, professional skill, courage, and self-reliance.

Sometimes these virtues are not enough, and people die, people are injured, or equipment needed for the fisherman's economic survival is lost.

There has been little hard information on the extent of artisanal accidents. Knowledge on these things in most countries is largely anecdotal, coming from conversations with fishermen and others involved in the artisanal sector. Artisanal fisheries accidents in West Africa in general have often been under-reported and undocumented, and almost never analyzed.

In the absence of hard information, it is difficult for governments, agencies, and the artisanal fishing sector itself to know how and where limited resources can be most effectively applied to improving the safety situation. Good information is needed on:

1. What are the major types of accidents?

2. Which types of accidents are most frequent?

3. Which types of accidents are most dangerous?

4. What appear to be the principal underlying causes of the various types of accidents?

5. Given the above information, what can be done to improve the situation?

2.1. Origins of this report

GUINEA HAS ESTABLISHED A NATIONAL WORKING GROUP ON ARTISANAL SAFETY AT SEA

In large part to find answers to the above questions, the Guinean government, with technical assistance from IDAF, decided to establish a national working group on artisanal safety at sea.

The safety at sea working group was established by inter-ministerial agreement, and is by custom under the presidency of an officer of the Guinean Navy. Members are representatives from the different groups concerned (see box).

The working group, first convened in February 1991, benefitted in its early years from technical support from FAO/IDAF's Conakry sub-office, to which in February 1992 was added technical support from a Canadian-financed national artisanal safety project executed by a Canadian NGO, the Canadian Centre for Studies and International Cooperation (CECI).

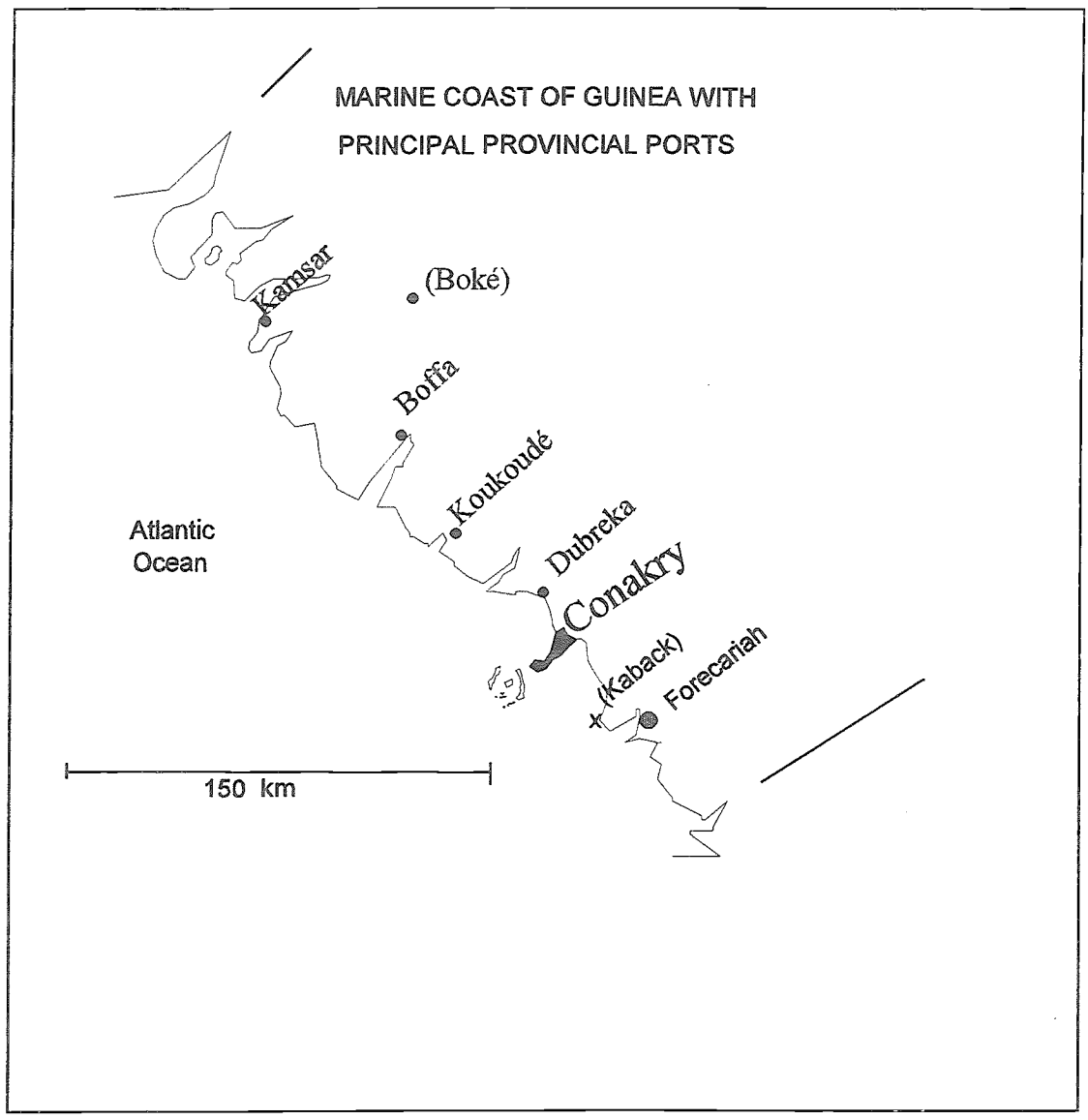
2.2.

NATIONAL WORKING GROUP ON ARTISANAL SEA SAFETY		
President	Guinean Navy	Captain Boubacar DIALLO, first presiding officer
Members	A.N.A.M.	National Port Authority
	D.N.P.A.	National Fisheries Department
	O.P.P.A.	Office for Promotion of Artisanal Fisheries
	U.R.P.A.C.	National Fishermen's Union
	ODEPAG	ADB financed Artisanal Fisheries Dev. Project
	CNSP	National Center for Fisheries Surveillance/ Protection
	C.M.B.	Boussoura Outboard Motorisation Center
	CNFPP	
	Artisanal Fisheries Field Projects	
TECHNICAL SUPPORT:		
	IDAF Sub-regional office, Conakry	
	Canada/CECI Artisanal Fisheries Safety Project, Guinea	

As one of its first actions of the Safety at Sea Working Group requested a retrospective study of canoe accidents along the Guinean coast during the preceding three years.

This first survey was carried out in the field by Mr. J. Touré (OPPA, subsequently national director of the Canadian-sponsored safety at sea project) and Mr. T. Baldé (OPPA), with the enthusiastic assistance and irreplaceable local knowledge of the national harbour authority (ANAM) officers stationed at major artisanal ports along the coast.

2.3.



2.4 Methods used for gathering and analyzing the accident information

Operating with motorbikes and (when necessary) canoes, the investigators, aided by the local representative of the national harbours authority, visited virtually all the artisanal landing sites along the coast from the Conakry peninsula north to the border with Guinea Bissau, corresponding to the maritime prefectures of Conakry, Dubreka, Boffa, and Boké. It was not possible to include the southernmost maritime prefecture of Forecariah in this particular study due to logistical problems in the rainy season. Reference to registrations of fishermen and fishing canoes indicate that more than 80% of the Guinean artisanal fishery was included in the four prefectures surveyed.

At each landing site, a meeting was called with those fishing people responsible for the landing site, as well as with other interested fishermen and boat owners. Using a report form adapted from IDAF's "Unofficial report of accident/ Safety incident" (reproduced in annex 1), the investigators asked those present to recall all the accidents which had happened in the previous three years to boats or people based at that landing site, or accidents involving boats and people from elsewhere which had occurred in their zone ("since the New Year of 1989, when .... happened.").

Safety at sea being a matter very close to the hearts of seagoing folk, there was always a lively and sometimes heated participation by local people at the landing site.

The period of three years was chosen as being long enough to get a good idea of the rate of accidents in the zone, while still being short enough that most accidents would still be reasonably well remembered. It was also important that the same recall period be used at all sites so that the rate of accidents could be compared.

The "statistics" of each accident (date, type of boat, type of accident, number of deaths, injuries, value of material loss, etc) were rapidly recorded simply by checking boxes on the first, "obligatory" page of the form. Much more thorough descriptions and analyses of what had happened were written out under appropriate standard category headings on subsequent pages whenever informants were willing and able to give such additional details.

The present report is based on an analysis of the relatively simple statistical information carried on the first page of each accident report. It thus gives a profile of **what kind** of accidents happened, what were the **losses**, and **how many** such accidents there were during the three year period.

The question of what really **caused** those accidents is not directly dealt with in this report. The questions of causes can be pursued in part by a further analysis of the six narrative description pages in each of the accident report forms, an analysis which it is hoped will be presented in a subsequent publication.

AD-HOC SURVEY OF ARTISANAL FISHING AND TRANSPORT BOAT ACCIDENTS IN WEST AFRICA: 1989-1990

UNOFFICIAL REPORT OF ACCIDENT/ SAFETY INCIDENT

Collection and analysis of this information is being coordinated by IDAF, to whom this report should be sent:

I.D.A.F. (Safety at Sea Survey)
BP 1369
COTONOU, BENIN

Date of report : ____________

Reporting agent: ____________

Contact address: ____________

REQUIRED INFORMATION (Short Form)

1. DATE(S) OF INCIDENT: ____________
2. LOCATION (Country, position at sea or port): ____________

3. NATURE: (mark all applicable boxes)

- O Property damage/loss; value: ____________
- O Bodily injury — No. injured ____________
- O Death(s) — No. dead ____________
- O Lost at sea (not found)
- O Lost/drifting (recovered) — No. days: ____________

4. APPARENT CAUSE(S)

- O Motor Failure
- O Capsize
- O Collision
- O Fire
- O On-board accident
- O Disorientation (lost)
- O Leak
- O Other: ____________

5. CONTRIBUTING FACTORS

- O Wind
- O Waves
- O Fog/mist/dust
- O Currents
- O Panic
- O Out of fuel
- O Fishing operations
- O Overloading
- O Other: ____________

6. BOAT: Approximate length: ____________

- O Transport
- O Fishing
- O Open hold
- O Decked
- O Senegalese type (planked)
- O Sierra Leone (planked)
- O Ghanaian type (dugout)
- O Other ____________

8. PROPULSION

- O Not motorised
- O Sails
- O Paddles/ oars
- O Motorised
- O Inboard
- O Outboard
- O Petrol
- O Diesel

Motor brand: ____________

Motor Hp : ____________

Analysis of the data on this page for all accidents gave the information used in this report.

3. OVERALL RESULTS FOR GUINEA: DEATH, INJURY, DAMAGE, LOSS.

A first-level analysis of the totality of accident reports gave the results shown in the following table:

GUINEA (Conakry) - ARTISANAL CANOE RELATED ACCIDENTS, DEATHS, INJURIES, AND PROPERTY LOSS: 1989-91

	Reported in 3-year period	Calculated Average per year	Total number (or value) registered	Calculated annual incidence
ACCIDENTS	225	75	1149 canoes	6.53 %
DEATHS	110	36.7	6894 fishermen	0.53 % dying
INJURIES	68	22.7	6894 fishermen	0.33 % injured
PROPERTY LOSS	285,000 USD	95,000 USD	total value of fleet: not known	% annual loss: not known

Clearly, the calculated incidence of accidents and deaths is quite high, while that of injuries is, comparatively speaking, rather low.

To what extent are the values shown above reasonably close to reality? What are some of the details and apparent causes of accident which underlie the simple consolidated figures shown above?

PROBABLE BIAS IN THE REPORTS OF KEY INFORMANTS: DEATHS ARE BETTER REMEMBERED THAN INJURIES

As mentioned previously, this study relied on voluntary key informants at artisanal landing sites recalling from their memory accidents, deaths, injury, and property loss which had occurred during the previous three year period.

Our experience was that in many cases an accident which resulted in death was reported and confirmed by several informants from the area. This was less often the case for reports of accidents without death, or for simple equipment damage and loss. Contrary to logical expectations of the reality on a small fishing canoe, the informants regularly reported more deaths than injuries.

Our hypothesis is that the fishermen tend to remember more accurately and for a uch longer time when and how one of their own members was lost. Loss of fishing equipment or non-fatal injury appear to be regarded by fishermen as much more normal occurrences, and hence be less well remembered. Support for this hypothesis comes from figures 7 - 8 and page 11.; where fishermen in three out of four coastal prefectures remembered and reported equipment higher equipment losses for more recent periods. In contrast, their reports of deaths at sea do not follow this pattern of "more recent, more losses."

3.1 OFFICIAL REPORTS COMPARED TO RETROSPECTIVE INTERVIEWS

In limited field checks in Guinea and Sénégal by the present authors (unpublished), the artisanal accident reports in one port's official register were compared with the results obtained by the present retrospective survey method.

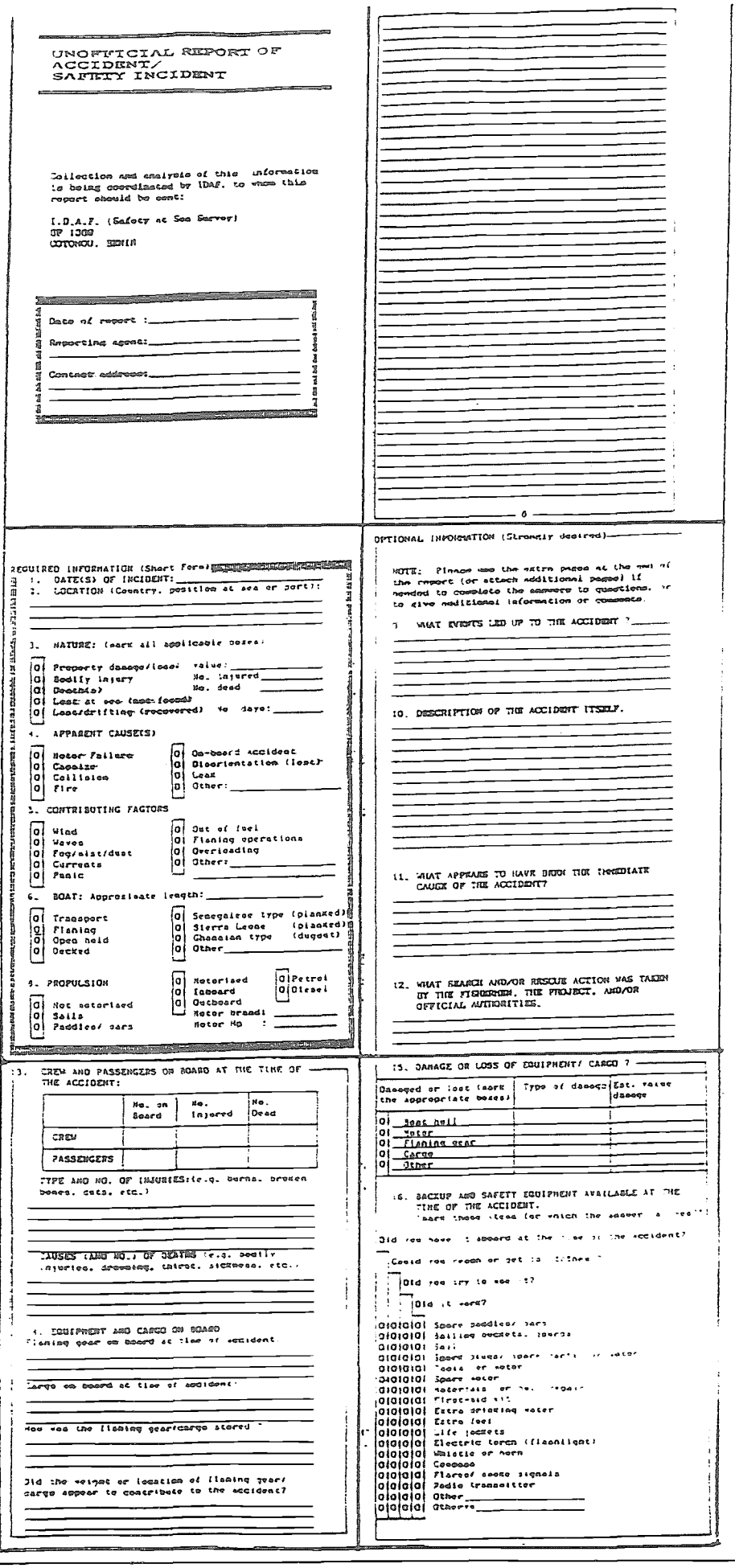
The reports of deaths in the official registers tallied closely with those reported by the interview method. Reports of accidents also tended to agree, but much less closely and with a lot of variation.

It was discovered in interviews with the port authorities responsible for recording accidents that they were aware of many accidents and injuries (but not of deaths) which they had not recorded in the official logs. Their explanation was that, unless the people involved choose to report the incident, they would just be recording hearsay. Equipment loss and injury tended to be officially recorded, at the request of those involved, when there appeared to be a possibility of litigation, accusations, or recompense. Thus a net lost to an industrial trawler would almost surely be reported (and the quantity of gear lost perhaps exaggerated?), whereas a net lost in the boat's own fishing operations would seldom be recorded in the official register. Nobody saw much point in officially reporting "normal" injuries which appear to be customarily handled "internally" by the skipper and boat-owner.
Everyone seemed to agree, however, that reports of death had always to be recorded, even if no interested party came to make a report.

STATISTICS ON DEATHS APPEAR TO GIVE THE MOST RELIABLE COMPARATIVE INDICATOR

The present authors thus suggest that the deaths reported, either in official registers or in retrospective interviews, probably reflect reality rather closely. Numbers of deaths and rates of mortality in accidents thus seem to be the most reliable indicators for comparisons of sea safety conditions across time, and between provinces and even between countries in West Africa.

It is for these reasons that the graphical analyses which follow give considerably more detailed attention to deaths, as compared to reported equipment loss and injuries.



UNOFFICIAL REPORT OF ACCIDENT/ SAFETY INCIDENT

Collection and analysis of this information is being coordinated by IDAF, to whom this report should be sent:

I.D.A.F. (Safety at Sea Server)
BP 1369
COTONOU, BENIN

Date of report : _____

Reporting agent: _____

Contact address: _____

6

REQUIRED INFORMATION (Short Form)

1. DATE(S) OF INCIDENT: _____
2. LOCATION (Country, position at sea or port): _____
3. NATURE: (mark all applicable boxes)
   - [ ] Property damage/loss: value: _____
   - [ ] Bodily injury — No. injured _____
   - [ ] Death(s) — No. dead _____
   - [ ] Lost at sea (not found)
   - [ ] Lost/drifting (recovered) — No. days: _____
4. APPARENT CAUSE(S)
   - [ ] Motor Failure
   - [ ] Capsize
   - [ ] Collision
   - [ ] Fire
   - [ ] On-board accident
   - [ ] Disorientation (lost)
   - [ ] Leak
   - [ ] Other: _____
5. CONTRIBUTING FACTORS
   - [ ] Wind
   - [ ] Waves
   - [ ] Fog/mist/dust
   - [ ] Currents
   - [ ] Panic
   - [ ] Out of fuel
   - [ ] Fishing operations
   - [ ] Overloading
   - [ ] Other: _____
6. BOAT: Approximate length: _____
   - [ ] Transport
   - [ ] Fishing
   - [ ] Open hold
   - [ ] Decked
   - [ ] Senegalese type (planked)
   - [ ] Sierra Leone (planked)
   - [ ] Ghanaian type (dugout)
   - [ ] Other _____
7. PROPULSION
   - [ ] Not motorised
   - [ ] Sails
   - [ ] Paddles/ oars
   - [ ] Motorised
   - [ ] Inboard
   - [ ] Outboard
   - [ ] Petrol
   - [ ] Diesel
   - Motor brand: _____
   - Motor HP : _____

OPTIONAL INFORMATION (Strongly desired)

NOTE: Please use the extra pages at the end of the report (or attach additional pages) if needed to complete the answers to questions, or to give additional information or comments.

9. WHAT EVENTS LED UP TO THE ACCIDENT ? _____

10. DESCRIPTION OF THE ACCIDENT ITSELF.

11. WHAT APPEARS TO HAVE BEEN THE IMMEDIATE CAUSE OF THE ACCIDENT?

12. WHAT SEARCH AND/OR RESCUE ACTION WAS TAKEN BY THE FISHERMEN, THE PROJECT, AND/OR OFFICIAL AUTHORITIES.

13. CREW AND PASSENGERS ON BOARD AT THE TIME OF THE ACCIDENT:

	No. on Board	No. Injured	No. Dead
CREW			
PASSENGERS			

TYPE AND NO. OF INJURIES:(e.g. burns, broken bones, cuts, etc.)

CAUSES (AND NO.) OF DEATHS (e.g. bodily injuries, drowning, thirst, sickness, etc.)

14. EQUIPMENT AND CARGO ON BOARD

Fishing gear on board at time of accident:

Cargo on board at time of accident:

How was the fishing gear/cargo stored ?

Did the weight or location of fishing gear/ cargo appear to contribute to the accident?

15. DAMAGE OR LOSS OF EQUIPMENT/ CARGO ?

Damaged or lost (mark the appropriate boxes)	Type of damage	Est. value damage
[ ] Boat hull		
[ ] Motor		
[ ] Fishing gear		
[ ] Cargo		
[ ] Other		

16. BACKUP AND SAFETY EQUIPMENT AVAILABLE AT THE TIME OF THE ACCIDENT.
(mark those items (or which the answer is "yes")

Did you have it aboard at the time of the accident?

Could you reach or get it (them)

Did you try to use it?

Did it work?

- [ ] [ ] [ ] [ ] Spare paddles/ oars
- [ ] [ ] [ ] [ ] Bailing buckets, (how?)
- [ ] [ ] [ ] [ ] Sail
- [ ] [ ] [ ] [ ] Inboard plugs/ spare parts for motor
- [ ] [ ] [ ] [ ] Tools for motor
- [ ] [ ] [ ] [ ] Spare motor
- [ ] [ ] [ ] [ ] Waterfalls or No. "goals"
- [ ] [ ] [ ] [ ] Fireproof kit
- [ ] [ ] [ ] [ ] Extra bricking water
- [ ] [ ] [ ] [ ] Extra fuel
- [ ] [ ] [ ] [ ] Life jackets
- [ ] [ ] [ ] [ ] Electric torch (flashlight)
- [ ] [ ] [ ] [ ] Whistle or horn
- [ ] [ ] [ ] [ ] Compass
- [ ] [ ] [ ] [ ] Flares/ smoke signals
- [ ] [ ] [ ] [ ] Radio transmitter
- [ ] [ ] [ ] [ ] Other _____
- [ ] [ ] [ ] [ ] Others _____

3.2 ACCIDENT, DEATH, AND INJURY

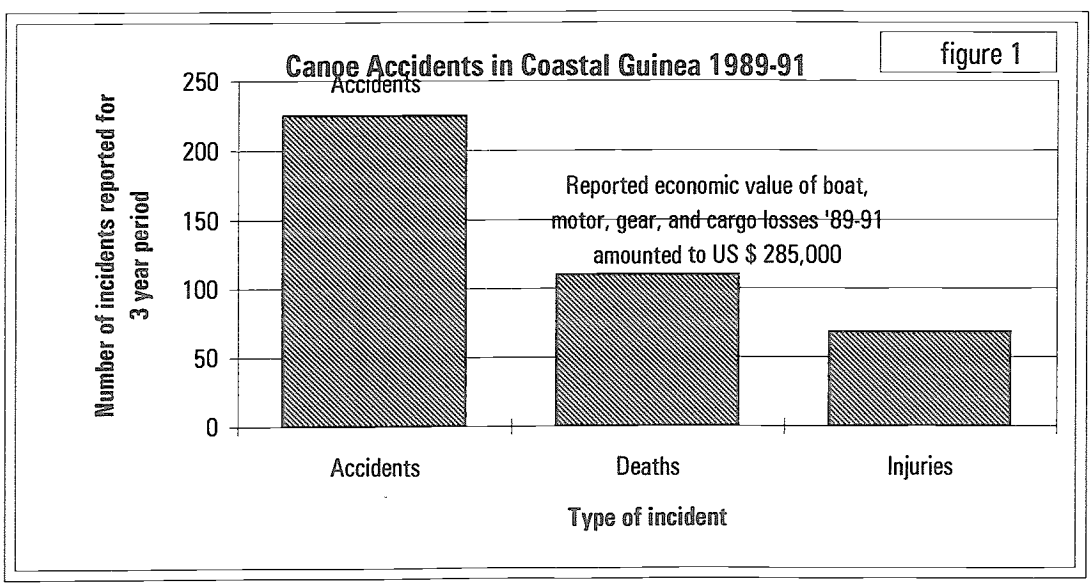
The great majority of all artisanal landing sites in the four maritime prefectures of Boké, Boffa, Dubreka, and Conakry were included in this retrospective survey which covered the years 1989-1991. The most southern maritime prefecture, Forecariah, could not be included in this survey because of logistical problems in the rainy season. Unless otherwise noted, all data in these analyses thus refer to the northern-most four prefectures. Calculating from official canoe and fishermen registrations for the prefectures, this study thus appears to cover over 80% of Guinean artisanal fishermen and canoes.

According to the information given by key informants, the 225 reported accidents resulted in nearly half as many deaths, and only one third as many injuries (Figure 1, below).

Since, for the reasons given in the previous section, it is believed that the reports of deaths were reasonably accurate, one must suppose that both accidents and injuries were considerably under-reported.

One idea of the magnitude of the sea safety problem in Guinea can come from the observation that the 110 deaths reported over a three year period came from only 120 nautical miles (not counting the two sides of the Conakry peninsula sticking out into the sea) of national coastline, giving for the three year period nearly one death per mile of coastline.

NOTE: the data used in each graph are reported in tabular form for those readers who might wish to make further use of the information.



Property loss by year and prefecture in US $ equivalent				
Prefecture	1989	1990	1991	Total
Boke	1415	34179	1739	37333
Boffa	5721	27236	47579	80536
Dubreka	4256	6953	11745	22954
Conakry	32904	52985	59017	144906
TOTAL				285729

Total accidents, deaths, and injuries 1989-1991			
Accidents	225		
Deaths	110		
Injuries	68		

3.3 NUMBERS OF FISHERMEN, AND THE RATE AT WHICH THEY DIE

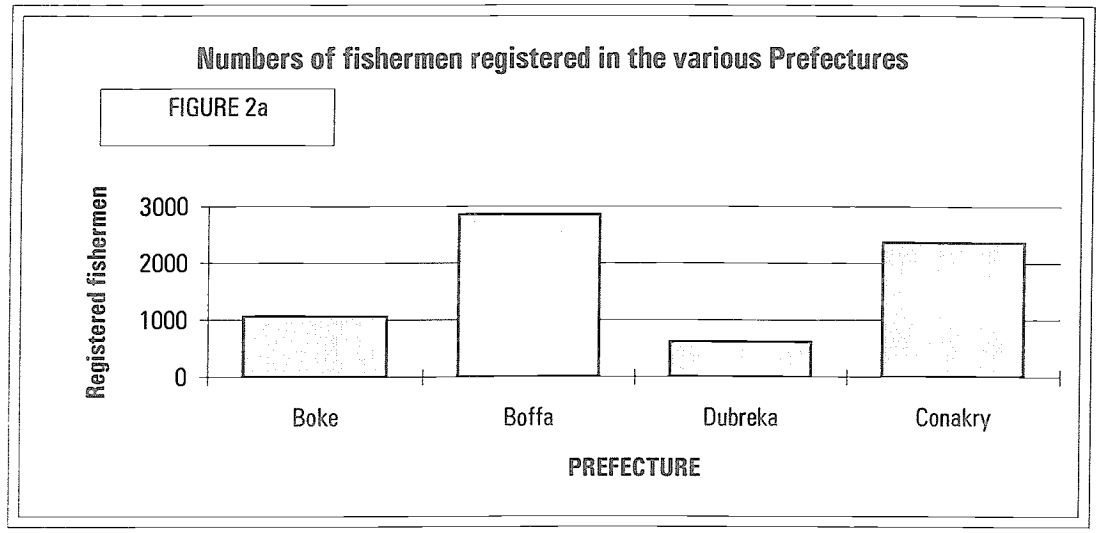
The numbers of fishermen registered varies considerably for each coastal prefecture, as shown in Graph 2a on the facing page.
It should be remembered that these represent officially registered fishermen, and that the percentage of active fishermen and the degree of their activity, as well as the proportions of different fishing gears and degree of motorisation of the canoe fleet, will vary significantly between prefectures. In addition, fishermen from one prefecture often fish in the waters of another prefecture.

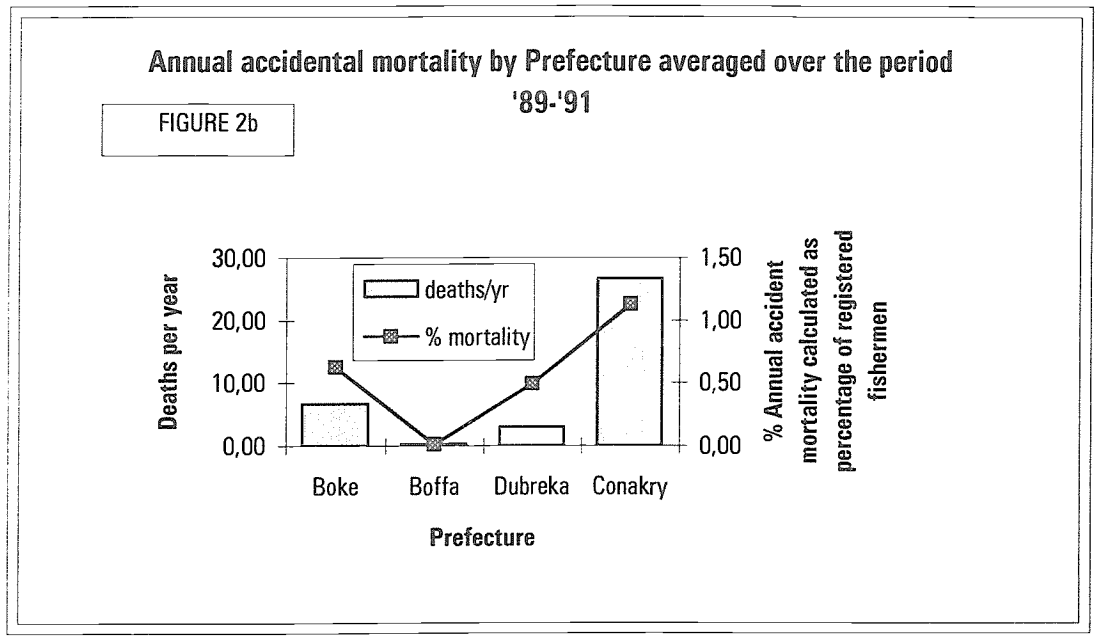
Nonetheless, the number of officially registered fishermen remains the best available indicator for the number of real fishermen active in a prefecture, and thus essential for determining where along the coasts the safety problems are most severe.

Average deaths per year have been calculated for each prefecture (see bars in Figure 2b), as has the annual percentage mortality for each prefecture (line in Figure 2b). The severity of the mortality at sea problem varies from practically nothing for Boffa (with only partly motorised, estuarine fisheries) to an astounding 1.13% per year for Conakry.

It should be noted that, for this graph, deaths due to artisanal transport canoes (about 55% of the total) have been included with deaths attributed to fishing canoes. This is because in the absence of information regarding the annual number of transport canoe passengers a separate calculation of transport canoe risk is not possible.

Lumping together transport and fishing mortalities thus does exaggerate the risk to active fishermen, but by including the fish traders and members of fishermens families, who are the people usually carried on transport canoes, this procedure probably manages to give a clearer picture of the risk of death in artisanal canoes in the different prefectures.





PREFECTURE		Deaths in 3 years	Average deaths/yr	Registered fishermen		annual % mortality
Boke		20	6,67	1068		0,62
Boffa		1	0,33	2850		0,01
Dubreka		9	3,00	612		0,49
Conakry		80	26,67	2364		1,13
TOTAL		110	36,67	6894		0,53

3.4 MOTORISED versus NON-MOTORISED TRANSPORT versus FISHING CANOE

Figure 3a shows that only about 10% of the total deaths have occurred in non-motorised canoes. Unfortunately, there is no reliable data on the number of trips or even of the number of non-motorised canoes, compared to the motorised ones. It is thus not possible to say, on the basis of this study, whether non-motorised canoes are more or less safe than motorised canoes.

As discussed earlier, the reports of accidents are highly variable, and do not appear to form an accurate basis for detailed comparisons.

What can be said is that far more people die in motorised canoes, and that this is probably where the first efforts at improving the situation should be directed.

Figure 3b compares the situation between canoes used for transport and those used for fishing. In Guinea the both (except for very small dugout canoes for fishing) transport and fishing canoes are constructed by identical methods using planks nailed on grown frames. While large fishing canoes can be used for transport, most often transport canoes are significantly longer, wider, and heavier.

Transport canoes are almost universally propelled by a single 40hp outboard on a transom which sits very low in the water.

Deaths are about evenly divided between fishing (45%) and transport (55%).

Worth noting is that a very small number of transport canoe accidents (12 accidents out of 225 reported) gave rise to slightly over half the fatalities for Guinea. It should be kept in mind, however, that many of the total number of accidents reported for fishing canoes involved non-fatal and non-injurious loss of fishing nets.

Clearly, both fishing and transport canoe situations need serious attention.

FIGURE 3a

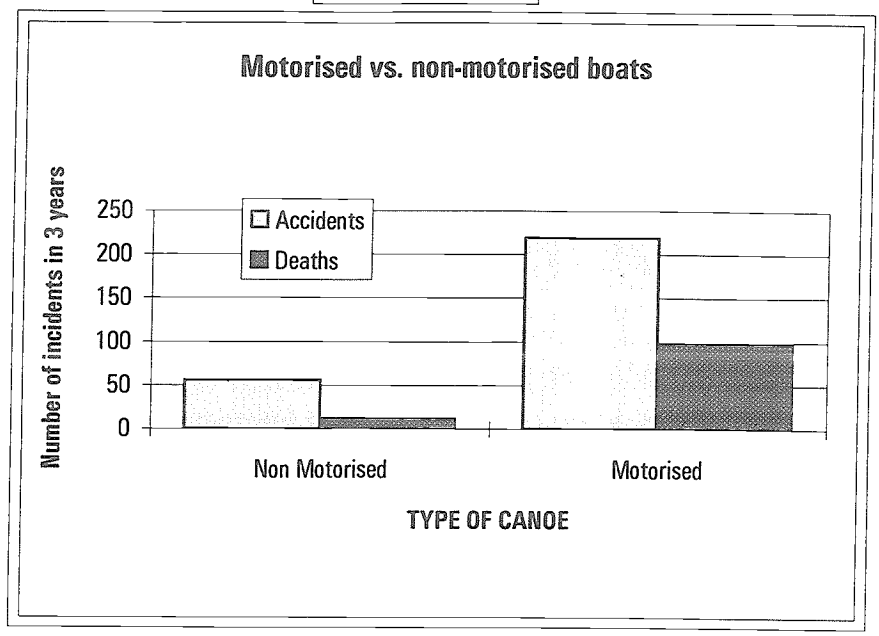
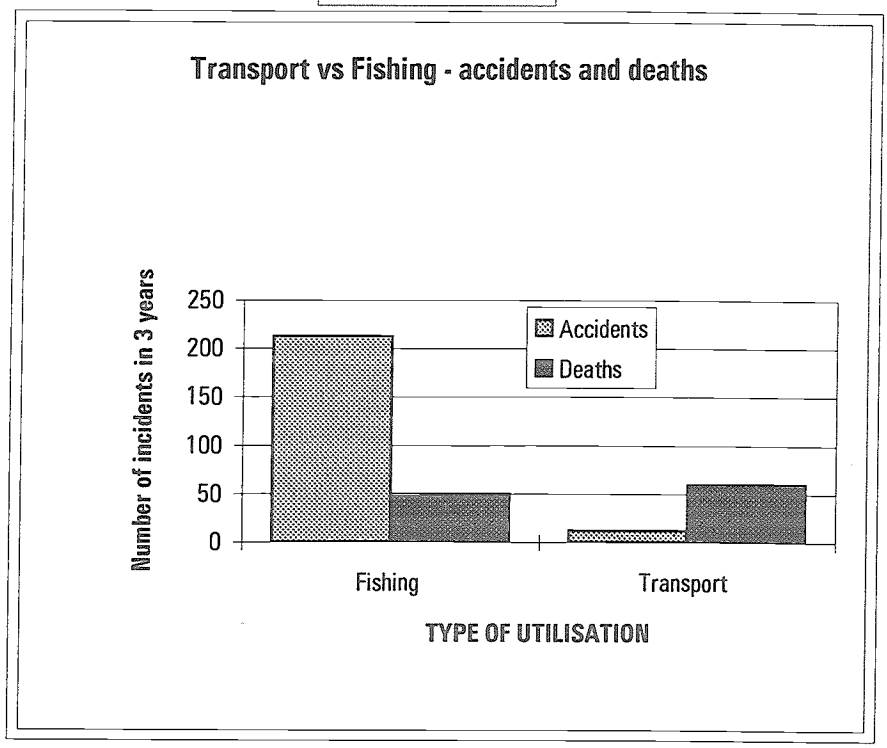


FIGURE 3b



3-Year Period 1989-1991

Motorised vs non-motorised		
	Accidents	Deaths
Non Motori	56	12
Motorised	219	98

Fishing vs. Transport canoes		
	Accidents	Deaths
Fishing	213	50
Transport	12	60

3.5 HOW MANY DIE IN EACH ACCIDENT?

Figure 4a shows, not too surprisingly, that accidents which manage to kill one or two people are much more frequent than accidents in which fourteen people die at one time. Thus, if one were interested in decreasing the number of fatal accidents it would appear that most attention should be focused on the causes of accidents in which one or two people died.

On the other hand, Figure 4b plots the total number of fatalities due to accidents of different sizes. From this presentation it is clear that 45% of the total fatalities were accounted for by only four accidents in which 10 to 14 people died on each occasion.

A programme to reduce fatalities will thus be obliged to take into consideration the causes - and the possible cures - of fatal accidents running the entire gamut of magnitudes.

Number dead per accident			Total	Total number of dead		Total
	Transport	Fishing	Accidents	Transport	Fishing	Deaths
1	5	15	20	5	15	20
2	1	6	7	2	12	14
3	0	2	2	0	6	6
4	1	1	2	4	4	8
5	0	0	0	0	0	0
6	1	0	1	6	0	6
7	1	0	1	7	0	7
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	1	0	1	10	0	10
11	0	0	0	0	0	0
12	1	0	1	12	0	12
13	0	1	1	0	13	13
14	1	0	1	14	0	14
TOTAL	12	25	37	60	50	110

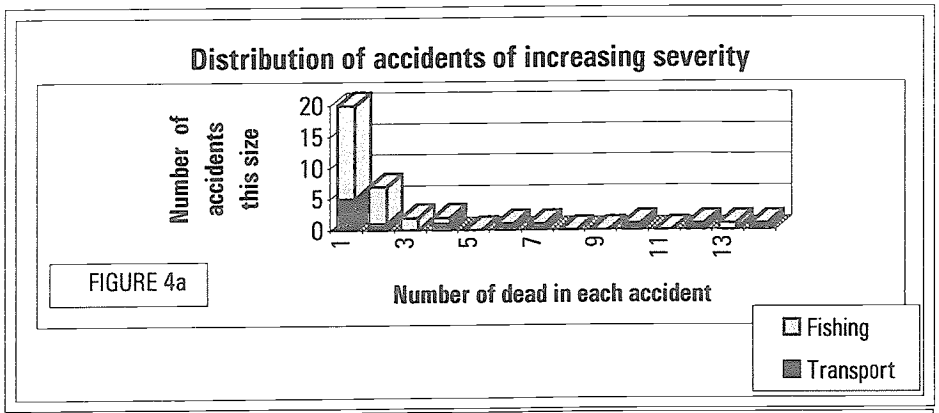


FIGURE 4a

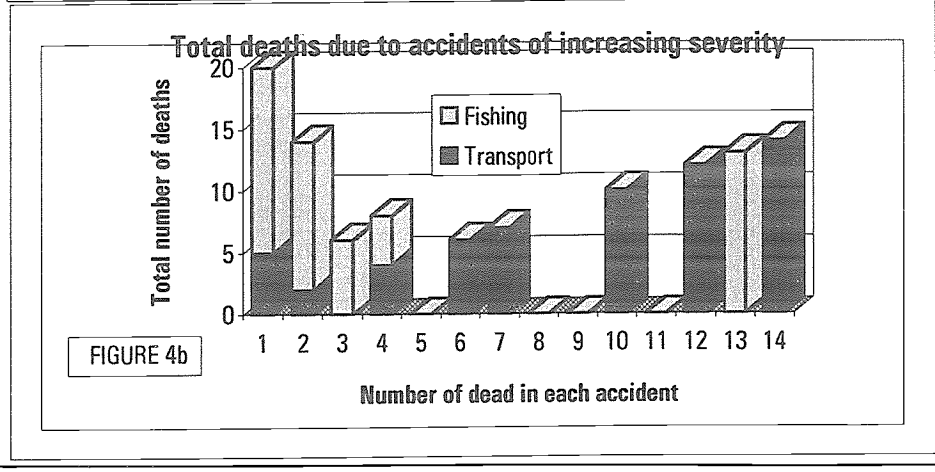


FIGURE 4b

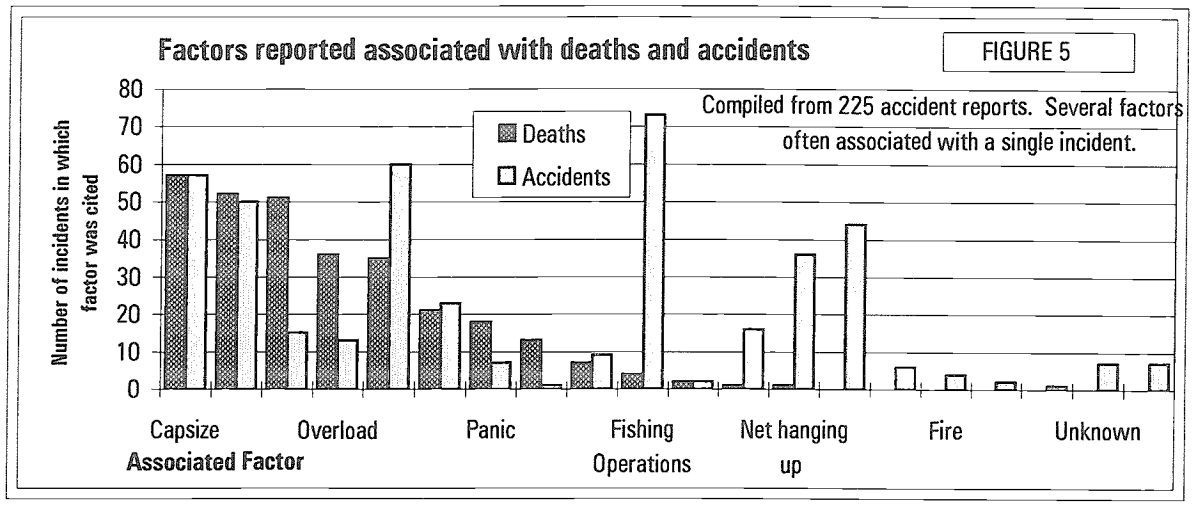
4. FACTORS REPORTED ASSOCIATED WITH DEATHS AND ACCIDENTS

Informants were asked to indicate what, in their opinion or in the facts which had been related to them, were the factors associated with each accident . A single accident could and often did have several factors reported associated with it. These "reported associated factors" have been plotted in Figure 5 according to the frequency with which they were cited, first with regard to fatal accidents, and then for factors which had not been reported for any fatal accidents.

In the view of those reporting the accidents, capsize, wind, disorientation, overload, waves, and waves were the most important factors associated with fatalities.

The profiles for "accidents" were similar to those for "deaths", with a few notable exceptions:

Waves were cited in the aggregated accident reports somewhat more frequently than was the case for fatal accidents, while fishing operations were cited as a factor in 73 accidents but in only 4 fatalities. Thirty-six net hangups (only 1 fatality) and 44 cases of nets being destroyed by trawlers (0 fatalities) were reported.



PRINCIPAL CAUSES OF ACCIDENTS AND DEATHS

	Deaths	Accidents
Capsize	57	57
Wind	52	50
Disorientation	51	15
Overload	36	13
Waves	35	60
Motor failure	21	23
Panic	18	7
Fog	13	1
Currents	7	9
Fishing Operations	4	73
Out of fuel	2	2
Grounding	1	16
Net hanging up	1	36
Net destroyed by trawler		44
Collision		6
Fire		4
Fights		2
Leaks		1
Unknown		7
Other		7

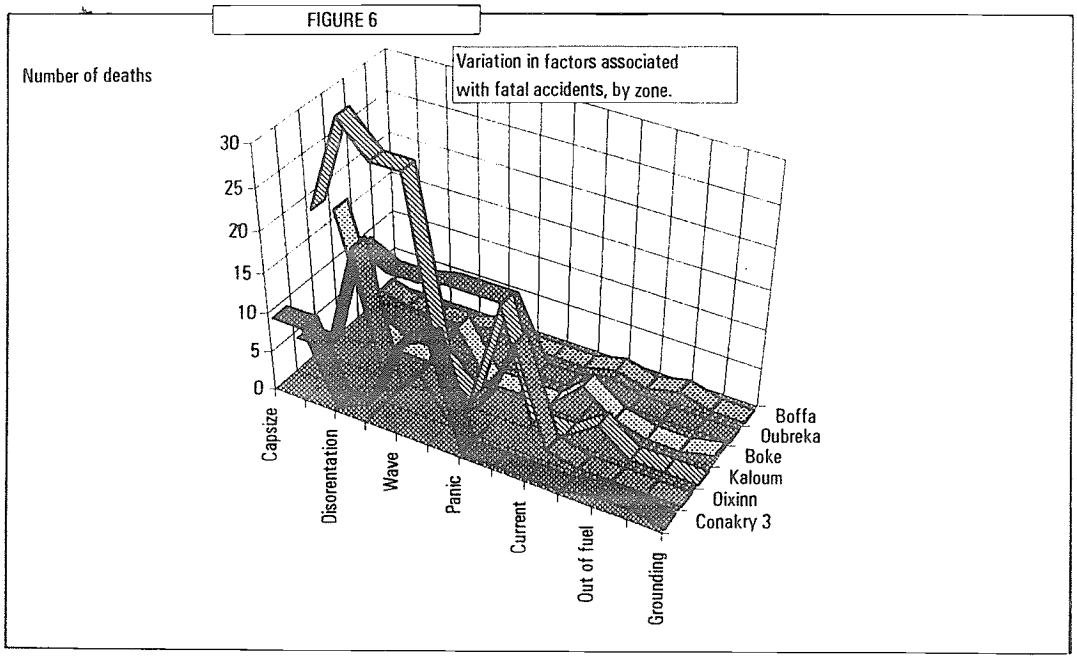
4.1 GEOGRAPHIC VARIATION IN FACTORS ASSOCIATED WITH FATAL ACCIDENTS

Grouping all the prefectures together can obscure important local variations in the origins of accidents. This is seen clearly in Figure 6, where the factors associated with fatal accidents are presented according to the port of origin of the canoe involved.

Although the number of accidents for each area of origin is statistically small enough that one good deadly accident could significantly change a profile, some clues which merit further investigation can be seen.

In Boké prefecture, for example, current and waves seem to be strongly associated with fatal accidents. Although this is perhaps not surprising considering that the principal artisanal port of Boké is located on a large estuary with very fast tidal currents, such data does confirm possible directions in which to look in seeking solutions.

FIGURE 6



Associated Factor	Factors reported associated with mortal accidents, by coastal zone						
	COASTAL ZONE INVOLVED:						Total
	Conakry 3	Dixinn	Kaloum	Boke	Dubreka	Boffa	Deaths
Capsize	9	4	18	16	9	1	57
Wind	9	4	30	2	7	0	52
Disorentation	0	18	26	0	7	0	51
Overload	2	0	26	0	8	0	36
Wave	11	5	4	6	8	1	35
Engine Failure	13	0	0	0	8	0	21
Panic	0	4	14	0	0	0	18
Fog	0	13	0	0	0	0	13
Current	0	1	0	4	1	1	7
Fishing operations	0	0	3	1	0	0	4
Out of fuel	1	0	0	0	0	1	2
Net hangup	1	0	0	0	0	0	1
Grounding	0	0	0	1	0	0	1

NOTES:
1. Conakry 3, Dixinn, and Kaloum are all sub-districts of Conakry.
2. Many fatal incidents were reported to result from several associated factors.

4.2 VARIATIONS IN EQUIPMENT LOSSES BY YEAR AND PREFECTURE

As mentioned earlier in the discussion, there are reasons to feel that the number of accidental equipment losses may be under reported, while it is possible that for at least some of those incidents reported the magnitude of the economic loss may be exaggerated.

Nonetheless, consideration of the differences in reported equipment loss through time and across prefectures can be of interest.

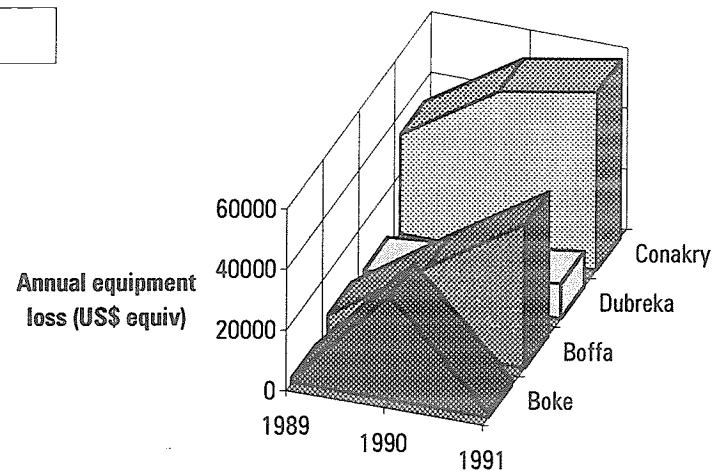
Figure 7 shows that both Conakry and Boffa tend to have important equipment losses, while for Dubreka and Boké (with the exception of 1990 for Boké) the total value of the losses is not so high.

Unfortunately, in the absence of reasonable guesses as to the total value of equipment in use in each of these prefectures it is not possible to calculate even an approximate loss rate. Thus, it is quite possible that, although Dubreka has the lowest reported physical losses, since it also has the smallest number of registered fishermen this loss may be extremely important to them.

Although the calculation of loss per registered fisherman is not a reliable index of the percentage economic importance of equipment loss, it is presented in the absence of any better indicator. It should not, however, be taken by itself as a comparator for the importance of equipment loss problems in comparing the situation of different prefectures.

Variations in equipment losses by year and prefecture

FIGURE 7



Property loss by year and prefecture in US $ equivalent				
Prefecture	1989	1990	1991	TOTAL
Boke	1415	34179	1739	37333
Boffa	5721	27236	47579	80536
Dubreka	4256	6953	11745	22954
Conakry	32904	52985	59017	144906
TOTAL				**285729**

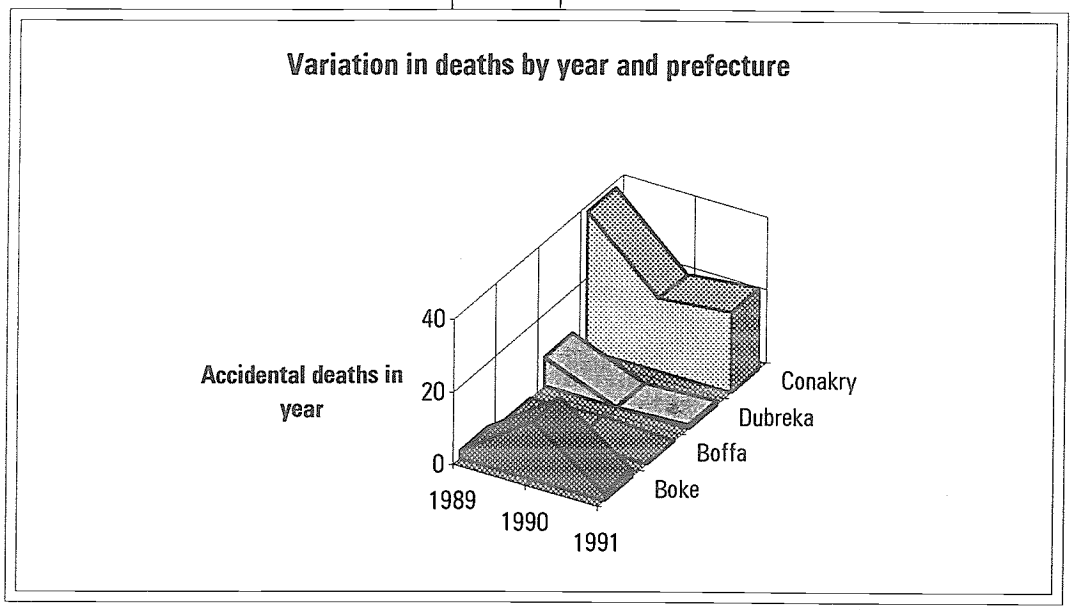
4.3 VARIATION IN FATAL ACCIDENTS BY YEAR AND BY PREFECTURE

Figure 8 makes it abundantly clear that the greatest loss of life comes in Conakry prefecture, followed by Boké. It is also clear that the rate of fatalities changes enormously from one year to the next. Two lessons can be drawn from this figure:

1. Focusing efforts on Conakry and Boké prefectures could have the greatest potential for reducing mortality. Hopefully the lessons learned from these two prefectures can then be more easily applied to the lesser problems of Boffa and Dubreka.

2. A decrease (or increase) in rate of fatalities for one or two years may reflect only a statistical variation due to the occurrence (or absence) of one bad storm or one particulary deadly accident. Changes in overall fatality rate for one or two years should thus not be taken as a reliable indicator of a change in situation. On the other hand, a significant change in the number of one or two death accidents, rather than the grand total of fatalities, may well indicate that something is changing for the better, or for the worse.

FIGURE 8



Reported deaths by year and by prefecture				
Deaths	1989	1990	1991	TOTAL
Boke	2	16	2	20
Boffa	0	1	0	1
Dubreka	8	0	1	9
Conakry	38	20	22	80
TOTAL	48	37	25	110

5. CONCLUSIONS

The data and analyses reported here show that Guinea has a safety at sea problem which is relatively important. The difficulties are different depending on which coastal zone is involved, but many elements are common to all the coast.

This paper has deliberately confined itself to statistical profiles concerning accidents at sea. It does not really go into the underlying causes of individual accidents, a question which must be pursued separately by analyzing the detailed accident case histories which were compiled as part of this and other similar sea safety studies along the West African coast.

It seems likely that Guinea, and other similarly situated coastal countries which were interested, could use the accident report approach and graphical type of analyses presented here to monitor their own sea safety situation. Indeed, one of the authors of this paper has, with IDAF support, subsequently worked in Senegal to help them institute a similar accident study and analysis.

A government agency whose mission gave it reason to look into artisanal sea safety affairs could have its field agents record serious accidents (and especially fatal ones) as they happen. Retrospective surveys could be undertaken at least once a year at more remote landing sites which do not have a permanent field officer. The results could then be analyzed, presented, and published annually as a guide to whether the situation is getting better or worse.

The responsible agency could also make available each month to local port authorities and fishermen's associations brief case studies of fatal or otherwise serious accidents which occurred in the country in previous months. Such case histories are of absorbing interest to practising fishermen and boatowners, and could form one of the most effective channels for making operators more aware of what pitfalls have been killing their colleagues, and thus cause them to be more likely to take some of the appropriate precautions themselves.

Artisanal fisheries, like any other artisanal business, is carried out with close attention to keeping the investment and operating costs to a minimum, else they would eat up all the potential profits. This economic principal probably applies equally well to the investment and operating costs for improving the safety prospects of individual canoes, for setting up and operating programmes to improve the safety situation, and for possible search and rescue operations.

Because of questions of scale, of space and conditions on board even very large canoes, and the types of organisation involved in fishing canoe fleets, not all of the techniques, technologies, and systems which have been developed and proven effective for larger, more industrial type vessels will be technologically and economically appropriate for fishing canoes.

One of the major tasks facing national artisanal safety committees, and safety projects which may be assisting them, will be to:

1. Carefully study the underlying causes of the accidents, deaths, injuries, and equipment losses in their national fleets.

2. Propose appropriate measures for dealing with those underlying causes.

3. Test those proposed solutions under real field conditions, comparing the results of boats operating under "improved" regimes with those from boats operating "business as usual".

4. Assist the national canoe fleet in setting up support systems which allow them to adopt and use those safety measures which have proven most appropriate for the local conditions.

In this way the artisanal fishing sector and its partners can develop and adapt approaches suited to their own needs and possibilities.

LISTE DES RAPPORTS DIPA - LIST OF IDAF REPORT

I. Documents techniques / Technical documents

De Graauw, M.A., Etude de préfactibilité technique de l'aménagement d'abris pour la pêche maritime
1985 artisanale au Bénin. Cotonou, Projet DIPA. 55 p., DIPA/WP/1.

Black Michaud, M.J., Mission d'identification des communautés littorales de pêcheurs artisans au
1985 Bénin. Cotonou, Projet DIPA, 24 p., DIPA/WP/2.

Gulbrandsen, O.A., Preliminary account of attempts to introduce alternative types of small craft into
1985 West Africa. Cotonou, IDAF Project, 51 p., IDAF/WP/3.

Gulbrandsen, O.A., Un compte-rendu préliminaire sur les tentatives d'introduire des types alternatifs
1985 de petites embarcations en Afrique de l'Ouest. Cotonou, Projet DIPA, 53 p., DIPA/WP/3.

Jorion, P.J.M., The influence of socio-economic and cultural structures on small-scale coastal fishe-
1985 ries development in Bénin. Cotonou, IDAF Project, 59 p., IDAF/WP/4.

Jorion, P.J.M., L'influence des structures socio-économiques sur le développement des pêches artisa-
1985 nales sur les côtes du Bénin. Cotonou, Projet DIPA, 59 p., DIPA/WP/4.

Tandberg, A., Preliminary assessment of the nutritional situation of subsistence fishermen's families.
1986 Cotonou, IDAF Project, 31 p., IDAF/WP/5.

Wijkstrom, O., Recyclage des personnels pêche en gestion et comptabilité. Cotonou, Projet DIPA,
1986 25p., DIPA/WP/6.

Collart, A., Development planning for small-scale fisheries in West Africa, practical and socio-
1986 economic aspects of fish production and processing. Cotonou, IDAF Project, 34 p., IDAF/WP/7.

Collart, A., Planification du développement des pêches artisanales en Afrique de l'Ouest; production
1986 et traitement du poisson, ses aspects matériels,techniques et socio-économiques. Cotonou, Projet DIPA, 67 p., DIPA/WP/7.

Van der Meeren, A.J.L., Socio-economic aspects of integrated fisheries development in rural fishing
1986 villages. Cotonou, IDAF Project, 29 p., IDAF/WP/8.

Haling, L.J., et O. Wijkstrom, Les disponibilités en matériel pour la pêche artisanale. Cotonou, Pro-
1986 jet DIPA, 47 p., DIPA/WP/9.

Akester, S.J., Design and trial of sailing rigs for artisanal fisheries of Sierra Leone. Cotonou, IDAF
1986 Project, 31 p., IDAF/WP/10.

Vétillart, R., Rapport détude préliminarie sur l'aménagement d'un abri pour la pêche maritime artisa-
1986 nale à Cotonou. Cotonou, Projet DIPA, 31 p., DIPA/WP/11.

Van Hoof, L., Small-scale fish production and marketing in Shenge, Sierra Leone. Cotonou, IDAF
1986 Project, 36 p., IDAF/WP/12.

Everett, G.V., An outline of West African small-scale fisheries. Cotonou, IDAF Project, 32p., IDAF/
1986 WP/13.

Anon., Report of the second IDAF liaison officers meeting; Freetown, Sierra Leone (11 - 14 No-
1987 vember 1986). Cotonou, IDAF Project, 66 p., IDAF/WP/15.

Anon., Compte-rendu de la deuxième réunion des officiers de liaison du DIPA. Cotonou, Projet
1987 DIPA, 27 p., DIPA/WP/16.

Campbell, R.J., Report of the preparatory technical meeting on propulsion in fishing canoes in West
1987 Africa (Freetown, 15-18 November 1986). Cotonou, IDAF Project, 88 p., IDAF/WP/17.

Davy, D.B., Seamanship, Sailing and Motorisation. Cotonou, IDAF Project, 85p., IDAF/WP/18. 1987

Anum-Doyi, B., and J. Wood, Observations on fishing methods in West Africa. Cotonou, IDAF Pro- 1988 ject, 53 p., IDAF/WP/19.

Anon., Report of the third IDAF liaison officers meeting (Cotonou, 2 - 4 December 1987). Cotonou, 1988 IDAF Project, 88 p., IDAF/WP/20.

Anon., Compte-rendu de la troisième réunion des officiers de liaison du DIPA (2-4 Décembre 1987). 1988 Cotonou, Projet DIPA, 85 p., DIPA/WP/20.

Haakonsen, J.M. (Ed.) Recent developments of the artisanal fisheries in Ghana. Cotonou, IDAF Pro- 1988 ject, 69 p., IDAF/WP/21.

Everett, G.V., West African marine artisanal fisheries. Cotonou, IDAF Project, 41 p., IDAF/WP/22. 1988

Everett, G.V., Les pêches maritimes artisanales en Afrique de l'Ouest. Cotonou, Projet DIPA, 44 1988 p., DIPA/WP/22.

Coackley, A.D.R., Observations on small fishing craft development in West Africa. Cotonou, IDAF 1989 Project, 22 p., IDAF/WP/23.

Zinsou, J. et W. Wentholt, Guide pratique pour la construction et l'introduction du fumoir "chorkor". 1989 Cotonou, Projet DIPA, 33 p., DIPA/WP/24.

Zinsou, J. and W. Wentholt, A practical guide to the construction and introduction of the chorkor 1989 smoker. Cotonou, IDAF Project, 29 p., IDAF/WP/24.

Chauveau, J.P., F. Verdeaux, E. Charles-Dominique et J.M. Haakonsen, Bibliographie sur les com- 1989 munautés de pêcheurs d'Afrique de l'Ouest - Bibliography on the fishing communities in West-Africa. Cotonou, Projet DIPA - IDAF Project, 220 p., DIPA-IDAF/WP/25.

Everett, G.V., Small-scale fisheries development issues in West Africa. Cotonou, IDAF Project, 1989 47p., IDAF/WP/26.

Everett, G.V., Problèmes de développement de la pêche artisanale en Afrique de l'Ouest. Cotonou, 1989 Projet DIPA, 49 p., DIPA/WP/26.

Haakonsen, J.M., et W. Wentholt, La pêche lacustre au Gabon. Cotonou, Projet DIPA, 36p., DIPA 1989 /WP/27.

Anon., Report of the ad hoc technical meeting on artisanal fisheries craft, propulsion, gear and secu- 1990 rity in the IDAF region; Cotonou, 25 - 26 September 1989. Cotonou, IDAF Project, 111 p., IDAF/WP/28.

Anon., Report of the fourth IDAF liaison officers meeting (Dakar, 21 - 23 November 1989). 1990 Cotonou, IDAF Project, 135 p., IDAF/WP/29.

Anon., Compte-rendu de la quatrième réunion des officiers de liaison du DIPA. Cotonou, Projet 1990 DIPA, 121 p., DIPA/WP/29.

Houndékon, B.R., D.E. Tempelman and A.M. IJff, Report of round table meeting on women's 1990 activities and community development in artisanal fisheries (projects) in West Africa. Cotonou, IDAF Project, 12 p. + annexes, IDAF/WP/30.

Houndékon, B.R., D.E. Tempelman et A.M. IJff, Rapport du séminaire sur les activités féminines 1990 et le développement communautaire dans les projets de pêches artisanales en Afrique de l'Ouest. Cotonou, Projet DIPA, 14 p. + annexes, DIPA/WP/30.

IJff, A.M., Socio-economic conditions in Nigerian fishing communities. Based on studies along the 1990 Benin and Imo river estuaries. Cotonou, IDAF Project, 113 p., IDAF/WP/31.

Okpanefe, M.O., A. Abiodun and J.M. Haakonsen, The fishing communities of the Benin River es- 1991 tuary area: Results from a village survey in Bendel State, Nigeria. Cotonou, IDAF Project, 75 p., IDAF/WP/32.

Horemans B., 1993 - La situation de la pêche artisanale en Afrique de l'Ouest en 1992. Cotonou. Programme de Développement Intégré des Pêches Artisanales en Afrique de l'Ouest, 36 p., DIPA/WP/47.

Kébé, M., Njock J.C. et Gallène J.- 1993 Revue sectorielle de la pêche maritime au Cameroun. Programme de Développement Intégré des Pêches Artisanales en Afrique de l'Ouest (DIPA), 30 p. + annexes, DIPA/WP/48.

Kébé, M., Njock, J.C. and Gallène, J. R., 1993 Sectoral review of marine artisanal fishery in Cameroon. Cotonou, IDAF Project 33p., IDAF/WP/48

Anon., 1993 Report of the Working Group on Artisanal Fisheries Statistics for the Western Gulf of Guinea, Nigeria and Cameroon. Cotonou, IDAF Project, 126p., IDAF/WP/49

Satia, B.P., 1993 Ten years of Integrated Development of Artisanal Fisheries in West Africa (Origin, Evolution and Lessons Learned). Cotonou, IDAF Project, 37p., IDAF/WP/50

Satia, B.P., 1993 Dix ans de développement intégré des pêches artisanales en Afrique de l'Ouest (Origine, évolution et leçons apprises). Cotonou, Projet DIPA, 41p., DIPA/WP/50.

Stokholm, H. and Isebor C., 1993 The fishery of Ilisha africana in the coastal waters of Republic of Benin and Lagos State, Nigeria. Cotonou, IDAF Project, 81p., IDAF/WP/51.

Anon., 1993 - Report of the Seventh IDAF Liaison Officers Meeting Cotonou, Benin, 22-24 November 1993. Cotonou, IDAF Project, 72p., IDAF/WP/52.

Anon., 1993 - Rapport de la Septième Réunion des Fonctionnaires de Liaison, Cotonou, Bénin, 22-24 novembre 1993. Cotonou, Projet DIPA, 77p., DIPA/WP/52.

B.P. Satia and B. Horemans editors, 1993 Workshop on Conflicts in Coastal Fisheries in west Africa, Cotonou, Benin, 24-26 November 1993. Cotonou, IDAF Project 64p., IDAF/WP/53.

B.P. Satia et B. Horemans (éds), 1993 Atelier sur les Conflits dans les Pêcheries Côtières en Afrique de l'Ouest, Cotonou, Bénin, 24-26 novembre 1993. Cotonou, Projet DIPA 68p., DIPA/WP/53.

Horemans, B., 1994 The situation of artisanal fisheries in West Africa in 1993. Programme for the Integrated Development of Artisanal Fisheries in West Africa, Cotonou, Benin 39 p., IDAF/WP/54.

Horemans B., 1994 La situation de la pêche artisanale en Afrique de l'Ouest en 1993. Cotonou Programme de Développement Intégré des Pêches Artisanales en Afrique de l'Ouest (DIPA), 40 p. + annexes, DIPA/WP/54.

Horemans, B., J; 1994 Gallène et J.C. Njock,- Revue sectorielle de la pêche artisanale à Sao Tomé et Principe. Programme de Développement Intégré des Pêches Artisanales en Afrique de l'Ouest (DIPA), 31 p. + annexes, DIPA/WP/55.

Horemans, B., J. 1994 Gallène e J.-C. Njock, - Revista sectorial da pesca artesanal a São Tomé e Principe Programa de Desenvolvimento Integrado das Pescas Artesanais na Africa Ocidental (DIPA). 32 p. + anexos, DIPA/WP/55.

Jul-Larsen, E., 1994 Migrant Fishermen in Pointe-Noire (Congo): Continuity and Continuous Change. Cotonou, Programme for the Integrated Development of Artisanal Fisheries in West Africa, 51 p., IDAF/WP/56.

Jul-Larsen, E., 1994 Pêcheurs migrants à Pointe-Noire (Congo): Continuité et Changement Perpétuel. Cotonou, Projet DIPA, 59p., DIPA/WP/56.

Satia, B.P., and Hansen, L.S., 1994 Sustainability of Development and Management Actions in Two Community Fisheries Centres in The Gambia. Cotonou, IDAF Project, 48p., IDAF/WP/57.

Ute Heinbuch, 1994 Animal Protein Sources for Rural and Urban Populations in Ghana. Cotonou, IDAF Project, 25p. + annex, IDAF/WP/58

Anon., Compte-rendu du cours "Analyse Quantitative des Aspects Sélectionnés de Développement".
1991 Cotonou, Projet DIPA, 6 + xlvi p., DIPA/WP/33.

Anon., Report of the course on "Quantitative Analysis of Selected Aspects of Fisheries Develop-
1991 ment". Cotonou, IDAF Project, 6 + xlv p., IDAF/WP/33.

Callerholm Cassel, E., Cost and Earnings and Credit Studies on Ghanaian Canoe Fisheries. Cotonou,
1991 IDAF Project, 38 p., IDAF/WP/34.

Sheves, G.T., The Ghanaian dug-out canoe and the canoe carving industry in Ghana. Cotonou, IDAF
1991 Project, 109 p., IDAF/WP/35.

Haakonsen, J.M. and Chimère Diaw, Fishermen's Migrations in West Africa. Cotonou, IDAF
1991 Project, 293 p., IDAF/WP/36.

Haakonsen, J.M. et Chimère Diaw, Migration des Pêcheurs en Afrique de l'Ouest. Cotonou, Projet
1991 DIPA, 332 p., DIPA/WP/36.

Gulbrandsen, O.A., Canoes in Ghana. Cotonou, IDAF Project, 82 p., IDAF/WP/37.
1991

Anon., Artisanal Fisheries in West Africa, Report of the Fifth IDAF Liaison Officers Meeting.
1991 Cotonou, IDAF Project, 140 p., IDAF/WP/38.

Anon., Les pêches Artisanales en Afrique de l'Ouest, Compte-rendu de la Cinquième réunion des
1991 Officiers de Liaison du DIPA. Cotonou, Projet DIPA, 122 p., DIPA/WP/38.

Beare, R.J. and P. Tanimomo, Purse seine and encircling net fishing operations in Senegal, Guinea,
1991 Sierra Leone, Ghana and Benin. Cotonou, IDAF Project, 92p., IDAF/WP/39.

Everett, G.V. and G.T. Sheves, Recent trends in artisanal fisheries and report on alternatives to ca-
1991 noes. Cotonou, IDAF project, 33 p., IDAF/WP/40.

Callerholm Cassel, E. and A.M. Jallow, Report of a socio-economic survey of the artisanal fisheries
1991 along the atlantic coast in The Gambia. Cotonou, IDAF project, 97p., IDAF/WP/41.

Chimère Diaw, M. et Jan M. Haakonsen, Rapport du séminaire sur les migrations de pêcheurs
1992 artisans en Afrique de l'Ouest. Cotonou, projet DIPA, 36p., DIPA/WP/42.

Chimère Diaw, M. and Jan M. Haakonsen, Report on the regional seminar on artisanal fishermen's
1992 migrations in West Africa. Cotonou, IDAF project, 35p., IDAF/WP/42.

Houndékon, B. et L. Affoyon, Rapport du séminaire-atelier de sensibilisation sur la méthode accélérée
1993 de recherche participative tenu à Libreville Gabon en Novembre 1992. Cotonou, Projet DIPA, 56p., DIPA/WP/43.

Anon., Rapport de la sixième réunion des fonctionnaires de liaison Banjul, Gambie 1 - 5 février 1993.
1993 Cotonou, Projet DIPA, 57 p., DIPA/WP/44.

Anon., Report of the sixth IDAF liaison officers meeting Banjul, Gambia 1 - 5 February 1993. Coto-
1993 nou, IDAF Project, 60 p., IDAF/WP/44.

Horemans, B. and B. Satia (eds), Report of the Workshop on Fisherfolk Organisations in West Africa.
1993 Cotonou, IDAF Project, 93 p., IDAF/WP/45.

Horemans, B. et B. Satia (éds), Rapport de l'atelier sur les organisations de pêcheurs en Afrique de
1993 l'Ouest. Cotonou, Projet DIPA, 102 p., DIPA/WP/45.

Kébé, M., Gallène J. et Thiam D.- Revue sectorielle de la pêche artisanale en Guinée Bissau.
1993 Programme de Développement Intégré des Pêches Artisanales en Afrique de l'Ouest (DIPA), 32 p. + annexes, DIPA/WP/46.

Kébé, M., Gallène J. et Thiam D.- Revista sectorial da pesca artesanal na Guiné-Bissau Programa de
1993 Desenvolvimento Integrado das Pescas Artesanais na Africa Ocidental. Cotonou DIPA, 32p. + anexos DIPA/WP/46

Johnson J.P. and Joachim Alpha Touré, Accidental Death and Destruction in Artisanal Canoes: A
1994 retrospective study of the years 1989-1991 along the coast of Guinea (Conakry) West Africa. Cotonou, IDAF Project, 21p., IDAF/WP/59

Johnson J.P. et Joachim Alpha Touré, Mort Accidentelle et Destruction des Pirogues Artisanales: Une
1994 étude rétrospective des années 1989-1991 sur le littoral guinéen (Conakry) - Afrique de l'Ouest. Cotonou, Projet DIPA, 21p., DIPA/WP/59

II. Manuels de terrain / Field Manuals

Johnson, J.P. et M.P. Wilkie, Pour un développement intégré des pêches artisanales; du bon usage
1988 de participation et de la planification. Cotonou, Projet DIPA, 157p. + annexes, Manuel de Terrain N° 1.

Meynall, P.J., J.P. Johnson, and M.P. Wilkie, Guide for planning monitoring and evaluation in fishe-
1988 ries development units. Cotonou, IDAF Project, 116 p., IDAF Field Manual N° 2.

III. IDAF Newsletter / La Lettre du DIPA

IDAF Newsletter/Lettre du DIPA, 1, October/Octobre 1985, 4 p.
IDAF Newsletter/Lettre du DIPA, 2, January/Janvier 1986, 14 p.
IDAF Newsletter/Lettre du DIPA, 3, June/Juin 1986, 40 p.
IDAF Newsletter/Lettre du DIPA, 4/5, Sept./Dec. 1986, 76 p.
IDAF Newsletter/Lettre du DIPA, 6, September 1987, 58 p.
IDAF Newsletter/Lettre du DIPA, 7, June/Juin 1988, 84 p.
IDAF Newsletter/Lettre du DIPA, 8, June/Juin 1989, 74 p.
IDAF Newsletter/Lettre du DIPA, 9, October/Octobre 1989, 84 p.
IDAF Newsletter/Lettre du DIPA, 10, August/Août 1990, 84 p.
IDAF Newsletter/Lettre du DIPA, 11, January/Janvier 1991, 6 p.
IDAF Newsletter/Lettre du DIPA, 12, April/Avril 1991, 8 p.
IDAF Newsletter/Lettre du DIPA, 13, July/Juillet 1991, 6 p.
IDAF Newsletter/Lettre du DIPA, 14, October/January 1992, 12 p.
IDAF Newsletter/Lettre du DIPA, 15, September/Septembre 1992, 85p.
IDAF Newsletter/Lettre du DIPA, 16, December/Décembre 1992, 31p.
IDAF Newsletter/Lettre du DIPA, 17, March/Mars 1993, 39p.
IDAF Newsletter/Lettre du DIPA, 18, June/Juin 1993, 38p.
IDAF Newsletter/Lettre du DIPA, 19, September/Septembre 1993, 32p.
IDAF Newsletter/Lettre du DIPA, 20, December/Décembre 1993, 28p.
IDAF Newsletter/Lettre du DIPA, 21, March/Mars 1994, 32p.
IDAF Newsletter/Lettre du DIPA, 22, June/Juin 1994, 32p.
IDAF Newsletter/Lettre du DIPA, 23, September/Septembre 1994, 52p

IV. Documents de travail du Projet Modèle, Bénin / Working papers of the Model Project, Benin

Coackley, A.D.R., Report on installation of a diesel inboard motor in a Ghana canoe. Cotonou, Mo-
1988 del Project, 7 p. + annexes, PMB/WP/1 (En).

Coackley, A.D.R., Installation d'un moteur diesel "inboard" dans une pirogue ghanéenne. Cotonou,
1988 Projet Modèle, 9 p. + annexe, PMB/WP/1 (Fr).

Zannou, L.H., Etudes technico-économiques des fours améliorées pour le fumage de poisson en
1988 République Populaire du Bénin. Cotonou, Projet Modèle, 8 p. + 6 tableaux, PMB/WP/2.

Atti-Mama, C., et M. Raïs, Etude démographique des communautés cibles du projet Modèle Bénin.
1988 Cotonou, Projet Modèle, 20 p. + 10 annexes, PMB/WP/3.

Jorion, P., Non-monetary distribution of fish as food in Beninois small-scale fishing villages and its
1988 importance for auto-consumption. Cotonou, Model Project, 26p., PMB/WP/4.

Tanimomo, P.F., Catalogue des engins de pêche maritime artisanale du Benin. Cotonou, Projet
1989 Modèle, 46 p. + 3 annexes, PMB/WP/4, PMB/WP/5.

Tanimomo, P.F., Rapport de consultation sur la formation des jeunes pêcheurs de l'UNICOOPEMA
1989 à Lomé. Cotonou, Projet Modèle, 17 p. + 6 annexes, PMB/WP/6.

Atti Mama, C., Impact socio-économique de la piste Pahou-Kpota. Cotonou, Projet Modèle, 10 p.
1989 + 3 annexes, PMB/WP/7.

Ahouanmènou, C., C. Atti-Mama, B. Houndékon, D. Tempelman et D. Turcotte, Animation, gestion
1989 et planification, séance de travail avec les agents de terrain. Cotonou, Projet Modèle, 142 p. + annexes, PMB/WP/8.

Atti-Mama, C., D. Turcotte, et W. Wentholt, Evaluation interne des activités du projet modèle Bénin
1989 dans le secteur de Ouidah. Cotonou, Projet Modèle, 36 p. + 7 annexes, PMB/WP/9.

Tempelman, D., The participatory approach in an integrated artisanal fisheries project; structuring
1989 community development - womens activities. Cotonou, Model Project, 43 p., PMB/WP/10.

Landry, J., Cours d'alphabétisation fonctionnelle en calcul. Cotonou, Projet Modèle, 59 p. + 3 1989
annexes PMB/WP/11.

Landry, J., and D. Tempelman, Functional literacy, Training Guide for a numeracy course. Cotonou,
1989 Model Project, 55 p. + 3 annexes, PMB/WP/11.

Atti-Mama, C., Systèmes traditionnels et modernes d'épargne et de crédit en milieu pêcheur au Bénin.
1990 Cotonou, Projet Modèle, 41 p. + annexes, PMB/WP/12.

Sènouvo, P., Statistiques de pêches des villages du Projet Modèle Année 1987. Cotonou, Projet Mo-
1990 dèle, 33 p., PMB/WP/13.

Sheves, G.T., P.T. Holler and P.F. Tanimomo, Report on demonstration with echo-sounders, 1990
compas ses and multimono gillnets in Ghana. Cotonou, Model Project, 22 p., PMB/WP /14.

Coackley, A.D.R., and G.T. Sheves, A review of the experimental introduction of diesel inboard
1990 motors to Ghana canoes. Cotonou, Model Project, 41p., PMB/WP/15.

IJff. A.M. et D.E. Tempelman, Etude sur les relations entre les captures de poisson et l'état nutri
1990 tionnel des communautés de pêcheurs dans la province du Mono, au Bénin. Cotonou, Projet Modèle, 27 p., PMB/WP/16.

Sènouvo, A.P. et A.A. Gbaguidi, Recueil des données statistiques des pêches maritimes au Bénin.
1990 Période de 1984 à 1989. Cotonou, Projet Modèle, 134p., PMB/WP/17.

Houndékon, B.R., Initiative locale et développement: Expérience des communautés de pêcheurs
1990 marins du Bénin. Cotonou, Projet Modèle, 17 p., PMB/WP/18.

Le Gurun, J.F., La section de technique des pêches. Cotonou, Projet Modèle, 43 p., PMB/WP/19.
1991

FAO/Government Cooperative Programme, Integrated Development of Small-Scale Fisheries in West
1991 Africa, Model Project Benin, Project findings and recommendations. FAO, Rome, FI:GCP/RAF/198/DEN Terminal Report, 34p.

Programme de Coopération FAO/Gouvernements, Développement Intégré de la pêche artisanale en
1991 Afrique de l'Ouest, Projet Modèle Bénin, Conclusions et recommandations du Projet. FAO, Rome, FI:GCP/RAF/198/DEN Rapport terminal, 40 p.