IDAF / WP / 31 September 1990

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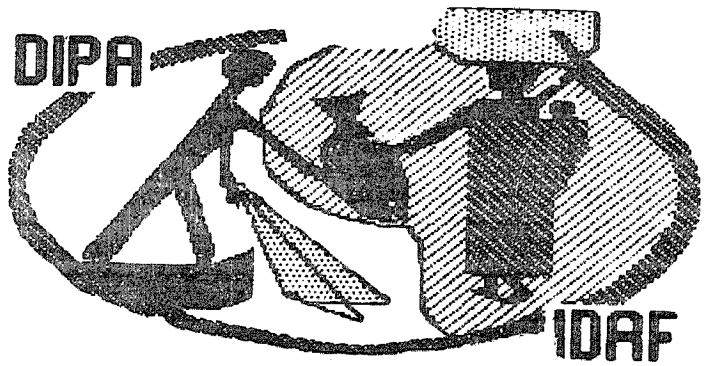
Based on studies along the Benin and Imo river estuaries



FAO / DANIDA / NORWAY

IDAF/WP/31

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SOCIO-ECONOMIC CONDITIONS IN NIGERIAN FISHING COMMUNITIES

Based on studies along the Benin and Imo river estuaries

by

A.M. IJff

Programme de Développement Intégré des Pêches Artisanales en Afrique de l'Ouest - DIPA

Programme for Integrated Development of Artisanal Fisheries in West Africa - IDAF

GCP/RAF/192/DEN

With financial assistance from Denmark and Norway, and in collaboration with the Republic of Benin, the Fisheries Department of FAO is implementing in West Africa a programme of small scale fisheries development, commonly called the IDAF Project. This programme is based upon an integrated approach, invloving production, processing and marketing of fish, and related activities; it also involves an active participation of the target fishing communities.

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The authors' thanks are extended to Mr. Soesanto, Chief Technical Adviser with NIR/87/010, Mr. Adebiyi, project manager and the fisheries staff from the Federal Department of Fisheries and the State Fisheries Departments in Lagos, Koko and Uta-Ewa without whose assistance the fieldwork would not have been possible.

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Introduction

The Federal Government of Nigeria has accorded high priority to projects leading to increased fish production besides its commitment to development of rural areas which constitute the habitat of the majority of the artisanal fishermen. With a coastline of about 960 kilometers, an Exclusive Economic Zone covering 256,000 km2 and a topography straddled by the drainage systems of the river Niger and the Benue and their main tributaries and numerous other smaller rivers flowing into the Atlantic ocean, the country has a rich potential in fishery resources.

The national economy of Nigeria is primarily dependent on petroleum resources which contributes about 90% of the foreign exchange earnings. However, since 1981, the country has faced a decline in oil export revenues due to a weak demand coupled with declining prices in an oil-glutted world market. This has resulted in serious balance of payment difficulties for the country and for her industries which are heavily dependent on imports for raw materials.
The oil boom of the 70's accelerated the shift of labour and other resources out of agriculture, thus the percentage export contribution of agriculture fell from 45% in 1970 to 27% in 1980. It provided over 80% of total export earnings of roughly N330 million in 1960 and only 2% of roughly N13,600 million in 1980.
The World Bank estimates that Nigeria's real export earnings from oil will begin to decline in 1990's and to this end adjustments are needed in agriculture and allied sectors to create the foundations upon which the non-oil export economy will expand and diversify.

Nigeria's current policy focus is aimed at self-sufficiency in food and raw material production. Consequently, agricultural development is being given high priority.
The third National Development Plan (1975-1980) and the fourth National Development Plan (1981-1985) had focussed priority attention on the provision of fisheries infrastructural facilities, supply of essential fishing inputs such as outboard engines, improved fishing canoes, nets etc. and on introducing a small proportion of capable artisanal fishermen to mechanised fishing with modern multi purpose fishing vessels.
According to the statistics the fishing industry has progressed and domestic fish production has increased steadily over the last two decades. However, the Nigerian fishery statistics have been a point of discussion in the last ten years as the figures presented show unusual fluctuations among the years.
Between 1964 and 1983 the official production increase was supposed to have been almost ten-fold, from 58,000 tonnes to nearly 540,000 tonnes. During this period the contribution of domestic catch to the total supply was said to have increased

from about 20 to 70 percent. In 1988 the production given in the statistics, had fallen down to 325.000 tonnes.
The artisanal fisheries component, consistently contributing over 90 percent of the domestic catch and providing means of livelihood for hunderds of thousands of fishermen, is recognized as the most economical way of increasing the supply of food fish in Nigeria.

It is in this context that UNDP agreed to assist the government of Nigeria in providing necessary technical assistance to the Federal Department of Fisheries (FDF) of the Federal Ministry of of Agriculture, Water resources and Rural Development for improving the techno- socio-economic condition of the rural coastal fishermen through an integrated approach. The project NIR/87/010 was signed and FAO charged with its execution.

The project will directly help to attain the sectoral development objectives of the country's National Development Plan for fisheries which are:

1) Promotion of maximum exploitation on a sustainable basis of fishery resources from heterogeneous sources;
2) Generation of additional employment opportunities and income;
3) Increase the supply of protein food from fish;
4) Improve the socio-economic status of rural fishermen.

The immediate objectives of the project are:

1) Develop and strengthen the two Rural Fisheries Development Centres established at Uta-Ewa (Akwa-Ibom State) and Koko (Bendel State) under the Artisanal and Inshore Fisheries Development Project (NIR/77/001) into model Integrated Rural Fisheries Development complexes, with all the necessary fishery infrastructure and modern amenities for the community.
2) Increase fish production through application of appropriate modern fishing technology including small mechanised fishing boats (wooden and fibre glass), fishing gear and methods.
3) Increase fish supply specifically through minimising post-harvest loss by improved handling, storage, processing and transport.
4) Develop the cooperative movement among the rural fishermen and introduce community welfare programmes.
5) Train a cadre of technologist and counterpart extension workers.

Given the almost total lack of recent data from fisheries related activities in the project areas, Koko (Bendel State) and Uta Ewa (Akwa-Ibom State), it was recognised that a base-line study of the area was required. The base-line study was executed in cooperation with the Regional Programme for integrated Development of Artisanal Fisheries in West-Africa-

GCP/RAF/192/DEN, based in Cotonou, Republic of Benin.
The following report presents the main results from the base-line study.

As it was clear from the beginning that the activities executed by the regional programme were kind of filling the gap between signing the project and the arrival of the experts, this influenced the choice of methods of research for the base-line study.
In order not to tire the villagers with too much research and questionnaires, something that would cause problems for the socio-economic section of the project later on, and in order not to give the villagers false hopes about project outputs, it was decided to gather information from observations and informal talks with people in the village and from existing literature.

Chapter 1.3 and annex 4 are written by P.T.Holler and Deri Nyoman and chapter 2.3 and annex 5 are written by A.Keleshis. In annexes 4 and 5 only some details are given of the fishing gear used in the areas. More complete information on this will be published in a special publication from the project (NIR/87/010). The nutritional measurements, see chapter 1.2.3 and 2.2.3, are done in Uta-Ewa and Okopedi by Mrs F.Osei-Opare and in Ogheye and Okoroete by myself.

As the project is operating from two sites, Koko in Bendel State and Uta-Ewa in Akwa Ibom State, this report starts with a description of the Koko area, followed by a similar chapter about the Uta-Ewa area. More details about the Benin estuary area are also available in IDAF/WP/32.

During the period of data collection, May 1989 till July 1990, the value of the Naira has been more or less stable. The official rate is 8 Naira for 1 US dollar, while on the parallel market it is 9,5 Naira for 1 US dollar.

1.1 The Koko project area

1.1.1 Bendel State

Bendel State is the second highest fish producing State in Nigeria contributing over 30% of the total production of the coastal states. It has one of the longest coastline totalling 96 kilometers with ports at Warri, Burutu, Koko and Forcados.
The state lies approximately between longitudes 5°00' and 6°00' E and between latitudes 40°45' and 70°40' N. The state has a tropical climate with two seasons, the rainy season with ample rainfall and the dry season with long periods of sunshine.

The entire delta area is divisible in physical terms into three belts. These are 1) the sandy beach ridges, 2) the salt-water swamp area and 3) the fresh-water swamp area.
These belts correspond to differences in the nature of the water, type of deltaic soil deposited and in vegetation. Accordingly, they are also the belts along which the lives of the communities change, population densities differ and occupations suitable to the particular environment are carried on.
The salt-water swamp is a wide belt of between 20 and 25 miles lying behind the coast ridges. The soil is silt and most of the area is low-lying, being flooded daily under a foot or two of water at high tide. The predominant vegetation is the mangrove. The red mangrove tree is so impressive and thick all over this belt that it is rightly referred to as the mangrove forest belt, giving visitors their caracteristic image of the Niger delta. Its wood is too hard for making canoes or other utensils, except for building and cooking,
But its aerial roots and other parts are still occasionally used in the making of a peculiar type of local salt. The making of this mangrove salt and other salt distilled from seawater have been some of the most ancient pursuits of the inhabitants of this belt. Fishing however, has remained the occupation of the majority.
Population density is lowest in this belt of the delta since a greater portion of the area is under water at each high tide and unsuitable for settlement. The few islands of higher land are, however, completely free of any seasonal flooding and the settlements on them have been as stable as, if not more stable than, those on the sandy beach ridge inlands. (Alagoa, 1972)

It is estimated that about 11,000 fishermen are involved in the coastal marine fisheries (artisanal in Bendel state). Earlier reports and investigations showed that about 49% of these coastal fishermen were in the age range of 41 to 60 with an average of 30 years of fishing experience. The percentage of younger men (20 to 40 years) involved in the fisheries was about 45.
These reports are not only indicative of virile and experienced

fishing populations, but also show that there was a continuous process of recruitment of the younger group into the fisheries with an inbuilt on the job training and manpower development process. While formal education was rare with the older fisherman, the younger ones were found on the average to have had between 4-6 school years. (FACU, 1988)

The total fishing population of the creek and estuarine fisheries is estimated at 73,000 out of which about 36,000 are invloved in full time fishing activities.
The fishing settlements along the delta creeks and distributaries of the main rivers are usually small in size, with an average of 4-5 families per settlement in the inland creeks, and 10-20 families per settlement along the major river channels. The majority of the settlements are more or less fishing outposts to the major inland based towns.
The manpower distribution by age and experience is similar to that of the marine fisheries, except for the generally lower educational level among the younger fishermen. This is a clear indication of the fact that most of the educated young men either remain at their home bases or move to the city centres and the oil industry locations for paid employment.

Bonga (Ethmalosa fimbriata) fishing is one of the most productive activities of the coastal artisanal fisheries in Bendel State. The Bonga fishery is practiced with surface drift-nets which are used to encircle the shoals of bonga. This fishery with two canoes is almost exclusively practised by the Ilajes, and confined to the dry season periods of November to January, when Bonga is known to be abundant.

Landings by the trawl vessels are dominated by small and medium size fishes. The fish species landed are mainly croakers (Pseudotolithus spp) Sole (Cynoglossus spp), Catfish (Arius spp) Shinynose (Polydactylus spp), grunters (Pomadasys spp), Snappers (Lutjanus spp), barracuda (Sphyraena spp) and groupers (Epinephelus spp) while miscellaneous other species are sometimes represented in the landings in smaller numbers and quantities.

Shrimp is landed in appreciable quantities and sizes especially during the rainy season months from May to September. The shrimp catch is dominated by the pink shrimp (Penaeus notialis) and the guinea (titi) shrimp (Parapenaeopsis atlantica).

1.1.2 The Benin River area

The project area encompasses the Benin river from the town of

Koko downstream to Ogheye that is situated at the mouth of the river. Koko is the last town serviced by road before the river mouth.It is situated 55 km from Ogheye and 60 km from Benin City, Bendel State.

In the Benin river area the Itsekiri are the main ethnic group. Among the river villages are several Ijaw settlements. In Ogheye one finds a lot of Ilaje migrants from Ondo state.

While looking for information about this area it was learned that there is written information from the 19th century on, from before that time it is more difficult. However as the area has been part of the Benin Kingdom it is possible to find general information about that, though not specifically for the fishing environment of the Benin river area.

The first Europeans reported in the area are the Portugese traders who seem to have traveled direct to Warri, probably up the Forcados River, the shortest route. In Lloyd (1957) the presence of Portugese ships at Gwatto is reported as late as 1825.
The English firms who traded for palmoil in the 19th century remained at the mouth of the Benin River. At first, from ca. 1830, they moored their ships in Bobi Bay and later built factories mostly at intervals along the north bank on either side of the present Jakpatie. Slowly, and travelling from the Benin River, they discovered Ode Itsekiri, but it was not until the 1870s, with the search for a new route to the Niger, that the Forcados River was again used as a route to the interior. The Itsekiri then drove the European firms from the Ode Itsekiri area in 1873 lest they should encroach on their territory as middlemen. The Itsekiri established their own trading posts and beaches up the Warri river.
Not until the late 1880s did the British firms again penetrate inland, but from 1891 the government of the Niger Coast Protectorate established consular posts and administrative offices at Warri and Sapele. Forcados was at the end of the century not only a port of trans-shipment for the Niger, but also for Lagos, whose bar was still impassable. (Lloyd, 1957)

Climate
The mean annual rainfall at Warri is 108 ins. (+/- 2700mm), the wettest months being May-October inclusive, each having at least 10 ins. (+/-250mm) of rain. In the dry season (December-February) the mean total rainfall is 5 ins. (+/-120mm) for the three months. The humidity is high. The mean monthly relative humidity at 0600 hours is below 98% only in May; even in the dry season it does not fall below 65% at mid-day.
The mean daily maximum temperature ranges from 83° F (+/-26°C) in July-August to 91° F (+/-31°C) in February-April. Troughout the year the mean monthly minimum temerature ranges only from 71° to 74° F (+/-22°C).

Environment

Two types of mangrove are just about the only trees found in the swamps, the white mangrove (Avicennia nitida) and the red mangrove (Rhizophora ssp.). The latter, characterised by its stilt roots, covers over 90% of the mangrove area; it is a dark-foliaged tree which in time is transformed into a hard carpet of small roots; this inhibits further growth of the tall mangrove which is replaced by a tangle of low bushes (still of Rhizophora) and ferns tolerant of saline water. At this stage the land is flooded only at high tide; subsequent deposition, especially during floods, further raises the land so that rain forest vegetation can establish itself and replace the mangrove. It is on these dry inlands within the swamps that settlements are usually found. (Lloyd, 1957)

The Atlantic Ocean coastline is increasingly threatened by erosion which has taken away large expanse of coastal land and created a variety of serious environmental impacts including loss of life, property and income. A recent publication of the Nigerian Institute for Oceanography and Marine Research in Lagos describes the present situation on the coastline erosion in Nigeria. (Chidi, 1989)

A recent problem is the water hyacinth which now has spread from the Lagos lagoon to the Benin river area where it reportedly appeared for the first time around 1986. It has since caused enormous transport problems, not the least for the small canoes for which the water hyacinth concentrations can make the waters virtually impenetrable. It also tends to get entangled in various fishing gear, particularly the fixed installations in the creeks and estuaries.
The local population is completely at a loss as how to deal with this new menace, though they have wasted no time in establishing who should be responsible to clear local village creeks of the hyacinth when it becomes too dense to allow passage for the canoes: it is up to the women.

The prevalence of malaria-bearing mosquitoes was responsible for a fantastically high death rate among Europeans in the 19th century. Even at the end of the century the death rate among Europeans in the Niger Delta was nearly 10% per annum (Lloyd, 1957). Malaria is still very common in the area.

Administrative structure

The project area comes under the Warri local government with headquarters in Warri, Bendel State.
On the village level the chief is usually the eldest man called the Olaraja. The Olaraja is also the one who speaks justice. If there is disagreement in a village with the Olaraja, people can go to the police. There is a police station in Koko and another in Gbokoda.

1.2. Ogheye and surroundings

1.2.1 Setting

Between Koko and Ogheye there are about 25 settlements at the western bank of the Benin River and about 10 settlements at the eastern bank. Along the creeks there are numerous villages also, all depending on the Benin River transport for their trade and personal transport.
The main villages from Koko downstream are; Ureju, Jakpa, Gbokoda, Tebu, Ugogegin and Ogheye, all on the right bank of the river (see Annex 2 for a map).
Jakpa Gbokoda and Tebu are connected to each other by road.
Behind Orere there is Agogboro, an important Ilaje fishing village. As the fish from this village is marketed in Warri, and as the villagers are not orientated at Ogheye or the Benin River, the existance of the village is hardly heard about in the Benin River area, even though there is more fish landed in this village than in any of the villages along the Benin River.

Ogheye is a medium sized fishing village, located on the western bank of the Benin river. There is a fairly active fishing community, with about 500 canoes, one of the largest concentrations of canoes in the project area.
On the opposite side of Ogheye, Orere is located which also is a medium sized fishing village where fishermen concentrate on crayfish harvesting, using traps. The presence of other types of fishing gear here is negligible.
The Bendel State estuaries are reknowned for their shrimp and prawn fishery.

Ogheye is also suffering from rapid erosion of the fragile land upon which the village is situated. Dozens of houses have had to be dismantled and moved even if built on poles in the first place. Villagers blame the extensive blasting by oil-companies in connection with the offshore oil fields, but it appears more likely that the phenomenon is due to natural causes like the ongoing erosion found in many places elsewhere along the West African coast.

In the villages along the river people live from river fishing, fish preparation and fish trade. In these villages there are hardly any outboard engines, canoes being mostly small dug-outs for 1-3 persons. People use cast-nets, set-nets, longlines and traps for fishing.

The information for this base-line study is mainly gathered from Ogheye, the most important fishing village of the project area. However all the small settlements together form an important

contribution in the fish supply also, and should not be forgotten. (For more detailed information on the smaller villages, see IDAF/WP/32).

1.2.2 Water supply

The water supply in the riverine and coastal villages is generally very bad. There is good water supply only in Koko where the water comes from bore holes. The water here is quite good and the supply fairly regular, though rumours go that the water may be polluted. In 1988 toxic waste from Italy was dumped in Koko. The toxic waste has been taken back and the soil has been cleaned since then, but before the attention was drawn to this toxic waste, people are said to have been painting their houses with it. (The toxic waste had been imported as being materials for a paint factory).
Of coarse with the first rains this "paint" dissolved.

In the villages people use rainwater in the rainy season and they buy water from a watership in the dry season. The watership collect water from the Ologbo-creek and sell the water in the villages. A drum of water (200 L) cost 5 or 6 Naira ($0,5 -0,6). A family of 3 to 4 persons will use a drum of water about every 5 days.
People find the water of a reasonable quality, though there is a rubber factory upstream Ologbo-creek and the water is said to be a little acid.

In Gbokoda a bore hole with a water-tower was constructed some years ago. However as the first water that came out of it was coloured nobody ever used this water supply. It was suggested that the bore hole was not deep enough.

In Jakpa, a village connected to Gbokoda by road, there is a private owned water bore hole with a water tower. Here there is even a purification installation but as there is nobody living in the house it belongs to, it is not clear whether this water has ever been used.

One of the fishermen in Ogheye stores drinking water in closed drums and bottles of 50 l in a special store house. He collects rainwater during the rainy season. This fisherman has enough water for his whole family during the dry season, showing that systematic water collection from the roofs of the houses could help alleviate the water problem considerably.

1.2.3 Health facilities

For medical care people in the project area depend, on a hospital in Koko and a health centre in Gbokoda, as well as on the local midwifes and traditional healers.

The hospital in Koko is both curative and preventive, while the health centre in Gbokoda is mainly a primary health care centre. In Koko they deal with the Expanded Programme of Immunization (EPI) and with the oral rehydration therapy. In the EPI they give the following vaccinations: BCG, DTP, Polio, Measles, Tetanus.

The health centre in Gbokoda belongs to the Baptist church and is an annex of a hospital in Eku. Eku is situated 32 km from Sapele. (Sapele is about 20 km upstream from Koko)
In the health centre in Gbokoda one nurse is stationed. As it seemed difficult to find someone willing to stay in Gbokoda for a longer period it was decided that the nurses from the hospital in Eku rotate to stay in Gbokoda for a month at a time which means that they stay there one month about every two years.
The health centre is a mosquito free building with four hospital beds. The medicines used come from the hospital in Eku.

In Gbokoda they used to implement the EPI also but as they have no refrigerator to store the vaccines, they have stopped dealing with it due to the organisational problems connected with giving the vaccinations within one day, which is the maximum amount of time most vaccines can survive without refrigeration.

For a medical consultation in the health centre one has to pay 2 Naira. At the first visit one also has to buy a card for 3 Naira. This card, which is used by the nurses to administer the information of the patients, will stay at the health centre and can be used for other consultations.
Medicines have to be paid for separately. According to one of the nurses there are not many people coming to the health centre for a consultation, only about 10 daily, if that many. People seem to prefer the traditional healers, probably because they are cheaper.

For medicines people depend on the health centre in Gbokoda and the market in Ogheye.

Since January 1990 there is a private clinic in Ogheye. The clinic is owned by a doctor in Warri. Two nurses are stationed in Ogheye, they go to Warri for a week's period every three weeks.
The clinic has 6 hospitalbeds with mosquito nets.
Since February it was said to have started an immunization programme.

The symptoms mentioned by the patients attending the clinic were

mainly diarrhoea and fever/ malaria. Sometimes people come to the health centre for first aid. Cholera was said to occur once in a while in the dry season between September and January. Malaria and dysentery are common diseases in this area. Causes of illnesses mentioned by the nurse are bad drinking water, insects such as mosquitos and tse-tse flies and bad living conditions.

In order to get an idea about the nutritional status of the children, height and weight of the children were measured. 142 children were measured in Ogheye, 9 in Beresibi and 17 in Ureju, 168 in total. There were 101 boys and 67 girls.

As we only measured the children that were willing/able to come to the site where we were measuring, one has to keep in mind that the actual situation will be worse than represented by these figures because the sick children stayed at home.

The data collected were compared with the NCHS-growth charts (WHO publication 1983, Mésure des modifications de l'état nutritionnel).
The following results were found for weight for height :

Table 1: Nutritional status of children from Ogheye.

% of standard	(70	70-79	80-89	90-99	100-109	110-119	120-129	total
number	3	4	17	67	59	16	2	168
%	2	2	10	40	35	10	1	100

As 4 % of the children is below the 80 % of the standard the actual situation is not too bad but it indicates that the children do not have much reserves for times when there is less food available in the village or in cases of illnesses.

As the measurements were taken in September, which seems to be the end of a high fishing season, one can expect the nutritional status of the children to be best in this period.

No differences were found between Ogheye and the riverine villages Ureju and Beresibi, and no differences were found between boys and girls. For the data of these measurements see annex 6.

As it was very difficult to get good answers on the age of the children, it is not worth looking after height for age.

1.2.4 Educational facilities

There seems to be primary schools in Koko, Ureju, Ajide, Gbokoda, Jakpa, Orere and Ogheye, in addition to some smaller villages.

At the school in Ogheye the headmaster was in 1989 the only teacher at the school. There are 232 pupils at the school, in seven classes.
About five years ago 500 pupils attended the school and there were 11 teachers. Since then the government decided to dismiss the teachers who were not qualified in teaching, and teachers that retired were not replaced. The school depends on the council of Warri for salaries and working money.
Since January 1990 there are, besides the headmaster, two teachers.

As the school building in Ogheye disappeared in the sea due to erosion, the school is now temporarily lodged in the former private school for secretaries, which consists of one hall.

Table 2: Number of boys and girls in the different classes of the primary school in Ogheye, 1989.

		boys	girls	Total
class	1 A	15	30	45
	1 B	10	36	46
	2	21	23	44
	3	16	19	35
	4	10	12	22
	5	10	9	19
	6	17	4	21
		99	133	232

A new school is built and the construction was finished in December 1989. Three classes are constructed by a constructor paid by the council of Warri local government and three classes are constructed by the youth of Ogheye.
The schools are in general simple bamboo buildings with palmleaf roofs, the new school in Ogheye is made of painted corrugated

iron.

The availability of books and other school supplies was said to be no problem. People do not pay a school fee. School uniforms for girls are about 25-30 Naira, for boys 30-35 Naira. The cost of books is said to be as follows : in the first and the second class about 20 Naira, in the third class 30 Naira in the fourth class 40-45 Naira and in the last two classes about 40-60 Naira.

In Ureju the school was said not to operate anymore due to lack of teachers.

Most pupils who attend school are said to continue from the first till the sixth class. For secondary school they depend on Gbokoda or Koko.

There are relatively many Ilaje pupils at the school but now the Ilaje have started sending their children back to Ondo State to attend school.

1.2.5 Transport facilities

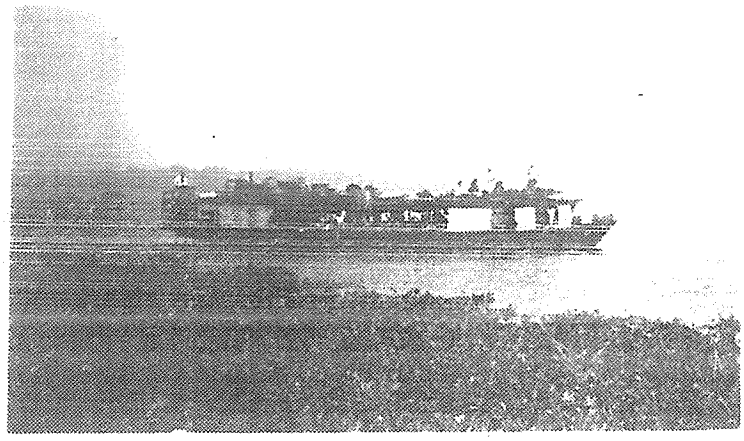
Transport from Ogheye via Koko to Sapele is organised by the River Master Transport Service. They have transport boats with three outboard engines each to transport persons and goods, mainly fish to Koko or Sapele and drinks and food to Ogheye.
The River Master transport service also has speedboats which can take about 20 people. These speedboats go twice a day and when they are full, they are really full.

People say they are satisfied with the transport facilities on the Benin River. The only accident they remember is a fire accident on the transport boat in 1986. Between Koko and Sapele one of the outboard engines caught fire and one person died in that accident.

The transport boats and the speedboats both pass by villages along the river if passengers from the boat want to stop there or if people from the shore give a sign that they want to embark.

Except for these boats from the River Master Transport Service, it is difficult to find transport in this area. There are some speedboats for rent at fairly high prices in Sapele but they are not easy to contact from Koko and not always available.

There is also a speedboat going to Aiyetoro in Ondo-state every day. Once every four days there is a transport boat going from Ogheye to Warri.



Transport boat Benin River

For the transport boats one used to pay 10 Naira a person to go from Ogheye to Koko, Sapele or Warri, since January 1990 this has gone up to 15 Naira. Cargo is charged separately. One basket of dry fish costs 5 Naira, one basket of fresh fish 8-10 Naira. (1 Naira = 0,1 US Dollar)
For the speed boats to Koko, Sapele or Aiyetoro one paid 20 Naira a person, this has now gone up to 30 Naira since January 1990.

A trip from Ogheye to Koko by speedboat takes about one hour, to Sapele from Ogheye one hour and a half, to Aiyetoro from Ogheye two hours.
With the transport boat a trip from Ogheye to Koko takes 4 to 7 hours.

Table 3: Daily transport facilities to and from Ogheye

		Departure		Departure	
speedboat	Ogheye	7.30	Sapele	14.00	Ogheye
speedboat	Sapele	7.30	Ogheye	13.00	Sapele
transport boat	Ogheye	7.00	Sapele		
transport boat	Sapele	7.00	Ogheye		
speedboat	Ogheye	7.30	Warri	14.00	Ogheye
speedboat	Aiyetoro	5.00	Ogheye	9.00	Aiyetoro

1.2.6 Electricity supply

In Ogheye there is no electricity. Only occasionally such as for ceremonies and other feasts are generators used.
There are probably some generators in the village but on an ordinary day nobody uses one. For light people depend on kerosene lamps. Televisions are rarely seen in Ogheye, radio/ cassette recorders are common and used occasionaly when people have money for batteries or have been able to load an old car battery.

Both in Gbokoda and in Jakpa electricity wires have been installed throughout the village. Reportedly due to mismanagement, the generators were not functioning anymore in any of the villages.

In Koko power is supplied by NEPA (Nigerian Electric Power Authority). The power in Koko, however, is cut off regularly.
None of the smaller settlements have public electricity.

1.2.7 Fuel supply

The fuel delivery is organised in a similar way as for drinking water. A fuel boat is passing by the villages.

In Ogheye there are one big and too small selling points for fuel. They have enough fuel to supply the fishermen from Ogheye and surroundings. The fuel is coming from Koko ; the mixture is said not to be very good.

At all the petrol stations in Nigeria the price for a litre of petrol is 60 kobo and for half a liter of oil 5 Naira. For a 25 l tank for the outboard engine, mixture 50 : 1, this comes to 20 Naira. In Ogheye the fishermen pay 25 Naira for a 25 liter tank of pre-mixed fuel.

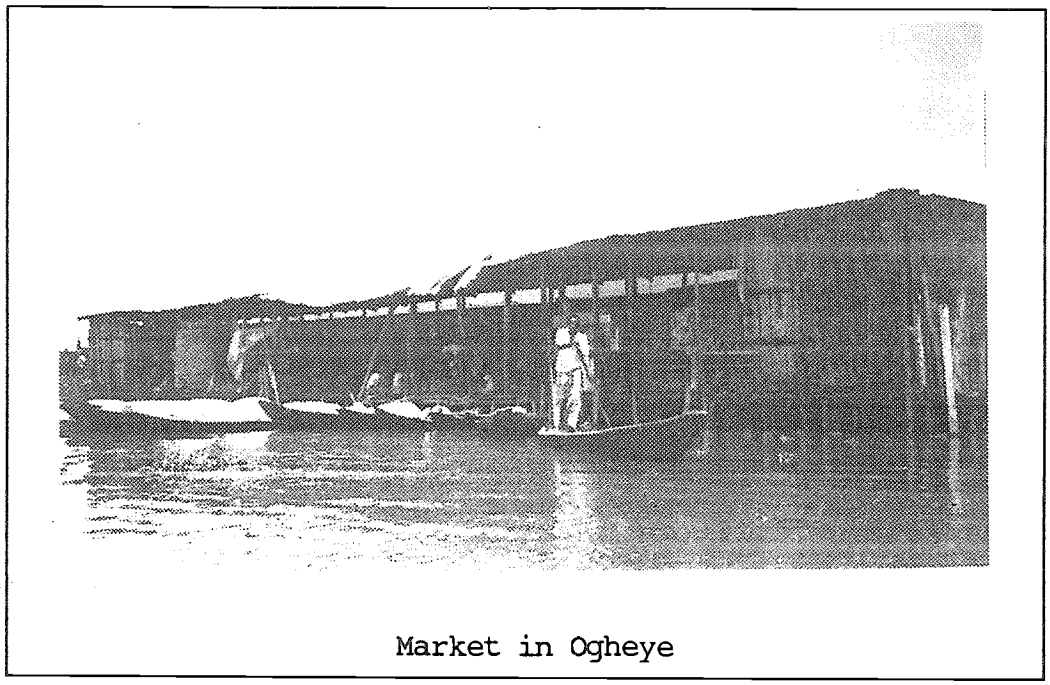
The fuel-selling points in Ogheye do not have an official status, there is not anything that legalizes them. Once in a while the sea police comes along and accuse them of smuggling. The three selling points that are there now are the ones that remained in spite of this trouble with the police.

1.2.8 Market, availability of food

In Ogheye there is a big, roofed market on stilts with about 70

market stalls. Every four days there is a special market day.

In this market one can find most necessities, the most important being foodstuffs as there is no agriculture at all in Ogheye. The main food people eat is 'eba' or 'starch' with sauce. Eba is boiled gari, a cassave product. Starch is also a cassava product. It is ground, washed and filtered cassava.
Besides gari and starch and ingredients for the sauce, one can occasionally find fruit, plantain, rice, maize and beans on sale in the market.
Other products such as palm-oil, vegetable oil, sugar, detergents, sweets and biscuits, drinks, medicines, clothes and plastic household utensils are also available.



Market in Ogheye

Fishing materials such as lines, floats, hooks and nets are available in Ogheye but not in abundance and more expensive then in Sapele. When the fishermen need new nets they prefer to go to Sapele themselves, when they only need small quantities for some repair they go to the market in Ogheye.
Materials for repairing the boats such as nails and strokes of zinc are also available in the market.

The market in Ogheye is lively and provides the villagers with most necessities, though the villagers themselves seem to prefer to go to Sapele once in a while where goods are cheaper.
The fish trade is not located at the market. The fishmammies from

Koko and Sapele go to the fish smoking women directly.
The market in Ogheye is the only big market of the area and supplies the nearby villages also.

There is another market in Beresibi a village opposite Ureju. In Beresibi the Itsekiri people are the fishermen, the Ijaw people the hunters and the Urhobos the agriculturists. Beresibi is the name of a Portuguese trader that started in the 19th century using the village as trading post for the palmproducts from the hinterland. Although it is not as important in trading at the moment as it has been before, the Itsekiri, Ijaws and Urhobos are still living there together each doing their own job. In Beresibi there is a market every four days. People from the surrounding villages and from Koko come there to sell and buy goods.

1.2.9 Housing condition

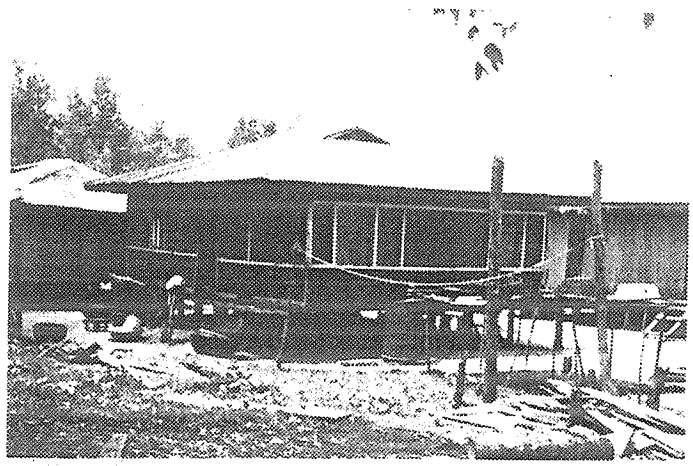
In Ogheye almost all houses are built on stilts. As a result of the ongoing erosion almost the whole village is flooded at high tide now.
Most houses are constructed of raffia (about 60%), the others are mainly of corrugated iron (about 30%). A few houses constructed of plywood are also seen in Ogheye as are some remains of old mud houses.

Raffia houses Ogheye

The houses are small and simple with only one or two rooms. Husband and wife have both their own house. If a man has more than one wife all wives have a small house of their own. When a family becomes too big for the house, a new house for the eldest children is constructed.

For the „bamboo" houses palm ribs are used for the walls and the plank floor is raised a foot or two above the ground on posts. The mud for the mud houses was brought to Ogheye by canoes from 40 miles away in Benin country. The walls of these houses were surfaced with a special clay. Nowadays these mud houses are not constructed anymore.

None of the houses have mosquito screens on the windows, but quite a few people use mosquito nets over their beds.
As nobody in Ogheye has a latrine, the sanitation situation is rather bad, especially because of flooding which spreads around all the human and animal excrement.



Corrugated iron house Ogheye

1.2.10 Religion

There are five churches in Ogheye, four belonging to the 'Cherubin and Seraphin Church' and one for the 'Deeper Life Church'.
The Seraphin and Cherubin churches in Ogheye have meetings on Sunday, Wednesday and Friday. People go fishing on every day they think will be a good fishing day. There is no day they stay at home for religious or traditional reasons.

Besides these churches traditional religions are quite vivid.

Following traditional belief people sacrifice once in a while a goat or chicken for the God of the water. The blood is poured in the water and by this people hope the God of the water will give them good catches and safe fishing trips.

A ceremony like this lasts three days and is organised by individual households. Everybody joins such a ceremony at least once a year. Besides these sacrifices people have little tables along the river side on which they put a drink (gin, palmwine) once in a while for the water river god. This is accompanied by a ceremony also. It can happen that one of the local healers forsees danger, in such a case he can forbid the fishermen to go out fishing for three days.

1.3. Fisheries in Ogheye

1.3.1 Fishing methods

In Ogheye the marine fisheries are the most important in terms of share and total catch, productivity and probably also in terms of employment.
The marine fishermen in Ogheye engage in 4 different kind of fisheries; longlines, driftnets, bottom gillnet and dragnet.
The fishermen from Ogheye go out for fishing trips of a couple of hours, sometimes in the morning, sometimes in the afternoon and sometimes at night. In the high fishing season they can go out twice a day. Besides fishing, some boatrepair and very little gear maintenance, the fishermen are not involved in other activities.

The longlines

There are two kinds of drift longlines, one for sharks and tarpon and the other for threadfin (Shinynose). They also use bottom longline for catfish and rays. The designs vary depending on individual fisherman's ideas. It is remarkable that after buying their hooks on the market, the fishermen bend all hooks according to their idea of which form, catch and hold they fish best. They supply their bottom longline with floaters in order to keep the bait off the muddy bottom (for details see annex 4).

The mainline is PVA R 410 tex, the snoods are PVA R 310 tex length 120 mm, the hooks are Kirby Sea hooks no. 12 - 15 and the distance between the hooks is 900 mm. Total no. of hooks 1,000.
The bait consist of worms dug from the ground and is put on the hooks while setting the longline.
Most fishermen check the lines daily and simply rebait when necessary. It was reported that the bending technic used by marine fishermen was not used by the river fishermen.

Driftnets

Two kinds of driftnets are used for catching Catfish and Tarpon. One is an imported design of a Gabon net and the other, Ususu, is a locally developed driftnet.
Another driftnet is the Sene-Sene, which is used to catch bait for the longlines (for details see annex 4).

Bottom gillnets

Only one type of bottom gillnet, the Ofolo, was reported as being used for catching shad (bonga) (for details see annex 4).

Drag net

The dragnet is used for catching crayfish (mainly white shrimps) in 1 - 4.5 meters depth. It consists of a square wooden frame (2.20 - 3.0) and 18 meter of fine trawlnet, formed in a funnel shape, mesh sizes vary from 50 mm to 12 mm, towed after the boat by 16-22 m/m P.P. rope.

Nearly all fishing gear is used all year round, but they do have certain peak seasons.

The marine fishermen in Ogheye are often experimenting with their gear and adapting it to specific needs. To cite the chief fisherman : "I know exactly how and when the fish in my water moves, so I have to get the gear to suit that situation".

The Ususu net was first mounted with leadline, but it was removed, because the fishermen did not want the net to be destroyed by big fish. They claim that the removal of the leadline allows the big fish to escape under the net without getting entangled.

This, together with the modification of the longlines are two examples of how the fishermen are trying to improve their gear, but discussion with fishermen disclosed a limited knowledge of gear maintenance, construction and comportment. In fact the repairs and construction are now done by hired labour, and the repair observed was of a doubtful quality.

There seems to be a trend in Ogheye from longlining towards driftnetting. The fishermen did not give any particular reason, but it can easily lie in the fact that longlining is very labour intensive both on shore and at sea, whereas the driftnets are not as labour intensive and only need sporadic work on shore. The bait expenses are not a big factor as the fishermen catch nearly all their bait themselves.

Though perhaps somewhat less important than marine fisheries in Ogheye, one should not forget the fisheries in the estuary and the creeks. The fishing methods used here are even more varied than on the coast, reflecting great skill and ingenuity among the local fishing population. A multitude of locally made traps are particularly adapted to exploit the currents and tidal movements in the estuary.

Traps

Among the traps used, there is a crab-trap, popular for catching the common lagoon crab. Along the Benin River, women and children are operating this gear from the jetty or in the river side from their canoes. Gut of big fish or eels are used as bait. This gear consists of an old bicycle rim and some 18-20mm mesh netting.
The crayfish trap is constructed with raffia branches in a V form with a diameter at the open end of 85 cm. The trap is set in the water to a stick, with the open end against the flow of the water. The trap is removed in the morning to collect the catch and then re-set.
The baited crayfish trap is a small trap woven with the stick from rafia branch leaves. It is about 30cm long and 30cm wide, 25cm high in front. It is wider at the ends, about 38 cm but also somewhat flatter. Ripe rafia fruit was used as bait to attract the crayfish. The trap is set on the bottom with sticks on the side to keep the trap in position. These traps are mainly used by women and children. They collect the catch and re-set the trap every day.

Pipe traps are made of old scrap steel pipe and used to catch catfish in the river. One end of the pipe is blocked by wood to prevent the fish to swim through. The trap is set on the bottom of the river and P.V.A. rope 03 is used to connect the traps from one to another with about 5m interval. After a week the catch is collected and the trap re-set. Small floaters are used as indicator to locate the position of the trap. (see annex 4 for details)

Traps for small fish and shrimps consist of a barrier constructed with mangrove branches across the shallow section of the water. A hole of about 30cm diameter is made in it at the base at about 1 to 1.5m interval. Woven traps are set in the hole against the flow of the water, and fish and shrimp are guided by the barrier into the traps. The trap is removed in the morning to collect the catch and is then re-set. No bait is used to attract the fish/ shrimp. The trap is constructed of bamboo.

Cast Net

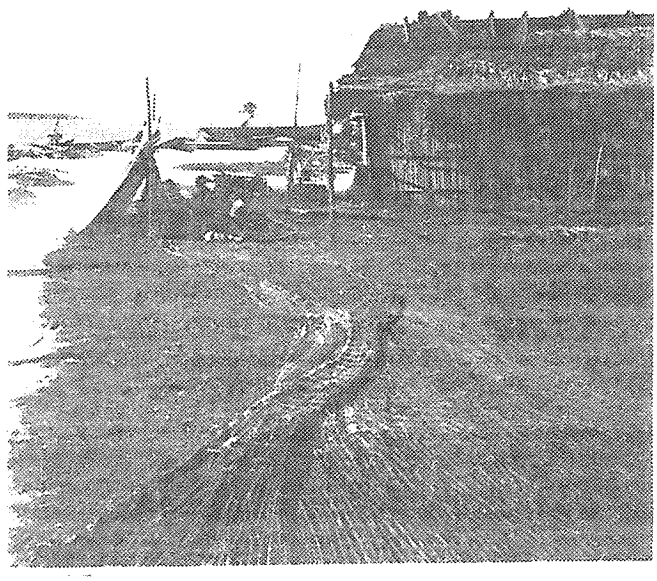
The cast net is operated from canoes in inshore shallow water or from shore with one or two fishermen.

Small-meshed gill-nets with multi-species fishing gear are probably universally used by the estuary fishermen, though it should be remarked that many of those seen in use were in a poor condition. Both multi- and monofilament is common. Because of the strong tides, drift-netting seems to be favoured in the estuary, at night aided by lamps.

Ita : Cray fish net in the river

This conical shaped net is made of parts of old trawlnet and mangrove airroots. The trawlnet is circular (opening girth 0 21.6 m - 4.5 meter in the joining sector) and has a length of 13 meter. The circular opening is supported by PP 0 12 mm and 4 PP 0 12 mm (distance 90') is attached frequently during all the length of the net. The sack is also circular (joining end 4.5 net - 1.8 meter end) and have length of 18 meters. The Mangrove airroots are joined together by old trawlnet ropes. (see annex 4 for drawings of these traps and nets).

The Ita net is fastened to poles in the river with PP 12 mm, with the opening against the river flow, the current at ebb tide being strong enough to squeeze the fish together in the 'cod-end' of the trap. Once every few days the fish is collected by opening the 'cod-end'.
It is used all year round.



Constuction of Ita-net Ogheye

Pole and lines : Some pole and line fishery can be observed along the river banks.
Only women in small dugout canoes were observed carrying out this fishery, presumably mainly for autoconsumption. Lines of about 2

metres were used with small hooks.

1.3.2 Seasonality factors

The climate in the Benin-river area is characterized by a rainy period between April and September and a dry dusty sahara wind, the Harmattan in December and January, the changes having an impact on the fisheries.
In general one can say that the high season for the nets is more in the rainy period and the high season for the longlines is more during the Harmattan. Though all gear is used throughout the year.
The fish species caught depend on the fishing gear used. With the ususu net and the Gabon net the catch is mainly shinynose, catfish and croaker, on longline with hooks nr 9 mainly catfish. With the ofolo net sardinellas are caught in December/January. See for more details annex 4 on fishing gear.

It seems that the women, especially in the low fishing season (April-July), depend on the fish that some fishermen buy from the trawlers. It seems that this is the small sized fish that the trawlers are not allowed to catch.
Trawlers are not allowed to use a codend with stretch mesh size of less than 3 inches (76 mm) when trawling for fish in the inshore waters or less than 1 3/4 inches (44 mm) when trawling for shrimps in area approved for shrimp trawling.
About 75% of all the fish transported from Ogheye to Koko and Sapele is this small fish from the trawlers.

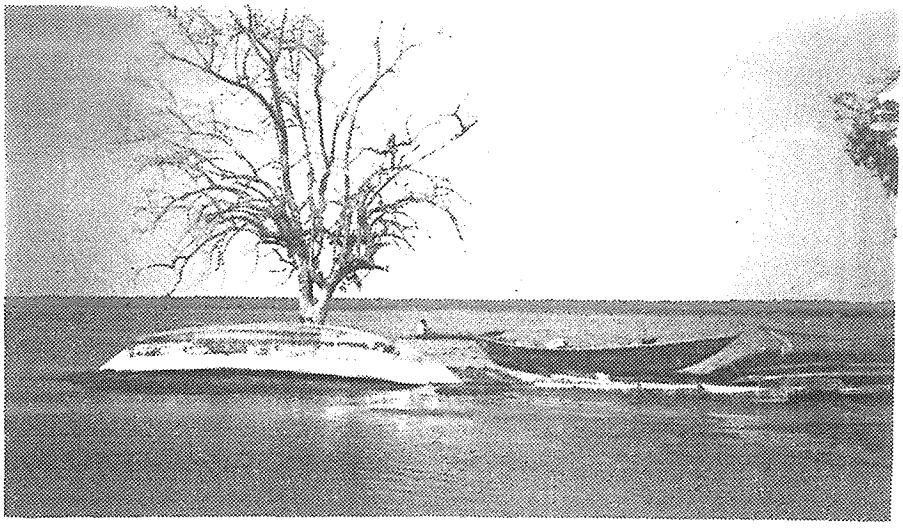
1.3.3 Vessels/ boatbuilders

Most fishermen in Ogheye make use of motorized planked canoes ("banana boats") with 8 - 25 hp (15 hp most common) engines fixed in a well. Sizes vary, but the most common seems to be the "14 planks" canoe which is 9 m long.

The banana boats are made in several sizes and the sizes are expressed in actual number of planks used for the construction.
The boats are made in sizes, 16 planks, 15 planks, 14 planks, 12 planks, 10 planks and 9 planks. The prices vary from N 2,000 for the 16 planks banana boat to N 900 for the 9 planks. It was mentioned that if fishermen buy the materials themselves the price would be reduced. A 16 planks canoe can then be built for N 1650.

The banana boats are constructed without frames and the only diagonal support are the outboard engine support and the thwarts.

The gaps between the planks are stuffed with gum and then covered first with cardboard and Aluminium Zinc shifts secured by nails over all gaps on the inside.
The stability is said to be very good with nets and fish in the boat, but it rolls considerably unloaded. Lifespan is said to be 3-4 years with good maintenance.



Banana-boats Ogheye

By comparison, a dugout canoe for the river 10 m long costs N 2,000 and has a lifespan of 8 years.
A few larger dugouts are still being used for marine fisheries, but apparently to a diminishing degree despite being regarded as better and longer lasting vessels than the banana boats. The reason is first of all the soaring costs (possibly reflecting the depletion of suitable trees), but also a lack of skilled canoe-builders which are "only found among the Ijaw" according to the local fishermen.
The smaller dugout canoes are still very common for the riverine fishing and transport.

A few 7 m Yamaha type GRP boats which are made in Port Hartcourt are seen in the area, but are said to be exclusively for river transport. They are said to cost as much as 25,000 Naira.
The fishermen find them too heavy and not suitable for passing the waves with a 25 hp outboard engine.
A second remark made was that they are bumping too much on the waves.

The fishermen find the fibreglass banana boats made in Igbokoda

(Ondo State) too expensive. A banana boat of the size of the 16 planks wooden banana boat cost N 4,000 in 1989 and has risen to N 8,000 in 1990, despite government subsidies.
The fishermen know the existence of the big Ghanaian dugout canoes but find them too heavy and they do not know where to buy them.

1.3.4 Fishing crews

The fishing crew of a banana boat consists normally of two to three people. Mostly a captain and one or two younger family members.
There are some boatowners who rent out their boat and equipment, but in that case they will first look for family and otherwise an Itsekiri boatowner will look for an Itsekiri crew and an Ilaje boatowner will look for an Ilaje crew.

If the captain is not the boatowner, the boatowner gets two thirds of the catch when he pays for the maintenance of the equipment or half of the catch when the captain looks after it. The captain pays in both cases for the fuel. The share to the boatowner is normally taken after reducing the costs of fuel from the income from the catch.

1.3.5 Outboard engines

In Ogheye about 40 % of the seagoing canoes is said to be motorized.
Two years ago the government removed the 50% subsidy to engines and spareparts, resulting in a sudden rise in costs of fishing operations influencing the price of fish and economic viability of fishcapture.
The number of motorized canoes is going down as the outboard engines became too expensive. The fishermen are starting to use sails again. It was said that almost 100% of the seagoing canoes had been motorized a few years ago.

In Ogheye spareparts are difficult to find. It is necessary to travel to Port Hartcourt or Warri, where spareparts are cheaper. A mechanic is based in Ogheye and the fishermen are satisfied with his repair work.

The Yamaha is prefered by the fishermen due to a longer lifespan, less fuel consumption and better available spareparts compared with Mariner. A Johnson was also seen, but they are

scarce and spareparts are said to be a big problem.

Table 4 Prices of outboard engines according to the fishermen (Oct '89) and at Almarine (July '90)

	according to fishermen		Almarine	
Yamaha	8 HP :			13.950 N
	15 HP :	10 000 N		17.930 N
	25 HP :	18 000 N		19.380 N
	30 HP :	20 000 N	40 HP	30.290 N
	55 HP :	35 000 N		
	75 HP :	45 000 N		
Mariner	25 HP :	16 000 N		

1.3.6 Cooperatives

Fishermen associations in Bendel State are of various types. Among them are fisheries cooperatives, which have been duly registered by the cooperative department of the State's Ministry of trade and Industry. Others are associations formed for various multipurpose functions working towards eventual registration as cooperatives, and yet there exist others which are working satisfactorily as independent democratic groups without the need for legal registration.
The number of such fishermen associations in operation in the state is estimated in 1987 to be about 100. Of this number 14 were registered fishermen multipurpose societies. These associations and in particular, the cooperatives, provide a forum for the discussions of the common problems of fishermen. In this regard, bi-monthly or monthly meetings are usually held between them and the various fisheries development agencies of government in the state.
At such meetings, attempts are made to identify problems encountered by the fishermen and solutions found to them. The form also allows for explaining of government policies and programmes as it affects the industry and fishermen in general.
The fishermen cooperative societies were used as channels for the distribution of subsidized government fishing inputs, e.g. outboard engines, nets, floats, lead, threads, twines, hooks, buoys and credit to fishermen in the state. (FACU, 1988).

In Ogheye and the direct environs of Ogheye there are said to be 18 cooperatives, united in the Benin River Mother Cooperative union.
Some of the cooperatives were said to have existed already for more than 20 years. In the past the members of the cooperatives would meet every two weeks or once every month. At these meetings

money was collected. This money was used to give credit to the cooperative members or to buy a stock of spareparts or gear when there was an attractive offer.
The fishermen gave as reason for starting these cooperatives that they did not like to be dependent on the money of the fish-mammies. Now they say some fish-mammies are dependent on the fishermen.

It seems that though there is a lot of talk about cooperatives the actual number of cooperatives in function is quite limited if not zero. When cooperatives were a necessary structure of organisation to receive government subsidies, cooperatives are formed of mainly family members or friends.

The multi-purpose cooperative in Ogheye has 27 members of which 12 are women. Due to the experiences of the last years people in the village do not expect much from the cooperatives anymore.
Not many people are member of a cooperative. In Ogheye and surroundings the reason mentioned for this is that the people do not trust the chairmen and that the idea from several years ago, that the cooperatives could supply fishing material for a good price, has never been working.

The high prices of the outboard engines at the moment has caused a drop in the percentage of motorized canoes. The cooperatives do not supply loans high enough to cover the cost of outboard engines.
For loans, the fishermen depend on the middlemen in the village or on the banks in Sapele or Warri.

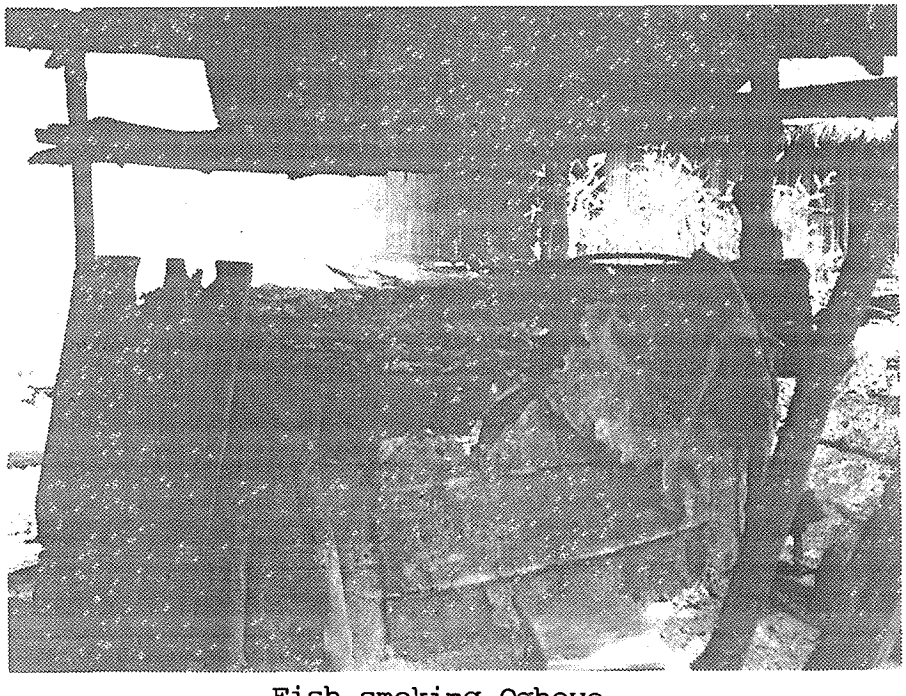
In the riverine villages people are said to be interested in outboard engines also, though they have not been using them uptill now. To underline this demand for cheap outboard engines they pointed out that the projects always focus on Ogheye and forget the riverine villages. It was said that the cooperatives in the riverine villages had to inscribe themselves in Koko and that they paid their contribution for years but that they had never seen anything in return from it.

1.4. Fish processing and marketing

1.4.1 Fish smoking

By far the largest proportion of the catches are smoked on a variation of the banda type oven. The ovens are located in smoke sheds, five or six in each. The ovens are apparently the property of the women smokers themselves who nevertheless rent the space for the oven from the smoke-shed owners.

The fire area of the oven is usually enclosed by metal sheeting (corrugated iron or flattened oil drums). The fish or shrimps are then placed on wiremesh above. However, and contrary to bandas in say Sierra Leone, several layers are placed on top of each other (upto eight) only seperated by loose sticks and cudgels. The whole mound is then in turn loosely enclosed in metal sheeting. With this method it seems almost inevitable that some fish in the bottom layers should suffer some damage, and the reshuffling of the wobbly wire mesh sheets seems hazardous both in terms of the danger of getting one's fingers burnt and the risk of spilling part of the fish on the ground.



Fish smoking Ogheye

Once the fish is on the fire they leave it there for the rest of the day, changing the position of the wiremesh once in a while. When the fish is well smoked it will last for a month, but the women sell it mostly within a few days, making resmoking unnecessary. According to the women they have no problems with post harvest losses.
A previous attempt to introduce the Altona oven in Ogheye did not meet with success; the oven is still there but has obviously hardly ever been used.

In the smaller river villages a smaller banda-type oven is standard, situated in the various household kitchens consisting of a small hut separated from the living quarters. The fish is not always placed on wiremesh but sometimes hung tail-down from steel rods over the fire which, incidentally, may be used simultaneously to cook the household food.

The women smoke the fish immediately after the landing. Even if the fishermen come in in the middle of night the women get up and start smoking.
When the fish is on the fire the women use their time for household activities as cleaning the house, cooking and looking after the children. For that reason it is important for the women that the smoking place is near the house.

1.4.2 Fish marketing

The fish that is landed in Ogheye is sold partly fresh and partly smoked. The fresh fish is covered with waterhyacinth to keep it fresh during transport.
The practice of keeping fish alive in cages also seems widespread, particularly for catfish which is then marketed live at better prices than smoked.
After smoking the fish the women can sell it in Ogheye to one of the fish mammies from Koko or Sapele or they can send the fish unaccompanied by boat to Koko or Sapele to someone they know there who can sell it for them. Women from Ogheye do themselves go to the towns with their fish once in a while also. Then they often come back with something they can sell in Ogheye like soft-drinks or plastic household utensils
When the women smoke their husbands' fish they sell it and are supposed to give all the money for the fish to their husbands afterwards. However, nobody knows what part of the profit the women keep for themselves as income for the smoking.

The fish smoking women claim that they can smoke more fish then the fish the fishermen bring in. Thus there are some fishermen from Ogheye going to the trawlers to buy their by-catch, but this is very small fish and the fish mammies from Koko and Sapele are much more interested in the bigger fish the fishermen from Ogheye

catch themselves.
From the fish transported with the transport boat to Koko and Sapele about 80% is fish bought from the trawlers. The women have organised a system to assure themselves of a share in this trawler fish. They can become so-called regular customers, which means that they can always buy a certain percentage of this fish.

In order to get an idea about the amount of fish transported from Ogheye, the number of baskets transported by the transport boat to Koko and Sapele is noted down for a year period. The transport boat is in practice the only possibility to transport baskets of fish from Ogheye to Koko or Sapele. Besides the fish that is eaten in the fishing communities itself, almost all the fish is going to Koko or Sapele, a minor part may go to Ondo State or to Warri.

An average of 15 smaller baskets gave an estimated weight of 11kg for a small basket and an average of 14 bigger baskets gave an average of 17kg for a big basket. Though there was a difference made between small and big baskets in the datacollection of the number of baskets transported , there is actually not a clear difference. There is a gradual change from baskets of 5kg up to baskets of 29kg.

The daily transport boat from Ogheye to Koko and Sapele transported since June 1989 the following number of baskets:

Table 5: Baskets of fish transported from Ogheye to Koko and Sapele.

	Fresh fish		Smoked fish	
	Small basket	Big basket	Small basket	Big basket
June	355	355	740	741
July	419	514	1051	1095
August	475	399	1189	1258
September	232	190	1430	1681
October	494	335	1595	1447
November	419	418	1465	1798
December	354	260	1475	1497
January	334	341	1181	1108
February	146	167	854	981
March	236	139	715	1205
April	214	77	815	956
May	163	37	612	395
June	124	12	473	390

With the estimated weigth of 11kg for a small basket and 17kg for a big basket of smoked fish this gives the following amount of smoked fish transported from Ogheye to Koko and Sapele:

Table 6: Estimated monthly weight of smoked fish transported from Ogheye to Koko and Sapele.

June	20,737	kg smoked fish
July	30,176	"
August	34,465	"
September	44,307	"
October	41,924	"
November	46,681	"
December	41,674	"
January	31,827	"
February	26,071	"
March	28,350	"
April	25,217	"
May	13,447	"
June	11,833	"

The drop in the weight of the smoked fish transported from Ogheye in May and June 1990 can among others be explained by the fact that most Ilaje people who lived in Ogheye had left the village due to political problems between the Itsekiri and the Ilaje at that time.
More than 50% of the inhabitants of Ogheye used to be Ilaje people. In July 1990 the Ilaje people started coming back to Ogheye.

An average of 30.000 kg smoked fish coming monthly from Ogheye gives 40,000 persons 25 gram of smoked fish daily. This means that the area is far from self sufficient, Benin City alone probably having a population of close to a million.

From the villages the fish is sold to fish mammies who come from Sapele and Koko. These fish mammies come to Ogheye or one of the other villages for several days. They look around, make their choice and buy the fish. They mostly buy the fish from the same fishermen or women each time, then they go to Koko or Sapele with the transport boat.
The fish mammies are mainly going to Ogheye, though there are also fish mammies going to some of the villages along the river. From the villages nearby Ogheye the fishsmoking women can bring the fish to Ogheye to meet the fish mammies there.

Almost all fish-mammies who go to Ogheye or one of the other villages have family relations with at least one of the inhabitants of that village. So, the fish mammies buy their fish mostly from the same women whom they know and with whom they have a good relation. There are also some fish-mammies who go around

in the village to look for fish to buy.

In Koko the fish mammies from Benin City wait near the landing-jetty for the arrival of the boat. They come with a little taxi-van hired in Benin City.
The women from Koko arriving with the fish from Ogheye can make a reasonable profit by selling it to these fish mammies. A basket of fish bought in Ogheye for N 120 can be sold in Koko for N 200. In general the women say they sell a basket of fish with about 25% profit. Their profit depends on their working capital. The fish mammies said that seven years ago 300 Naira was a good amount of money to work with ; now the requirement is about 3,000 Naira.

Fresh fish seems to be more profitable than smoked fish. The storage and the transport of fresh fish from the rural villages to the markets is a problem. Only catfish is sold fresh now due to its longevity.
If the trade in fresh fish is to be developed further, this will require at least a coldstore in one of the rural villages and a transport boat with ice box facilities for ice delivery and transport of fish to the market.
Before introducing anything like this a rentability study is of course needed.

As there is only one boat a day coming from Ogheye to Koko with fish, the fish marketing activities in Koko depend on the arrival of this boat. An hour after the arrival of this boat there are no more fish marketing activities in Koko. It is likely that even more profit on the fishtrade can be made between Koko and Benin City than between Ogheye and Koko.

The women from Benin City are not allowed to go to Ogheye themselves, the fish mammies from Koko have forbid them this.
Women from Koko who go to Ogheye try to keep the relations with the fishermen good by taking things such as gear, clothes or detergent with them once in a while.
For the fish mammies who want to start a trade, it is possible to start with a small amount of money and then make appointments with a fisherman to pay after selling the fish.

1.5. Complementary economic activities in the fishing communities

Besides fishing, fish smoking and fish trading there are not many other income generating activities in Ogheye and its surroundings, probably because they earn, according to their own standards, reasonable incomes from fishing and fish smoking.

Women used to gain some money through mat making, especially the area around Tebu is known for this. Tebu is a village at the riverside of the Benin River connected by road with Gbokoda (see map annex 2). Today in Tebu they only grow the rushes (Juncus spp) for making mats. The rushes are transported to Ondo State where the mats are made.
The women clear ground and plant reeds which they dry later. The dry season is the only period when the women can dry the rushes, in the rainy season the humidity is too high. In the dry season however, the cultivation of rushes is more important in Tebu then fishing.

Agriculture
The swamp soils are agriculturally poor and the Itsekiri are not farmers by tradition. It is difficult to ascertain whether they cultivated in the past. It is known that in the 19th century the Urhobo people cultivated plantations near settlements and the Itsekiri now term agriculture "slaves work" and are loath to lower their status by performing it themselves. In these circumstances rights to cultivate land are ill-defined; a man merely has to notify the elders of the village before clearing a farm within the village area.
In the drier areas cassava and maize will yield mediocre harvests. The Itsekiri have a legend that the Portuguese brought cassava to their country and told them how to grow it; they then passed the plant to the Urhobo to cultivate it for them. The oil palm grows wild, but the quality of the oil produced is lower than that of inland areas. A European firm established a large palm plantation near Koko at the beginning of the century, but their lead has not been followed by the Itsekiri. The Agricultural Department is endeavouring to popularize rice-growing, but the shortage of young men in the rural areas seems to be a handicap. In the late 19th century European firms started to grow coffee and cacoa, but with little success. Several rubber plantations were made by the Itsekiri about 20 years ago. (Lloyd, 1957)
At that time people in Ogheye grew also some fresh peppers, bitter leaves, mango trees, guava trees, etc. As land disappeared in the sea through erosion people have become reluctant to start new agricultural activities.
Nowadays one can only occasionally find some bananas, lemons, avocados or guavas in Ogheye at the market, probably from some of the nearby villages.

Salt-making

From the mangrove the Itsekiri formerly made salt which they sold to the Urhobo. Although imported salt has largely replaced this local product, there are still several dishes in which the stronger tasting salt is preferred. It is made from the leaves and shoots of the white mangrove (igba okun) and from the shoots and roots of the red mangrove (ibojo). The mangrove is burnt, water is filtered through the ashes and the resulting solution boiled until the water has evaporated. In the 19th century the mangrove cutting was performed by slaves and lack of such labour is today cited as a cause of the decline of the industry. It is said that salt was also obtained from seawater in the past. (Lloyd, 1957)

Livestock and hunting

Cattle of the dwarf muturu type are kept in several villages now, and particularly on the sandy beaches at the river mouths. Goats and sheep, pigs and poultry are ubiquitous, though losses through disease are high.

The swamps abound in wildlife, but organized hunting parties are uncommon. Crocodiles in the creeks are sometimes sacred, but are elsewhere trapped and sold for food.

The wood the women use for fishsmoking is mostly collected by men from whom they buy it. The wood is cut near the village or comes from Jakpa. In Jakpa the soil is different than in Ogheye and suitable for some agriculture, though this is not practised.

Other activities conducted, particularly on no-fishing days are boat-repairs, house construction, basket making and so on.

The young men from the village can also find employment in the oil-industry.

2.1 The Uta-Ewa project area

Uta-Ewa, headquarters of the Akwa-Ibom element of the project, falls under the local government of Ikot-Abasi, which is the nearest town, at a distance of only 2 km.
The project area extends eastwards of Opobo estuary (Imo River), up to Iko fishing settlement. This consists of 25 km of Atlantic sea coast and of numerous and extensive mangrove estuaries and creeks. (See annex 3 for a map of the area).

Akwa Ibom State, with Uyo as capital, is a recently formed state. In 1988 it was decided that part of Cross River State should become Akwa Ibom State.
Akwa Ibom State lies between latitudes 4°50' and 5°50' N and longitudes 7°50' and 8° E.
As Akwa Ibom State is a new state, it is difficult to find information specifically about it. In Akwa Ibom State the Ibibio people are the main ethnical group.

Physically, the area is remarkably flat or gently undulating with almost no point rising to 300ft (+/-90m) above sea level and amply drained by the Qua Iboe and the Cross Rivers and their several tributaries.
Vegetationally the area lies almost entirely in the thick rain forest belt. The coast has an annual rainfall of about 140 inches (+/- 3500 mm) with the rain being heaviest between May and July. The dry season starts towards the end of November with the N.E. winds bringing the Harmattan down south and lasting till sometime in April.
The soil in most areas consists mainly of loose friable sand which requires heavy fertilization and proper management to support more than a single crop per year. A small area of iron stone is found around Itu in the Cross River basin and some clayey patches around the Qua Iboe river basin. The Ibibio country however, supports a vast growth of wild oil palm in the high rain forest zone and mangrove in the coastal swamps. With the rise of modern agriculture sponsored by formal organisations the area has shaded most of its thick forests giving way to open cultivated lands. The growth of towns and modern institutions have equally contributed to a transformation of the vegetation and physical features in the area. With the growth of these physical structures came the phenomenal growth in the population which has hence brought great pressure on land space and a drastic change in the traditional values attached to land. (Ekong)

The main target villages in the project area are Uta-Ewa, Okoroete and Iko. All together 19 villages were identified during a survey of the project area.
The information for this base-line study is mainly collected from Okoroete and Okopedi.

Okoroete is a medium sized village. There is Okoroete village, with an estimated population of 12,000 and Okoroete settlement with an estimated population of 8,400.
The number of fishermen in Okoroete settlement is said to be about 1500 and in Okoroete village 400. People from Okoroete settlement claim to have houses in Okoroete village. It is not clear whether the figures given on the number of fishermen or inhabitants double-count the people from Okoroete village who fish from Okoroete settlement when in fact they are living there most of the time.

The people living in Okoroete are Andoni and Ibibio. There are also a few Ibos as traders in the village.
In Okoroete settlement, situated along the seacoast, everybody is involved in fishing, men as well as women. The men mostly in seafishing, the women more in setting traps in the estuaries.
It is the women who smoke the fish.

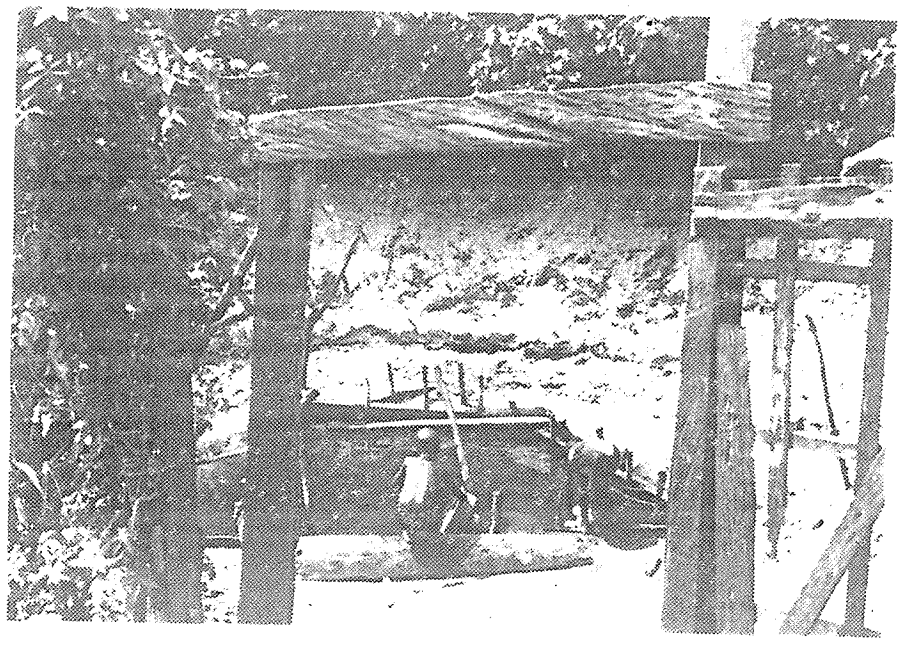
Okopedi is situated more inland from the estuaries . People here live from fishing in the river. The population is estimated at 1,040. There are said to be 200 fishermen and 100 canoes.
Okopedi is an old settlement, it used to be an Ibibio settlement but Andonis are living there also since a long time ago.
At the moment there is migration from this settlement to Bonny, a village at the seacoast, to the Port Harcourt area, to Calabar and to Cameroun.

2.2 Uta-Ewa and surroundings

2.2.1 Water supply

The water supply in the villages is a big problem. There are very few wells in the villages and the water from these wells is of a bad quality and cannot be used for drinking or cooking.
In the rainy season people collect rainwater, but in a very primitive way. They just put a bucket outside. No gutters are seen in the settlements, nor drums to store the water.

When water for drinking or cooking is needed, the women from Okoroete settlement paddle to Okoroete village where there is a little stream with "good" water.
To go there the women have to paddle 1 to 1½ hour each way.
They collect one or two buckets or a 25 l jerrycan a time. A family of 6 persons is said to use 25 l every 4 days for only drinking and cooking. Of course the women combine these trips to Okoroete village with other shopping or family visits.



well in Okoroete

In Okopedi rainwater is used in the rainy season also, but there the water from the well is said to be good enough for cooking. There are two small wells in the village.

2.2.2 Health facilities / health situation

For medical care the people from Okoroete settlement depend on a clinic in Iko village. Iko village is a village closer by than Okoroete village and one can walk there from Okoroete settlement by crossing a sandbank. By canoe it takes about 45 minutes of paddling.
For buying medicines people also depend on Iko. Sometimes they can buy some medicines from hawkers who come along in the settlement.

People from Okopedi depend on Ete for medical care, three hours walking, or Ikot Abasi, two hours paddling away.
There are some midwifes in the village and the women use their services when they have to deliver babies.
In Okopedi one can also buy medicines.

On the question of what diseases people suffer most from, the immediate answer is always malaria, cholera and dysentery. Though these diseases are undoubtedly a big problem in this area, it seems also that people tend to call all fever malaria and all diarrhoea dysentery or cholera.

In order to get an idea about the health situation, the nutritional status of the children was measured by taking their height and weight.
In Okoroete 153 children were measured, 80 girls and 73 boys. As in Ogheye, only the children who were willing/ able to come to the site where we were measuring, were measured. One thus has to keep in mind that the actual situation is normally worse than represented by these figures because the sick children tend to stay at home.

The data collected in February 1990 were compared with the NCHS-growth charts. (WHO publication 1983, Mésure des modifications de l'état nutritionnel):
The following results were found for weight for height:

Table 7: Nutritional status of children from Okoroete

% of standard	≤80	81-90	91-100	101-110	111-120	≥121	total
number	2	12	61	59	15	4	153
%	1	8	40	39	10	3	101

These figures show that the actual situation is not bad. As the measurements were taken in February, which is again the end of a high fishing season, one can expect the nutritional status of the children to be best in this period.

During a visit to Okoroete in May 1989 the impression of the nutritional status of the children was that it was much worse than in February 1990. At that time no measurements were taken. Both in May and in February a lot of children were seen with big bellies. This may be an indication of worms or other intestinal problems and can well be caused by the bad water situation.
As it was very difficult to get good answers on the age of the children, it is not worth looking at the height for age.
No differences were found between boys and girls in terms of nutritional status in Okoroete.

In Uta-Ewa 97 children were measured in December 1989 and in Okopedi/Iwofe 119 children were measured in February 1990.
In Uta-Ewa 46 girls and 51 boys were measured and in Okopedi/ Iwofe 63 girls and 56 boys.

Table 8: Nutritional status of children from Uta-Ewa and Okopedi

% of standard	≤80	81-90	91-100	101-110	111-120	≥121	total
number Uta-Ewa	1	9	50	25	11	1	97
%	1	9	52	26	11	1	99
number Okopedi	14	27	51	19	5	3	119
%	12	23	43	16	4	2	100

Data collected by F.Osei-Opare.

Here we see that the situation in Okopedi/ Iwofe is worse than in the other settlements, 12% of the children are below 80% of the standard. From these 14 children below 80% 10 were girls and 4 were boys. Within the limitations of this field work it is not possible to give an explanation for this.

2.2.3 Educational facilities

There are primary schools in Okoroete village and Iko village. In Okoroete village the primary school has two groups for all six classes, about 85 children in each year.
The children from Okoroete settlement go to school in Okoroete village. There are said to be about 300 children from Okoroete settlement going to school in the village.
In Iko village there is a secondary school also.

In Okopedi they are just starting a primary school. There are two teachers and they have formed two classes covering elementary

class 1,2 and 3.

2.2.4 Transport facilities

There are no transport facilities in this area. People paddle themselves in their small canoes to the neighbouring villages.
From Okoroete village the women can ask a motorized transport boat to come down to the settlement to transport them, 5 women together, with their fish. The women pay 30 Naira each for the transport to Okoroete village. From the village they continue by car. The women pay 10 Naira each for themselves and the fish to go from Okoroete village to Ikot Abasi. The whole travel is about three hours.
Similar arrangements exist to go to Port Harcourt. Then the women pay 50 Naira for the first part of the travel by boat and 40 Naira for continuing by car. A travel to Port Harcourt takes six hours.

From Okopedi people paddle to Ikot Abasi (two hours) or walk to Ete (three hours). From both Ikot Abasi and Ete they can continue by car.

2.2.5 Electricity supply

In none of the fishing settlements is there electricity. In Okoroete village there are a few generators, in the settlement there are none.

2.2.6 Fuel supply

There is no fuel supply in the villages, the nearest place to go for fuel is Ikot Abasi.

2.2.7 Market, availability of food

From Okoroete settlement people go to Okoroete village or to Ikot Abasi for shopping. In both these places there are daily markets. In the settlement there are a few people selling small things, and there are sometimes hawkers going around. The women have to plan their shopping quite well. They depend on markets that are at least 1 to 1½ hour travelling from the settlement for almost

all their food.
In the settlement some mangoes, coconuts, papayas, sugercane and plantain is grown.

In Okopedi there are also some women who sell some small things and there are some hucksters going around. Here people depend on Ete or Ikot Abasi for shopping. From Ete, which is accessible by road, some people come to Okopedi to sell.

People say they eat three times a day. In the morning they may start with plantain with some smoked fish. At lunch they eat gari with sauce, here called soup, and in the evening they may eat beans. The sauce that accompanies the gari always contains fish; if there is no fresh or smoked fish available in the settlement, they buy tinned sardines.
The beans are also cooked with fish. It seems that the villagers always keep some of the catch for themselves even when the catches are low and the prices good.
Occasionally chicken, goat or beef is eaten.

2.2.8 Housing condition

Okoroete settlement and Okopedi are both fishing camps occupied by people who have permanent houses elsewhere but who live in the camps when they are fishing.
In practice this means that they are living in the fishing camps almost all the year round. In the low fishing season, the rainy season, they will stay in the villages for a while.
During the year people say they go back to the villages during the weekends. Children who are going to school will stay in the villages with some relatives.

Houses of fishing villages are made of a wooden skeleton covered with mud. Huts in the settlements are made of even less permanent materials. Again wooden skeletons are the base, but instead of mud they are covered with palm leaves or mats. Common dimensions are about 4.5x8 m. Each hut usually has two rooms which are used both for domestic and fish smoking purposes.
In the dry season there is always a risk that the palm leaf roofs catch fire from the smoking. This actually does happen once in a while.

In the fishing camps there are no sanitary provisions.
Some people use mosquito nets around their beds.

Though the people are living most of the time in the fishing camps, in their minds it is something temporary. When people have some money they thus invest them in ameliorations in their cement or mud houses in the village instead of in their palm leaf huts

in the fishing camp.
Though they are complaining about their primitive living conditions it is not clear whether they have ever organised themselves to ameliorate their lives in the fishing camps.

Palmleaf houses Okoroete

2.2.9 Religion

In Okoroete settlement there is an Apostolic church. About 20% of the villagers are going there. In Okopedi there is also an Apostolic church, which most people are said to attend.

Besides the church traditional religions are also quite vivid. Following traditional belief people sacrifice a goat, a chicken, yam or corn once in a while for the God of the water, though this habit is becoming less common in this area.
Besides this they have several masquerades or plays for different events. For instance there is a play 'Obobo' at Christmas and another play 'Matang' at New Years day.

There are also masquerades where only members of certain societies are allowed to go. Sometimes most of the villagers are members of these societies.

2.3 Fisheries in the Uta-Ewa project area

2.3.1 Fishing methods

Artisanal fishermen in the Uta-Ewa area operate in three environments; marine waters, estuarine brackish waters and inland fresh waters. The marine waters are also shared by trawlers, thus the two fisheries compete for all marine resources except for bonga which is exclusively landed by artisanal fishermen.

It should be mentioned that during the last 5 years artisanal fishermen are driven steadily away from operating in the open sea due to damage caused to their gear by shrimp trawlers operating close to the shore, although a 2 miles limit zone is reserved by law for them. So far marine fishing operations are mostly carried out in very shallow waters of not more than 30 meters.

Setting and hauling of most gear is mostly carried out around times of low water marks. Slow current areas are generally prefered, especially in estuaries.
The duration of a fishing trip varies from 2 to 6 hours.
Riverine canoes operate with a crew of two while a seagoing canoe without outboard engine carries eight people; canoes equipd with outboard engines operate with six.
The seafishing fishermen go out fishing about 200 days a year, estuarine fishermen about 300 days a year.
Shrimp fishery is exclusively conducted by women in the estuaries and creeks. They go fishing themselves with lines, pots and baskets.
For details on the different fishing gears used see annex 5.

2.3.2 Fishing seasons

The best and most important fishing season for both sea and estuarine fishing is the dry season, November-April, when the highest fishing effort is being observed at sea, while during the rainy season most of the fishing effort is confined on the well sheltered estuaries and creeks.
Bonga and sardine fisheries are seasonal both appearing along the coast with the beginning of the dry season entering also large estuaries.
All other species are fished throughout the year but again the dry season is considered to be the best.

Table 9: Fish species commonly caught in the Uta-Ewa project area

Fish common name	Fish scientific name	Catching gear	Season
Bonga	Ethmalosa fimbriata	Driftnet, Surrounding, Castnet	Nov-April
Sardine	Sardinella sp.	Driftnet, Castnet	Dec-May
Croaker	Pseudoto-lithus sp.	Bottom gill-net and longlines	Dry season
Shad	Ilisha africana	Bottom gill-net	Dry season
Catfish	Arius sp.(Mar) Chrysicthus sp. (Est)	Bottom gill-net and longlines	Dry season
Snapper	Lutjanus sp.	Bottom gill-net and longlines	Dry season
Grunter	Pomadasys sp.	Bottom long-lines	Oct-April
Shinynose	Polydactylus sp.	Bottom longlines	Dry season
Barracuda	Sphyraena piscutorum	Lines	Oct-April
Sole	Cynoglossus sp.	Bottom gillnets and longlines	Oct-April
Shark/Rays	miscellaneous sp.	Driftnet, bottom-setnet, longlines	Oct-May
Shrimps	Palaemon hastatus	Scoopnet	Oct-March

2.3.3 Vessels / boatbuilders

The predominant design is that of canoes commonly found in West Africa which may be dugout, made of planks or a combination of the two.
The dugout (5-7m) is made of hard machocanny·wood (Khaya sp. and Pterocarpus sp.) and is mostly used in estuarine areas as transport or fishing craft, with a crew of two. Most common size is 6.50 x 0.85 x 0.35 m.
Its present cost is Naira 500 and it has a lifespan of up to seven years.
The planked canoe (8-11m) is mainly used for marine fishing with a crew of 6-8 persons. Black Afara (Terminelia sp.) and Iroko (Chlorofora exelsa) timber is used. Its cost varies from Naira 2,000 to 4,000 depending on size, lifespan is up to 5 years.
The combination of dugout and planked canoe is usually larger in size (10-13m) and is mostly used as cargo boat.

All over the project area there are 25 boatyards mostly building planked canoes and each employing two to four persons. There are 30 skilled boatbuilders and 40 unskilled or apprentices.
They all operate with simple hand tools and are usually stationed in large villages or settlements. On request, boatbuilders travel for building or repairing canoes at any settlement or spot.

2.3.4 Fishing crews

One man boat ownership form is observed all over the area. Very rarely do two persons own one canoe. On the other hand, fishing gear may be owned by the canoe owner as well as by crew members. In the first case catch is divided in three parts. Two parts go to the boat/gear owner (also a crew) and the other part to the other crew member.
In sea fishing where each canoe operates with a crew of 6-8 fishermen, fishing gear is owned both by boatowner and crew, a very common practice e.g. for Bonga fishing the boatowner employs 3-4 bundles of net while each crew member is also using his own nets, about 1-2 bundles. Each one gets the fish caught on his nets.

Each crew member gives 20 Bonga fish to the boatowner in case the canoe is equiped with an outboard engine. Fuel is also shared by the crew. Hardly any outboard engines are in operation in the project area at the moment. Lack of spareparts and the fact that the outboard engines have become too expensive for the fishermen, have made them go back to sailing again.

2.3.5 Cooperatives

The traditional savings societies called "Osusus" existed for generations in the project area and are widespread at all villages or settlements. The mechanism practised is based on mutual trust. Membership is not open to everybody.
On joining the member agrees to contribute a certain amount of money weekly. The "pot of savings" is given to the members in rotation.
Weekly contribution in project areas varies from Naira 20 up to 50 while number of members varies from 20 to 40 persons. All over the area Osusus were reported.

The project area has nine fishing cooperatives. All of them but one are not active, having been created only to gain acces to subsidies and inputs under previous development projects, even without consulting the relevant Cooperative Department of the State.

2.4. Fish processing and marketing

2.4.1 Fish processing

Fish processing and marketing is dominated exclusively by women, the fish mammies. When the fish is landed it is purchased by the women, often from their own husbands.
In almost all the fishing settlements just about all the fish is smoked. Some fish is eaten fresh in the settlement.

One way the women smoke the fish is on little racks. They place six bonga on a little rack and they put all the racks together on wiremesh above the fire.
When they have 400 racks, it forms a bundle and when they go to the market they try to go with three or four bundles.
Another way of smoking the fish in this area is by putting a stick through the eyes of the fish and smoke the fish in rows hanging tail-down above the fire.

The firewood for the smoking is bought in units of a boat. The women pay 60 Naira for a boat of firewood which is said to last for about one week in the high season.
The firewood is cut both by men and by women.

2.4.2 Fish marketing

The fish that is landed in Okoroete settlement is, after smoking, taken to Ikot Abasi or Port Harcourt and some to Okoroete village. The fish traders come to Ikot Abasi and buy it from the women in order to distribute it afterwards.

During a visit in February, the women were selling their fish at 7 Naira for 10 Bonga in Okoroete, 8 Naira in Ikot Abasi and 9 Naira in Port Harcourt. Taking into account that they go with 3 or 4 bundles, which will be about 9000 bonga, this gives a profit of about 900 Naira minus 40 Naira for transport in Ikot Abasi. If they go to Port Harcourt, they will get about 1800 Naira minus 90 Naira for transport. From Okopedi the women may sell the fish or in Ete but mainly in Ikot Abasi.

As everywhere in Nigeria the fish marketing situation is not unambiguous. Many different forms of dependency exist. For instance, financial dependency or family relations influence the contact between the women who smoke the fish and the fish trader heavily.

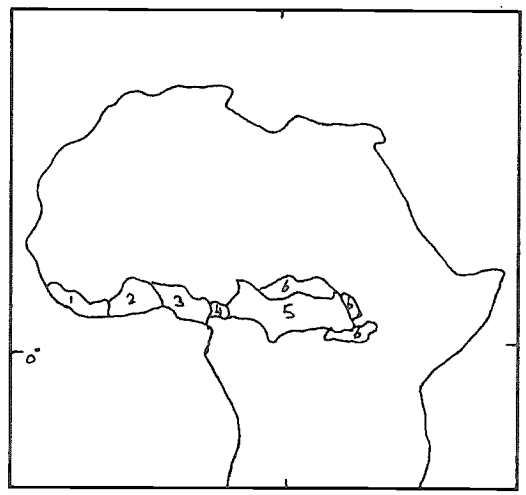
2.5 Other economic activities

There are some other money earning activities besides fishing, fish smoking and fish marketing.
In Okoroete village some women are involved in trading of gari.
In Okopedi there are some farmers who grow yam, cocoyam, cassava, maize, vegetables, peppers and melons. Though fishing is the main activity, farming is an important second activity in this area in the villages where the physical conditions are suitable for it.
The women make oil from the palmfruit which they than sell on the market and they make small snacks such as 'Akora', a sort of beancake, which they sell in the village.
The men make baskets for their own use and for selling.

3. Background information on the different ethnic groups in the project area.

The Koko project area is inhabited mainly by Itsekiri, Ijaw, Ilaje (Yoruba) and Urhobo people. The Uta-Ewa project area is mainly inhabited by Ibibio and Andoni people.
In this chapter some information will be given about the history of the different ethnical groups living in the project areas in order to get an idea about their backgrounds which can be of interest in understanding the way they are living together today.

They all speak languages of the Kwa subfamily of the Nigritic stock, which culturally belongs to what Murdock refers to as the yam-belt.
Analysis of the culture of the area is facilitated by a classification of the component societies (Murdock, 1959). The southern Nigerians are devided into five clusters; the Bantoid cluster, the Idoma cluster, the Nupe cluster, the Central cluster and the Yoruba cluster.



Culture Provinces of the Yam Belt (1-Kru and Peripheral Mande, 2-Twi, 3-Southern Nigerians, 4-Cameroon Highlanders, 5-Eastern Nigritic Peoples, 6-Central Sudanic Peoples). Murdock, 1959.

In the classification of Murdock we find among others in the Central Cluster:

a) The Ijaw (Ijo): with the Brass and Kalabari they constitute the sole members of the Ijaw subfamily of the Nigritic linguistic stock.

b) The Isoko: with the Erakwa and the Urhobo (Sobo), they belong to the Edo branch of the Kwa linguistic subfamily.

c) The Itsekiri (Awerri, Jakri, Jekri, Oere, Ouere, Owerri, Warri): they belong to the branch of the Kwa linguistic subfamily. They subsist primarily by fishing.

In the Yoruba cluster we find among others:

The Ilaje: with the Ibadan, Igbolo, Igbona (Igbomina), Ilorin and Oyo. The tribes of the Yoruba cluster all speak closely related languages belonging to the Kwa subfamily of the Nigritic stock.

In the Bantoid cluster there is among others:

The Ibibio: with the Anang, Andoni, Efik, Eket, Enyong, Ibeno and detached Abuan. The tribes from the Bantoid cluster speak languages of the Bantoid subfamily of the Nigritic stock.

Sudanic Agriculture doubtless penetrated Southern Nigeria from the north at an early period. However, since its crops are not in general well suited to tropical-forest conditions, it probably replaced the earlier primary dependance upon hunting, fishing and gathering only in favorable locations, especially along the northern fringe of the area.

Nearly all tribes keep a few cattle, but do not milk them. Goats, sheep, dogs and chickens are general and there are occasional reports of horses, pigs, cats, ducks and guinea fowl. Hunting and gathering are less productive today than formerly, but fishing adds an important increment to the food supply in most tribes and provides the primary basis of subsistence for the Itsekiri.
Trade and handicraft industries are highly developed and regular markets are practically universal.

All southern Nigerians require a consideration in marriage. The Ijaw and Kukuruku permit marriages with but a minimal consideration as an alternative, but in such cases the children belong not to the father but to the mother's family.
The first wife enjoys a preferred status, but each co-wife normally has a separate hut or apartment. Residence is regularly patrilocal. With only inconsequential exceptions, the patrilocal extended family everywhere constitutes a strongly functional unit, though it may be composed of distinct polygynous households.
Decent, inheritance and succession usually follow the patrilineal principle. Patrilineages are apparently universal, but among the Arago, Egede, Idoma, Itsekiri and Nupe they are not exogamous, i.e. they do not require marriage to take place with someone from outside a specific social unit.

Slavery used to be common in the past, but differentiated royal

and noble classes appear only in conjunction with a complex political organization. Elsewhere status depends upon seniority and especially on the acquisition of titles. (Murdock 1959)

The Itsekiri

The Benin River is perhaps typical of an Itsekiri rural area. The Itsekiri speak a Yoruba dialect. The Itsekiri themselves assert that their language is most akin to the Ijebu dialect (largely on the basis of pronounciation and colloquialism), rather than that of the Ilaje who are their closer neighbours.

The administrative unit known as the Warri Division, is approximately coterminous with the territory of the Itsekiri, though it includes groups of Ijaw settlements in the south-east. Neighbours of the Itsekiri are the Ilaje, and the Apoi Ijaw, to the north-west; the Edo (Bini) to the north; the Urhobo to the east and the Ijaw to the south.

The Itsekiri live in the western part of the Niger Delta in the mangrove swamps of three large rivers- the Benin River, the Escravos and the Forcados River cross the area. Only the latter is really an outlet of the Niger.
The three rivers are connected by a dense network of creeks. As far as Warri and Sapele the creeks are tidal and deep enough for ocean-going ships to sail to these ports. At their mouths are shallow bars which appear to be continually changing their depth and shape. The relation between the current in the passage and the prevailing wind is of importance in navigation; the Benin River bar seems to have been difficult and treacherous for several centuries.
On two occasions in the late 18th century, as Lloyd (1957) states, "Landolphe had to spend five more months waiting in the creeks when he delayed his departure from the Benin River until late April and thus missed the last north-east winds which alone could carry him through the narrow passage: during the wet season the prevailing south-west winds blow straight into the mouth of the river".
The state of the bars still affects the use of the river by shipping lines.

Tradition, origin and history
The myths of the Itsekiri are the origin for many political rights and ritual beliefs. Most of the villages which comprise the kingdom, have their own myths of origin which tell of the umale, a supposedly sub-human species who used to inherit the country, but who subsequently disappeared and have come to be defied by the Itsekiri, standing in the Itsekiri cosmology between the supreme deity and the ancestors named in their genealogies. The myths of the origin of the Itsekiri tell how Ginuwa, their founders and the first Olu or king, came escorted

by numerous chiefs from Benin, where he was a son of the Oba, and settled near Ode Itsekiri, later the Itsekiri capital. Here he developed the political system which is believed to have existed until the interregnum which began in 1848.
The myth which tells of the journey of Ginuwa from Benin to his new domicile in the creeks tend to infer that the country was uninhabitad except for a man named Itsekiri whom the former met at Okotombo, very close to the present site of Ode Itsekiri. The origin of Itsekiri is not clear; he is presumed to have been an umale, but in a different category from others for he accepted the new ruler and became integrated into the new kingdom.
The capital is known as Ode-Itsekiri or Ale Iwere; it is often called Big Warri or Itsekiri Olu. The Portugese and other early traders knew the town as Warri, the origin and meaning of which name is not known. (Lloyd,1957)

Social organization and political system
Usually, half or more of the adult male inhabitants of a settlement trace patrilineal descent from its founder. While a man usually resides in his father's village, exceptions are numerous. On marriage a wife joins her husband and it is rare for a man to live in his wife's village.
There seems to be no single Itsekiri word to designate the patrilineage. There are no ceremonies at birth which formally admit a child to membership of his patrilineage; the umbilical cord is buried in the house where the mother delivered the baby (not necessarily the father's house); facial marks are not distinctive as between one lineage or another and are cut by any native doctor. Male circumcision is performed in infancy by an expert, it is not a ritual occasion. Food taboos are today observed in very few lineages.
In old settlements the priest of the umale is nearly always a patrilineal descendant of the village founder. When a man dies, his body, or at least the hair and nails, are buried in the house or quarter of his patrilineal ancestor. This seems to be an almost invariable rule and the only certain indication of the patrilineage of the man who participates in a large number of kin groupings.
On his death, a man's eldest son should become his priest and officiate in all ceremonies to celebrate the deceased. He usually inherits a double share of his father's property; he takes those objects which symbolized his father's headship of the family and takes custody of corporate property (e.g. rights to land, fishing areas, titles). Other movable property e.g. clothing, coral and silver ornaments, slaves, canoes, is shared equally between sons; in the absence of sons, daughters inherit the whole movable property and, even where there are sons, will usually be given a small share of it. Movable property will pass to a brother of the deceased only in the absence of children or as gifts.
The patrilineage rarely acts as a unit in the social system; its members never meet as a distinct group, but always together with the others tracing maternal links with the lineage.

Since land and fishing rights are not important- there being ample space for all and rights being freely given to those claiming maternal relationships with the settlement- and since most chieftaincy titles before 1848 were probably not hereditary, the corporate property held by a lineage is not often of vital importance to a man. (Lloyd,1957)

The Itsekiri have been middlemen since at least the coming of the European traders in the 16th century. In the 19th century the English firms, which at this time monopolized the trade, anchored their bulks or built their warehouses at the mouth of the Benin River.
The Itsekiris had considerable succes in preventing them from penetrating further into the country, while they themselves opened up Urhobo country, persuading the local inhabitants to sell them palm-oil, thereby making large profits. But with the penetration of the interior by European firms based at Warri and Sapele the Itsekiri completely lost their unique position as middlemen.
The Benin River has thus been by-passed by other rivers (Escravos) easier to navigate for modern ships and has reverted to its fishing economy, although the shades of its 19th century glory still persist vividly in the minds of its inhabitants.

The Itsekiris are no farmers, they call cultivation slaves' work, and indeed they used to have slaves for agricultural work in the past. Several agricultural projects have failed with the Itsekiri. The Itsekiri used to make salt which they sold to the Urhobo. There is some cattle raised by the Itsekiri but they suffer frequently from diseases.
The Itsekiri are primarily fishermen. They use fish fences, nets, rods and lines and traps. The Itsekiri are mostly not used to fishing in the deep sea and engage predominantly in creek and estuary fisheries.
Cray fishing in the estuaries and on the coast is the task of men, though they are often assisted by their wives. Most women have a few baskets and traps in the creeks near their homes.

Disputes over fishing rights in the smaller creeks occasion considerably more litigation than rights to cultivation. Such rights are allocated by village headmen and may be inherited by the deceased male and female descendants. Many men migrate to the sea coast or the estuary for cray fishing, but they must pay heavy fees to village heads for the rights to set up their own lines or fishing pots.

Most Itsekiri dugout canoes are now made by the Ijaw. In the late 19th century Nana Olomu is said to have made many improvements in the design of local war canoes. At this period large war canoes were manned by 40 paddlers and could carry a further 40 armed men, trade canoes with 20 paddlers could carry 6 tons of palm oil. Today very few canoes reach this size.

Regarding the Itsekiri women, it is said that they have an independent character and husbands often complain of the difficulty of keeping wives obedient. Not only is it easy for a woman to break the bonds of marriage but she is usually able to live independently, since many Itsekiri women became wealthy as traders and most can be self-supporting from fishing or craft-industries. (Lloyd, 1957)

The Ijaw

The point at which Niger water gets distributed in the delta has been identified as the Nun-Forcados bifurcation near the villages of Onya and Samabiri. The triangle of territory formed by this apex and the estuaries of the Forcados and Brass river is, in fact the nuclear area of Ijaw settlement.
To the west of the Forcados river, as along the Benin River, Ijaw settlements are much more thinly spread out among other Nigerian groups.

The antiquity of the Ijaw language suggested by its structural separation from its neighbours is supported by the evidence of glotto-chronology. Ijaw has been calculated to be, at least 5,000 years distant from Ibo, Yoruba and Edo, a calculation which accords with the geological age of the Niger Delta itself.

The geographical differences between parts of the delta have affected movements of peoples and contacts. From ancient times the inhabitants of the lower delta (sandy beach ridge and salt water swamp) have had to exchange, mainly their fish and salt, for the vegetable produce of the upper delta (freshwater swamp).
The lower delta people never produced more than a few plantains and coconuts in backyard gardens. The groups of the upper delta, on the other hand, farmed their river banks after the floods receded each year, depositing rich silt. They farmed water yam (Dioscorea alata), plantain, bananas, cassava (manioc), cocoyam (taro) and more recently swamp rice, peppers, okra, sugar cane, maize and other crops in smaller quantities.
The presence of an agricultural belt within the delta probably helped to limit the contacts of the delta peoples with the larger groups of the hinterland. There were trade and supply routes within the delta to satisfy many local needs.
The addition of an external dimension to trade by the arrival of europeans on the coast from the sixteenth century was a crucial development, increasing the need to extend trade routes into the interior. (Alagoa, 1972)

The basic Ijaw political system to be observed over most of the Western and Central Delta was a stateless organization based on the autonomous settlement. There was no central political authority, since the pere or high priest, was only a religious

leader. The Ibe was, accordingly an ethnic, cultural and historical unit comprising a number of politically autonomous villages. The highest political authority was the 'Amagula', the village assembly. The oldest man in the settlement became the town elder, and president of the assembly, but the execution of decisions was in the hands of a younger leader and spokesman. (Alagoa, ibid.)

The fishing, trading, and salt making economy resulting from the new salt-water swamp environment of the eastern delta changed the basic Ijaw stucture later on into the 'fishing village structure'.
In the fishing villages of the eastern delta, the village assembly of all adult members of the community remained, but the president was no longer the oldest member. He was now called 'Amanyanabo' (owner of the town), a man chosen for his personal ability and especially because he belonged to the lineage of the founding ancestor. This change reflected both the scarity of settlement land in the Eastern Delta and the heterogenity of the village community. (Alagoa, ibid.)

Furthermore, although the fishing economy of these eastern delta villages united the members across lineage boundaries, it also meant that the lineages themselves were weakened. The lineage no longer controlled the resources since the village as a whole lay claim to an area of creeks used as fishing grounds. Such fishing grounds were not susceptible to demarcation as were farmlands, and were exploited by all members of the community without reference to lineage differentiation.
Most stereotypes or cliches in Ijaw traditions concern the reasons for migration. In the central delta, the commonest explanation for expansion from the parent settlement of the eponymous ancestor is the desire of his 'sons' to found their own independent settlements.

There was in all parts of the delta the obvious need for a thin spread of population to exploit the meagre resources of a difficult environment. The traditions, however rarely give shortage of resources as a reason for migration. Often a move is explained as dictated by the need for a better defensive position against enemies.
Such enemies might have been warlike or oppressive rulers from whom the ancestors fled, slave raiders or even kin with whom a difference had arisen.
Another common reason for migrations in the western delta was flight from the consequences of a fight. At the end of a fight between lineages, it was customary to count the dead on each side. Before peace could be restored, the side which had fewer persons killed was required to surrender members of its group to the losing side. Accordingly, each time a quarrel led to death, one party fled to avoid giving up any of its members.
Once a group migrated, a new settlement was chosen for its

suitability in terms of natural resources and defence. But even such a site could be abandoned if bad omens were observed. The death of a leader or the outbreak of an epidemic in the first few days of settlement could lead to the moving away of the whole community. (Alagoa,1972)

The Ijaw people have been living along the Benin river for several generations, and there are still Ijaw people coming in to settle in the area.
The Ijaw people have also been living together with the Itsekiri people for a long time. In the Ijaw settlements people live principally from fishing. The Ijaw people are mainly involved in river fishing, they hardly go to sea. The Ijaw women fish also, they use poles and lines and traps.
The Ijaw people are said to be the better boatbuilders, especially as far as dugout canoes are concerned.

The Ilaje

The Ilajes are a subgroup of the Yoruba and originate from Ondo State. A coast line some forty miles long is the southern boundary of the Ilaje.
There are Ilaje people living in the Benin River area also, particularly along the open coast. Many have settled in or near Ogheye. They stay in this region for several years but they eventually return to their home area in Ondo State.
They come with their families and have to pay the Itsekiri chiefs 60 Naira a year for staying on their ground.
The Ilajes usually come in small groups, and there are several Ilaje settlements along the river.
The Ilaje in Ogheye keep in close contact with their families in Ondo State. Even if they need to go to a hospital they seem to prefer to go to a hospital there rather than in Bendel State.
The Ilaje boatowners in Ogheye use Ilaje crews and sell their fish to Ilaje women.

In the literature hardly any information is found about the Ilaje people. The only written document found for this study is an intelligence report of Ilaje district from 1937.
At that time assistent district officer Curwen wrote the following: "The Ilaje area comprises Mahin, Ugbo and mixed Mahin and Ugbo villages; the first in the west of the district representing three quarters of the total area. The language of the people is Ilaje, a dialect of the Yoruba.
The country is for the most part comprised of swamps and shallow creeks though in the north of the swamp area is found dry sandy soil, where farming is carried out under difficulties.
Between the black mud of the beach and the forest swamps there is a curious narrow strip of saltings, sometimes submerged and sometimes dry and caked, on which grow reeds, tall grasses and

narrow copses of the white mangrove. This area might be suitable for rice growing. The Ilaje are not self supporting in the matter of home grown foodstuffs. Inland there are larger creeks and lagoons. The main launch waterway running through the north of the district is some 400 yards wide at Atijere. North of the salt swamps there is an abundance of 'Raffia' palms and some valuable timber, but very few oil palms.
The actual extent of the Ilaje country is difficult to determine on account of the almost uninhabited area of mangrove swamps and creeks on the north-eastern boundary between the Ugbo area of the Ilaje and the Ijaw area.
When the Ilaje first arrived in the area they occupied themselves with making salt from the sea and a savoury form of potash from the small white mangrove trees which grow near the coast. With the processing of these two crafts an extensive slave trade was carried on with Yoruba people inland. The potash industry still continues. The salt trade however was killed about sixty years ago when the importation of European salt increased.
The people then turned to fishing, both in the sea and in the numerous creeks and lagoons inlands. Now, exept in the north west corner where there are a few palm produce traders, nearly every male Ilaje is a fisherman.
Those who have the skill and hardiness to take their canoes to sea can make a good living at home, but young men who only know how to fish in smooth water cannot find enough fish in the creeks and spend part of every year in the Lagos lagoon, Badagri, the Ilaje creeks and even Porto Novo, thus becoming emancipated from family control and complicating the collection of tax for the government.
The Ilaje have been in touch with the British government for more than fifty years, but the country is unbelievably backward educationally and completely lacking in the social services of the government.
In the whole area there are only eight small primary schools though there are over fifty churches." (Ilaje, 1937)

Today the Ilaje are known as the better fishermen in the area. They are used to fish at sea and they are known for their Bonga fishing.
The Ilaje fishermen migrate a lot. There are some seasonal migrants who go along the coast with the Bonga season. Other Ilaje fishermen can settle in another state or even another country for several years.
Along the Benin River there are several Ilaje settlements and there are many Ilaje people living in Itsekiri villages as Ogheye.

The Urhobo

The Urhobo are often seen as one group with the Isoko. Neither the Urhobo nor the Isoko ever formed a single social political or

linguistic unit.
The Urhobos are rarely found along the Benin River, they mainly live more inland. The main features of the Urhobo economy are, besides some fishing, farming and the collection, preparation and marketing of oil-palm. Today Urhobo are dominant in palm oil production in the western part of the Niger delta.
They occupy an area of about 2000 square miles banded on the north by the Benin-Kingdom, on the east by the Ibo and the Niger River, on the south by the Ijaw and Forcados River and on the west by the Itsekiri country.

In the Benin River area the Urhobo people have been living with the Itsekiri people for a long time. Whereas the Itsekiri people always have been fishermen, the Urhobo people have been the farmers. Still today there are hardly any Urhobo fishermen, though there are still Urhobo people living along the Benin River. They are living mostly at the south bank of the river where there is some land for farming.

The Ibibio

The Ibibio area lies in the South-eastern corner of Nigeria and corresponds about with Akwa-Ibom state. The people share a common boundary with the Aro and Ngwa Igbos to the north-west and the Ekois to the direct north. To the west and south-west, they share a common boundary with the Ijaws while to the east, they share a common mountainous boundary with the Western Cameroons. To the south the area is bounded by the Bight of Bonny.

Several attempts have been made to trace the origin of the Ibibio. As the Ibibio had no written records, it has been very difficult to obtain a reliable historical source from where its origin could be traced. In Ekong (1983) the following was found.
Using the linguistic approach, the Ibibio language has been classified under the Sudanic-Niger-Congo group with its roots traced to some of the Bantu dialects.
Although a certain school of thought regards the Efik as a subgroup of the Ibibio, several attempts have been made to attribute a separate lineal descent and migratory history of the Efik. The prevalance of names like Ansa, Otu, Tete, etc. which are also common names among Ghanaians has been used as evidence of Ghana origin of the Efik. According to this theory, the Efiks wandered from the Sudan and settled there for many years. Then they wandered to Burutu in the Niger Delta where they settled briefly before setting out in an easterly direction.

Family life in Ibibio society is more or less still the same as it was in days gone by with its kinship network and primary group relationship. However, with most modern marriages tending towards monogamy, the compounds have become smaller in terms of population and modern Ibibio women have become more possessive

and assertive of the exclusive rigths to their husbands. The nuclear family has become very prominent although no local word has yet been found which could differentiate it from the extended family.
(Ekong,1983)

The riverain Ibibio sub-groups are naturally mainly fishermen by occupation. The fishermen have their own seasons which roughly correspond with the dry and rainy seasons of the area. They go to sea at the onset of the dry season about November, when the rainy season is about to end. They return to land with the onset of of the rainy season. However, this does not imply that the fishermen leave the sea 'en masse' during this period. In reality, it is only those fishermen from the mainland areas who leave, whereas those from the riverain areas watch the sky and make their fishing trips from time to time.
Most fishermen also practice farming by the river bank. The relatively free expanse of fertile land by the riverbanks afford them the opportunity to combine farming with fishing. Generally those who combine fishing with farming bring their families to settle with them and only visit their extended family relatives upland once in a long while whereas those who concentrate on fishing move seasonally between their families upland and their fishing camps by the sea.
Fish may be caught with nets, hooks, fish traps or by the use of fish poison herbs. Poisoning used to be practiced in shallow, slow-flowing or dammed rivers, but is now rarely practised. Periwinkle and other molluscs are caugth with baskets; crustaceans like shrimps, lobsters or prawns are caught with special nets, while crabs are caught with baskets and crab traps.

Other groups

There are some seasonal migrants in the Koko area. Once in a while fishermen from Ghana and the Republic of Benin come to stay in this area for several weeks. These are mostly single men who have their families elsewhere. They stay with the villagers for the time they are there.
This is in contrast to the Ghanaian fishermen who have settled down in the Uta-Ewa area and in Lagos State with their families for a couple of years or more.
In Lagos State both seasonal and semi permanent migration from Ghanaian fishermen is common. Here the Ghanaians operate independent of the Nigerians.
The Ghanaians in the Uta-Ewa area are often fishing for Nigerian boat, gear and motor owners.

4. Summary: major points of concern observed in the project areas

The survey has helped to provide a general picture of the socio-economic conditions of fishing communities in two of the major fishing areas of Nigeria. The various villages and ethnic groups inhabitating them often face different problems. However, some difficulties appear fairly universal and it may be among those the project has to look at first. By way of summary, they are identified as follows:

- **Erosion**
  In the Benin River area Ogheye in particular is suffering from rapid erosion of the land upon which the village is situated.
- **Water hyacinth**
  The water hyacinth is causing, since its appearence in this part of Nigeria in 1988, transport problems and problems for the fishermen as it gets entangled in their fishing gear.
- **Water supply**
  In both project areas there is an overall lack of good water for drinking and cooking.
- **Health facilities**
  Health facilities are scarce in both project areas and even where there are health facilities not too far away from a fishing village, lack of transport facilities may mean that it takes several hours for the villagers to reach the clinic or health centre.
- **Transport facilities**
  In the Koko area the transport facilities are in gereral not too bad, but as it is a monopoly of one enterprise, prices can go up from one day to another.
  In the Uta-Ewa area there are no regular transport facilities.
- **Fish captures**
  The fishermen claim that their catches have been going down over the last years. No data on this are available, however.
- **Trawlers**
  The nets of the artisanal fishermen are destroyed once in a while by trawlers who are fishing close to shore.
  The attitude of the villagers towards the trawlers is ambiguous. The fishermen complain about destroyed nets and competition in the same waters, whereas at the same time other fishermen from the village, and especially the women profit from the trading in the by-catch of the trawlers.
- **Gear maintainance**
  The gear maintainance observed in both project areas is very poor
- **Outboard engines**
  The prices of outboard engines the fishermen face now are more than ten times as high as they were when the fishermen started using them about 8 years ago. This is caused by changes in the

value of the Naira and by the fact that the government has withdrawn the 50 % subsidy they gave before.

- Complementary economic activities
  In most fishing communities observed, people depend completely on fishing and fishprocessing. In the low fishing season and in years with low catches this has an immediate impact on the well-being of the people.
  Villages where some agriculture is possible are better off from this point of view.

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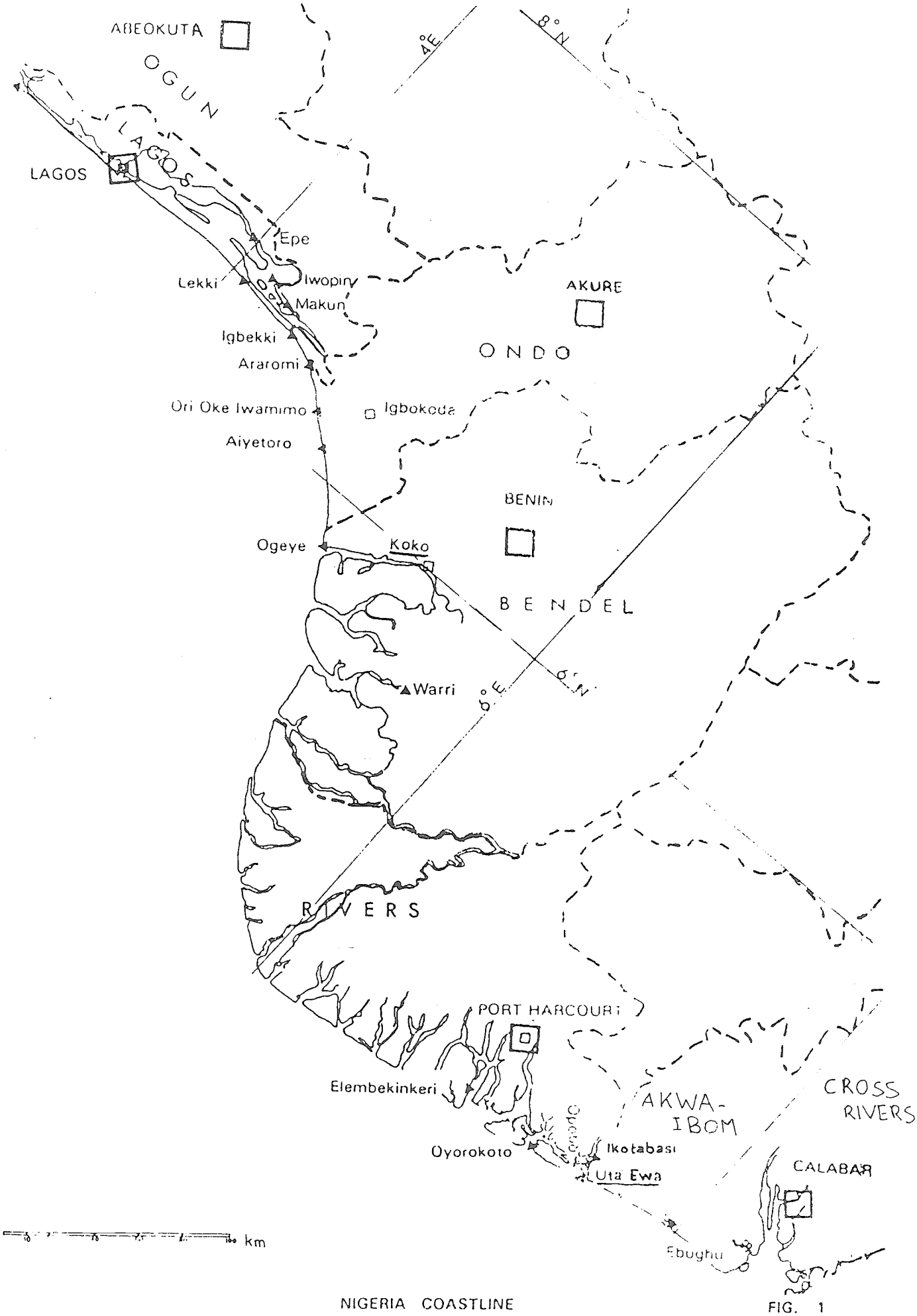
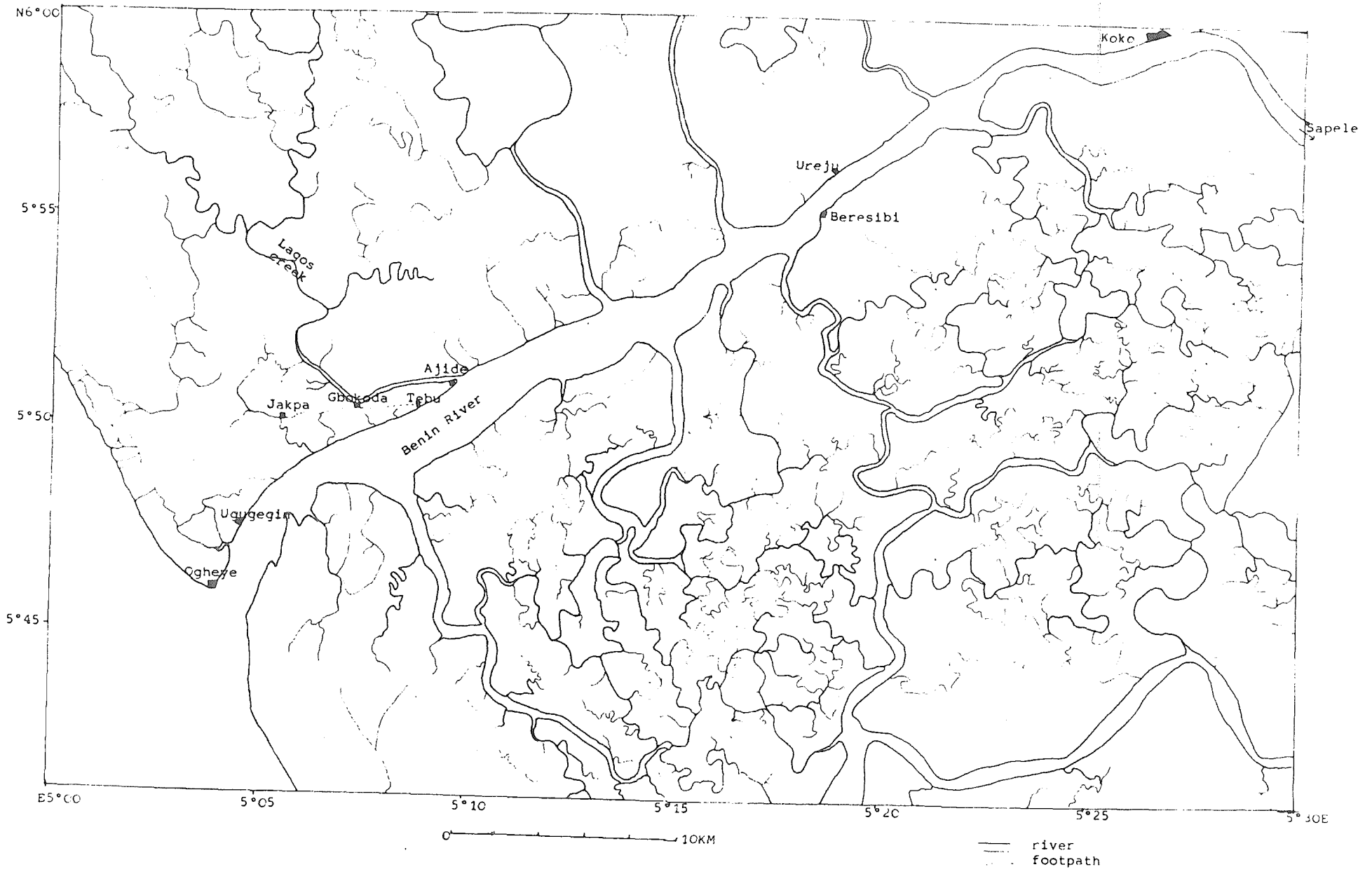


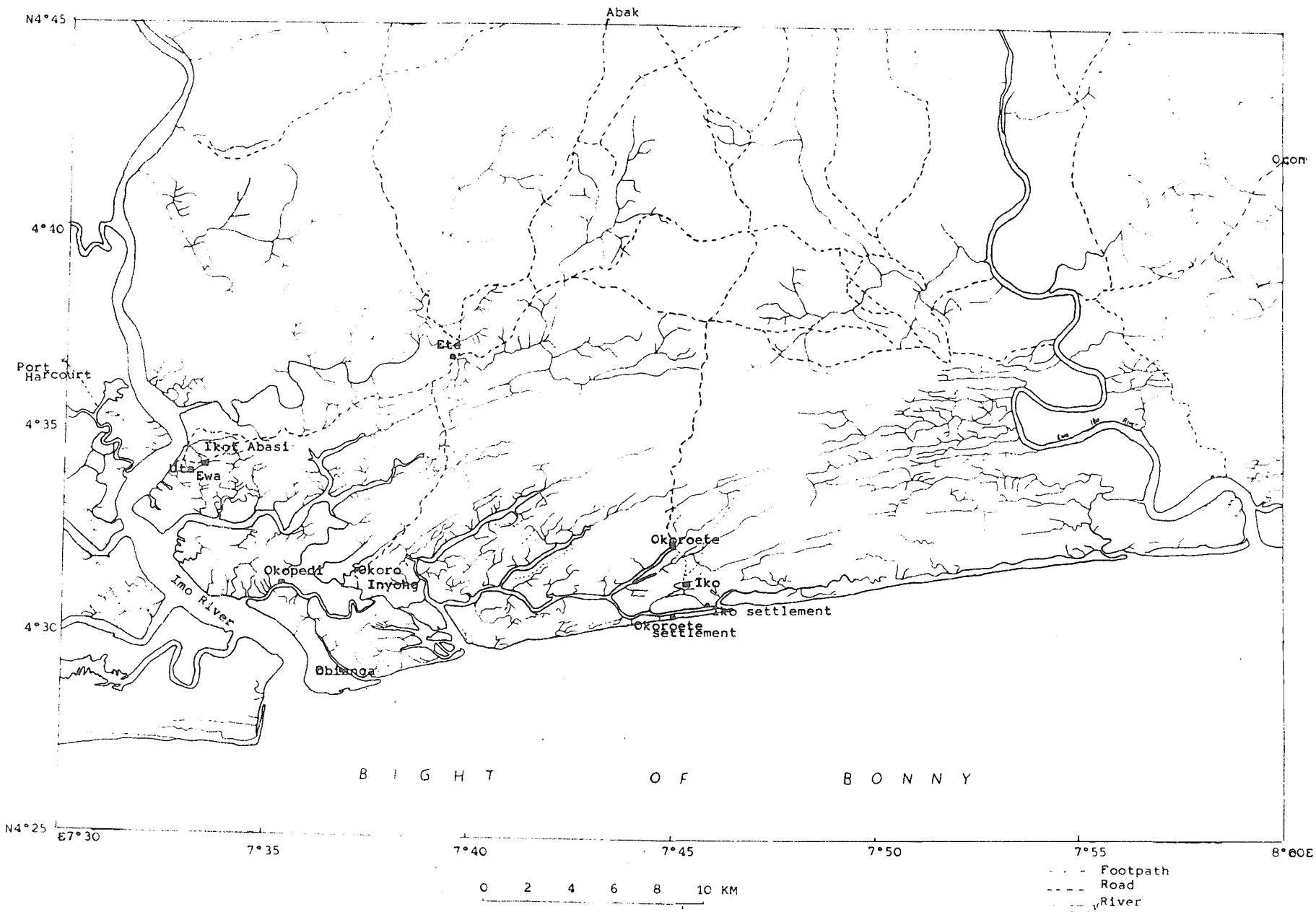
NIGERIA COASTLINE

FIG. 1

Koko project area

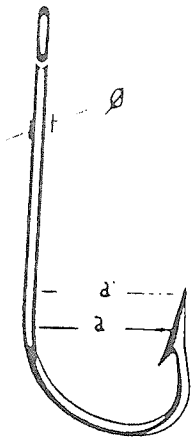


Uta-Ewa project area



Annex 4 Some details of fishing gear from the Koko area
By P.T.Holler and Deri Nyoman

HOOKS : MUSTAD - KIRBY Sea hooks



N°	Ø	a_n	a_v	a'_v
1	3.6	28.3	27.0	26.2
5	2.25	18.6	15.4	14.5
9	1.4	12.5	10.1	9.7

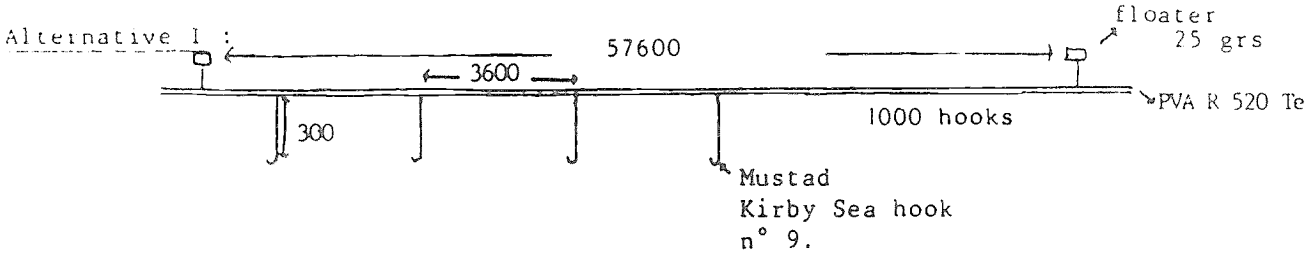
a_n = normal hook

a_v = after hand bending

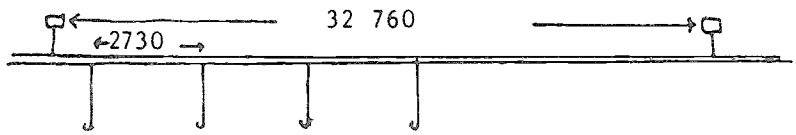
After buying the hooks the fishermen hand-bend each hook to the shape shown below.

Bottom longline : Catfish, Ray

20m depth sandy, muddy bottom



Alternative II : Main line, hooks, snoods same as alt. I.



The line is baited while rowing out.

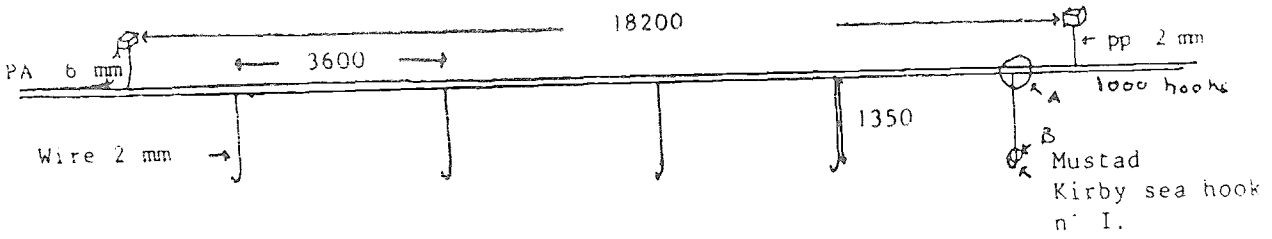
Bait : Catch self in the Sene - Sene net, small mullet & octopus.

Season : Used all year round - best season August - February

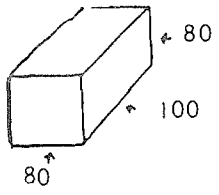
Canoe : 3 people

Floating longline : Sharks, Tarpon

drifting in 7 - 12 m depth



Floaters



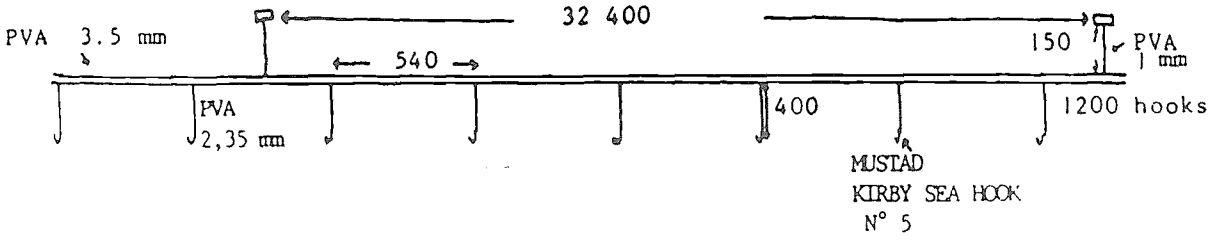
expanded polystyrène

Bait : Shad (Bonga), sardinella

Season : Novembre - February

Canoe : 3 people

Floating longline : Threadfin (shinny nose)



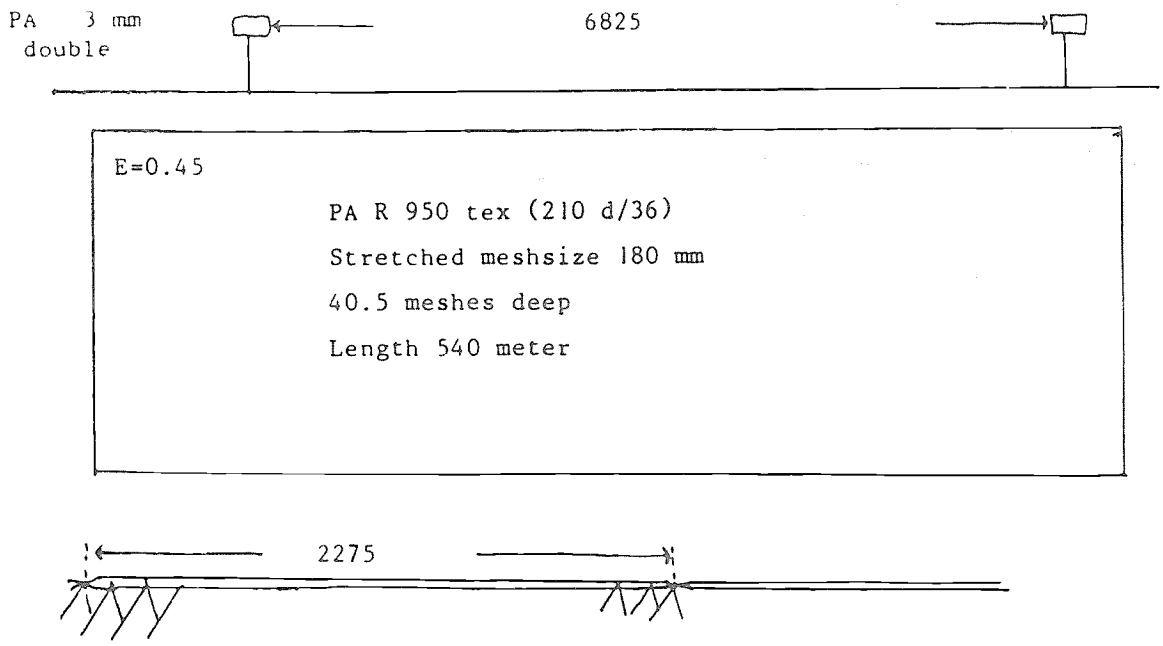
Season : Used all year round, best October - February

Bait : Dry season : small fish, octopus

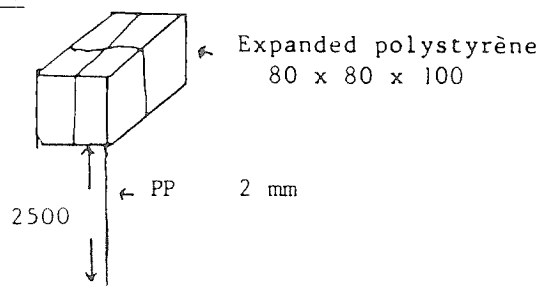
Rainy season : Eels parted in two. The one used is identified (photos) as of the family OPHICHTHIDAE and probably Myrophis plumbeus.

The line is set according to the tide and left fishing for app. 4 hours.

USUSU (8 finger net) : Catfish, Thread-fin



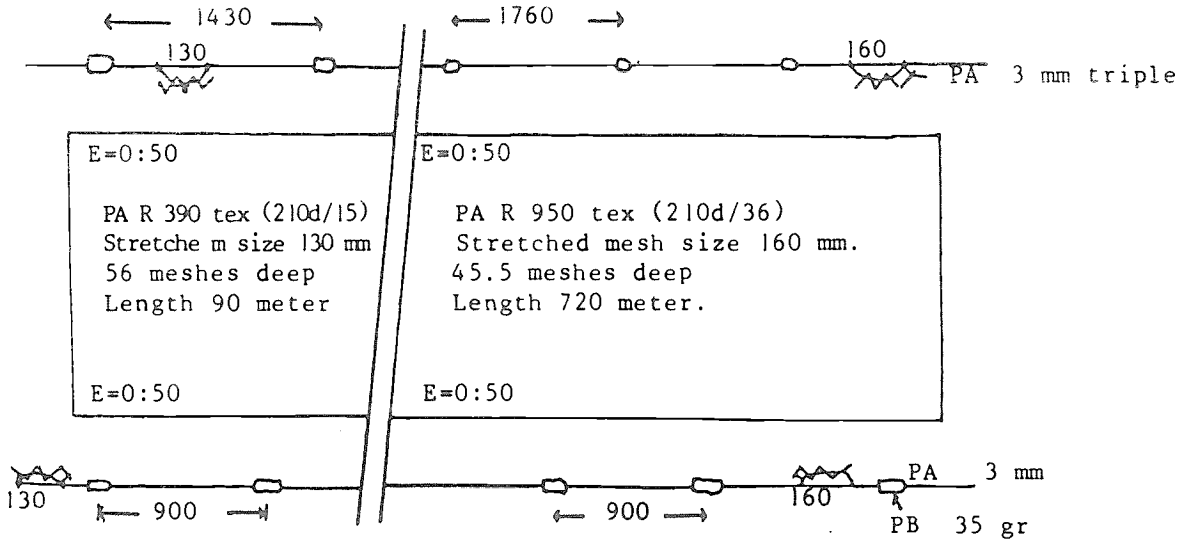
Floaters



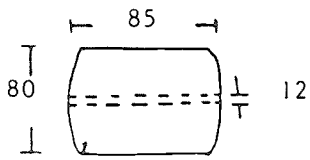
Remarks : The length of PP 2 mm is regulated according to actual fishing ground On one fishing trip in 7-8 meters depth the PP 2 mm was regulated to 1,80 meter.

The net doesn't have any leadline and weight, which the fishermen explained, is because they want to avoid the big fish, which destroy the net .

GABON NET : Catfish, Threadfin (Shinny nose) + others

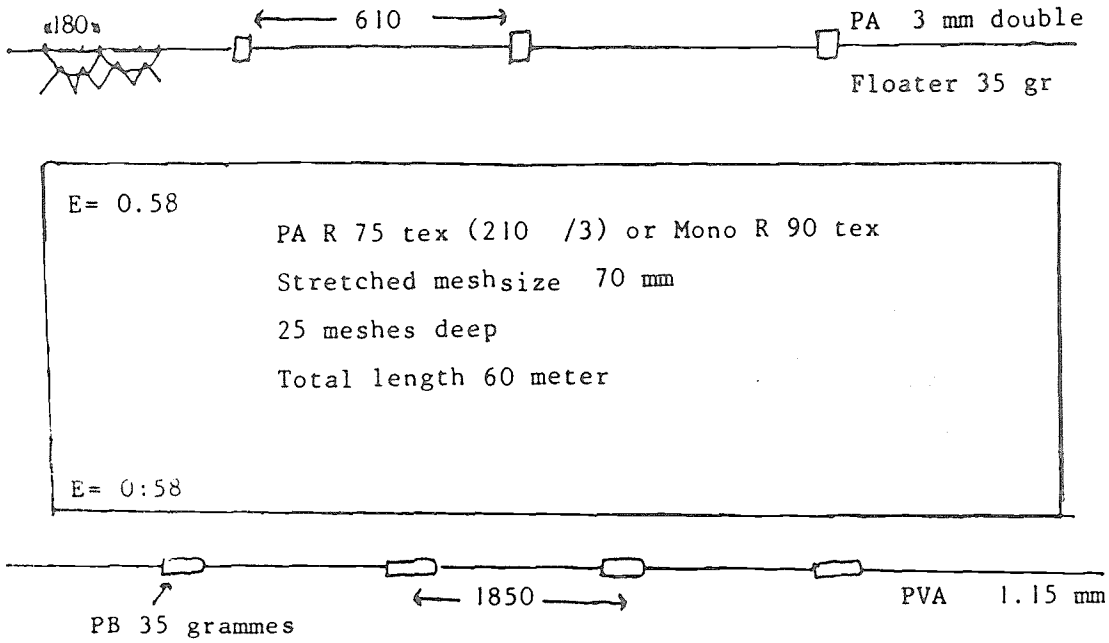


Floater



Remarks : Used for the same fishery as the OSUSU net, but is claimed to have lower catch rate, no reason for the different mesh sizes were obtainable from the fishermen.

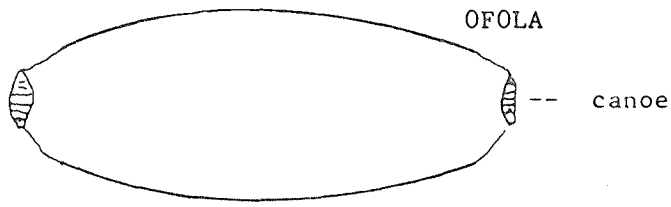
FOLO Bonganet : Shad (Ethmalosa Fimbriata) Sardinella



Season : All year around best May-July and Dec. - January

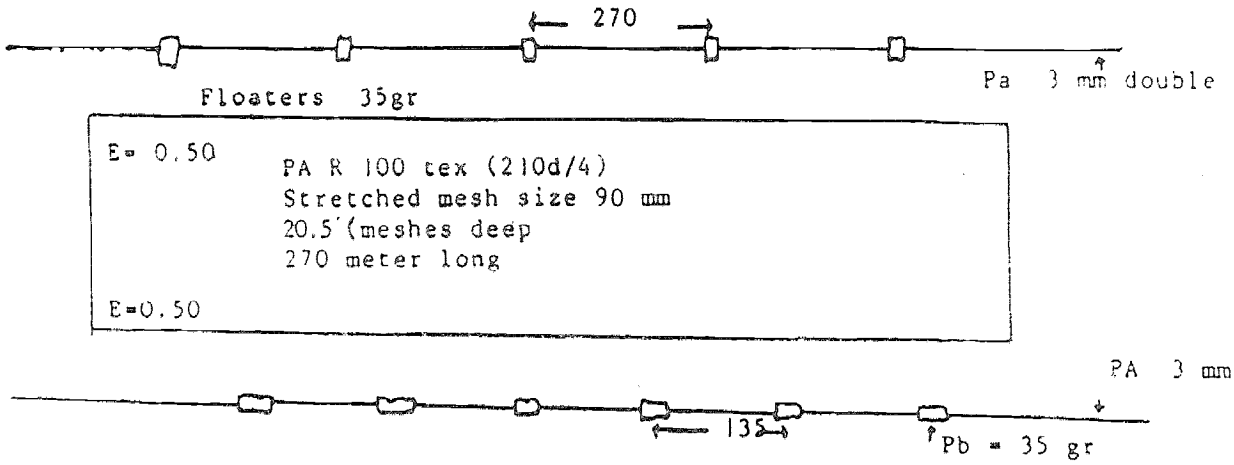
Set in start of high tide during the season (independent of night and day)

Used by 2 canoes together, each boat crewing 1 net.



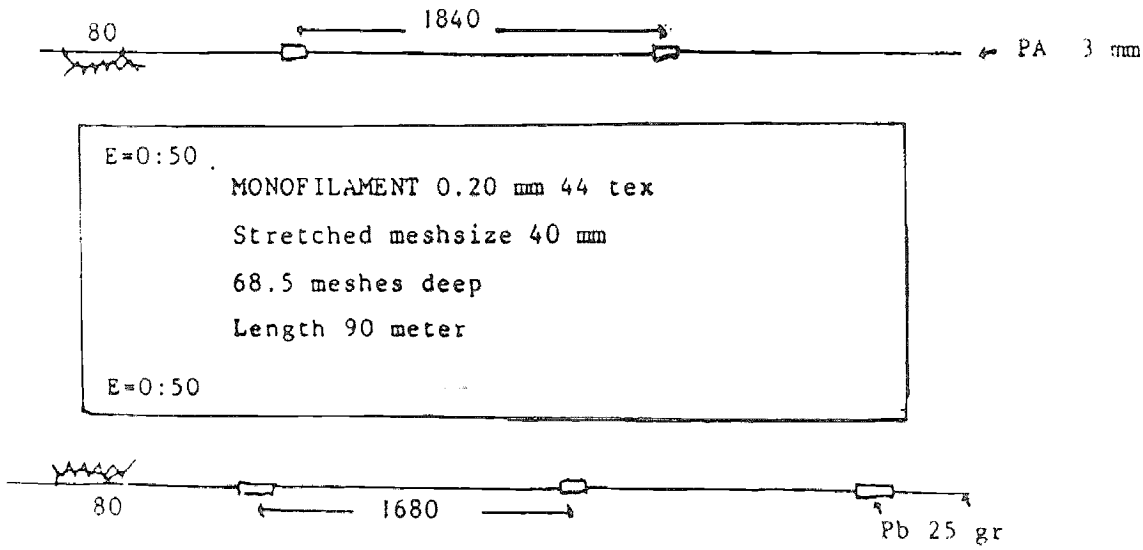
APAMO : Catfish, Weakfish, sole

2 - 7 meters depth on sandy muddy bottom.

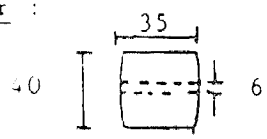


Season : All year round, best May-July and December-January

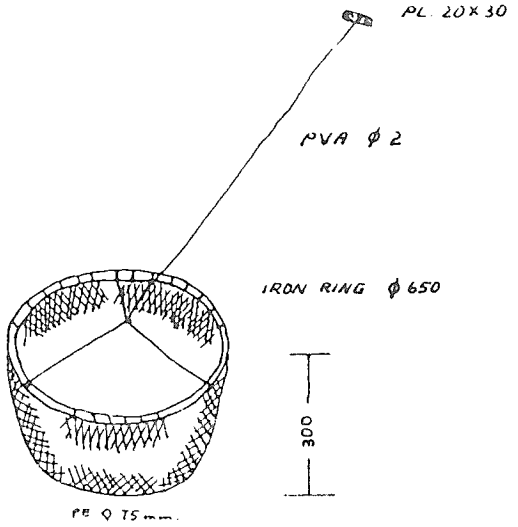
Sene - Sene (bait net)



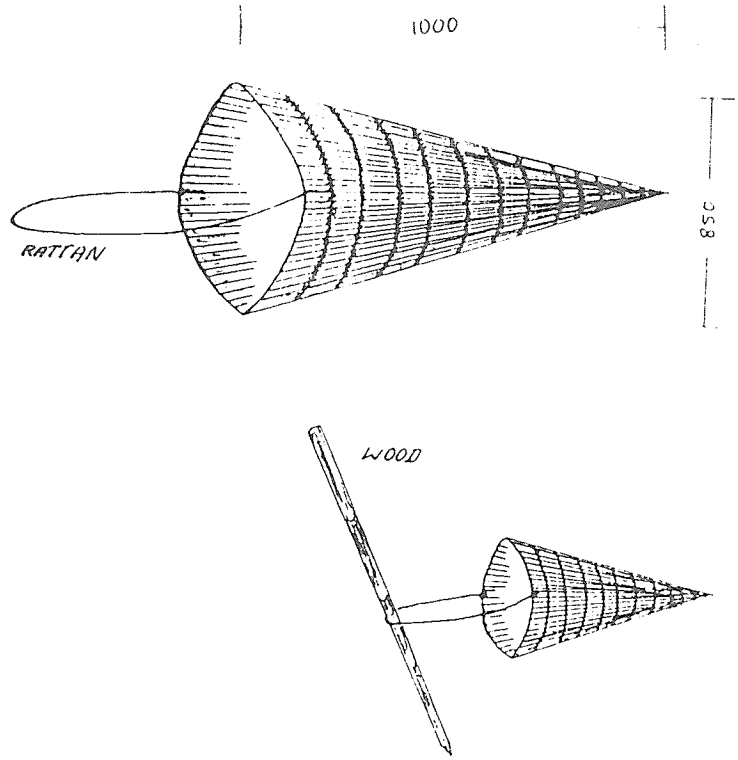
Floater :



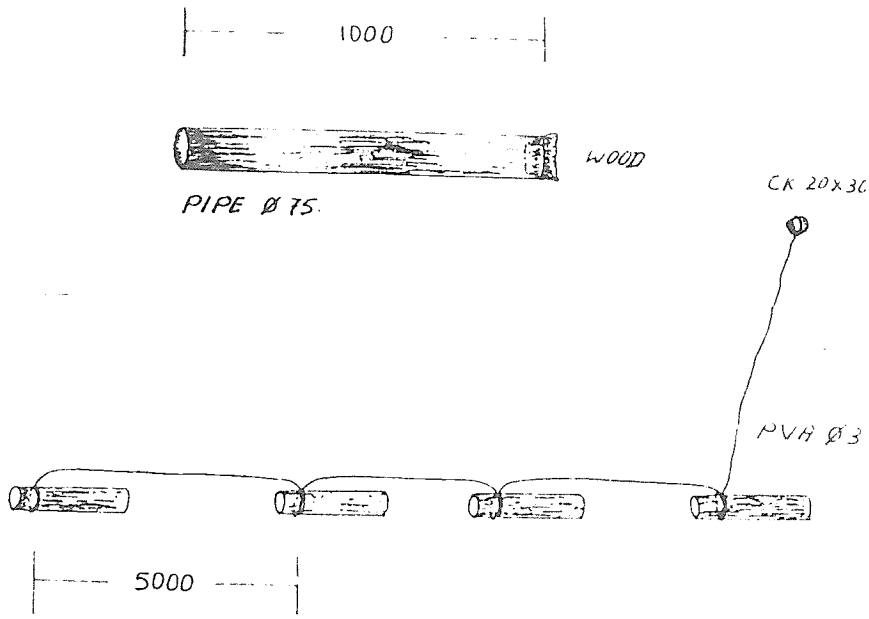
Remarks : Mostly used for bait for the lines



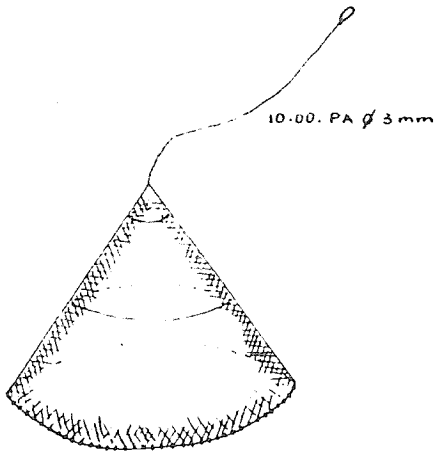
Crab trap

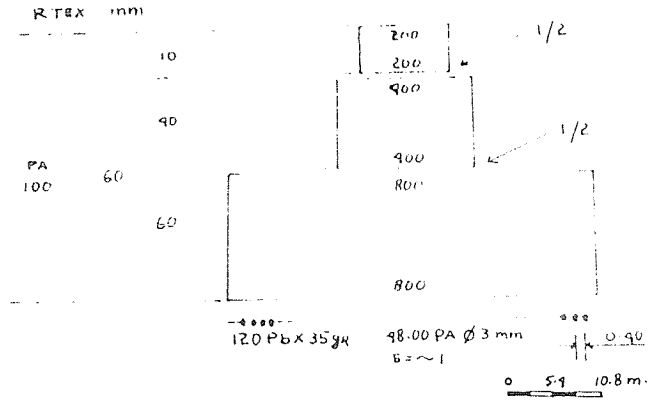


Crayfish trap

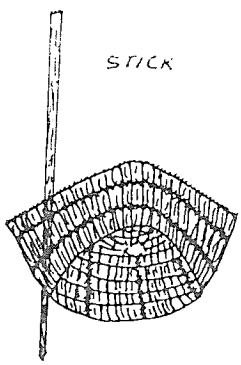


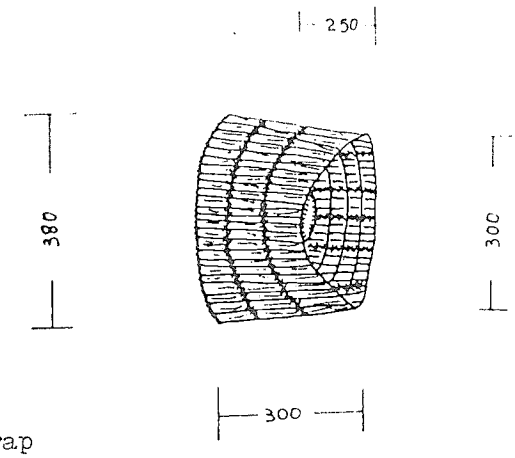
Pipe trap



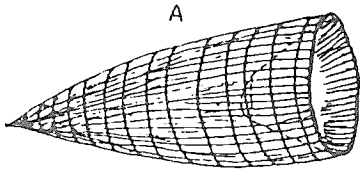


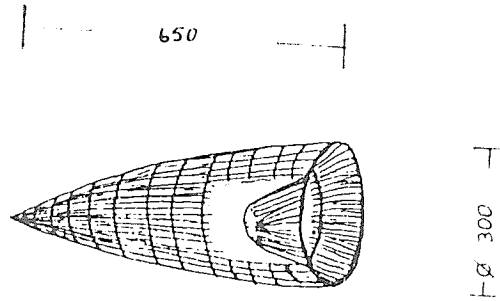
Castnet

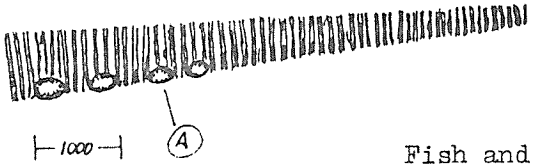




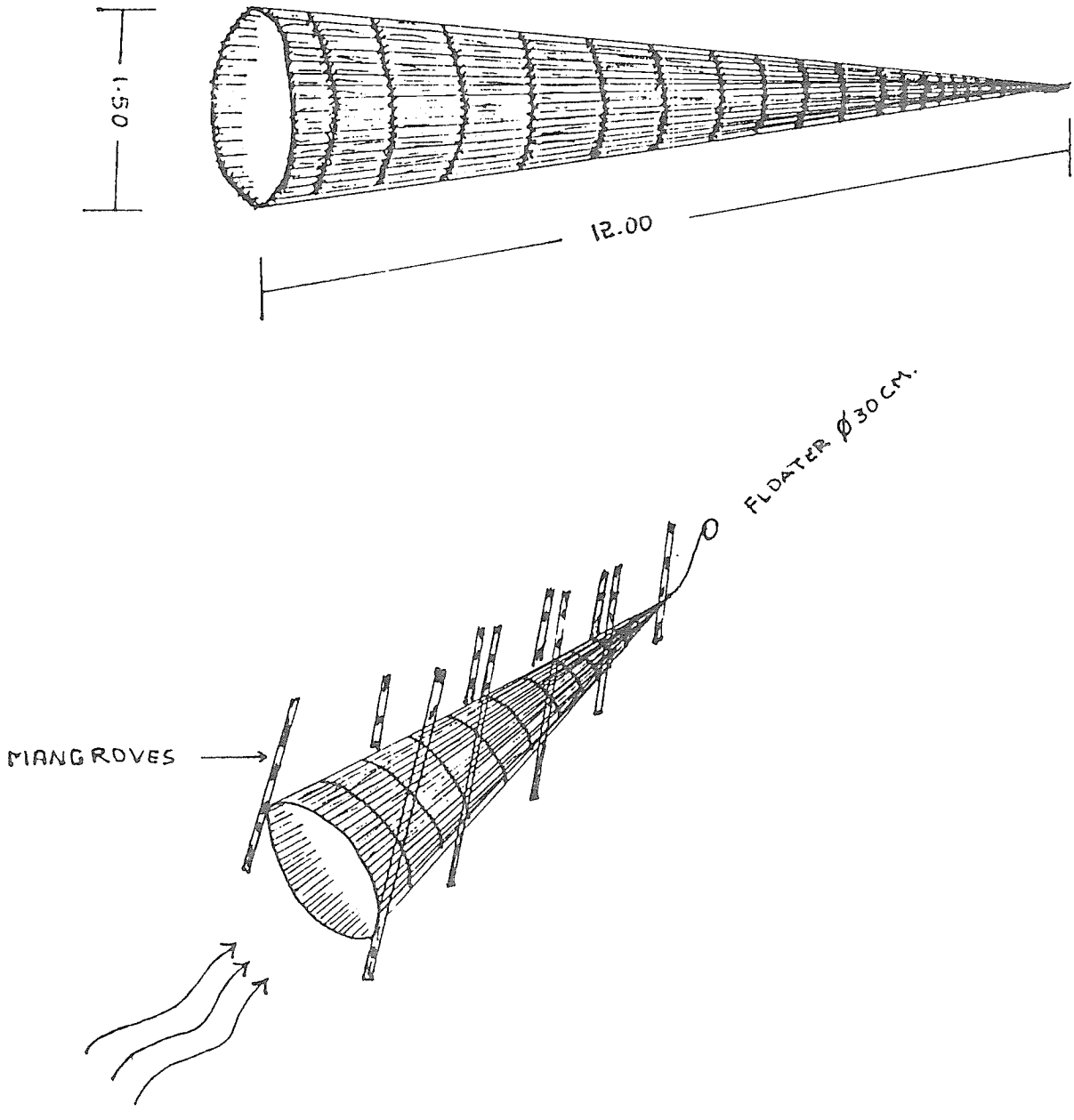
Baited crayfish trap







Fish and shrimp trap



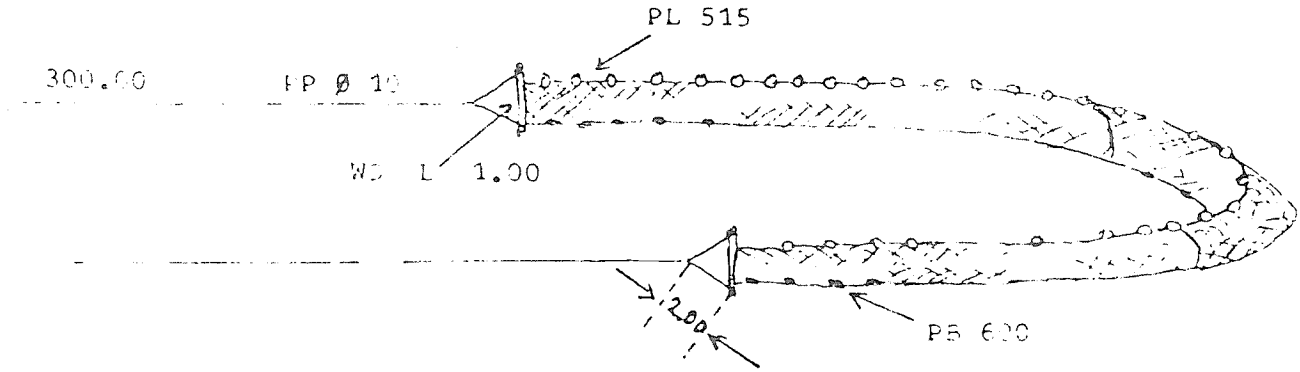
ITA net

Annex 5 Some details of fishing gear from the Uta-Ewa area

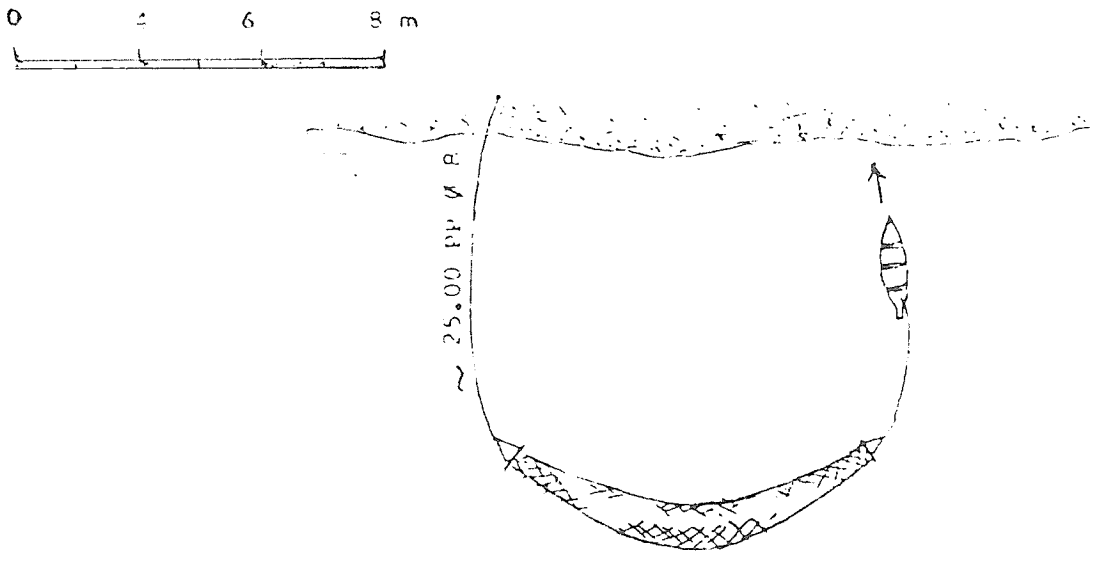
By A.Keleshis

Seine nets

1 Beach Seine - without bag Sea
Fish - croaker, shinynose, catfish
Operated by 1 canoe and 20 persons



2 Beach seine - without bag Estuary gear
Fish - different small species
Operated by 1 canoe and 2 persons
Season - October- April



Bottom Gillnets

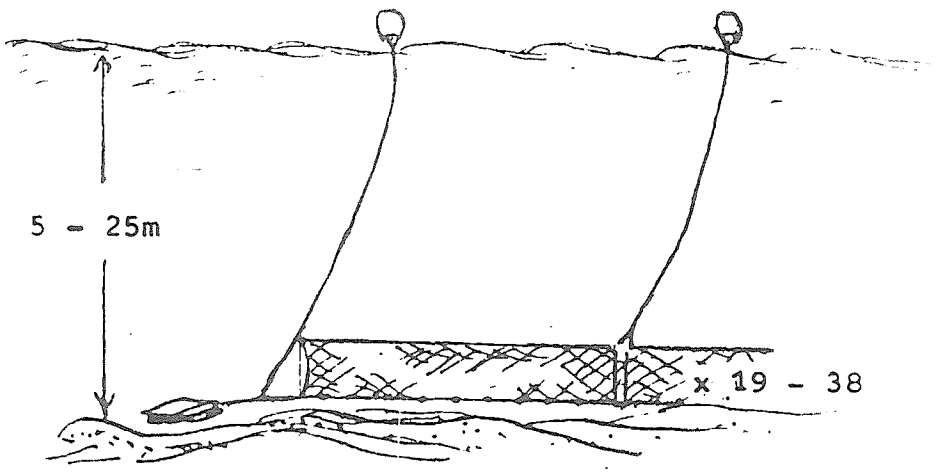
1 Bottom Set, Shad net — Marine, Estuary
Fish - shad, crey mullets
Season - October - April day and night
Depth - 20 m

2 Bottom Set, Croaker net — Marine, Estuary
Fish - croaker
Season - all year, best october till may
Depth - 3 - 12 m

3 Bottom Set, Catfish net — Marine, Estuary
Fish - Catfish
Season - October - April
Depth - 20 m

4 Bottom Set, Dogfish net — Marine, Estuary
Fish - dog fish
Season - May - October
Depth - 5 - 25 m

5 Bottom set, drift net (by removing sinkers) — Marine
Fish - sharks
Season - November - April
Depth - 20 - 30 m



R 230 tex = 210/9

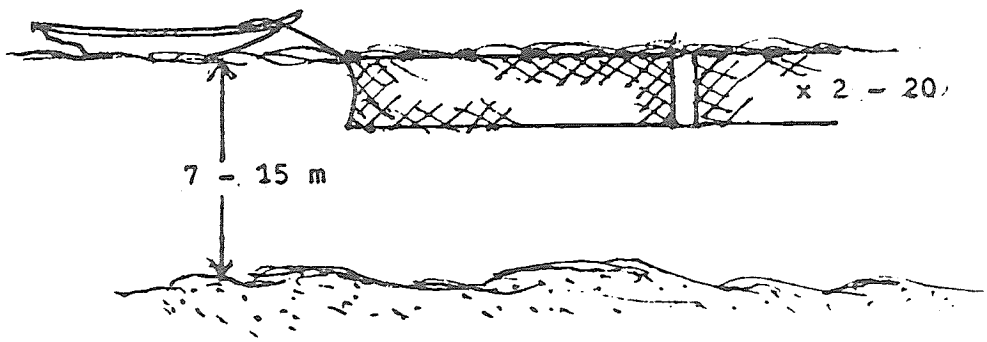
Drifting gillnets

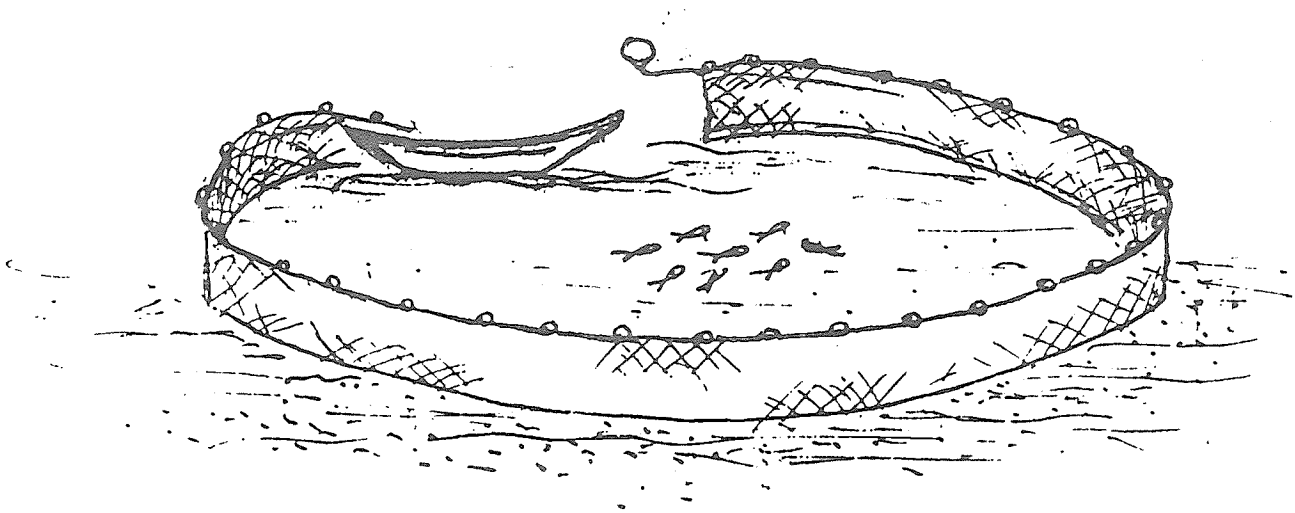
1 Drift net, Sea and large open estuaries
  Fish - bonga
  Season - November - April
  Depth - 5 - 10 m

2 Surrounding drift net, Sea
  Fish - bonga
  Season - November - April
  Depth - 8 - 30 m

3 Drift net, marine and estuary
  Fish - large sardine
  Season - November - April
  Depth - 7 - 15 m day and night

4 Drift net, marine and estuary
  Fish - small sardine, grey mullets
  Season - December - April
  Depth - 2 - 10 m
  Setting any time, hauling 2 hours later



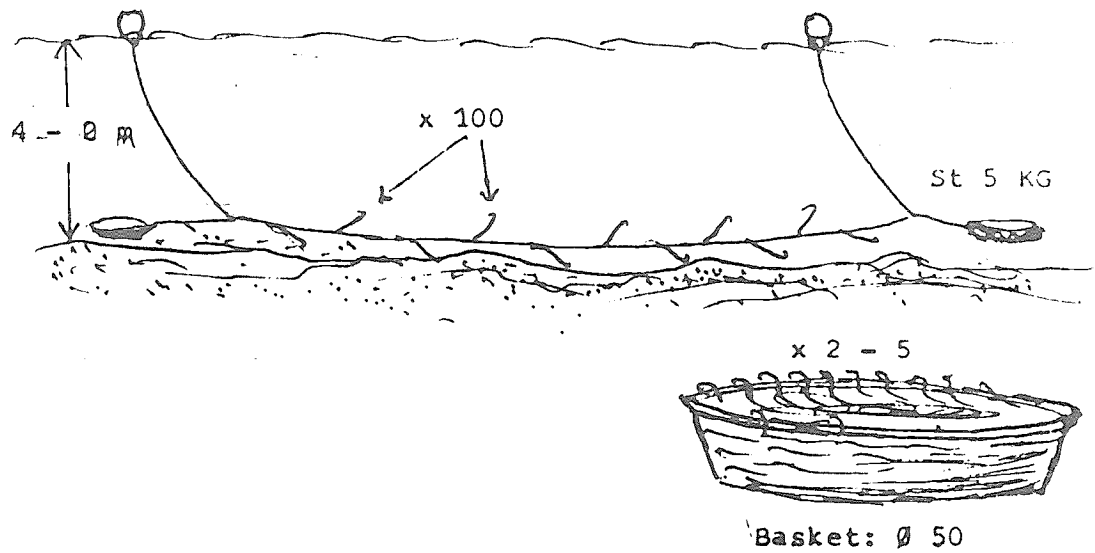


Longlines

1 Bottom set longline Marine and estuary
Fish - croaker, catfish, sole, shinynose
Season - all year round, best October - May
Depth - 4 - 15 m
Bait - prawn, eel pieces, small fish, soap
Hooks - nr 10
Operation: setting and hauling every two hours, day and night

2 Bottom set longline Marine and estuary
Fish - snapper, dogfish, grouper, shinynose. croaker, catfish
Season - best October - May
Depth - 4 - 20 m
Bait - prawns, sardine, eel pieces
Hooks - nr 5
Operation: setting day and night, hauling every 2 hours

3 Bottomset longline Marine and estuary
Fish - shark, Snapper, barracuda, grouper
Season - best October - May
Depth - 5 - 30 m
Bait - sardine, bonga, eel
Hooks - nr 2
Operation: setting and hauling every 6 - 12 hours day and night

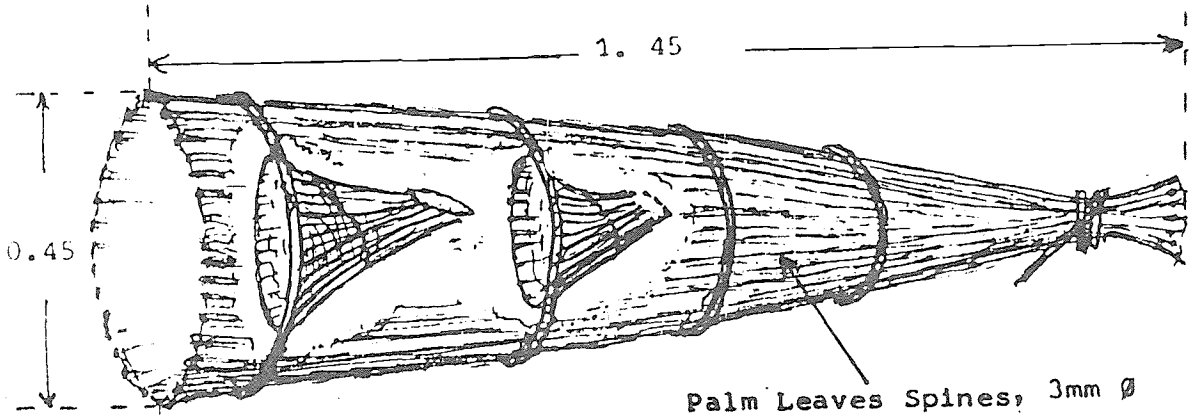


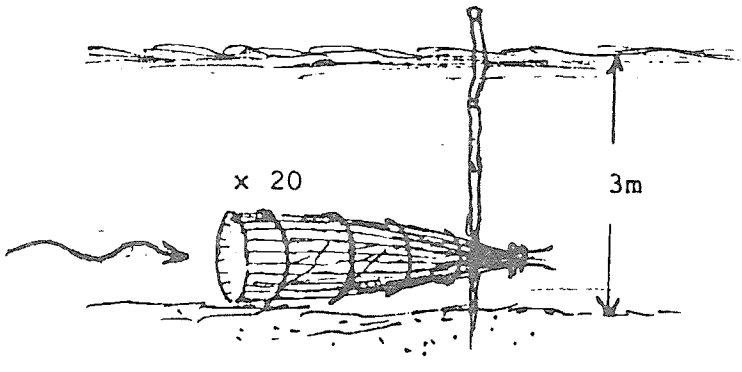
Pots

1 Estuaries and creeks
Fish - small species, eel, crabs
Season - May - September
Depth - 2 m
Tide - 2 m
Operation: set and checked at low water marks daily
No bait is used

2 Estuaries and creeks
Fish - catfish, tilapia, crayfish, crabs
Season - May - September
Depth - up to 2,5 m
Bait - weeds, palm fruits
Tide - 2 m
Operation: set and checked at low water marks daily or every 2 days depending on catch

3 Estuaries and creeks
Fish - catfish, snapper, tilapia, crayfish, crabs
Season - May - September
Depth - up to 3 m
Bait - weeds, palm fruit
Tide - 2 m
Operation: set and checked at low water marks every 1- 2 days depending on catch
Slow current areas are preferred

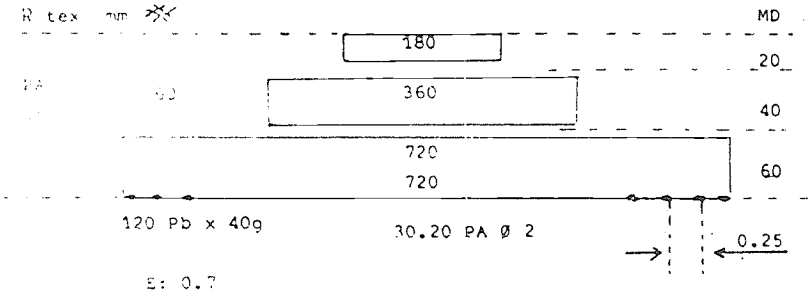




Cast nets

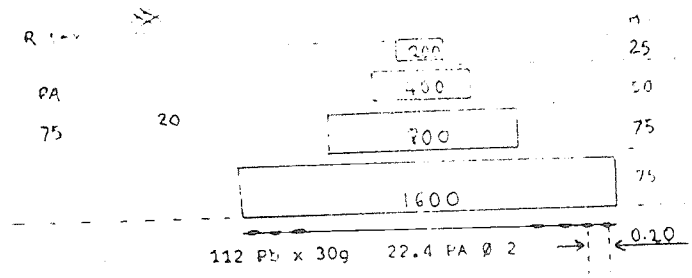
1 Hand
Catch - bonga
Season - November - April

2 Hand
Catch - sardines, miscellaneous species
Season - best November - April



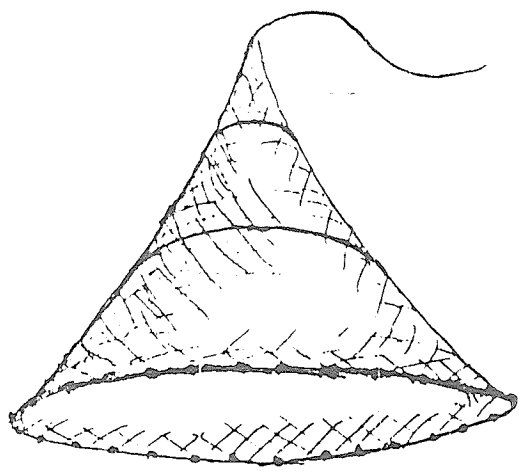
E: 0.7

R 150 tex = Td 210/6



E: 0.7

= 75 tex = Td 210/3

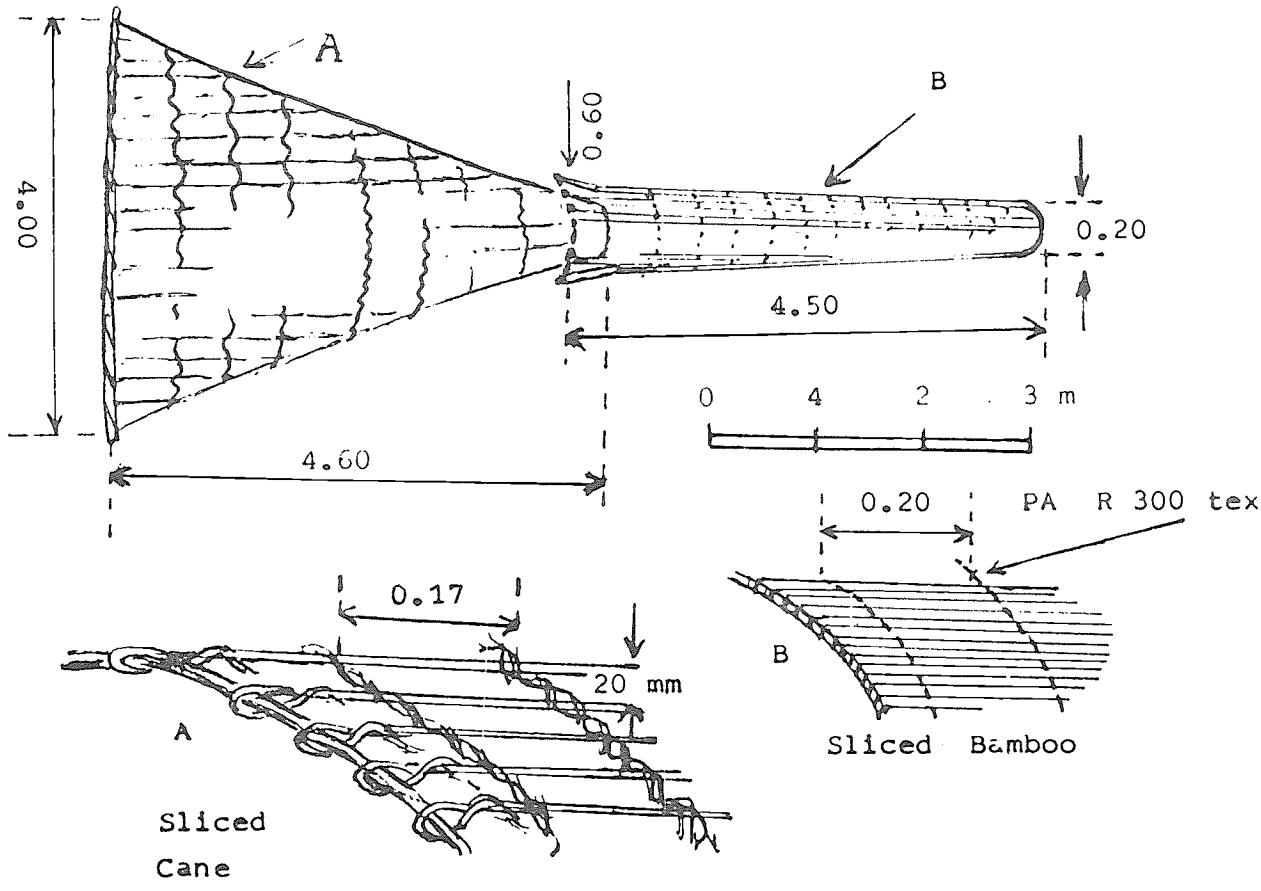


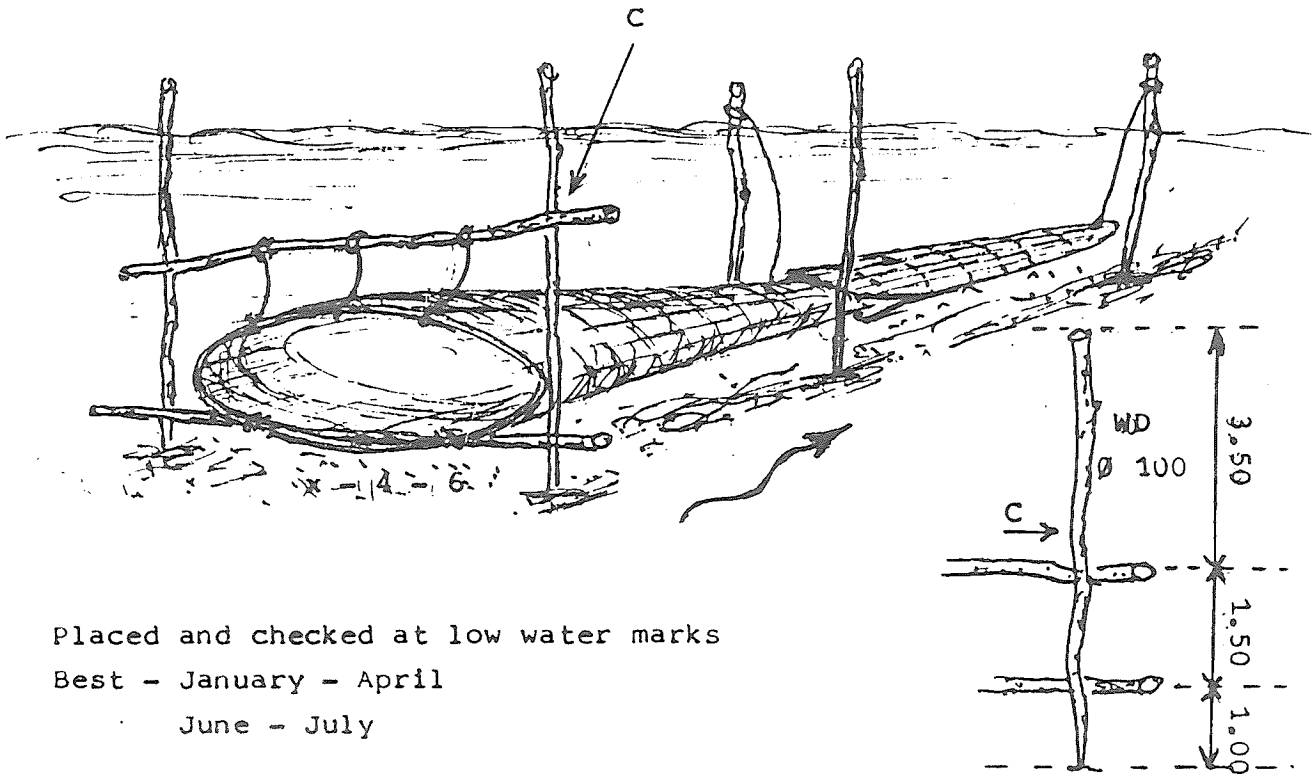
TRAP

Estuary - Creeks

Bottom Fish - Shrimps

Depth: Up to 5m





Placed and checked at low water marks

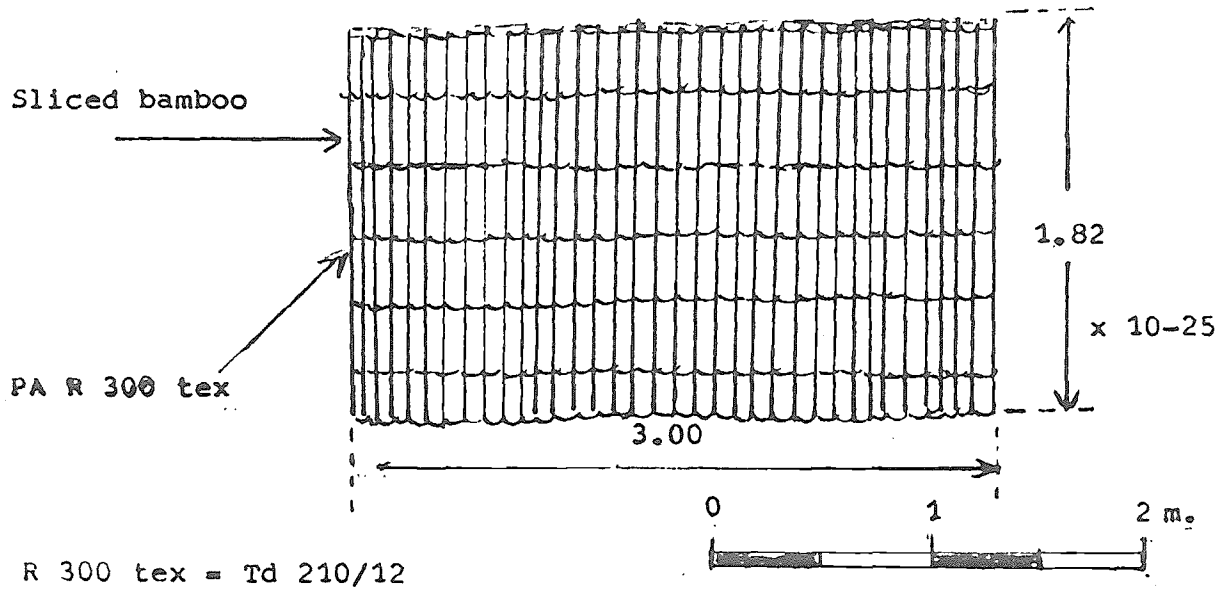
Best - January - April

June - July

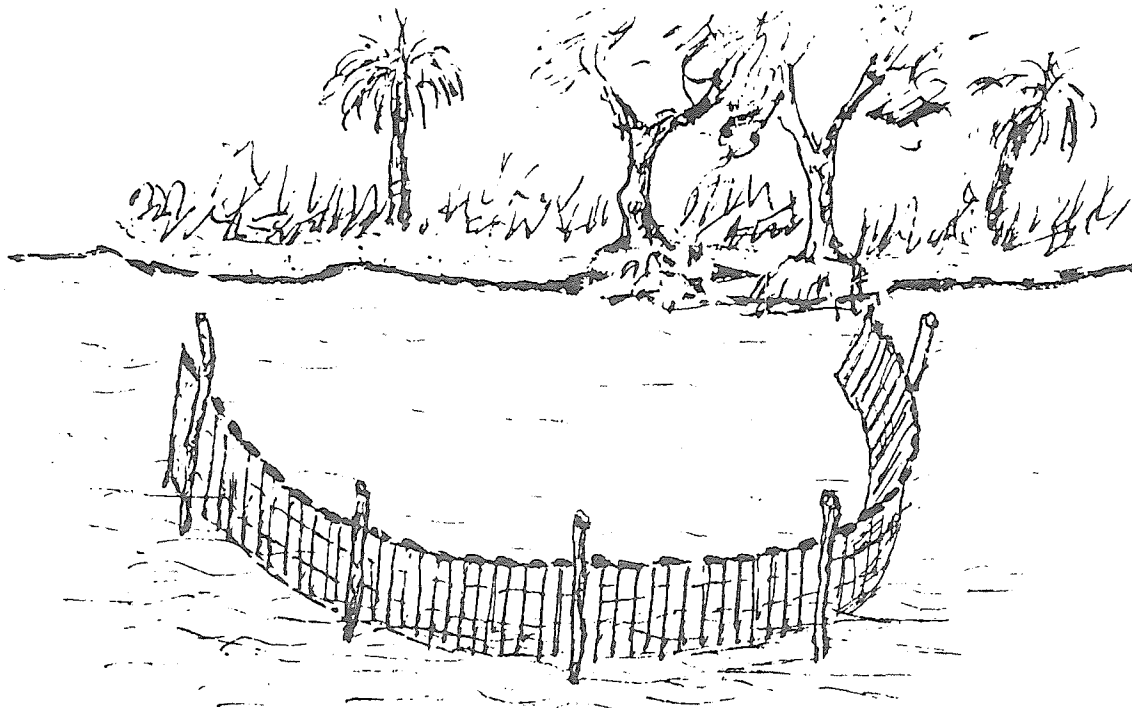
TRAP

Creeks - Estuaries

Fish: Botttom Sp. - Shrimps



R 300 tex = Td 210/12



Placed along banks of Creeks or Estuaries at depths of up to 1.5 mtrs. Fish is collected at low water marks. Tide difference, 2 mtrs.

SCOOP NET

Hand Operated

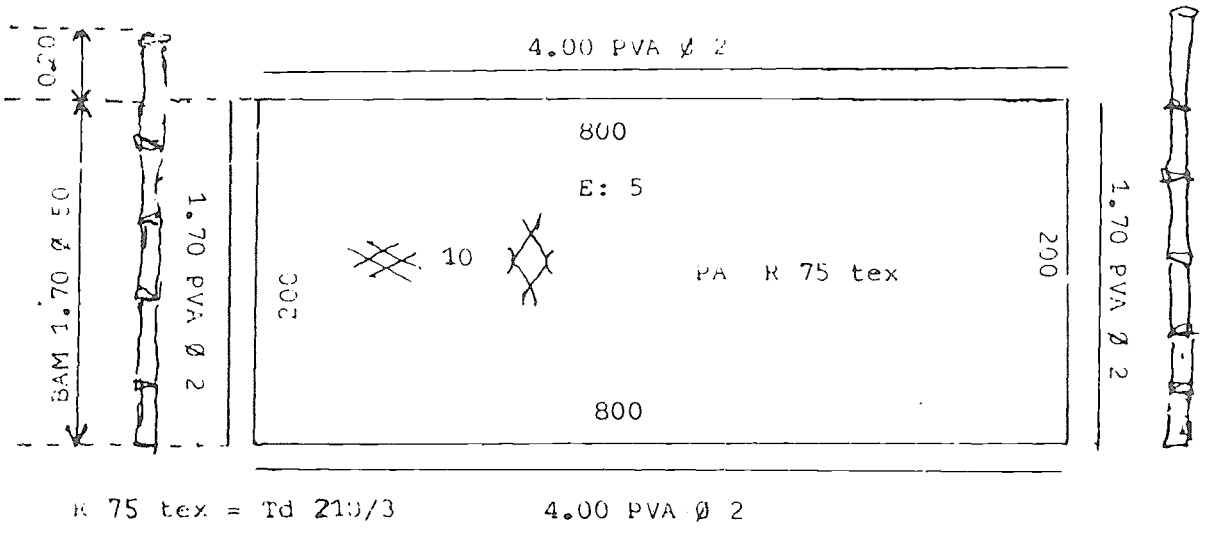
Estuary - Creeks

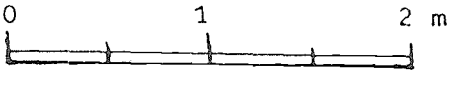
Fish: Shrimps, Prawns, Small Fish

Season: January - October (day/night)

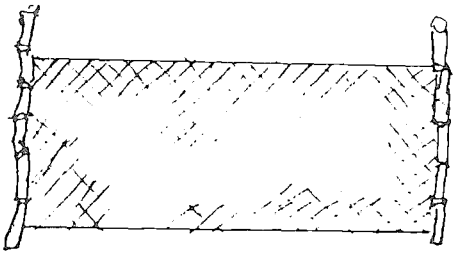
January - April (Night)

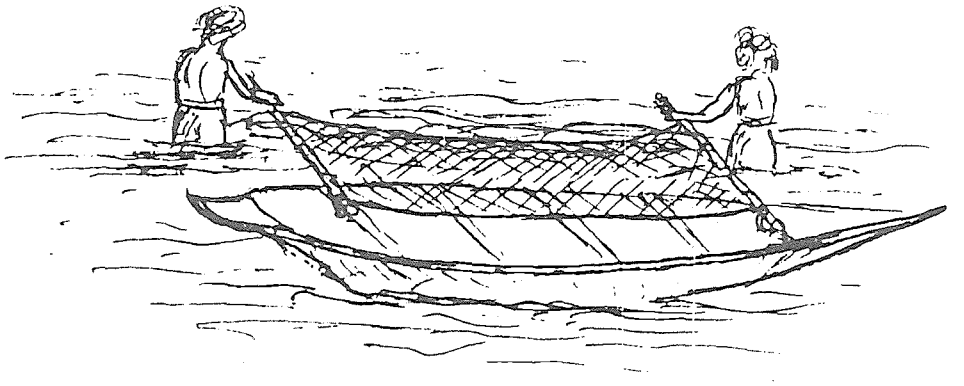
Depth: Up to 1mtr.





Two women walking and scooping the water. Catch is emptied into canoe by lifting scoop net whose other side is tied on canoe.





ABBREVIATIONS AND SYMBOLS USED:

ALT : Alternative

BAM: Bamboo

Cu: Copper

E: Hangling Ratio

L: Length

KG: Kilogramme

MONO: Monofilament

PA: Polyamide

PB: Lead

PL: Plastic

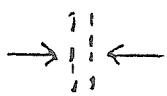
PP: Polypropylene

PVA: Polyvinyl Alchohol

ST: Stone

WD: Wood

 Streched mesh in mm.

 Thickness

 Approximately

 Diameter

 Knotless

 Twisted

 Current

 Per

Annex 6

Nutritional measurements children Benin River area sept 89

height	weigth	sex	age	site	% standard wght/hght	% standard wght/hght
91,5	14,5	F	3 year	1	112	93
106,5	17,5	F	6 year	1	92	91
131,1	27,1	M	10 year	1	99	93
145,5	39,1	M	12 year	1	106	95
49,5	2,5	M	1 month	1	78	94
118,1	21,1	M	10 year	2	98	84
77,1	10,1	M	1 y,7 mon	2	97	92
63,1	7,1	M	3 month	2	108	103
78,1	11,1	M	1 y, 6 mon	2	105	95
93,5	14,1	M	4 year	2	101	88
96,1	6,1	M	3 y, 1 mon	2	42	100
112,1	18,1	M	6 y, 9 mon	2	93	93
76,1	9,1	M	10 month	2	90	103
66,1	5,5	F	10 month	2	75	92
72,1	9,1	F	9 month	2	101	102
128,1	26,1	M	10 year	2	101	91
56,1	5,1	F	2 month	2	111	99
99,5	15,1	M	4 year	2	96	93
56,1	5,1	M	2 month	2	109	96
128,1	22,1	M	6 year	2	86	108
128,1	26,1	M	6 year	2	101	108
81,5	12,1	M	2 year	2	107	90
106,1	17,1	M	4 year	2	98	99
70,5	9,1	M	10 month	2	103	96
127,1	23,1	M	6 year	2	91	107
115,1	21,1	M	4 year	2	103	108
116,1	23,1	F	7 year	2	113	94
95,5	13,1	F	5 year	2	94	86
105,1	16,1	F	4 year	2	96	100
90,7	13,1	F	4 year	2	102	86
140,5	32,1	M	9 year	2	96	104
119,5	20,1	M	7 year	2	91	96
62,1	6,1	M	4 month	3	97	97
91,5	13,1	M	3 year	3	98	92
117,1	22,1	M	6 year	3	104	98
135,1	30,5	F	8 year	3	101	104
73,1	9,1	M	1 year	3	97	89
61,1	6,1	F	5 month	3	103	82
119,1	22,1	M	9 year	3	101	88
114,1	19,1	M	7 year	3	95	92
64,1	6,1	M	4 month	3	88	105
111,1	17,1	F	7 year	3	91	90
100,5	16,1	F	5 year	3	103	90
81,1	11,1	M	1 y, 6 mon	3	99	98
70,1	7,1	F	9 month	3	83	99
110,1	21,1	M	7 year	3	112	88
112,1	19,1	F	7 y, 6 mon	3	101	91
73,1	8,1	M	1 y, 6 mon	3	86	88
104,1	19,1	M	5 year	3	112	92
57,1	4,5	F	2 month	3	94	100
102,5	16,1	M	5 year	3	97	91
98,1	14,1	F	5 year	3	96	88
87,5	13,1	M	3 year	3	105	88
104,5	16,1	F	5 year	3	96	94
100,5	15,1	M	4 year	3	96	94
111,1	18,1	F	7 year	3	97	90
120,1	21,1	M	8 year	3	95	93
127,1	25,1	F	9 year	3	100	94
123,1	22,1	F	9 year	3	95	91
119,1	21,1	M	9 year	3	96	88

Continuation nutritional measurements children Benin River area sept89

height	weigth	sex	age	site	% standard wght/hght	% standard wght/hght
89,5	13,1	M	3 year	3	101	90
90,1	11,1	M	6 year	3	85	76
95,1	15,1	M	4 year	3	106	89
115,1	19,1	F	7 year	3	95	93
84,5	9,5	F	3 year	3	83	86
112,1	18,1	M	6 year	3	93	94
101,5	15,1	F	4 year	3	95	97
67,1	6,1	F	4 month	3	80	108
129,1	23,1	F	10 year	3	88	91
122,1	22,1	M	9 year	3	96	91
104,1	16,1	M	6 year	3	95	87
117,8	20,1	F	5 year	3	96	106
107,1	17,1	M	4 year	3	96	100
73,1	10,1	F	1 year	3	110	98
103,8	19,1	F	5 year	3	115	93
108,1	19,1	M	4 year	3	105	101
92,1	11,1	M	5 year	3	82	81
93,5	14,1	M	4 year	3	101	88
106,1	17,1	M	5 year	3	98	94
97,1	16,1	M	5 year	3	107	86
74,1	6,1	M	1 year	3	62	90
125,1	23,1	F	8 year	3	95	97
113,1	20,1	F	7 year	3	104	91
82,5	11,1	M	3 year	3	96	83
122,1	22,1	M	6 year	3	96	103
82,1	10,1	M	1 year	3	88	100
87,1	11,1	F	3 year	3	92	89
88,1	14,1	F	3 year	3	115	90
90,1	14,1	F	1 year	3	103	111
126,5	25,1	M	8 year	3	100	98
70,1	8,5	M	7 month	3	100	101
78,1	8,1	F	3 year	3	78	80
74,1	6,5	M	1 year	3	68	90
78,1	10,1	M	1 year	3	95	95
115,1	20,1	F	8 year	3	101	89
67,1	7,5	M	6 month	3	97	99
77,1	10,1	M	3 year	3	97	78
79,5	9,5	M	1 y, 6 mon	3	88	96
98,1	13,1	M	6 year	3	87	82
118,1	23,1	M	8 year	3	107	91
88,1	13,1	M	3 year	4	104	89
127,1	26,1	F	8 year	4	104	98
94,1	16,1	F	3 year	4	118	96
82,1	12,1		2 year	4	109	92
109,1	17,1	F	4 year	4	95	104
124,1	23,1	F	7 year	4	97	100
114,1	19,1	M	6 year	4	95	96
90,5	14,1	M	2 year	4	107	100
65,1	6,5	M	6 month	4	92	96
84,5	13,1	M	3 year	4	110	85
87,5	15,1	M	3 year	4	120	88
112,1	20,1	M		4	104	
87,1	14,1	F	2 year	4	118	97
91,1	13,1	M	5 year	4	98	80
110,1	22,1	M	5 year	4	118	97
131,1	24,1	M	7 year	4	88	105
109,5	18,1	M	5 year	4	97	97
118,5	19,1	F	6 year	4	90	101
112,1	19,1	F	5 y, 6 mon	4	100	101
109,1	19,1	M	7 year	4	104	88
127,1	17,1	F	7 year	4	95	103

Continuation nutritional measurements children Benin River area sept89

height	weigth	sex	age	site	% standard wght/hght	% standard wght/hght
85,1	12,1	F	3 year	4	103	97
94,5	14,1	M	4 year	4	100	89
121,1	21,1	M	7 year	4	93	97
131,5	25,1	F	8 year	4	90	102
119,1	19,1	M	4 year	4	87	112
128,1	26,1	M	8 year	4	101	99
121,5	24,1	M	7 year	4	105	98
105,5	16,1	F	6 year	4	95	90
87,5	13,1	M	2 year	4	105	97
97,5	17,1	M	5 year	4	119	84
129,1	28,1	F	9 year	4	107	95
103,5	19,1	M	5 year	4	114	122
138,5	28,1	M	9 year	4	88	103
147,5	34,1	M	10 year	4	92	105
63,1	6,1	F	3 month	4	94	106
94,5	14,1	M	4 year	4	100	89
124,5	22,1	F	9 year	4	92	92
72,1	11,1	M	11 month	4	121	91
138,5	29,1	M	9 year	4	91	103
91,1	13,1	F	3 year	4	102	93
60,5	5,5	M	5 month	4	95	92
73,5	9,1	M	1 y, 2 mon	5	95	94
62,1	5,5	F	6 month	5	90	94
63,1	6,1	M	6 month	5	92	93
66,5	7,5	F	10 month	5	101	93
108,3	18,1	F	2 y, 6 mon	5	101	117
78,5	10,1	M		5	94	
86,4	12,2	F	2 y, 4 mon	5	103	96
85,1	12,5	F	1 y, 9 mon	5	108	101
84,2	13,5	M	1 y, 3 mon	5	115	106
68,1	8,1	M	9 month	6	100	94
65,1	7,1	F	5 month	6	100	101
72,1	7,5	F	2 year	6	84	80
91,1	15,1	F	3 y, 11mon	6	114	90
93,5	14,1	F	3 y, 11mon	6	102	93
79,3	11,1	F	3 year	6	103	81
77,5	8,1	F	1 y, 7 mon	6	78	95
114,4	21,1	F	7 year	6	106	93
106,5	16,1	F	5 year	6	93	95
131,5	29,5	M	10 year	6	107	94
124,1	22,1	M	10 year	6	92	88
122,1	23,1	F	8 year	6	101	94
103,4	14,1	F	4 y, 3 mon	6	86	100
84,1	11,1	M	3 y, 2 mon	6	94	87
138,9	32,5	M	10 year	6	100	99
101,4	15,1	F	4 year	6	95	96
130,1	29,1	M	10 year	6	108	93

Annex 7

Nutritional measurements children Okoroete feb 90

height	weigth	sex	age	% standard wght/hght
125,6	24,5	M	6	100
118,7	22,5	M	9	104
77,7	10,5	F	2	104
137,2	32	F	10	102
110,7	18	M	4	96
71,1	6,5	F	1,5	76
105,8	16,5	M	5	95
95,2	13,3	M	3	92
126,6	27,5	F	6	110
112,3	20	M	5	102
103,8	15,5	F	4	94
111,5	18	M	6	94
71,2	8	F	1,25	93
	14	M	3	
75,8	9	M	2	90
104,1	14	F	4	85
86,7	13	F	3	106
109,5	20,5	M	5	111
106,3	17,2	M	4	98
93,5	13	F	3	95
73	9	M	2	97
80,8	11,5	F	2	105
97,6	15,5	M	3	103
93,6	14,5	M	3	103
87,6	15	F	2,5	121
121,7	23	F	7	101
95,6	12,5	F	4	88
93,2	14	M	4	100
86,5	15,2	M	3	122
113,4	17,5	F	7	90
86,3	14	M	3	112
72,4	8,5	M	1,5	92
114,5	20,5	F	5	104
97,1	12,5	F	3	86
77,8	9,5	M	1,2	90
90,6	13,5	F	4	104
83,5	11,5	M	2	102
120,7	21	F	6	93
103,8	15,5	M	5	94
79,9	9	F	2	85
73,2	8	M	2	88
104,9	17,5	F	6	102
105,6	17	F	5	101
92,4	14	F	3	104
70	8,5	F	1,5	100
103,5	17,5	F	4	107
99,5	15	F	4	99
80,9	10,5	F	1,5	99
69,3	8,5	F	1,2	104
128,7	26	F	8	100
93,6	11,5	M	2	82
71,1	8,5	F	1	99
120,1	22	M	8	99
104,8	17	F	4	102
115,7	20	M	6	98
114,4	20,5	M	7	101
98,3	15	F	3,5	100
72,5	11	M	1,5	120
70,9	10,5	F	1,25	122
138,1	29,5	M	11	93
81,3	10,5	F	2	96

Continuation nutritional measurements children Okoroete feb 90

height	weigth	sex	age	% standard wght/hght
114,5	11	F	5,5	56
67,6	8	F	8 month	104
81	12	F	2,5	111
110,9	19,5	M	3	103
91	15	M	2	111
89,5	13,5	M	3	103
82	12	F	2,5	107
94,8	14,5	M	3	100
68	8,5	M	6 month	106
79,2	10	M	3	93
91,2	15	F	3	114
76	11	F	1,5	112
84	12	F	2,5	103
119	23	M	7	106
104	16,5	F	5	100
70,3	9,5	F	10 month	112
110,3	17,5	F	6	95
105,6	16	F	4	95
95,4	16,5	M	2,5	113
104,6	17,5	F	5	105
121,3	25	M	6	110
82,2	12	M	2	97
90,7	13,5	F	2	102
90,5	13,5	M	2	101
81	11,5	M	3	104
66,6	7,5	F	9 month	101
71,8	8,5	M	9 month	93
90	12,5	F	3	99
74,9	9	F	2	94
96,5	14,5	F	5	100
117,3	21	F	8	101
107,4	16,5	F	6	94
118,3	22	M	7	102
101	17,5	M	3,3	109
76	9	F	2	92
111,8	19,5	M	5	101
105	18	F	4	108
80	11,5	M	2	106
97,1	17	M	3,5	113
122	23	F	7	101
137,8	31	M	10	98
99	17,5	M	3	113
86,5	14	F	2	115
86	11	M	3	89
109,1	18,5	F	4	103
75,2	10	M	10 month	93
128	26	F	7	101
111,5	18	F	5	96
82,5	12,5	M	1,5	108
92,1	14	M	4	102
117,6	23	M	5	108
103,2	16	F	4	99
116,9	22	M	6	104
104,5	17,5	M	3,5	103
111	18	M	5	95
120,6	25	F	6	114
90,6	12,5	M	3	93
91,2	13	M	3	98
118,8	21,5	F	7	100
76	9,5	M	2	95

Continuation nutritional measurements children Okoroete feb 90

height	weigth	sex	age	% standard wght/hght
127,5	24,5	F	7	96
109,8	18,5	M	5	99
118,5	22	F	6	104
92,5	14	M	2,5	101
104,7	16	F	4	96
112,4	18,5	F	6	97
76,8	10	M	2	97
102,7	16,5	F	3	102
115,6	23	F	8	114
114,5	20	F	6	102
100,4	14,5	F	4	93
120,5	21	M	6	94
113	18,5	M	6	94
80,8	10,5	M	2	94
67,7	8	M	9 month	100
95,7	15	M	3	102
78	9	M	1	86
91,4	12,5	F	3	94
120,6	21	M	6	94
92,9	14	M	3	101
115,5	20	F	4	100
85,1	12,5	M	3	103
107,3	18	M	5	101
89,5	15,5	F	3	121
75,8	9,5	M	2	94
104,8	14	F	4	84
87,4	12,3	F	3	103
78,4	11	M	2,5	103
68,5	9	M	6 month	111
95,8	15	F	3	105
119,6	23	F	7	106
105,8	17	F	4	100
71,3	8,5	F	1,5	96

Annex 8 Some data on costs and earnings of three fishermen from Ogheye

Three fishermen were asked to write down, after every fishing trip, what fish they had caught, how much fish, how much money they got for it, how much they had spent on fuel, what gear they had used and how many crewmembers they were on board.
The data collection took place from June '89 till June '90.
Two Itsekiri fishermen and one Ilaje fisherman were selected.
The fishermen were selected in consultation with one of the chiefs of the village. The three selected fishermen do not represent all the fishermen from the community, they are among the better fishermen.
The fishing methods used by the three fishermen are common methods among the fishermen from Ogheye.

The fishermen got a small allowance for this data collection. The data were collected once every month by John Omathsaye, one of the fisheries officers based in Koko.
It is clear that this report could not have been written without the willingness to cooperate and the endurance of the three fishermen and that of John Omathsaye.

As this report deals with costs and earnings the Nigerian currency, the Naira (N), will be mentioned.
Though the value of the Naira has dropped dramatically in the last five years, it was more or less stable during the period of our data collection.
The exchange rate is officially around 8 Naira to 1 US dollar, on the parallel market one can get up to 9,5 Naira to 1 US dollar.
In order to give an idea about the relative value of this Naira, the following comparison may be useful:
A salary of a junior fisheries officer by the Federal Department of Fisheries was at the time of the data collection around 350 Naira a month, a more senior fisheries officer earned about 500 Naira a month.
A bottle of beer, 0,7 L, cost in the village 4 Naira.

Fishing operations of the three fishermen

In this chapter the fishing operations of the three fishermen will be discussed one after the other. The prices of the nets and the longlines used in this report are the estimated prices of the nets including, floaters, leads etc. bought on the market. Sometimes the fishermen use (local made) alternative materials which means that their nets can be cheaper than the prices given here.

The fishermen in Ogheye who fish at sea all use a 'Banana boat'. The 'Banana boats' are planked canoes in various sizes but the most common seems to be the '14 planks' canoe which is 9 m long. The boats are made in the village. The size of the boat is expressed in the actual number of planks used for the construction, there are 16 planks, 15 planks, 14 planks, 12 planks, 10 planks and 9 planks canoes. The prices vary from 2500 Naira for the 16 planks canoe to 900 Naira for the 9 planks canoe.
The 'Banana boats' are constructed without frames and the only diagonal support are the outboard engine support and the thwarts. The stability of the boats is said to be good with nets and fish in the boat but it rolls considerably unloaded.
Lifespan is said to be 3 to 4 years with good maintenance.

In Ogheye about 40% of the seagoing canoes are said to be motorized. Two years ago the government removed the 50% subsidy on engines and spare parts. The sudden rise of the prices caused by this became even stronger as the value of the Naira dropped considerably at the same time.
The number of motorized canoes is going down now, as the outboard engines are becoming too expensive for the fishermen.
The Yamaha outboard engines are preferred by the fishermen due to a longer lifespan and better available spareparts than other marks. The Yamaha 40 HP and 25 HP are used most.
All three fishermen in the datacollection use a Yamaha 25 HP. In June 1990 the 25 HP Yamaha cost 19380 Naira, whereas fisherman 1 bought his in 1983 with government subsidy for 1100 Naira, fisherman 2 bought his in 1989 second hand for 8000 Naira and fisherman three bought his in 1986 for 6000 Naira.
The lifespan for the outboard motors is with good maintenance 4 years.

The fishermen use gillnets and longlines. The most common gillnet in Ogheye is the drifting gillnet 'Osusu', all three fishermen in the data collection had an 'Osusunet'.

Besides the 'Osusu net' there is a similar drifting gillnet the 'Gabon net' that is well known. Of the three fishermen only fisherman 3 had both the 'Osusu net' and the 'Gabon net'.

Fishermen 2 and 3 also used a setnet. Fishermen 2 refers to his setnet as the 'stroke 9 net' (/9 net) and fisherman 2 as 'setnet'.
The '/9 net was bought in June '89 and the 'setnet' in 1990 and they were said to last two seasons.

Fisherman 1 was using besides the 'Osusu net', a longline with hooks nr 9 and fisherman 3 was using besides the 'Osusu net', the 'Gabon net' and the 'setnet' a longline with hooks nr 6.

As the value of the Naira has changed last years (about ten years ago one Naira was more than one US dollar) the prices of fishing gear and outboard engines in local currency have risen.

On each fishing trip the fishermen stayed at sea for several hours, very rarely they stayed overnight. The setnets were most often set in the evening. The fishermen then went back home to go out again the following morning to collect the net.

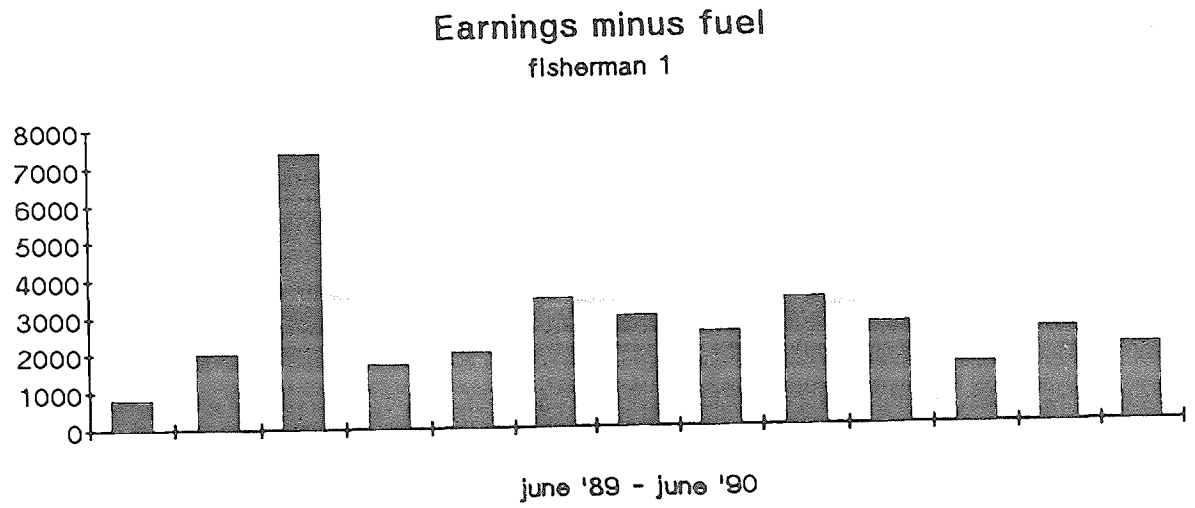
If the fishermen come back from sea with their fish, the fish is sorted in units of a certain quantity. One unit of shinynose is most often 30 Naira, one shinynose can be several units.
The changes in the market prices are reflected in the size of these units. It was tried a few times to get an idea about the weight of such a unit, but the variance in our measurements was too big to be able to give an estimated average weight of a unit of for instance shinynose of 30 Naira or a unit of croaker of 7 Naira.
This means that it is not possible to get a good estimate from the data collected about the quantity of fish the fishermen caught.
Very roughly it can be said that one kilo of catfish landed by the fishermen from Ogheye was sold for about 10 Naira.

The crew of the fishingboats all get fish besides their salary.

Fishing operations of fisherman 1

Fisherman 1 is an Itsekiri and a head of a family. He has several boats, the boat involved in the data collection was manned by two of his sons. The fishing equipment was bought from family capital.
The boat was equiped with a 'Osusu' gillnet and with a longline with hooks nr 9.

The data collected by fisherman 1 give the following monthly earnings minus the costs for fuel:



	earnings	fuel
June	1251	450
July	2475	475
August	7675	303
September	1929	213
October	2570	550
November	4065	650
December	3624	650
January	3014	504
February	3870	487
March	2998	288
April	1919	299
May	2880	375
June	2280	237
Total	40550	5481

total earnings in 13 months	40550
fuel	5481
earnings minus fuel 13 months	35069

The sharing system for this crew is as following:
From the earnings the fuel is first taken off. From the remaining income two/third is for the boatowner and one/third for the crew. The crew, the two sons of the boatowner, had equal shares.
2/3 of 35069 is 23379 Naira for the boatowner in 13 months.

12/13 of 23379 is **21580 Naira** for the boatowner in 12 months.

The crew got 1/3 of 35069 Naira, 11689 Naira in 13 months. They each got in 13 months 11606/2= 5845 Naira.
The average monthly salary of the crew is 5803/13= **450 Naira**

From the 21580 Naira, the boatowner has to take care of maintenance and depreciation of the fishing materials.
This fishermen did not have an insurance and did not pay interest.

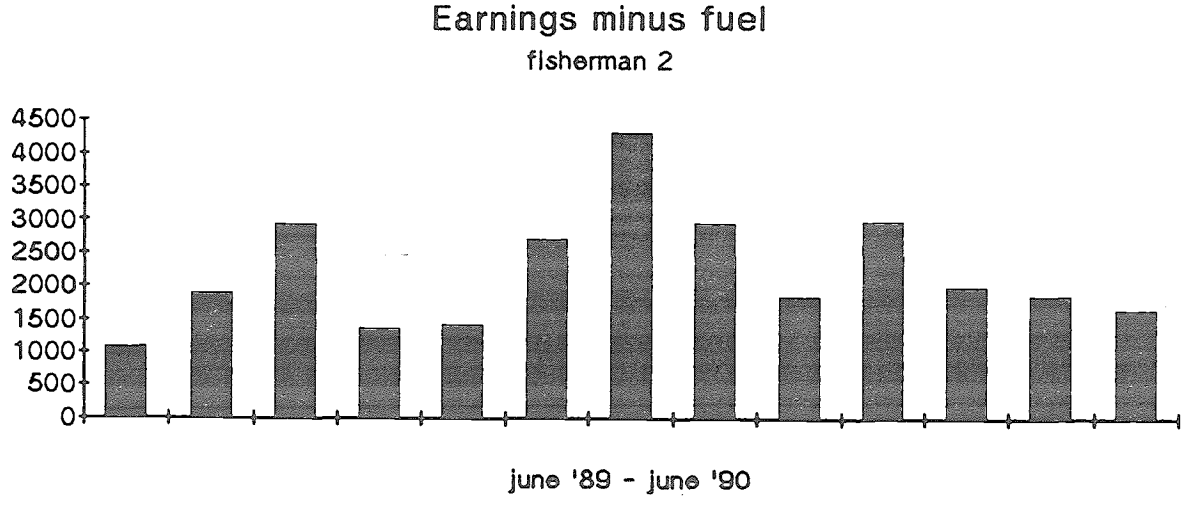
	estimated cost in 1990	lifespan	estimated annual cost
Outboard engine Y25	19380	4 years	4845
Bananaboat	2000	3 years	667
Drifting gillnet	8000	4 years	2000
Longline	1200	3 years	400
Total	22580		7912

An estimation of the amount of money necessary for maintenance of the fishing materials is to take an equal amount as the depreciation. This means that fishermen 1 needs 7912 Naira for depreciation and 7912 Naira for maintenance a year to keep this canoe in operation, together 15824 Naira.
As stated before this boatowner got 21580 Naira revenues over 12 months.

Fishing operations of fisherman 2

Fisherman 2 is also an Itsekiri. The boat involved in the data collection was his only boat. His brother is fishing with this boat with one or two younger boys from the village.
This fisherman got credit from a fishtrading woman, whom he pays back in fish.
The boat is equipped with a drifting gillnet 'Osusu' and with a setnet called '/9 net'.

The data collected by fisherman 2 give the following monthly earnings minus the costs for fuel:



	earnings	fuel
June	1396	325
July	2387	500
August	3388	453
September	1742	375
October	2314	900
November	3376	675
December	4992	700
January	3484	525
February	2336	475
March	3612	625
April	2452	450
May	2356	475
June ^R	1968	300
Total	35803	6778

total earnings in 13 months 35803
fuel 6778
---
earnings minus fuel 13 months 29025

This boatowner pays his brother, the captain on board 30 Naira and the two boys 10 Naira when they come back with a good catch. During the 13 months of the data collection they have gone out fishing 270 days. From these 270 fishing days they came 163 days back with a catch worth more than 100 Naira.
From those 163 days with good catch they have been out fishing with a crew of two 89 days and with a crew of three 74 days.

The boatowner paid the crew:
163x30 = 4890
89x10x1 = 890
74x10x2 = 1480

7260 Naira in 13 months.

The boatowner received 29025 minus 7260 = 21765 in 13 months.

12/13 of 21765 is <u>20090 Naira</u> for the boatowner in 12 months.

The brother of fisherman 2 got 163 fishingdaysx30 Naira= 4890 Naira in 13 months.

The average monthly salary of this brother is 4890/13= <u>376 Naira</u>

From the 20090 Naira the boatowner has to take care of maintenance and depreciation of the fishing materials.
This fisherman did not have an insurance either and the interest is taken into account in the price he got for his fish.

	estimated cost in 1990	lifespan	estimated annual cost
Outboard engine Y25	19380	4 years	4845
Bananaboat	2000	3 years	667
Drifting gillnet	8000	4 years	2000
Setnet	1600	2 years	800
Total	30980		8312

An estimation of the amount of money necessary for maintenance of the fishing materials is to take an equal amount as the depreciation. This means that fishermen 2 needs 8312 Naira for depreciation and 8312 Naira for maintenance a year to keep this canoe in operation, together 16624 Naira.
As stated before fisherman 2 got 20090 Naira revenues in 12 months.

Fishing operations of fisherman 3

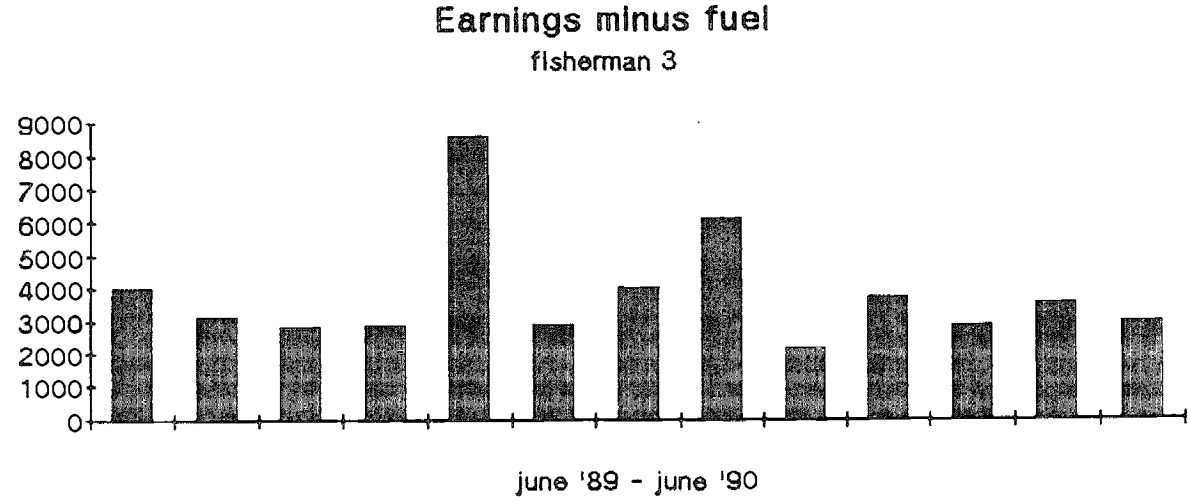
The third Fisherman involved in the data collection is an Ilaje. He has one boat, which is operated by a crew of two or three villagers depending on the fishing gear used.
The fishing equipment was bought from his own capital, no credits were taken.

The boat was equipped with the drifting gillnets 'Osusu' and 'Gabon' with a setnet and with a longline with hooks nr 6.

The data collected by fisherman 3 give the following monthly earnings minus the costs for fuel:

	earnings	fuel
June	4682	688
July	4270	1115
August	4275	1440
September	3202	338
October	9210	650
November	3315	425
December	4525	500
January	6640	525
February	2400	254
March	4015	300
April	3160	330
May	3825	300
June	3210	255
Total	56729	7120

total earnings in 13 months	56729
fuel	7120
earnings minus fuel 13 months	49609



Fisherman 3 pays his crew 30 Naira every time they come back with a good catch. When they come back with a poor catch he gives them some fish.
From June '89 till June '90 the crew has been out fishing 248 days. They came back with a catch worth more than 100 Naira 149 days.
Of those 149 days they went out with a crew of two 91 days and with a crew of three 58 days.

The boatowner paid the crew 58x3x30 = 5220
91x2x30 = 5520

10740 Naira in 13 months

The boatowner received 49610 minus 10740 = 38869 in 13 months.

12/13 of 38869 is 35879 Naira for the boatowner in 12 months.

The two crewmembers who went out on all the fishing trips got 149 times 30 Naira is 4470 Naira in 13 months.

The average monthly salary of this crew is 4470/13 = 344 Naira

From the 35879 Naira, the boatowner has to take care of maintenance and depreciation of the fishing materials. This fisherman had also no insurance and no credits.

	estimated cost in 1990	lifespan	estimated annual cost
Outboard engine Y25	19380	4 years	4845
Bananaboat	2000	3 years	667
Drifting gillnets	8000	4 years	2000
Setnet	1600	2 years	800
longline	1200	3 years	400
Total	32180		8712

An estimation of the amount of money necessary for maintenance of the fishing materials is to take an equal amount as the depreciation. This means that fishermen 1 needs 8712 Naira for depreciation and 8712 Naira for maintenance a year to keep this canoe in operation, together 17424 Naira.
As stated above fisherman 3 got 35879 Naira revenues in 12 months.

Earnings per fishing gear

The 'Osusu net'

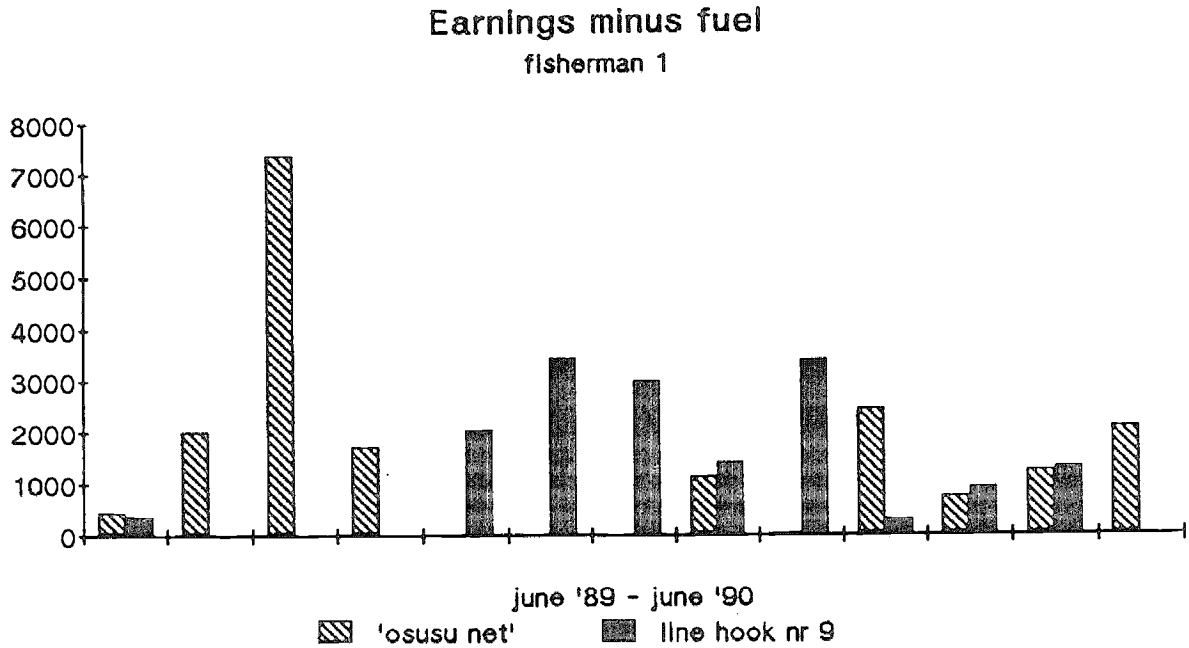
All three fishermen used the drifting gillnet 'Osusu'most often. From the data it can be seen (see also annex 2) that the 'Osusu' season is from March till September.

The fishermen had the following revenues from the 'Osusu net'.

	earnings-fuel	no. of fishingdays	earn-fuel/ fish.day
fisherman 1	19064	129	148
fisherman 2	18888	149	127
fisherman 3	36983	183	202

and they spend the following on fuel:

	fuel	fuel/fishingday
fisherman 1	2068	16
fisherman 2	3728	25
fisherman 3	5726	31



From the longlines the fishermen got the following revenues:

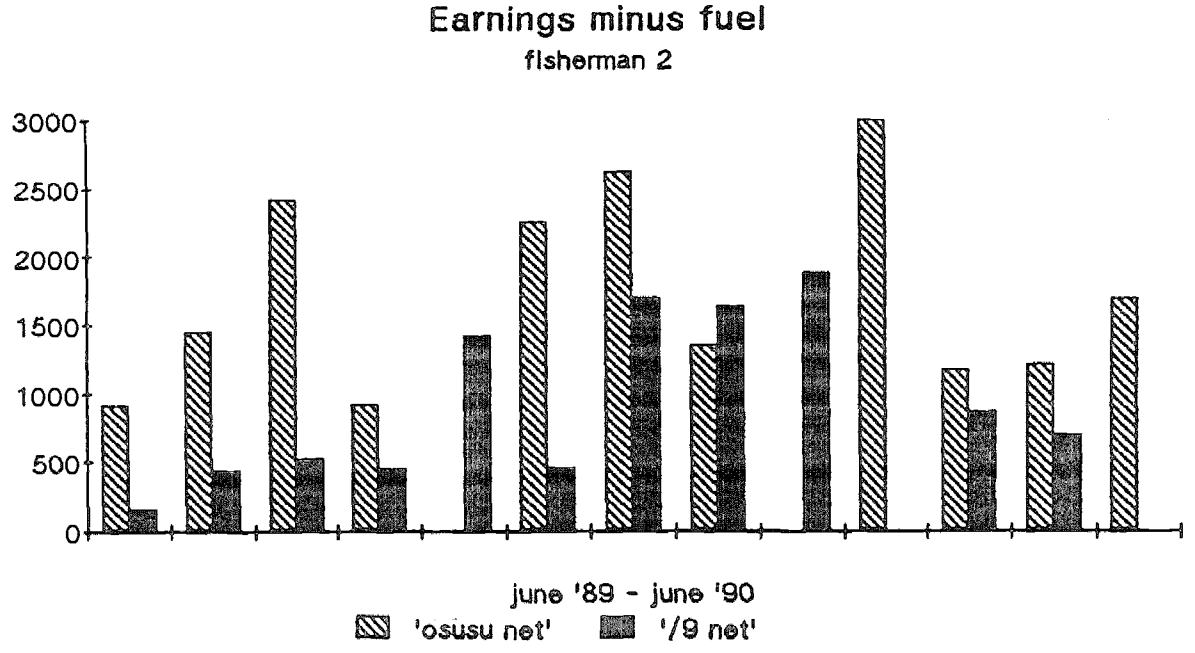
	earnings-fuel	no. of fishingdays	earn-fuel/ fish.day
fisherman 1 line hooks nr9	16005	134	119
fisherman 3 line hooks nr6	395	2	198

The fishermen spend the following on fuel:

	fuel	fuel/fishingday
fisherman 1 line hook nr9	3413	25
fisherman 3 line hook nr6	160	80

Fisherman 1 used his 'Osusu net' and his longline clearly in two different seasons. The 'Osusu net' was mainly used from March till September and the longline from October till May.

The activities of fisherman 3 with his longline were very limited. He only used it twice during the 13 months of the data collection, though his revenews were not bad at all these two days.
In general longlines are not so popular in Ogheye as it seems to require more work than the nets.



Fisherman 2 used his '/9 net' and his 'Osusu net' more or less throughout the year.

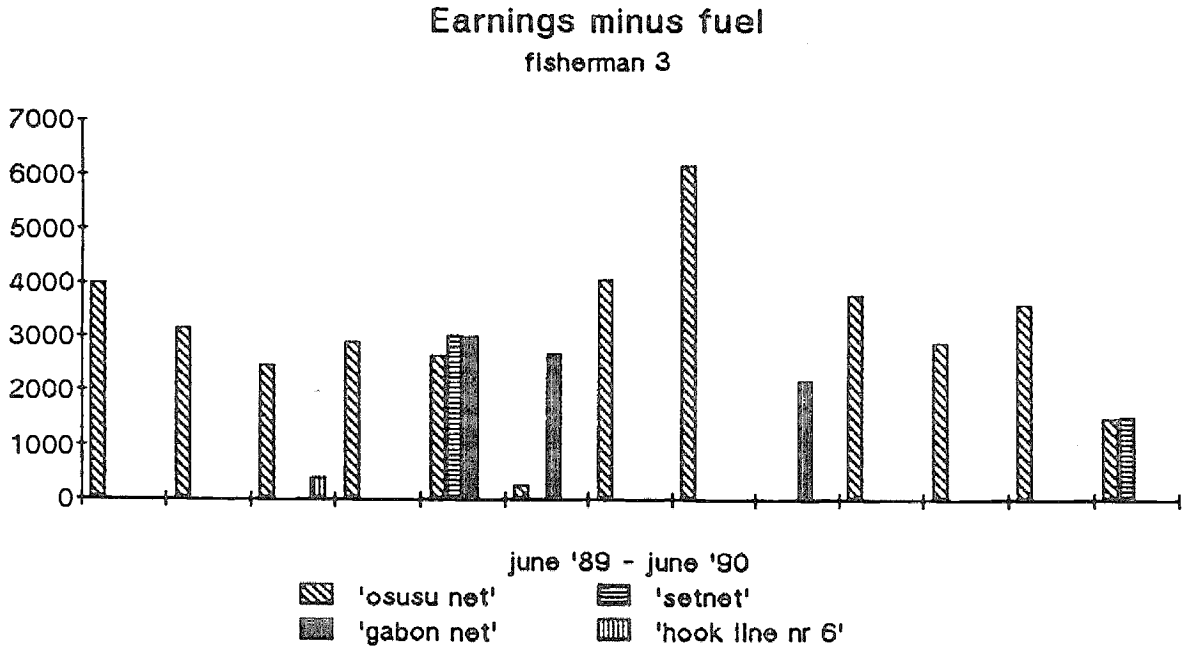
From the other nets besides the 'Osusu net' the fishermen got the following revenews:

	earnings-fuel	no. of fishingdays	earn-fuel/ fish.days
fisherman 2 /9 net	10137	121	84
fisherman 3			
Gabon net	7741	45	172
Setnet	4490	18	249

The fishermen spend the following on fuel:

	fuel	fuel/fishingday
fisherman 2 /9 net	3050	25

	fuel	fuel/fishingday
fisherman 3		
Gabon net	854	19
Setnet	380	21



Fisherman 3 used his 'Osusu net' all year round, he used his longline, as mentioned above, only twice in August.
The 'Gabon net' was used in October, November and February, whereas the 'setnet' was used in October and June.

Earnings per fish species

As explained before it is not possible to get a clear idea of the amount of fish caught by the fishermen from the data collected. The only information available is the amount of money got for the fish.
This being the case it was nevertheless decided to analyse the data on the different fish species caught with the different nets.
In all the following one has to keep in mind that with fish species the amount of money got for the fish is meant and not the amount of fish caught.

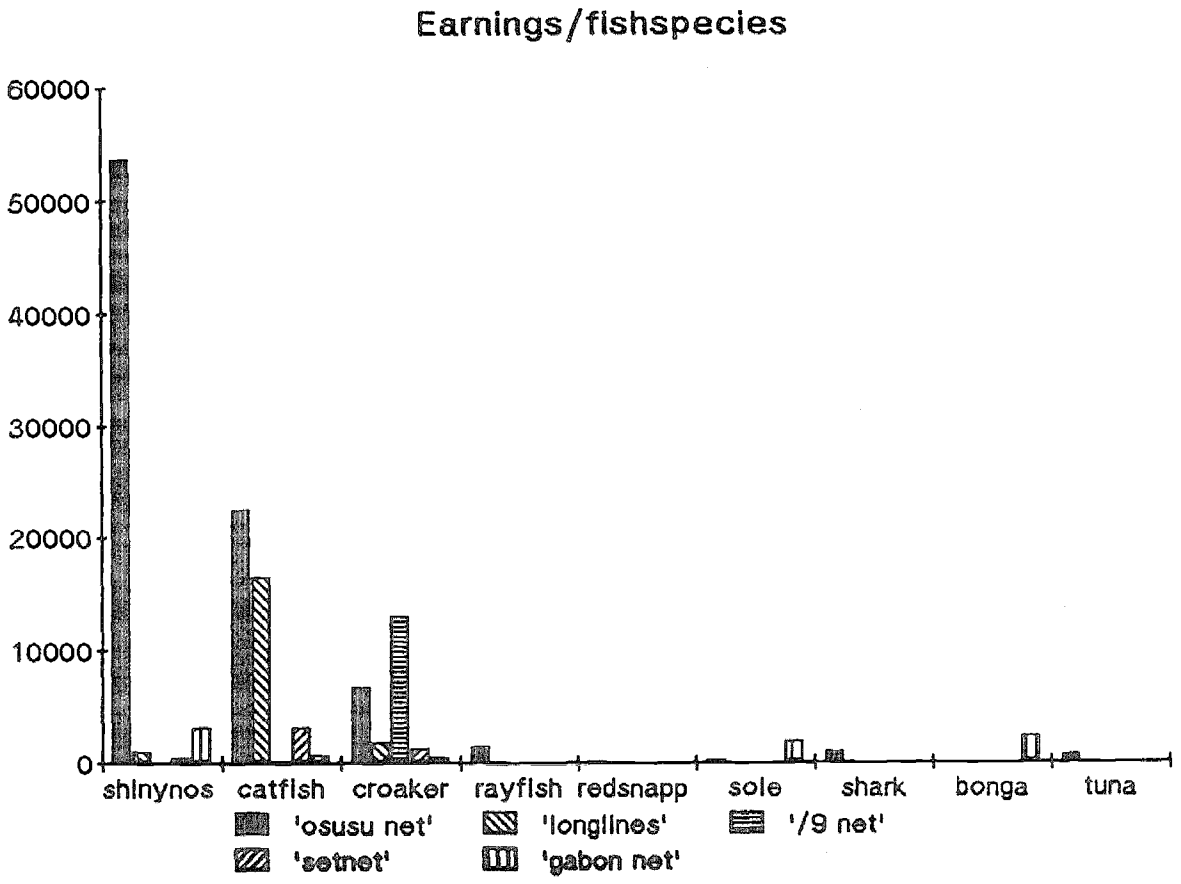
The revenues of the three fishermen taken together they got the following for the different fish species with the different nets:

	'Osusu'	'Gabon'	'/9 net'	'setnet'	'longlines'
shinynose	53625	3180		470	1032
catfish	22494	645	168	3110	17102
croaker	6808	495	13019	1290	1814
rayfish	1485				
redsnapper	140				
sole	200	1875			
shark	1060				
bonga		2400			
tuna	670				
total	86482	8595	13187	4870	19948

The totals for the different fish species caught by the three fishermen are:

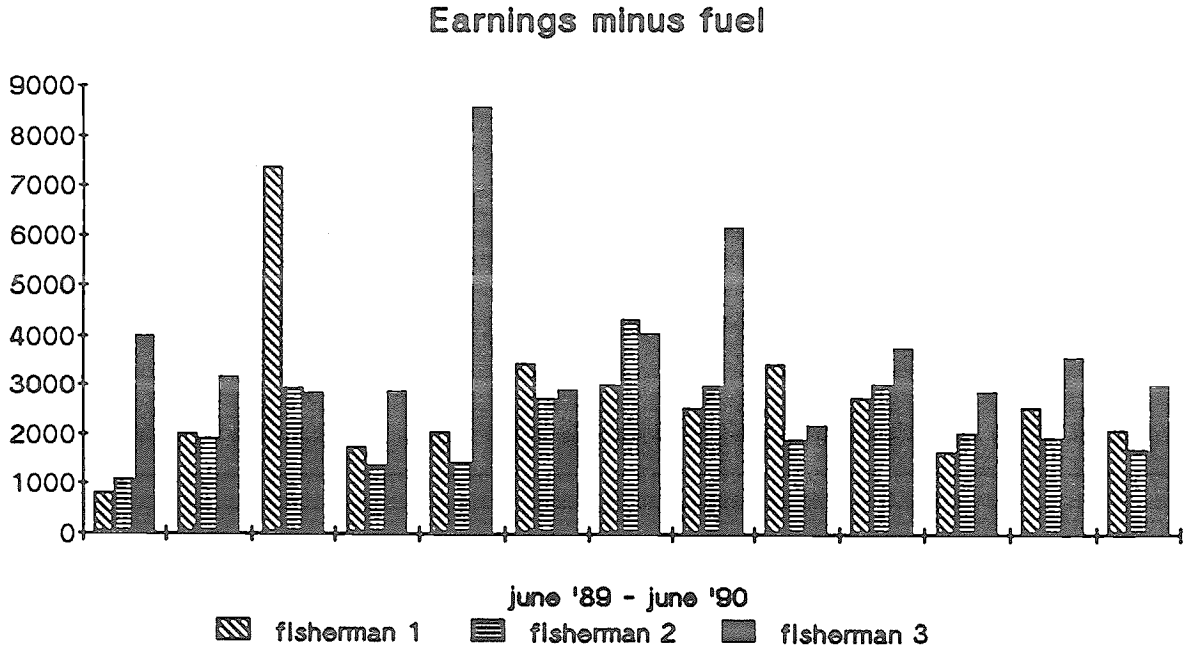
	fisherman 1	fisherman 2	fisherman 3	total
shinynose	20636	19796	17875	58307
catfish	16805	2556	24158	43519
croaker		13301	8251	21552
rayfish	2909		390	3299
redsnapper	140			140
sole			2075	2075
shark	60	150	910	1120
bonga			2400	2400
tuna			670	670
total	40550	35803	56729	133082

As can be seen also from the following figure, the fishermen caught different fishspecies with the different nets. The 'Osusu net' is mainly for shinynose (62,7%), the 'Gabon net' for shinynose, bonga and sole, the longlines for catfish (85,7%), the '/9 net' for croaker (98,7%) and the 'setnet' for catfish (63,9%) and croaker (26,5%).



Summary

The data collected from June '89 till June '90 by three of the fishermen from Ogheye show that these fishermen alternate their nets and longlines in such a way that they have a basic income all year round.
The figure shows the earnings minus fuel from the three fishermen over the year. Fisherman 1 had an exceptional good month in August, fisherman 3 in October and January.



The boat of fisherman 1 went out fishing 263 days in 13 months, an average of 20 days a month, 240 a year. The average earnings a fishing day are 133 Naira.
The boat of fisherman 2 went out fishing 270 days in 13 months, an average of 21 days a month, 250 a year. The average earnings a fishing day are 108 Naira.
The boat of fisherman 3 went out fishing 248 days in 13 months, an average of 17 days a month, 228 a year. The average earnings a fishing day are 200 Naira.

Each crew member got over this period, the following average monthly income:

crew from fisherman 1 450 Naira
crew from fisherman 2 376 Naira
crew from fisherman 3 344 Naira

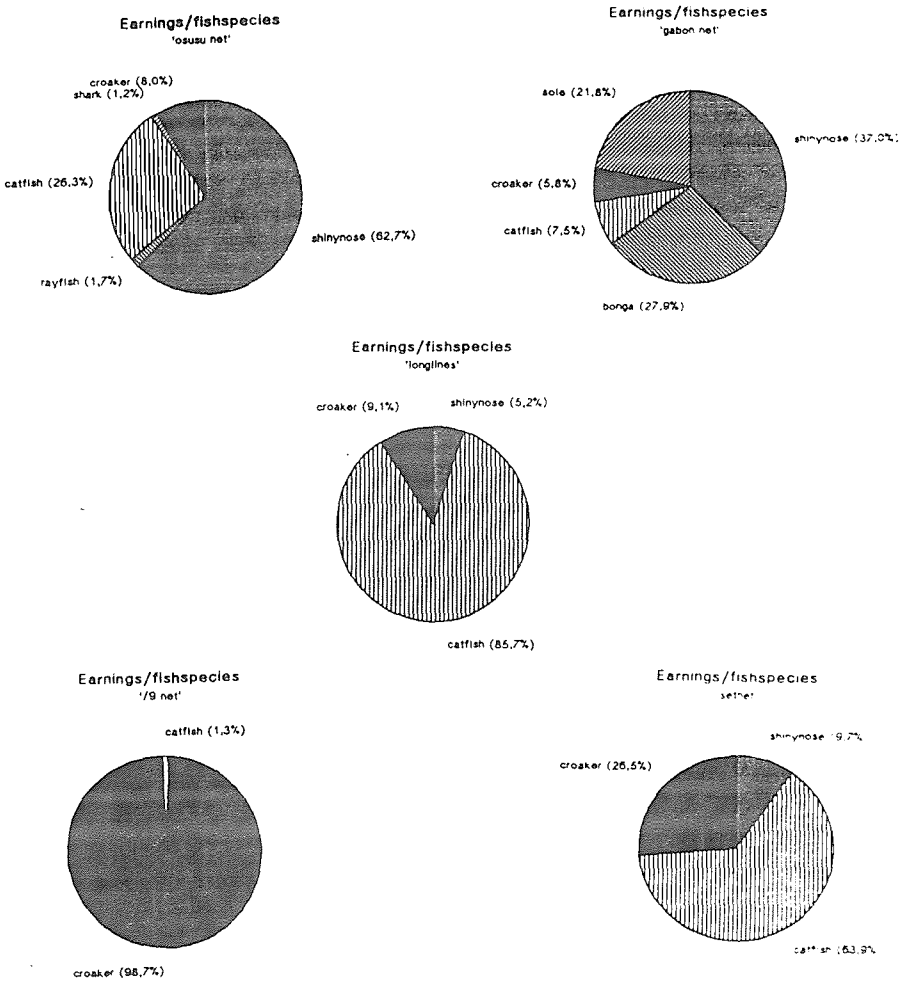
The boatowners, over 12 months, received the following revenues after paying the fuel, the crew and the costs:

	revenues	estimated costs
boatowner 1	21580	
boatowner 2	20090	
boatowner 3	35879	

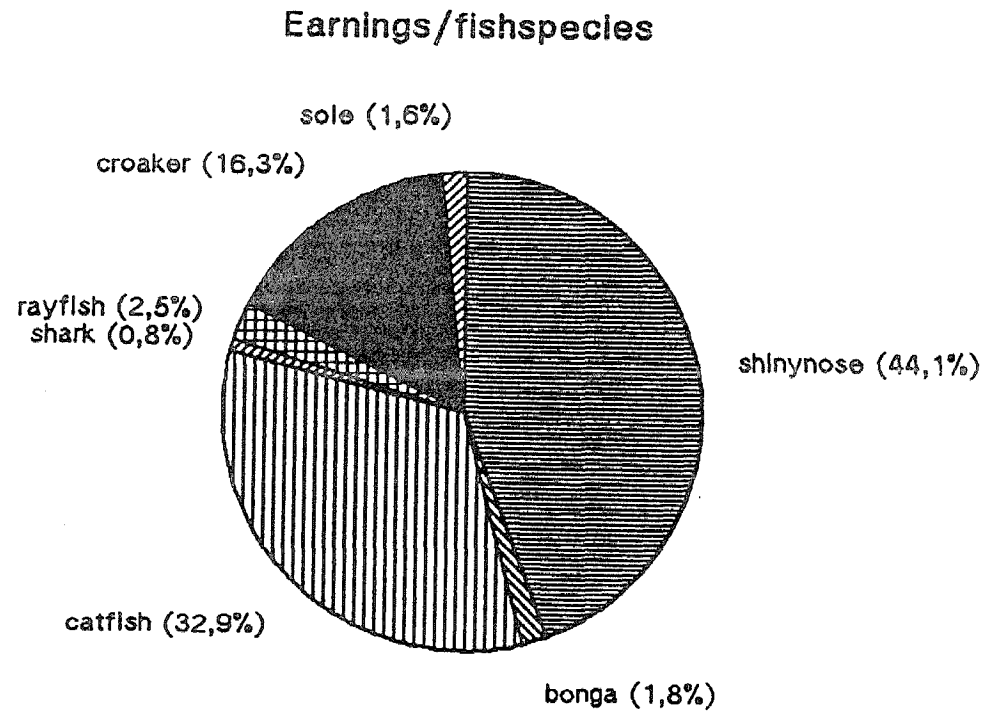
From the total earnings fisherman 1 spent 14% on fuel, an average of 21 Naira a fishing trip. Fisherman 2 spent 19%, an average of 25 Naira a fishing trip and fisherman 3 13% , an average of 29 Naira a fishing trip.

All three fishermen used the drifting gillnet 'Osusu'. Fisherman 1 used the 'Osusu net' and a longline with hooks nr 9.
Fisherman 2 used the 'Osusu net' and a setnet called '9 net'.
Fisherman 3 used the drifting gillnets 'Osusu' and 'Gabon', a setnet and a longline with hooks nr 6.
For all three fishermen the 'Osusu net' was the most important, though for fisherman 1 the 'Osusu net' and the longline contributed about equal to the earnings and were also used about the same number of fishing days.

In the following figure the earnings from the different fish species are given for the different nets. The earnings per net are summarized for the fishermen.
It can be seen that the fishermen caught mainly shinynose, catfish and croaker and that most fish was caught with the 'osusu net'.



From the earnings 44,1 % was from shinynose, 32,9% from catfish, 16,3% from croaker and a few percents from rayfish, bonga, sole and shark. The contribution of redsnapper and tuna is left out of the diagram as they contributed less than 0,5% , as follows.



earnings per fishspecies FISHERMAN 1

	june	july	august	september	october	november	december	january	february	march	april	may	june
shinynose	711	2475	7363	1729			384	1364		1915	735	1680	2280
catfish	540				2570	3235	3240	1650	3870	360	140	1200	
croaker													
rayfish			312			830				723	1044		
redsnapper				140									
sole													
shark				60									

earnings per fishspecies FISHERMAN 2

	june	july	august	september	october	november	december	january	february	march	april	may	june
shinynose	196	1484	2772	1092		2744	2912	1540		3612	1428	1372	644
catfish	840	336	168										1212
croaker	210	567	448	650	2314	632	2080	1944	2336		1024	984	112
rayfish													
redsnapper													
sole													
shark	150												

earnings per fishspecies FISHERMAN 3

	june	july	august	september	october	november	december	january	february	march	april	may	june
shinynose	1275	3390	2970	1260	3570		1050				2800	1480	80
catfish	2696	660	1305	862	4350	945	3200	6640		680	300	400	2120
croaker	511			1080	1290	495	275			2840		1760	
rayfish										320	60	10	
redsnapper													
sole	200					1875							
bonga									2400				
shark		220											690
tuna										175		175	320

overview of monthly totals for osusu/36

	june	july	august	september	october	november	december	january	february	march	april	may	june
earnings	741	2475	7675	1929				1256	48	2638	795	1680	2280
	1186	1820	2772	1142		2744	2912	1540		3612	1428	1492	1968
	4682	4270	3720	3202	2760	300	4525	6640		4015	3160	3825	1610
fuel	300	475	303	188				141	37	213	74	100	237
	275	375	353	225		500	300	200		625	275	300	300
	688	1115	1280	338	150	50	500	525		300	330	300	150
earnings	441	2000	7372	1716				1115	11	2425	721	1580	2043
minus fuel	911	1445	2419	917		2244	2612	1340		2987	1153	1192	1668
	3994	3155	2440	2864	2610	250	4025	6115		3715	2830	3525	1460
earn-fuel/	37	100	335	107				139	6	143	144	153	107
fishingday	160	131	173	115		107	218	167		103	96	92	111
	250	175	153	205	435	125	212	291		186	129	185	146
%earnings	40	19	4	11				13	77	8	9	8	10
for fuel	19	21	13	20		18	10	13		17	19	20	15
	15	26	34	11	5	17	11	8		7	10	8	9
earnings per fishspecies FISHERMAN 1													
shinynose	711	2475	7363	1729				1076		1915	735	1320	2280
catfish	30							180	48				
shark				60									
redsnapper				140									
rayfish			312							723	60		
earnings per fishspecies FISHERMAN 2													
shinynose	196	1484	2772	1092		2744	2912	1540		3612	1428	1372	644
catfish	840	336											1212
shark	150												
croaker				50								120	112
earnings per fishspecies FISHERMAN 3													
shinynose	1275	3390	2970	1260			1050				2800	1480	
catfish	2696	660	750	862	2760	300	3200	6640		680	300	400	600
shark		220											690
croaker	511			1080			275			2840		1760	
sole	200												
rayfish										320	60	10	
tuna										175		175	320

overview of monthly totals for longlines with hooks nr 9 FISHERMAN 1

	june	july	august	september	october	november	december	january	february	march	april	may	june
earnings	510				2570	4065	3624	1758	3822	360	1124	1560	
fuel	150			25	550	650	650	363	450	75	225	275	
earn-fuel	360				2020	3415	2974	1395	3372	285	899	1285	
earn-fuel/ fishingday	90				92	142	110	93	187	95	100	117	
% earnings for fuel	29				21	16	18	21	12	21	20	18	
earnings per fishspecies													
shinynose							384	288				360	
catfish	510				2570	3235	3240	1470	3822	360	140	1200	
rayfish						830					984		

overview of monthly totals for longline with hooks nr 6 FISHERMAN 3

	june	july	august	september	october	november	december	january	february	march	april	may	june
earnings			555										
fuel			160										
earnings minus fuel			395										
earn-fuel/ fishingday			198										
% earnings for fuel			29										
earnings per fishspecies													
catfish			555										

overview of monthly totals for gabon net FISHERMAN 3

	june	july	august	september	october	november	december	januari	februari	march	april	may	june
earnings					3180	3015							
fuel					225	375							
earnings minus fuel					2955	2640							
earn-fuel/ fishingday					328	176							
% earnings for fuel					7	12							
earnings per fishspecies													
shinynose					3180								
catfish						645							
shark													
croaker						495							
redsnapper													
sole						1875							
rayfish													

overview of monthly totals for setnet fisherman 2 (/9 or /6) and fisherman 3

	june	july	august	september	october	november	december	january	february	march	april	may	june
earnings	210	567	616	600	2314	632	2080	1944	2336		1024	864	
fuel	50	125	100	150	900	175	400	325	475		175	175	
earnings minus fuel	160	442	516	450	1414	457	1680	1619	1861		849	689	
earn-fuel/ fishingday	80	88	129	75	54	65	93	108	85		106	86	
% earnings for fuel	24	22	16	25	39	28	19	17	20		17	20	
%earnings per fishspecies													
catfish			168										
croaker	210	567	448	600	2314	632	2080	1944	2336		1024	864	

overview of monthly totals for setnet fisherman 3

	june	july	august	september	october	november	december	january	february	march	april	may	june
earnings					3270				2400				1600
fuel					275				254				105
earnings minus fuel					2995				2146				1495
earn-fuel/ fishingday					272				102				214
% earnings for fuel					8				11				7
%earnings per fishspecies													
shinynose					390								80
catfish					1590								1520
croaker					1290								
bonga									2400				

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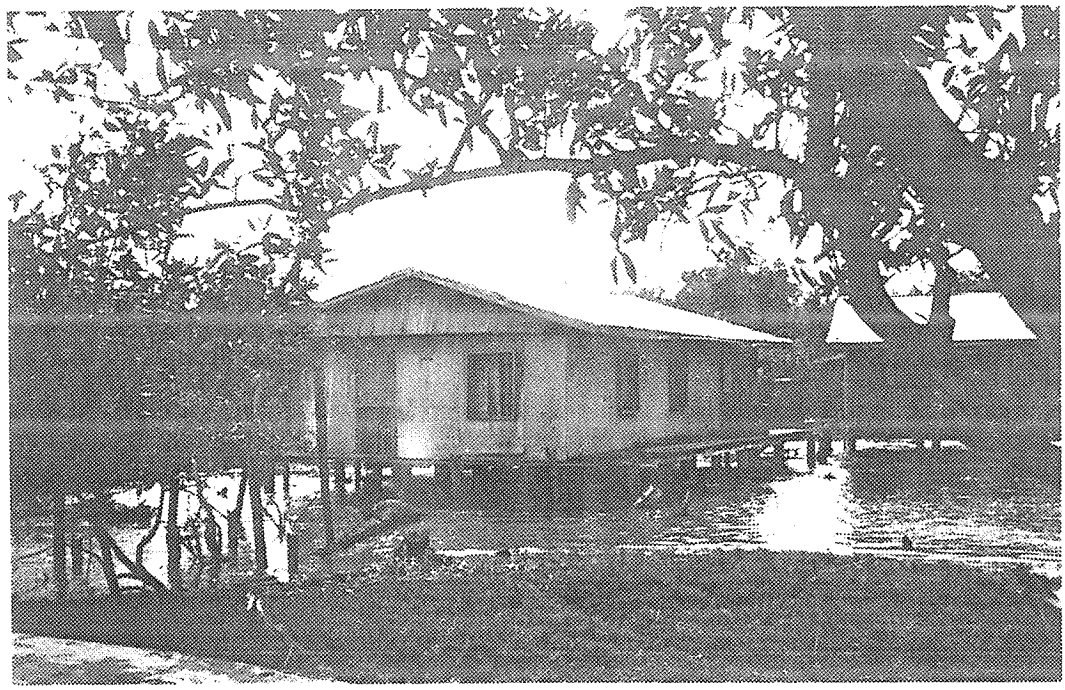

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