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FRAME SURVEY RESULTS FOR THE ZAMBIAN COAST OF LAKE TANGANYIKA,

MARCH 1995, AND COMPARISON WITH PAST SURVEYS

by

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<u>PREFACE</u>

The Research for the Management of the Fisheries on Lake Tanganyika project (LTR) became fully operational in January 1992. It is executed by the Food and Agriculture Organization of the United Nations (FAO) and funded by the Finnish International Development Agency (FINNIDA) and the Arab Gulf Program for the United Nations Development Organization (AGFUND).

LTR's objective is the determination of the biological basis for fish production on Lake Tanganyika, in order to permit the formulation of a coherent lake-wide fisheries management policy for the four riparian States (Burundi, Tanzania, Zaïre and Zambia).

Particular attention is given to the reinforcement of the skills and physical facilities of the fisheries research units in all four beneficiary countries as well as to the build-up of effective coordination mechanisms to ensure full collaboration between the Governments concerned.

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SUMMARY

In March 1995, 2 teams of 3 enumerators from the Department of Fisheries at Mpulungu, Ministry of Agriculture, Food and Fisheries, conducted a fishing village Frame Survey (FS) at the Zambian coast of Lake Tanganyika with help of LTR. The results were compared with past data.

In 1995 the Zambian fleet consisted of 1,677 vessels, 250 of which were broken or damaged and out of use. Active vessels included fishing boats (54%), lamp carriers (32%), auxiliary boats (4%) and transport vessels (4%). Fishing boats comprised wooden, planked canoes (82%), metal canoes (5%), dugout canoes (3%), catamarans (2%), fibre-glass canoes (2%) and industrial units (1%). The number of landing sites (107) and vessels have been almost equally distributed among the five areas into which the Zambian coast was divided for the purpose of statistical surveys by the Department of Fisheries in 1964. Most fishing was on the south and east coasts which had the highest number of landing sites per km (0.7 and 1.0) and vessels per landing site (19 and 18), particularly in and near Mpulungu. Area V (10 kin), at the border with Zaire, was not monitored but had some landing sites.

The number of traditional and artisanal vessels doubled in 30 years, from 755 in 1964 to 1,560 in 1995 while the number of dugout canoes remained similar. This is thought to be due to the introduction of large, artisanal gears in the 1960s-70s, which could not be operated with dugout canoes. In 1995 the traditional fishery employed 731 hand lines, 24 long lines and 2,950 gill nets. Gill net numbers have increased from 2,088 in 1970. In 1995 the artisanal gear used comprised 154 kapenta (night) beach seines, 30 traditional (day) beach seines, 27 lift nets and 16 chiromilla seines. The largest increase was in the number of kapenta beach seines (from 23 in 1970) to make up 68% of the total artisanal gear. The number of liftnets increased in the 1990s, from 3 in 1990 to 27 in 1995.

Gill netting appears to have been the only traditional fishing method that has withstood the introduction of the artisanal fishing methods in the 1960-70s and remains popular. The use of long lines declined drastically after the 1960s. Lusenga nets were not used after the 1980s. This fishery was most popular in the early 1960s and used nets constructed entirely from mosquito nets (stretched mesh size < 2 mm) . It was replaced during the 1970s and 1980s by the artisanal, light, kapenta seine fishery which operates nets without a codend and a stretched mesh size of 6 mm. Thus the use of small meshes continued to characterize the local fisheries with the difference that kapenta seines were operated closer to shore and were larger than lusenga nets. As a result, the main species targeted may have shifted from both clupeids to juvenile L. miodon.

Past catch data does not distinguish between traditional and artisanal fishing. The combined landings increased from 1,000-5,000 MT/yr in the 1950s to 8,000-10,000 MT/yr in the

early 1990s. Records for the industrial fishery started in 1962. In 1995, the industrial fishing fleet comprised 7% of the total fleet. The number of industrial units in Mpulungu increased from 1 in 1983 to 22 in 1995. The number of similar units based in Nsumbu (area IV) declined from 4 in 1983 to 1-2 in 1990. The CPUE of industrial units in Mpulungu decreased from 3,536 kg/trip in 1963 to 880 kg/trip in 1994. The contribution of the industrial catch to the total catch was approximately 19%/yr up to 1971 increasing to 36% during 1989-1992. After 1992 it decreased from 4,000-7,000 MT/yr to K 4,000 MT/yr. This suggests that the industrial fishing effort reached a maximum in the late 1980s and early 1990s and that the pelagic stocks targeted have been overexploited.

The following recommendations are made:

- (1) To increase the total production, the artisanal kapenta seines should be modified to allow juvenile L. miodon to escape or should be forbidden. Effective adaptations would be the use of meshes >8 mm and the construction of a codend.
- (2) The use of artisanal lift nets and chiromilla seines should be encouraged as they are generally less destructive for the sustainable exploitation of clupeids than kapenta seines.
- (3) To be certain of profitable yields for the industrial fishery, it is advisable to reduce the number per unit of units to 16, the number employed in the late 1980g.
- (4) DOF, Chilanga should publish past, statistical data from CAS, SFS and FS of Lake Tanganyika including collection methods and fishing effort. These data should be made available at DOF, Mpulungu.
- (5) Detailed reports which include suitable measures of fishing effort, like those which have been collected during SFS since 1992, should be provided annually by DOF/Mpulungu. The type of fishing vessels employed (dugout canoe, canoe, catamaran) and the number of fishing nights per type of gear should be recorded.
- (6) In order to ensure consistency, statistical surveys of Lake Tanganyika should be carried out by DOF, Mpulungu rather than by a team of enumerators from Chilanga.
- (7) An adequate budget is required for DOF, Mpulungu to perform seasonal CAS and SFS surveys or (bi)annual FS surveys if the SFS are not conducted properly.

1 INTRODUCTION

1.1 Lake Tanganyika

The Zambian shoreline is 215 km long, approximately 12% of the total coastline of Lake Tanganyika (Hanek et al., 1993) . The lake shore has been divided into four areas, I, II, III and has often been subdivided into either IV.I and IV.II or IV and V. These 5 areas are effectively the East Coast, South Coast, West Coast, Nsumbu and the coastline north of Cape Kapimbi to the Zairian border. Area V is mostly excluded from statistical surveys as a result of a border dispute with Zaïre. Areas I to V are 26, 26, 64, 89 and 10 km long respectively (Hanek et al., 1993) . Areas I-III are in the Mbala District and encompass the coastline of Hore Bay. Areas TV-V are in the Kaputa District and encompass the coastline of Cameron Bay. Mpulungu, in area II, is the most important town on the lake shore and has the only harbour in Zambia. There are two access routes to the lake, one in Mpulungu and one in Nsumbu.

1.2 The fisheries

There are three types of fisheries in the Zambian waters of Lake Tanganyika (Hanek *et al.*, 1993; Challe and Kihakwe, 1993; Plisnier, 1995) (Fig. 1) namely:

- (1) the traditional fishery employing lusenga or scoop nets, gill nets, long lines, hand lines, traps, spears and poisoning;
- (2) the artisanal fishery employing chiromilla seines, beach seines and lift nets; and
- (3) the industrial fishery which is divided into units made up of a steel purse seiner and 4 auxiliary vessels, 3 of which are small light boats (the total crew of the unit may be 20-40 fishermen)

Gill nets and lusenga nets were originally constructed from plant fibres. In the late 1950s most lusenga nets were constructed with mosquito nets. However, the Department of Fisheries (DOF) of the Ministry of Agriculture, Food and Fisheries, quickly perceived the use of this net to be wasteful because it caught young clupeids. Most seines and all lift nets, including the traditional lusenga net, are operated at night and fishermen use lights to attract the fish. The first chiromilla seines were introduced from Lake Malawi in the early 1960s. During the late 1960s and early 1970s chiromilla seines were constructed at the fisheries training school in Mpulungu, built by the DOF (Cole, 1975) . In the 1970s, local fishermen stopped using chiromilla seines but in the 1980s three companies have used them (Pearce, 1992) . Beach seines are known to have been used from the early 1970s. It is possible that they were adapted from chiromilla or purse seines to operate from the coast during the rough weather conditions which adversely affect offshore fishing operations from May to September. At the same time, FAO personnel introduced similar seines in the Kafue river, Zambia (Hill, 1977) . At present, most beach seines are used during the night and they catch mainly clupeids (kapenta) . Kapenta beach seines are constructed with codend material with a stretched mesh size of c. 6 mm (Plisnier, 1995) . The use of beach seine has replaced most lusenga fishing and has consequently altered the organization of the local fishery. The first lift net, constructed at the fisheries training school in Mpulungu, was introduced in 1975 by FAO (Hill, 1977) . During the 1980s 20 lift nets were constructed but were not popular and were often abandoned (Plisnier, 1995) . In 1962 the first purse seine was introduced from Bujumbura, Burundi, to Mpulungu. It was operated by a unit called Sopelac which became the first industrial company operating a purse seine in 1963.

Most industrial companies have freezing facilities and export frozen fish to the main markets at the Copperbelt and Lusaka. Marketing of traditional and artisanal catches, in excess of local needs, is difficult due to poor transportation routes between communities along the lake. The fish traded is mostly sundried, but some Lates and cichlid species are smoked. The quality of Zambian dried fish improved greatly in 1963 when a new drying method was introduced in Chisanza. A large quantity of dried clupeids of poorer quality, mixed with sand, has been imported from Tanzania to Mpulungu since before the 1960s.

1.3 Status of the statistical information system

DOF is the body responsible for fisheries management and conservation. The annual reports by the DOF Headquarters at Chilanga contain general information and little data. More detailed reports have been produced irregularly by the Central Statistics Office (CSO) who process data by computer and produce summaries for all fisheries monitored in Zambia. The CSO has not been involved in the collection of data and does not specify details for the methods to be employed. Consequently there is unknown variation in values because the collection methods and the enumerators changed over the years.

The collection of statistical data on the fisheries was started by the Fisheries Division of the Department of Game and Fisheries, Northern Rhodesian Government, in the late 1950s (Lupikisha, 1993). During the early 1960s data on production and marketing were collected by enumerators stationed in fishing villages and near main roads and markets. In the late 1960s and early 1970s the efficiency of the monitoring system decreased and evaluation of collected information became increasingly difficult due to a continually varying number of monitoring sites and record formats. Total production was estimated mainly from market and industrial statistics collected at Mpulungu, although additional information was collected at a number of other landing sites. Catch Assessment and Frame Surveys (CAS and FS) were implemented by FAO in the early 1970s (Bazigos *et al.*, 1975a). By comparing the results with the data collected by the Department, Bazigos *et al.* (1975b) concluded that the old system had underestimated total production by almost half (adjusting factor: 1.8). In 1976 a new system based on four main sources of information collected by DOF, Mpulungu was adopted; namely,

- daily market statistics on the quantity and value of dry fish traded at Mpulungu by the artisanal and traditional fisheries,
- (2) monthly Catch/Effort Statistics (CES) required by law to be submitted by the industrial fishing companies,
- (3) tri-annual CAS of the artisanal and traditional fisheries; the 4 areas along the coast are covered simultaneously by 4 teams of enumerators; 9 landing sites are chosen at random in each area; all catches are monitored during 3 consecutive days at the landing sites, and
- (4) annual FS of the artisanal and traditional fisheries which monitor the type of vessel and gear.

The FS are conducted by a team of enumerators from DOF, Chilanga who visit all monitored fisheries in Zambia. At Lake Tanganyika, many CAS and most FS on the artisanal and traditional fisheries have either not been conducted or have covered the coast incompletely due to a lack of fuel or spare parts for the survey vessel. In 1983 it was planned to conduct yearly Supplementary Frame Surveys (SFS) during CAS when FS were not undertaken (Pearce, 1992), but the number of surveys has remained less than planned. As a result the enumeration was and catch and effort data often incomplete were often underestimated.

1.4 Definition of fishing effort

A suitable measure of fishing effort is related to fishing mortality or 'fishing power and is sometimes shown to be linearly related to the catch rate (Sparre and Venema, 1992). In Lake Tanganyika many different gears and, therefore, units of fishing effort have been used.

The SFS data before 1992 do not contain the specific information necessary to estimate fishing effort for artisanal and traditional gears. Available estimates of fishing power, the total numbers of fishing units, trips and net owners, do not

specify the type of vessel or gear. The numbers of vessels and fishing nights varies for each gear and may not be linearly related to the fishing power. Furthermore, the number of auxiliary vessels was not consistently included in SFS (Lupikisha, 1993) and the number of net owners did not include the largest group of fishermen of boat owners, lamp owners and labourers (Pearce, 1992)

1.5 Objectives

The aims of the present study are to present the results of the FS carried out in March 1995 for the Zambian part of the lake and to compare these results with data from past surveys.

2 ORGANIZATION

The frame survey was carried out in March 1995 as planned during the first Fisheries Statistical Coordinators Meeting for Lake Tanganyika (Coenen, 1994a) . The survey was executed by DOF/Mpulungu. Two teams, each consisting of two recorders and one supervisor, visited all landing sites by boat from 7 to 16 I-Ill IV March 1995. Area and area were monitored simultaneously. Area V was not monitored despite the resolution of the border dispute with Zaïre. The total cost of the survey was approximately US \$ 1,000 which was provided by the Lake Tanganyika Research Project (LTR). The recording form used is given in Appendix 1.

3 RESULTS

3.1 Frame survey results

Results are summarized in Table 1. Detailed data are presented in Appendices 2 and 3.

3.1.1 The fishing fleet

In March 1995, the Zambian fleet consisted of 1,677 vessels. Two hundred and fifty vessels (15%) were broken. Of those in use 54% were fishing vessels, 32% were lamp carriers, 4% were auxiliary boats and 4% were not classified as they were out on the lake during the survey.

Eighty-two percent of the fishing was by wooden/planked canoes, 5% by metal canoes, 3% by dugout canoes, 2% by catamarans, 2% by fibre-glass canoes, 1% by industrial units and 6% by unclassified vessels. Most metal canoes (85 of 89) and many fibre-glass canoes (9 of 26) were auxiliary lamp carriers and helper boats for the industrial fishery. The industrial fisheries employed 23 mother boats and 94 auxiliary helper and light boats. They comprised 7% (117 vessels) of the total fleet (1,677 vessels). One metal canoe and two fibre-glass canoes were used for chiromilla fishing. The other fibre-glass canoes were either broken or were used as transporter vessels. Most catamarans were observed in area II. No trimarans were observed.

The distribution of landing sites and vessels were 19 and 364 for area I, 27 and 473 for area II, 30 and 374 for area III, 31 and 466 for area IV (Fig. 2) . The numbers of landing sites per kilometer and vessels per site were 0.7 and 19 in area I, 1.0 and 18 in area II, 0.5 and 13 in area III, 0.3 and 15 in area IV. Each area had one or more villages with two distinctive landing sites. These villages were Chitili, Chisanza and Chituta in area I, Mbete in area II, Nzovwe in area III and Kachese, Ndole, Chibwensolo and Chishiki in area IV. Landing sites in Mpulungu, area II, were classified separately. For example, Kasisi in Mpulungu Bay and Mbita in Mpulungu Harbour near the market area. Both sites included several industrial landing sites or jetties.

3.1.2 The fisheries

The <u>traditional fisheries</u> employed 731 hand lines, 2,950 gill nets and 24 long lines. Four traps were counted on land. No lusenga nets were observed. The number of gill nets in area II (1,119) was almost twice as high as in other areas (on average 610). Most hand and long lines were used in area II (276 and 14)

The <u>artisanal fisheries</u> employed 154 kapenta, or night beach seines, 30 traditional, or day beach seines, 27 lift nets and 16 chiromilla seines. Most kapenta beach seines (51) were found in area III and least (29) in area I. Most traditional beach seines were found in areas I and IV (10 each) and least (4) in area III. Most lift nets (15) were found in area II and least (1) in area III. Most chiromilla seines (9) were found in area IV and least (0) in area III.

The <u>industrial fisheries</u> consisted of 23 industrial units. Seven units were broken at the time of the survey. All broken units were at Mpulungu. Each operating unit employed one purse seine (16). Twenty one units were based at Mpulungu. Twelve in Mbita (Mpulungu harbour) and 9 in Kasisi (Mpulungu Bay). One unit was based in Isanga, area I, and one unit in Kachese (B), area IV. The industrial fisheries employed 554 fishermen and 1,049 lamps (Appendices 2 and 3)

3.2 Past data

Past catch and effort data, as estimated by DOF/CSO between the years 1953 and 1995, are presented in Table 2. Reviews by Lupikisha (1993), Pearce (1992) and Coenen (1994d) as well as results from the aerial FS conducted by LTR in 1992 (Hanek *et al.*, 1993) and FS 1995 are included. The annual variation of the total catch is shown in Figure 3. The average catch was 2,461 MT/yr in 1953-62, 8,090 MT/yr in 1963-71, 6,339 MT/yr in 1972-82, 3,373 MT more/yr in 1983-85 and 13,373 MT/yr in 1986-92. The contribution of the industrial catch, records of which started in 1962, to the total catch was on average 19%/yr up to 1971, 43%/yr during 1972-1974, 23%/yr during 1975-1980, 44%/yr during 1981-1988 and 36%/yr from 1989 to 1992. The CPUE of industrial units at Mpulungu decreased from 3,536 kg/trip in 1963 to 880 kg/trip in 1994 (Fig. 4). The CPUE for the traditional and artisanal fisheries increased from 10 kg/trip in 1974 to 45 kg/trip in 1992.

The annual species composition of the industrial catch and the number of units at Mpulungu are given in Figure 5. The bycatch, constituting of *Lates* spp. and a few cichlids, declined from 41% in 1962 (c. 215 MT/yr, 1962-86) to 2% in 1994 (c. 95 MT/yr, 1987-94). The number of industrial units at Mpulungu increased from 1 in 1983 to 22 in 1995, including the unit based in area I. The number of units based in Nsumbu has declined from 4 in 1983-1989 to 1-2 since 1990.

Frame survey results from past surveys as reviewed by Pearce (1992) as well as results from the aerial FS conducted by LTR in 1992 (Hanek *et al.*, 1993) and FS 1995 are presented in Table 3. The Zambian fleet doubled from 755 vessels in 1964 to 1,560 vessels in 1995. The number of occupied villages and camps increased from 38 in 1964, to 61 in 1972, to 85 in 1995. The numbers of traditional and artisanal fishermen and lamps increased, respectively, from 2,002 and 651 in 1964 to 3,564 and 1,539 in 1995.

4 DISCUSSION AND CONCLUSIONS

4.1 The fishing fleet

Table 3 gives the most reliable estimates of traditional and artisanal vessels although the number of transport vessels was not included in 1970 or 1972. In March 1995, 4% of the active fleet (62) consisted of transport vessels. The number of boats in Table 2 varies greatly. This variation is probably the result of changes in the collection method employed. It is, for example, unclear when auxiliary vessels were included. In March 1995, 32% (449) of the active fishing fleet were lamp carriers and 4% (52) were auxiliary boats. The aerial FS underestimated the total number of vessels because some vessels were not detected, hidden in weeds or under trees. However, the aerial survey was the only FS giving the number of catamarans and thus the number of lift nets operated, although dissembled catamarans were classified as cances (Hanek *et al.*, 1993)

Most fishing occurred on the east and south coasts of the lake with Mpulungu being the centre of activity, especially for the industrial fisheries. Landing sites and vessels were approximately equally distributed over each area. Thus the south and east coasts, each 26 kin, had the highest numbers of landing sites/km (c. 0.9) and vessels per landing site (c. 19) . Area IV includes Nsumbu Park which occupies about 60% of the total coastline of Cameron Bay. The only camp in Nsumbu Park, Chisanse, is the only camp in Zambia in which occupation is temporarily restricted between 1 January and 31 May.

Over thirty years the number of dugout canoes has remained similar (48 in 1964 and 46 in 1995), but the number of wooden canoes has doubled (from 707 in 1964 to 1,378 in 1995) . This implies that the use of larger, artisanal gears has increased. Fishermen dugout canoes mainly operate small, traditional gears such as lines. The boats are too small to carry the large gears lamps used by the artisanal fisheries. The number and of motorized vessels increased rapidly during the 1960s. Twentyfour motorized vessels were recorded for 1964 in comparison with 138 in 1970. This development was due mostly to the loans DOF granted to fishermen in the late 1960s. After 1970 the number of motorized vessels appears to have changed very little (114 in 1995) . In 1995 most motorized vessels were transporters or part of the industrial fleet. The artisanal beach seine fishery is coastal and does not need motorized vessels.

4.2 The traditional fisheries

Records of hand and long lines increased from 141 and 13 in 1990 to 731 and 24 in 1995. However, the use of lines is easily missed during surveys and the numbers recorded may underestimate the total. Hand lines have been employed in conjunction with various other gears in the 1990s. The history of the use of hand lines is unclear because they have not been recorded before 1990. In 1995, few long lines appear to have been used. The greatest number of long lines were employed in area II where 14 were recorded. The numbers of hooks used for long lining in 1964 (29,210), 1970 (27,300) and 1972 (20,500) suggests that long lining decreased over this period of eight years.

The history of the use of traps is unclear. The number of traps in this and past surveys reflect those encountered at the landing sites and underestimates the total as most traps are submerged for a week. The number of traps used can only be estimated by questioning the fishermen at all landing sites.

Fishermen buy gill nets as 90 m lengths but often modify them by cutting or joining. Apart from the survey in 1964, the number of gill nets counted at the landing sites referred to the number of single nets. Gill net numbers increased slightly from 2,088 in 1970 to 2,950 in 1995. Gill netting appears to have been the only traditional fishing method that withstood the introduction of the artisanal fishing methods in the 1960-70s and remained popular, especially near Mpulungu where the number of gill nets (1,119) was almost twice as high as in other areas (on average 610). The occurrence of gill nets with meshes < 76 mm increased from 1979 to 1990 (Lupikisha, 1993). This may indicate that larger fish became increasingly difficult to catch and thus implies that the gill net fishery is dynamic.

The use of lusenga nets has declined since 1964 when 650 nets were recorded and was discontinued between 1972 and 1990. This traditional light, scoop net fishery, which was most

popular in the 1960s and the early 1970s, has been entirely replaced by the artisanal light, seine fisheries.

4.3 The artisanal fisheries

The number of traditional or day beach seines in 1995 (30) was similar to that in 1970 (29) and probably has remained approximately equal over the years (Table 3). Traditional beach seines are banned in Zambia except on Lake Tanganyika where the practice is not perceived as harmful (Pearce, 1992). Traditional beach seines catch cichlids, *Lates angustifrons* and young *Lates mariae* and *Lates microlepis*. In 1994 the CPUE of traditional beach seines was smaller (70 kg/haul, 1.9 hauls/day) than the CPUE of the more popular kapenta beach seines (131 kg/haul, 1.7 hauls/night) (Plisnier, 1995)

popular In 1995, kapenta beach seining was the most artisanal fishing method employed, it comprised 68% of the total number of artisanal gears (227) used. The number of kapenta beach seines in use had increased from 23 in 1970 to 154 in The kapenta beach seine is constructed from codend 1995. material with a stretched mesh size of 6 mm. It replaced the traditional lusenga net, constructed from mosquito nets, in the 1970s and 1980s. The use of small meshes with which juveniles were caught, and thus recruitment of the adult stock was reduced, continued to characterize the local fisheries. The difference was that beach seines were operated closer to shore and were larger. As a result the main target species may have Limnothrissa shifted from both miodon and Stolothrissa tanganicae to the former which, in contrast to S. tanganicae, inhabits coastal waters when young (Coulter, 1991; Paffen, 1994) . Chiromilla seines and lift nets catch adults of L. miodon and S. tanganicae (Plisnier, 1995) and are probably more appropriate for the sustainable exploitation of clupeids.

Lift nets were introduced to the lake in Burundi in 1957 (Coenen, 1994b; Katonda and Kalangali, 1994), in Kigoma in 1972 and are currently common along the entire coast except that of Zambia (Mambona wa Bazolana, 1996; Paffen, 1996) . Although lift nets were constructed by the fisheries training school in Mpulungu in the 1970s and 1980s, they have not been popular in Zambia until recently when the number of lift nets operated increased from 3 in 1990, to 7 in 1993 (aerial FS), to 8 in 1994 (Plisnier, 1995) and to 27 in 1995 (Table 3) . In 1994 the CPUE of lift nets employed was 9 kg/haul with 4 hauls/night or 36 kg/trip (Plisnier, 1995) . This is much lower than in Burundi where the CPUE was 145 in 1992 and 122 kg/trip in 1993 (Coenen and Nikomeze, 1994) . The results for Burundi are based on daily CAS results collected over a whole year and the results for Zambia are based on one CAS, conducted in June-July in 1994. As catches can vary widely between trips and the CAS in 1994 monitored fewer than the 8 lift nets recorded during the simultaneous SFS in 1994, this estimate may not be accurate.

In 1995, 16 chiromilla seines were employed. The 3 chiromilla seines recorded in 1990 (Table 3) were operated by commercial companies. The total number may have been

underestimated. There were no records available on the number of chiromilla seines employed previously by the local fisheries.

Past catch data does not distinguish between artisanal and gears. Data on traditional the combined catch have been available since 1953. In general, the local catch has made up 50-80% of the total catch per year after the industrial fisheries started in 1962. The local catch increased from 1,000-4,000 MT/yr in the 1950s to 8,000-10,000 MT/yr in the early 1990s. The CPUE for the local fisheries increased from 10 kg/trip in 1974 to 45 kg/trip in 1990 (252 trips/year) (Fig. 4) . However, past data on the local fisheries does not accurately represent the fishing effort. Firstly, no distinction is made between gears and it is therefore unclear whether changes in reflect changes in the number or the CPUE type of gear. Secondly, the number of fishing vessels before 1992 sometimes includes auxiliary boats. As it is unknown when methods changed and how different enumerators conducted them, it is impossible ascertain whether the total to number of vessels, which fluctuated from year to year, is comparable between years.

4.4 The industrial fisheries

The purse seine net was introduced to Zambian waters in 1962. Before 1977 most of the industrial catch in Mpulungu consisted of clupeids (on average 76%/yr). Between 1976 and 1985 the abundance of clupeids and L. stappersii in the industrial catch varied in an inverse relationship to each other, each contributing 30-40% or 60-70% to the catch (Table 2). A period of 9 yr in which prey and predator abundance's alternated, but were at equilibrium overall, occurred simultaneously in the Burundian part of the lake in the north and the Zambian part of the lake in the south and was described by Coenen (1994d) . In Burundi and Zambia, this 9 yr cycle was alternated by longer cycles of 12-14 yr in which either the prey or the predator was continuously more abundant (60-95%) in the industrial catches. During the first such cycle, recorded between 1963 and 1976, clupeids were more abundant than L. stappersii. In 1984-85 the second long cycle started with the difference that the predator had become the most abundant species in Zambia (c. 84%/yr, Table This difference can be explained by drastic changes in 2). fishing effort and species caught. After the artisanal and industrial fisheries were introduced in the 1950 and 1960s, the fishing effort on the economically important pelagic species, clupeids and Lates spp., increased. The catch rates of the relatively long-lived and large L. microlepis, L. mariae and L. angustifrons declined rapidly (Coulter, 1977 and 1981; Ellis, 1978; Moreau and Nyakageni, 1992) In Mpulungu the catch rate declined from about 40% of the industrial catch in 1962-63 to <5% after 1985 (Table 2). As a result predation on L. stappersii and its prey by these Lates spp. decreased over the entire area of the lake. This decline in natural mortality was accompanied by increased fishing mortality which was different in Burundi than in Zambia. In Burundi the artisanal fisheries operated further from shore and, until the late 1980s, the industrial offshore fisheries had been larger than in Zambia (Coenen, 1994d) . The fishing pressure on L. stappersii, which inhabits

pelagic waters (Coulter, 1991), thus was higher in Burundi than in Zambia. However, the occurrence of the long-term cycles of 9 and 12-14 yr described earlier is not yet understood. Further research is necessary to postulate an adequate explanation.

The CPUE of industrial units in Mpulungu decreased from 3,536 kg/trip in 1963 to 880 kg/trip in 1994. The number of industrial units at Mpulungu increased more than 7 fold (from 3 in 1982 to 23 in 1995, Fig. 5). The total industrial catch initially increased rapidly when more units were operated (from 2,289 MT in 1982 to 6,489 MT in 1986). However, it fluctuated from 1986 to 1992 at 4,000-7,000 MT/yr and from 1993 it has decreased to <4,000 MT/yr. This may suggest:

- (a) that the greatest industrial fishing effort was reached in the late 1980s and early 1990s and that the system has been overexploited,
- (b) that the L. miodon has been overexploited by the artisanal kapenta seine fishery; which is a major food of L. stappersii, and
- (c) that the system is about to finish a long term cycle which appears to have started in 1985 (Coenen, 1994d) and in which the predator, L. stappersii, appears to be the most abundant species; unknown factors cause the present system to change.

4.5 Recommendations

- (1) To increase the total production, the artisanal kapenta seines should be modified to allow juvenile L. miodon to escape or should be forbidden. Effective adaptations would be the use of meshes > 8 mm and the construction of a codend.
- (2) The use of artisanal lift nets and chiromilla seines should be encouraged as they are generally less destructive for the sustainable exploitation of clupeids than kapenta seines.
- (3) To assure continuous high yields for the industrial fishery, it is advisable to reduce the number of industrial units to 16, the number employed in the late 1980s.
- (4) DOF, Chilanga should publish past, statistical data from CAS, SFS and FS on Lake Tanganyika including collection methods and fishing effort. These data should be made available at DOF, Mpulungu.
- (5) Detailed reports which include suitable measures of fishing effort, like those which have been collected during SFS since 1992, should be provided annually by DOF, Mpulungu. The type of fishing vessels employed (dugout canoe, canoe, catamaran) and the number of fishing nights per type of gear should be recorded.

- (6) In order to ensure a consistent methodology statistical surveys on Lake Tanganyika should be carried out by DOF, Mpulungu rather than a team of enumerators from Chilanga.
- (7) An adequate budget is required for DOF, Mpulungu to perform seasonal CAS and SFS surveys or (bi)annual FS surveys if the SFS are not conducted properly.

The last recommendation was made during the first Workshop on the Coordination and Standardization of Fisheries Statistics for Lake Tanganyika, 26-30 July 1993, Bujumbura, Burundi (Coenen, 1993), and during the first Fisheries Statistical Coordinators Meeting for Lake Tanganyika (Coenen, 1994a) . During the latter meeting, it was requested that LTR should continue to provide technical support, financing of frame surveys and contributions to the improvement of the fisheries statistics for Lake Tanganyika.

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Fig. 1: Some of the fishing gears used on the lake: lusenga or scoop net, chiromilla seine, lift net and purse seine. (From: Coulter, 1991)



Fig. 2:	Lake Tanganyika, showing areas I-III in the Mbala
	District and areas IV-V in the Kaputa District,
	access routes to the lake and the Zambian landing
	sites as recorded in March 1995.
1	1-107 : landing sites
	: international boundaries
	====== : major roads

Annual catch data Lake Tanganyika, Zambia



Fig. 3: Annual catch data of the total (H), industrial (A) and local fisheries (O) for the Zambian part of Lake Tanganyika (1953-1994). (From: Lupikisha, 1993; Coenen, 1994d)



Fig. 4: Annual CPUE data of the industrial (A) and local fisheries (O) for the Zambian part of Lake Tanganyika (1963-1994). (From: Lupikisha, 1993; Coenen, 1994d)

Annual industrial catch and effort Industrial fisheries, Mpulungu, Zambia



Table 1: Summary of the results of the simultaneous FS for the Zambian part of Lake Tanganyika, March 1995.

	1		Т	YPE OF VESS	EL			DISPLACEM	MENT				USE			l	STATE		MOTORIZATION		
AREA	No. of DUG, CAN.	No. of W. CAN.	No. of MET. CAN.	No. of F.GLASS CANOES	No. of CAT.	No. of IND. UNITS	No. OUT FISHING	No. OUT TRANSP.	No. MOVED	No. VISIT.	No. of FISH. VES.	No. of LAMP CAR.	No. of AUX. VES.	No.of TRANSP. VES.	GRAND TOTAL	No. of ACTIVE	No. of ACTIVE OUT+VIS.	No. of BROKEN	No. of OUTB.	No. of INB.	
1	2	327	4	1	8	1	11	0	4	10	209	65	2	23	364	299	21	44	42	1	
	2	308	31	4	15	21	19	2	3	21	231	88	16	13	473	348	42	83	25	15	
111	29	334	0	2	1	0	5	1	0	2	188	101	14	4	374	307	0	59	5	0	
	13	409	1	19	4	1	14	0	0	5	146	195	20	22	466	383	19	64	26	0	
TOTAL	46	1378	86	26	28	23	49	3	7	38	774	449	52	62	1677	1337	90	250	98	16	

INFORMATION ON VESSELS AND MOTORIZATION

INFORMATION ON FISHERMEN, NUMBER AND TYPE OF FISHING GEARS

					IND. FISH.		ARTISANAL	FISHERIES		TR	RIES			
			No. of	No. of	No. of	No. of	No. of	No. of	Na. of	No. of	No. of	No. of	No. of	No. of
AREA	PERM.	TEMP.	F.MEN	LAMPS	PURSE	NIGHT	DAY	CHIR.	LIFTNETS	GILL	LONG	HAND	TRAPS	OTHER
	SITE	SITE			SEINES	B. SEINES	8. SEINES	SEINES		NETS	LINES	LINES		GEAR
			-											
1	19	0	911	405	· ·	29	10	6	8	574	1	251	3	0
1	22	5	1354	1322	15	31	6	1	15	1119	14	276	C	0
III	25	5	882	351	0	51	4	0	1	666	1	133	0	0
IV	28	3	971	510	0	43	10	g	3	591	8	71	1	0
														-
TOTAL	94	13	4118	2588	16	154	30	16	27	2950	24	731	4	0

		Industrial fisheries													Artise	unal and Tr	ad. fishe	eries	Total	
	Un.	Un.	Catch	% of	Catch	Catch	Trips	CPUE	Catch	Catch	Catch	%	%	%	Catch	Boats	Trips	CPUE	Catch	
	Tot.	Ns.	Tot.	Tot.	Ns.	Mp.	Mp.	Mp.	Mp. LST	Mp. CLP	М р. ОТН	Mp.	Mp.	Mp.	Tat.		/boat			
Ref:	td16	Pc9	2	Catch	Pc92	td16	td16,Pc92		td16	td16	td16	LST	CLP	отн	td11,c92	td11			c64,c69	
YR	NO.	No.	MT		MI	MI	No.	kg/tnp	M	MI	MI	_			MI	NO.	No.	kg/trip	M	
1953																			1,200	Index:
1954	1																		2,200	Un.: Units
1955																			1,500	inp: insning nignts
1906																			1,092	NS.: NSUMOU AREA
1907																			4,440	*1: 747 sances and 18 astamarans
1900															2 071				2 071	 747 Carloes and to cataling ans 1677 total, and fight (29 methor boots ± 94 nm, boots).
1909															2.9/1				2,0/1	 751 fielding (774 total - 23 ind.)
1961															2,040				2,000	IST: / stec ctennere//
1962	1		543	21		543				329	214		61	39	2.076				2,619	CI P: Cluneids
1963	1		778	10		778	220	3 536	101	356	321	13	46	41	6,900				7 678	OTH: Lates son (L. mariae, L. microlenis, L. angustrifrons)
1964	Li.		1 207	13		1.207	414	2.915	60	753	394	5	62	33	8.232				9,439	and bycatch of other species
1965	2		1.484	26		1,484	571	2,599	56	1,150	278	4	77	19	4,207				5,691	
1966	2		1,318	23		1,318	557	2,366	26	1,140	152	2	86	12	4,453				5,771	References:
1967	2		1.496	16		1.496	538	2,781	17	1.370	109	1	92	7	7.820				9.316	td16: Coenen, 1994d
1968	2		1,622	19		1,622	575	2,821	46	1,409	167	з	87	10	6,976				8,598	td11: Lupikisha in Coenen, 1993
1969	6	2	1,501	18	244	1,257	668	1,882	56	1.050	151	4	84	12	7,056				8,587	Pc92: Pearce, 1992
1970	5	2	1,684	15	620	1,064	669	1,590	56	842	166	5	79	16	9,263				10,947	c64, c69, c91, c92; CSO reports from 1964, 1969, 1991, 1992
1971	4	2	2,176	32	678	1.498	518	2,892	45	1,236	217	3	83	14	4,628				6,804	@ : aerial frame survey (Hanek et al., 1993)
1972	4	2	2,973	43	544	2,429	868	2,798	55	2,074	300	2	85	12	3,865	960	252	16	6,838	# : FS 1995 (Paffen et al., 1996)
1973	4	2	2,282	39	247	2,035	966	2,107	90	1.723	222	4	85	11	3,539	1,058	252	13	5,821	
1974	5	2	2,096	47		2,096			270	1,616	210	13	77	10	2,347	956	252	10	4,443	
1975	5	2	2,433	32		2,433			187	1,945	301	8	80	12	5,179	967	252	21	7,612	
1976	4		1,735	26		1,735	810	2,142	462	1,055	218	27	61	13	4,844				6,579	
1977	3		1.666	21		1.666	652	2,555	951	538	177	57	32	11	6,207				7,873	
1978	2		1,069	16		1,069	353	3,028	268	597	204	25	56	19	5.428	1,445	252	15	6,497	
1979	4		1,100	26		1,100	403	2,420	323	504	110	29	00	10	3,119	5/2	252	~~~	4,219	
1960	4		1,000	10		1,500	001	1,010	670	304	120	20	33		0.747	409	252	30	0,200	
1901			1,394	40		0.092	070	2 367	535	490	219	22	60	8	5 720	490	252	22	8,070	
1902		·····	4 4 4 1	45	1 420	3.021	1 257	2 403	1 736	1 069	216	57	35	<u>-</u>	5 502	699	252	31	9 943	
1984	Å,	4	6.344	46	1 875	4 469	1 836	2 434	1 256	2 894	319	28	65	ż	7.312	897	252	32	13 656	
1985	12	4	7.759	46	1.785	5.974	2,495	2.394	2.207	3.509	258	37	59	4	8.929	1.164	252	30	16.668	
1986	15	4	6,489	46	1,058	5,431	2,849	1,906	4.262	1.030	139	78	19	3	7,494	1,059	252	28	13.983	•
1987	16	4	5,066	39	752	4,314	3,182	1,356	4.053	163	98	94	4	2	8.041	1,528	252	21	13,107	
1988	18	- 4	6,489	54	1,450	5,039	3.540	1,423	4,383	569	87	87	11	2	5,594	899	252	25	12,083	
1989	19	4	5,718	39	463	5,253	3,365	1,561	3,239	1,892	122	62	36	2	9,093	963	252	37	14,809	
1990	16	1	5,301	35	198	5,103	3.650	1,398	3.346	1,661	96	66	33	2	9.970	1,278	252	31	15.271	
1991	16		4,565	i 36		4,565	3,360	1,359	4,151	283	131	91	6	3	8,072	976	252	33	12,637	
1992	20		4,483	34		4,483	3.969	1,129	4,059	318	105	91	7		8,576	763	252	45	13.059	
1993	1		3,930	1		3,930	3.997	983	3,609	253	67	92	6	2						
1993 @	7	2														765 *1	252		1	
1994			3,296	i		3,296	3.747	880	3,176	67	53	96	2	2						
1995 #	23	1														1560 *2	252		1	

Table 2: Past data on the annual catch and effort of the industrial and local fisheries of the Zambian part of Lake Tanganyika. Data are extrapolated from CAS (Source: Zambian DOF).

Table 3: Past effort data as collected during FS for the Zambian part of Lake Tanganyika (1964-1995).

		TYP	E OF VES			MOTORIZATION		
	No. of	No. of	No. of	No. of	No. of		No. of	No. of
YEAR	DUG.	W .	METAL	F.GL.	CAT.		ACTIVE	ENGINES
	CAN.	CAN.	CAN.	CAN.		TOTAL	OUT+VIS.	
Ref:	Pc92	Pc92						Pc92
1964	48	707				755		24
1970	86	658 G				744		138
1972	179	781 G				960		121 (72)
1990	17	1261				1278		102 (96)
1993@		747			9	763		
1995 #	46	1378	85	17	28	1560	90	114

INFORMATION ON TRADITIONAL AND ARTISANAL VESSELS AND MOTORIZATION

INFORMATION ON TRADITIONAL AND ARTISANAL FISHERMEN, NUMBER AND TYPE OF FISHING GEARS

		***				ABTIO	ANTAL POOT			TO A DETIO	ATAL PHIS	A COMPANY OF A	
						ARTIS	ANAL FISF	IERIES		TRADITIC	INAL HIS	HERIES	,
	No. of	No. of	No. of	No. of	No. of	No. of	No. of						
YEAR	SITES	F. MEN	F.MEN	LAMPS	NIGHT	DAY	CHIR.	LIFTNETS	GILL	LONG	HAND	LUS.	TRAPS
			+ CREW		B. S.	B. S.	SEIN.		NETS	LINES	LINES	NETS	
Ref:	Pc92	Pc92	Pc92	Pc92	Pc92	Pc92		Pc92	Pc92	Pc92	Pc92	Pc92	Pc92
1964	38 F	680	2002	651	1	4 A		0	391 B	29210 C		650	2E
1970	58 F		1452		23	29		0	2088	27300 C		526	
1972	61 F		2061		37	36		0	2563	20500 C		634	
1990	81	479	3005	1436	195	19	3	3	1412	13 D	141	0	1 E
1993@	41				1								
1995 #	107		3564	1539	154	30	16	27	2950	24 D	731	0	4 E

index:

- A: both kapenta and beach seines
- B: measured in 90 m units
- C: number of hooks
- D: number of lines

Index:

- E: excludes submerged traps
- F: excludes unoccupied sites
- G: excludes transporter vessels
- (): number of working engines

References:

td16: Coenen, 1994d Pc92: Pearce, 1992 @ : aerial FS, Hanek et al., 1993 # : FS 1995

GCP/RAF/271/FIN-TD/52 (En)

Appendix 1: The frame survey recording form

lam lum f toi lam	io la ibor mpo io sli	ndin of a rai li to to	g sit ctive andle foft	to su ofis ng s t:	horr horr lto,	yed: nen: India	ato	peri	od o	foc	cupi	atlor	 13 sito:	•••••	Coc Pon Nan	lo m man no s	ap: ent/ ite t	Tom o riç	ipori)ht:	al Io: •	nding	g slt	0;	••••	•••••		
lr		USE	8110	11011	F	A		t.	TY	E.			1		NUI	MBE	RO	FFI	SHI	10 0	EAI	is				Н	P
Boats present at landing	Fishing	Transport	Lemp carriers	Auxiliary.	Number of fishermen	State (Active-Broken)	Wooden canoe	Metal-canoe	Fibreglass canoe	Dugout (monoxyl)	Catamaran	Trimaren	Industrial Unit	Nr. Lamps	Nr. normal liftnet	Nr. epolio liftnet	Nr. beach seine NIGHT DAY	Nr. gill nets	Nr. scoopnetiusenga	Nr. longlines	Nr. traps	Nr. artis. seines (chiromila)	Nr. purse seines	Nr. hand fines	Nr. other fishing gear	HP outboard	
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4																-											
6									_		_		_			_	·			-	_	-	_	_		•	ŀ
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5								Γ	Ļ		1		1_	1				1				-1		1			
Nu	mber of boats out for fishing or other purpose: (2) out for fishing out for transport moved to landing site														RI 	EMA	RKS	i:				•••••					

Appendix 2: Results of the simultaneous frame survey for the Zambian part of Lake Tanganyika, March 1995. Number of fishermen, vessels, and motorization per location along the coast from area I (East Coast) to area IV (Nsumbu).

FISHE	RM	EN, VESSELS	OF	RIZA	TION	_														r		Арра	endi	ix 2		
DATE	AREA	NULLAGE (SITE) SURVEYED	CODE MAP	O PERMANENT SITE	To occupation PERIOD (mentur)	D NO. OF FISHERMEN		- A No. of WOODEN CAN.	O No. of METAL CAN.	No. of FIBERGLASS CAN.	T NO. OF CATAMARANS	No. of IND. UNITS	No. OUT FISHING	D No. OUT TRANSPORT	DESTINATION SITE	A No. VISITING	A ORIGIN SITE-CODE/COUNTRY	- No. of FISHING VES.	C No. of LAMP CARRIERS	Mo. of AUXILLIARY VES.	No. of TRANSPORTERS	GRAND TOTAL	- G No. of ACTIVE VES.	T No. of BROKEN VES.	HP #HN#. #/ OUTBOARDS	HP withs, of INBOARDS
						3 2 3 4 2 5 2 9 2 2 1 2 2 1 1 1 1 1 2 2 2 1 2		1111111111111111111111111111111111111										1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1111		111111111111111111111111111111111111111	1	10 3 6 14	
8-Mar		Location 1 total MIAMBA		1 0		64 9 9 1 1 1 1 2 1 2	0	$\begin{array}{c}1\\30\\1\\1\\1\\1\\1\\1\\1\\1\\1\\1\\1\\1\\1\\1\\1\\1\\1\\1$	0	0	0	0	0	0 0		3	ΤΖ	10	13 1 1 1 1	0	5	33	28 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	10	0
8-Mar 8-Mar	1	Location 2 total TUKULUNGO KASANGULA	3 4	1 0		29 1 9 1 7	0	18 1 1 1 1 1	0	1	0	0	0	00	-	2		5 1 1 2	1	0	1	7	1 1 1 1	1	0 25 90 2	0
8-Mar	1		5			1 1 7 1 1 1 1 1	0	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					6			~~~~		1 1 1	1 1 1	•		13		1 1 1 2	25	
8-Mar	1	Cucation 5 total	6	1 0		15 2 9 6 2 2 2 23	0	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0	0	0	0	0	0 0		0		5 1 1 1 1 6	4	0	1	12	3 1 1 1 1 1 7	3 1 1 1 1 1 5	10	<u>u</u>
FISH	ERN	IEN, VESSEL	S AN	ID MOT	ORIZ	ATI	ON					,										A	ppe	ndi	< 2	
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DATE	AREA	OT NILLAGE (SITE) SURVEYED	CODE MAP	O PERMANENT SITE D TEMPORAL SITE documation region (montral	No. of FISHERMEN	No. of DUGOUTS	A No. of WOODEN CAN.	No. of METAL CAN.	M No. of FIBERGLASS CAN.	No. of CATAMARANS	No. of IND. UNITS	No. OUT FISHING	透 No. OUT TRANSPORT P No. MOVED		No. VISITING	D ORIGIN SITE-CODE/COUNTRY	No. of FISHING VES.	C No. of LAMP CARRIERS	Mo. of AUXILLIARY VES.	No. of TRANSPORTERS	GRAND TOTAL	S No. of ACTIVE VES.	H No. of BROKEN VES.		HP OF NO. OF INBOARDS	
8-Mar	1	MILALA	7		10 8 1		1 1 1 1 1			1							1	1		1		1 1 1	1 1	25		
8-Mar	1	Location 7 Iotal ISANGA	8	10-	24 4 13 2 2	0	6 1 1	0 4	0	1 1 1	0	0	00	<u> </u>	0	-	3 1 1 1 1	1	0	1	7	5 1 5 1	2	20 2	0	
8-Mar		Location 8 lotal CHISANZA (A)	9		25 4 4 10 4 10 2 4 10 10 2 2 3 3 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	0	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	4	0	2 1 1 1	1	0		<u> </u>	0		- - 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	3	1	0 1 1 1 1 1 1	9	9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1	1 25 25 10 10 10 10 25 30 25 30	1	
8-Mar		Location 9 total CHISANZA (B)	10	10-	101 4 2 10 10 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	0	31 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0	0	<u>4</u> 1	0	0	<u>0</u> 0		0		24 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	<u>3</u> 1	0	7	35	34 1 1 1 1 1 1 1 1 1 1 1 1 1	1	13 10 10	0	

					1																	· · ·	ppc		
DATE	AREA	O SOULAGE (SITE) SURVEYED SODE MAP		O PERMANENT SITE O TEMPORAL SITE 0 OCCUPATION PERIOD (ANNH)	No. of FISHERMEN	No. of DUGOUTS	No. of WOODEN CAN.	No. of METAL CAN.	A M No. of FIBERGLASS CAN.	D No. of CATAMARANS	No. of IND. UNITS	No. OUT FISHING	DO NO. OUT TRANSPORT	DESTINATION SITE	M No. VISITING	CRIGIN STE-CODE/COUNTRY	No. of FISHING VES.	C No. of LAMP CARRIERS	M No. of AUXILLIARY VES.	No. of TRANSPORTERS	GRAND TOTAL	S No. of ACTIVE VES.			THE OLINO OF INBOARDS
8-Mar		KAKOMA T	1		2 10 2		1 1 1									:	1					1 1 1	1	10	
	1	Location 11 total		10-	2 2 2 2 2	0	1 1 1 1 1	0	0	n	0	n	0.0	_	0	_	1 1 1 7	Π	Ο	0	10	1 1 1 7	1	1	0
9-Mar	1	ITONGO 12	2	<u> </u>	9		1					0	0 0		1	9	1	0		1		1	3	10	
	1	Location 12 total		1 0 -	12 2 2 1 1 1 1 1 2 2 9 1 1 7 7 2 2 1 1 2 2 9 1 1 7 7 2 2 1 1 2 2 2 9 1 1 7 7 2 2 1 1 1 1 2 2 9 1 1 7 7 2 9 1 1 1 2 2 9 1 1 1 2 2 2 9 1 1 1 1 2 2 2 9 1 1 1 1	0	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0	0	0	0		<u>0 0</u>	_	1	11	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 9	0	1	32	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 3	1	0
≫-Mar	1	MUZUMWA 13	5	1.0	/ 9 9 1 1 1 2 2 1 11 1 1 1 1 1	0	111111111111		ſ	Û		0	0.0		0		1 1 1 1 1 1 1 1 1 1	1 . 1	0	0		1 1 1 1 1 1 1 1 1 1 1 1	1 1 0	10	
L			-	· •			••	· · ·		~~~	~ [<u> </u>	<u> </u>		<u> </u>			-	<u> </u>	<u>~1</u>	19	10	٤.		<u> </u>

FISH			S AN															····	r						App	ena T	IX Z
DATE	AREA	NULLAGE (SITE) SURVEYED	CODE MAP	O PERMANENT SITE		No of FISHFRMEN	No. of DIRGOUTS	T	A No. of WOODEN CAN.	A No. of METAL CAN.	No. of FIBERGLASS CAN.	P No. of CATAMARANS	No. of IND. UNITS	No. OUT FISHING		D DESTINATION SITE	A No. VISITING		No. of FISHING VES.	C No. of LAMP CARRIERS	Mo. of AUXILLIARY VES.	No. of TRANSPORTERS	GRAND TOTAL	6 No. of ACTIVE VES.	T No. of BROKEN VES.	K HP of No. of OUTBOARDS	HP of/No. of INBOARDS
9-Mar	1	KAWE	14		CCUP			T	YPE 1 1	OF	VES	SEL			JISP	LACE	MEN	IT.		US	E	1		5T.	ATE	10 25	JT.
						32 8 4 33 34 25 55 4 55 4 22 77 4 6 22 22			, , , , , , , , , , , , , , , , , , ,																I	25	
									1 1 1																1 1 1		
10 1400	1 L	ocation 14 lotat	15	1	0	8 95	0		1 31	0	0	0	0	0	0 0) -	0		1 24	0	0	3	31	1 27	4	3	0
10- <i>Mar</i>	1 - L	ocation 15 lotal	15	1	_0	3 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	1		777777777777777777777777777777777777777	0	0	0	0	,	0 3	: 19	1	16		1	0	1 1	38		1 2	10 10	0
10-Mar	1	KAMUSWILO	16			9 11 2 3 2 3			1 1 1 1 1 1 1				-						1 1 1 1 1		<u> </u>	1	57	1 1 1 1 1 1	1	10	,
	1 L	ucation 16 lotal		1	U	7 5 42	0	1	1 1 11	0	0	0	0	o	0 0		o		1 1 8	O	D	t	11	1 1 9	2	9 2	
																						المنتيه					

10-Mer	10-Mar	10-Mar	DATE
1	1	1	AREA
KAPATA	CHITUTA (B)	CHITUTA (A)	O VILLAGE (SITE) SURVEYED
19	18	17	CODE MAP
199		1	O PERMANENT SITE
<u>0</u>		0	
		-	OCCUPATION PERIOD (months)
2 9 9 1 1 1 1 1 1 2 8 2 2 2 2 2 2 2 2 2 2 2 2	3 2 2 2 2 2 2 2 2 1 1 2 3 2 2 2	1 12 12 4 2 2 33	No. of FISHERMEN
1	_	0	No. of DUGOUTS
1 1	1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 8	A No. of WOODEN CAN.
0		0	A No. of METAL CAN.
0		0	C M No. of FIBERGLASS CAN.
0		0	D No. of CATAMARANS
0		D	No. of IND. UNITS
5		0	No. OUT FISHING
<u>0</u>		0	ON OUT TRANSPORT
<u>0 -</u>	1 19	0 -	
3		0	No. VISITING
15		_	CRIGIN SITE-CODE/COUNTRY
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1	No. of FISHING VES.
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		0	C No. of LAMP CARRIERS
1 1 2		0	m No. of AUXILLIARY VES.
0 23		0	No. of TRANSPORTERS
54		8	GRAND TOTAL
	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 6	IS No. Of ACTIVE VES.
4		1	m No. of BROKEN VES.
25 10 25 25 5		0	
0		0	HP of No. of INBOARDS

DATE	AREA	O VILLAGE (SITE) SURVEYED	CODE MAP	O PERMANENT SITE		DOCUPATION PERIOD (months)	No. of FISHERMEN	No. of DUGOUTS	A No. of WOODEN CAN	A No. of METAL CAN.	No. of FIBERGLASS CAN.	P No. of CATAMARANS	No. of IND. UNITS	No. OUT FISHING	O No. OUT TRANSPORT	T No. MOVED		T No. VISITING	DRIGN SITE-CODE/COUNTRY	No. of FISHING VES.	C No. of LAMP CARRIERS	Mo. of AUXILLIARY VES.	No. of TRANSPORTERS	GRAND TOTAL	S No. of ACTIVE VES.	A No. of BROKEN VES.	E HP of/No. of OUTBOARDS	HP of Mo. of IMBOARDS
10-Mar	2	KASENGA	20				6 3 2		1 1 1									1	19	1 1 1					1 1			
	_						4 2 2		1 1 1 1	_		_			_			_		1	1				1	1		
10-Mar	2	CHIKONDE	21		0	-	19	0	7		0		0	0	0	<u>a</u>	-	2	19 3	4	2 1 1	0	0	8	6 1 1		0	0
							3 2 4 2 1 7 1		t t 1 1 t t											1 1 1 1	1				1 1 1 1 1 1	t		
10-Mar	2 2	Location 21 total CHINA	22	1	0	-	23 7	0	11	0	0	0	0	0	0	0	0	2	3	6 1	4	0	0	13	<u>10</u> 1	1	0	0
	2	Location 22 total		1	0		9 9 1 1 1 2 2 9 1 51	0	1 1 1 1 1 1 1 1 1 1	0	0	0	0	D	0	0	_	0	E	1	1 1 1 5	0	0	14	1 1 1 1 1 1 1 1 1 1 1	1 1 2	0	0
10-Mar	2	LUKUNGU	23				1 4		1 1											1					1		8	
		Leasting 22 hotel			•	1	4		1	•	•	•			•					1					1			
10-Mar	2	KASEPE	24			-	7 3 2 3	0	1 1 1 1			<u> </u>	U	0		<u>v</u>	-	<u> </u>	-	4 1 1 1 1				4	4 1 1 1	U_	6	
10-Mar	2	Location 24 total CHILILA	25	0	1	1	15 9	0	4	0	0	0	0	0	0	0	-	0	-	4	0	0	0	4	4	0	1	0
	2	Location 25 total		5	0		1 1 1 8 1 1 6 2 2 6 1 1 6 2 2 6 1 1 0 2 2 6 1 1 0 2 2 6 1 1 1 0 0 2 2 6 1 1 1 0 0 1 0 0 1 0 0 1 0 1 0 0 0 0 0	0	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0	0	0	0	•	0	0		0		1 1 1 7	1 1 1 1 1 1 1 1 1 1 1 1	0	0	23	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 2	0	0

	2	Location 27 total		1	0		7 7 5 8 1	0	1	0	0	1	0	0	0	0		0		1 1 1 1	0	0	0	16
11-Mar	2	SONDWA	28			-	56 8 4 2 1 2 2 2	U	9 1 1 1 1 1		<u> </u>	1		•		<u>v</u>		1	10	14 1 1 1 1 1 1		<u> </u>	0	- 15
	2	Location 28 total		1	D	-	3 2 30	0	1 1 1 1 12	0	0	2	0	0	0	0	_	1	10	1 1 10	0	0	1 1 2	15
11-Mar	2	LUKUNDO	29				2		1	_	_	_	_		_			1	14	1	_			
11-Mar	2	CHANGWENA	30		<u> </u>	-	9 1 2 2	0	2 	1	<u>u</u>	<u> </u>		U U	0	<u> </u>		2	14	1	1 1 1	0	1	3
	2	Location 30 total		1	0		16	o	1 10	1	0	0	Q	O	0	D		2	14	2	4	0	1	13

No. of FIBERGLASS CAN.

No. of METAL CAN.

No. of WOODEN CAN.

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21

1 1 1

0 0 0 0

1 1

P No. of CATAMARANS

No. of IND. UNITS No. OUT FISHING Mo. OUT FISHING Mo. OUT TRANSPORT do. MOVED DESTINATION SITE

FISHERMEN, VESSELS AND MOTORIZATION

OCCUPATION PERIOD (months)

O PERMANENT SITE

CODE MAP

26

27

TEMPORAL SITE

No. of FISHERMEN

1

No. of DUGOUTS

MATCO SURVEYED

Location 26 total TONGA

AREA DATE

2

10-Mar

10-Mar 2

Appendix 2

LE No. of ACTIVE VES.

The of Mo. of OUTBOARDS

10

1 1

No. of AUXILLIARY VES.

No. of TRANSPORTERS

GRAND TOTAL

26

23

1 t 1

14

1

12 2 4 0

1

1 1

1 4 7

0

10 10

10

з

10 25

C No. of LAMP CARRIERS

ORIGIN SITE-CODE/COUNTRY

Mo. VISITING

No. of FISHING VES.

1 1 1

1 I 1 t 1

15

1

1 1

11-Mar	11-Mar			11-Mar	DATE
2 2 2 2 2 2 2	2			2	AREA
Location 39 total MUSENDE (MPULUNGU BAY)	Location 39 total MUSENDE (MPULUNGU BAY)			KASISI (MPULUNGU BAY)	O VILLAGE (SITE) SURVEYED
40	40			39	CODE MAP
1	1			1	O PERMANENT SITE
0 -	0 -				Ö TEMPORAL SITE
219 2 3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	219 2 3 2 2 2 2 2 2 3 3 3 2 2 2 2 2 2 2 2		17 36 39 40 40	9 9 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	No. af FISHERMEN
0	0				No. of DUGOUTS
1 16 1 1 1 1 1 1 1 1 1 1 1 1 1	1 16 1 1 1 1 1 1 1 1 1 1 1 1 1		1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	No. of WOODEN CAN.
<u>32</u> 0	32		4 4 4 4 4 4 4 4		No. of METAL CAN.
<u>4</u> 0	<u>4</u>		4	VES	No. of FIBERGLASS CAN.
<u>0 0</u>	0 9		1 1 1 1 1 1 1 1		Pi No. of CATAMARANS No. of IND. UNITS
0 1 1	0				No. OUT FISHING
<u>00</u>	<u>0</u> 0			013-1	00 No. OUT TRANSPORT
				AUE	DESTINATION SITE
0 7 7	0 7 :				NO. VISITING
ZR	ZR	1			ORIGIN SITE-CODE/COUNTRY
18 1 1 1 1 1 1 1 1 1 1 1 1 1 1 5	18 1 1 1 1 1 1 1 1 1 1 1		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1	No. of FISHING VES.
15 1 1	15		3 3 3 3		C No. of LAMP CARRIERS
0	5		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2	^m No. of AUXILLIARY VES.
0 1 1 2 2	0 1 1 1				No. of TRANSPORTERS
<u>61</u> 28	28				GRAND TOTAL
38 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 6	38 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		5 5 5 5 5	1 1 1 1 1 1 1 1 1 1 1 1	Mo. of ACTIVE VES.
23 1 1 1 3	23 1 1 1	1	5 5 5 5		A No. of BROKEN VES.
0 25 25 25	0 25 25		1 3 3 1 1	mo	K HP of Ma. of OUTBOARDS
5	5		180 350 350 190		H HP of No. of INBOARDS

DATE	AREA 4	OT CODE MAP	O PERMANENT SITE D TEMPORAL SITE "000000000000000000000000000000000000	No. of FISHERMEN	No. of DUGOUTS	ANO. OF METAL CAN. ANO. OF FIBERGLASS CAN. No. Of CATAMARANS	No. of IND. UNITS	No. OUT FISHING GI No. OUT FISHING No. OUT TRANSPORT No. MOVED DESTIVATION SITE Mo. VISTING Laners ette constroumery	No. of FISHING VES. C No. of LAMP CARRIERS No. of AUXILLIARY VES. No. of TRANSPORTERS	GRAND TOTAL	4% No. of ACTIVE VES. TAN. of BROKEN VES.	HP of Mo. of OUTBOARDS ON HP of Mo. of IMBDARDS
12-Ma		KASAKALABWE 43		1 1 1 1 1 4 4 4 3 4 2 4 6 2 12 12 1 2 1 2 2 2 2 4 6 3 2 1 6 6 6 6 6 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1							25 25 10 10
				4 4 4 4 3 4 2							1 1 1 1 1 1 1 1 1 1 1 1	25
	2	Location 43 total	1 0 -	2 2 2 2 2 4 4 2 2 2 2 9 187	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0 0 0	0	000-0-	1 1 1 1 1 1 1 1 1 54 0 0 5	64	1 1 1 1 1 1 1 1 1 1 1 59 5	5

					NOTO	1 027							r		~			,					·	-990		
DATE	AREA	OD MILLAGE (SITE) SURVEYED	CODE MAP	Q PERMANENT SITE	O TEMPORAL SITE	No. of FISHERMEN	No. of DUGOUTS	. 이 WOODEN CAN.	No. of METAL CAN.	M No. of FIBERGLASS CAN.	No. of CATAMARANS	No. of IND. UNITS	No. OUT FISHING	K No. OUT TRANSPORT	DESTINATION SITE	Mo. VISITING	Corigin Site-Code/Country	No. of FISHING VES.	C No. of LAMP CARRIERS	Mo. of AUXILLIARY VES.	No. of TRANSPORTERS	GRAND TOTAL	Mo. of ACTIVE VES.	M No. of BROKEN VES.	E HP of No. of OUTBOARDS	C HP of No. of INBDARDS
13-Mar	2	КАРОКО	44			3		1					4				<u> </u>	1					1	1		
						1 3 2 2	1	1 1 1 1										1 1 1 1					1 1 1 1	1		
						10 4 2 2 2		1 1 1 1			1							1 1 1 1					1 1 1 1	1	10	
						2		1 1 1 1 1										1			1		1 1	1 1 1	25 25	
13-Mar	2	Location 44 total MBETE (A)	45	1	0 -	36 2	1	19 1	0	0	1	0	4	0 0) -	0	- 74	12 1	0	0	2	25	14 1	7	3	(
						2 2		1 1								1	75	1					1			
13-Mar	2	Location 45 total MBETE (B)	46	1	0 -	6 2	0	3 1	0	0	0	0	0 4	0 0) -	2	74/75	3	0	0	0	5	3 1	0	0	_(
						2 2 2 2		1 1 1 1										1 1 1 1					1 1 1	1		
	2	Stratum II total		22	0 - 5 -	10 1354	0	6 308	0 81	4	0 15	0 21	4	23)	21	-	5 231	0 88	16	13	10 473	5 348	83	0 25	1
13-Mar	3	NAKASAZA	47	<u> </u>		1	1	-										1					1		1	
		(LUFUBU RIVER)				1 1	1 1 1											1					1	1		
13-Mar	3 3	Location 47 total KABYOLWE	48	0	17	3 9	5	0	0	0	0	0	0	00) -	0	-	3	0	0	0	5	3	2	0	
						8222343234	T	1 1 1 1 1 1 1 1 1 1										1 1 1 1 1 1 1					1 1 1 1 1 1 1 1 1	1 1		
	3	Location 48 lotal		1	0 -	42	1	1 1 1 16	0	0	0	0	3	1 0) -	0	_	11	0	0	0	24	11	1 1 1 1 1 1 9	0	(

110116																											
DATE	AREA	O D VILLAGE (SITE) SURVEYED ZO	CODE MAP	Q PERMANENT SITE	Ž TEMPORAL SITE	. ¹⁰ OCCUPATION PERIOD (months)	No. of FISHERMEN	No. of DUGOUTS	A No. of WOODEN CAN.	A No. of METAL CAN.	M No. of FIBERGLASS CAN.	M No. of CATAMARANS	No. of IND. UNITS	NB. OUT FISHING	B No. OUT TRANSPORT	DESTINATION SITE	A No. VISITING	A ORIGIN SITE-CODE/COUNTRY	No. of FISHING VES.	C No. of LAMP CARRIERS	Mo. of AUXILLIARY VES.	No. of TRANSPORTERS	GRAND TOTAL	S No. of ACTIVE VES.	M No. of BROKEN VES.		HP of No. of INBOARDS
13-Mar	3	KASENGA	49	-			7 2 2 2 2 2		1 1 1 1 1 1 1 1	0						0			1	1 1 1				1 1 1 1	1	0	0
13-Mar	3	MWENSE	50		<u> </u>	-	7	U	8 1 1 1 1	<u> </u>				<u> </u>	U	<u>u -</u>	<u> </u>	-	1	1		U		<u>ь</u> 1 1	1	U	U
14-Mar	3	NKUMBA	51	1	<u>U</u>	-	8 7 1 1 1	U	4 1 1 1 1	<u>U</u>	<u>U</u>	<u>U</u>	U	U	U	<u>u -</u>	<u> </u>	-	1	1	1	U	4	2 1 1 1 1	2	IJ	<u> </u>
14-Mar	3	Location 51 total MISEPA	6	0	1	6	10 3 3 1	1	4 1 1 1	0	0		0	0	0	0 -	0	-	3	0	1	0	4	4 1 1 1	1	0	0
14-Mar	3	CHITWESHIBA	53	1	0	-	2 2 5 1 7 2 2 2	1	3 1 1 1 1 1 1 1 7	0	1	0	0	n	0	<u>0 </u>	2	56 57	1 1 1 1 1 1 1 7	0		1	11	3 1 1 1 1 1 1 1	1	10	0
14-Mar	3	KAMIKONGOLO	54		<u>u</u>	1	22 7 1 2 9 1 1 8 2 7 1 9 2 7 1	1		0		0	<u> </u>	,	0	<u>u</u> -	2	56/57	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1	1			8 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1		
14-Mar	3	KABWENSOLO	55	1	0	-	7 2 2 1 12	0	סו 1 1 1 1 4	0	0	0	0	0	0	0 -	U	-	1	5 1 1 2	1	0	4	14 1 1 1 1 4	<u>з</u> 0	0	0

Appendix 2

1101	12110	ILIN, YEJJELU																			-
DATE	AREA	RO DIPO VILLAGE (SITE) SURVEYED	CODE MAP	O PERMANENT SITE O TEMPORAL SITE O OCCUPATION PERIOD (months)	No. of FISHERMEN	No. of DUGOUTS	No. of WOODEN CAN.	A No. of METAL CAN.	M No. of FIBERGLASS CAN.	No. of IND. UNITS	No. OUT FISHING	G No. OUT TRANSPORT	DESTINATION SITE	A No. VISITING 	No. of FISHING VES.	C No. of LAMP CARRIERS	^{TT} No. of AUXILLIARY VES. No. of TRANSPORTERS	GRAND TOTAL	No. of ACTIVE VES.	M No. of BROKEN VES.	
	3	Location 56 total		1 0 -	5 1 1 7 1 5 2 2 8 2 9 2 2 9 2 1 2 9 2 1 2 9 2 1 2 9 2 1 2 9 2 1 2 9 2 1 2 9 2 1 2 9 2 1 2 9 2 1 2 9 2 1 2 2 9 2 1 2 2 9 2 1 2 2 9 2 1 2 2 9 2 1 2 2 1 1 5 1 2 2 1 1 5 1 2 2 1 1 5 1 2 2 1 1 5 1 2 2 1 1 5 1 2 2 1 1 5 2 2 2 1 1 2 1 2	1 1	, 1 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	0	0	3 0	0	0 0		0 -			1	50		1 1 1 1 1 1 1 1 1 1 1 1	

55	15	
-Mar	Ω Mar	ATE
3	3	AREA
NAKAKU Location 58 total	S LOCATION ZWEMA	TLLAGE (SITE) SURVEYED
58	57	CODE MAP
1		ERMANENT SITE
3 -	5 - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5 -	CCUPATION PERIOD (months)
7 2 8 1 1 2 2 1 5 33	2 8 1 1 2 2 2 2 2 2 2 2	IO. OF FISHERMEN
1	0	le. of DUGOUTS
; 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Z TYPPE 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	40. of WOODEN CAN.
0		lo. of METAL CAN.
0		Io. of FIBERGLASS CAN.
0	1 1	lo. of CATAMARANS
	0	lo. of IND. UNITS
0		Io. OUT FISHING
D 0		
-	ACE	DESTINATION SITE
0 -	0 -	Io. VISITING RIGIN SITE-CODE/COUNTRY
1 1 1 1 1 1 1 1	z 1 1 1 1 1 1 1 1 1 1	40. of FISHING VES.
1	Z US i i i i i i i i i i i i i	40. of LAMP CARRIERS
0 0		to. of AUXILLIARY VES.
19	52	SRAND TOTAL
	Z STZ STZ 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	40. of ACTIVE VES.
1 1 1 1 1 1 7	1 1 1	4o. of BROKEN VES.
0	₩ MOT	P of Mo. of OUTBOARDS
0	₹ , , , , , , , , , , , , , , , , , , ,	P of IND OARDS

1 IOLIC	_ru	VICIN, VEGGEEG	י וא כ	ω	viO		n urr	110	214																			
DATE	AREA	O D D D D D D D D D D D D D D D D D D D	CODE MAP	O PERMANENT SITE	D TEMPORAL SITE	T OCCUPATION PERIOD (months)	No. of FISHERMEN	No. of DUGOUTS	A No. of WOODEN CAN.	H No. of METAL CAN.	M No. of FIBERGLASS CAN.	M No. of CATAMARANS	No. of IND. UNITS	No. OUT FISHING	No. OUT TRANSPORT	P No. MOVED	DESTINATION STE	A No. VISITING	- ORIGIN SITE-CODE/COUNTRY	No. of FISHING VES.	C No. of LAMP CARRIERS	Mo. of AUXILLIARY VES.	No. of TRANSPORTERS	GRAND TOTAL	S No. of ACTIVE VES.	H No. of BROKEN VES.	HP of No. of OUTBOARDS	HP of No. of INBUARDS
15-Mar	3	TONGWA	59				7		1											1					1			
	3	Location 59 total		1	0	-	4 2 1 2 2 2 1 1 24	1 1 3	1 1 1 1 1 1 8	0	0	0	0	0	0	0	_	0	_	1 1 1 1 1 1 1 1 10	0	0	0	11	1 1 1 1 1 1 1 1 10	1	0	0
15-Mar	3	PUNGWA	60				7 7 1 1 1 2 2		1 1 1 1 1 1 1											1 1 1 1	1 1 1				1 1 1 1 1 1 1	1		
45.14	3	Location 60 total		0	1	6	22	0	9	0	0	0	0	0	0	0	-	0	-	5	3	0	0	9	8	1	0	0
15-Mar	3	Location 61 total	61	1	0	-	3 2 7 2 14	0	1 1 1 1 5	0	0	0	0	0	0	0	-	0	1	1 1 3	1 1	0	0	5	1 1 1 1	1 1	0	0
15-Mar	3	KALALA	62				82 222	1	1 1 1 1 1 1											1 1 1	1 1				1 1 1 1 1	1		
	3	Location 62 total		1	0	-	18	1	7	0	0	0	0	0	0	0	-	0	-	4	2	0	0	8	6	2	0	0
15-Mar	3	NACHISA	63	4	0		3 2 1 2 1 2 1	1	1 1 1	0	0	0		, ,	•	0		•		1 1 1 1		•			1 1 1 1 1			
15-Mar	3	KAMFONK	64	<u> </u>	<u> </u>	-	5	-	1	<u> </u>	- U					0		<u> </u>		1		0	<u> </u>	0	1			
	3	Location 64 total		0	1	5	4 5 5 5 4 35	0	1 1 1 1 7	0	0	0	0	0	0	0	_	0	_	1 1 1 1 1 7	0	0	0	7	1 1 1 1 1 7	0	5	0
15-Mar	3	NZOVWE (A)	65			,	2 2 2 2 3 2 1 1	1	1 1 1 1				,		3			<u> </u>		1 1 1 1 1 1	1		>		, 1 1 1 1 1 1 1	1		2
	3	Location 65 total		1	D	-	15	1	5	0	0	0	0	D	0	ο.	_	0	-	7	1	0	0	10	8	1	0	0

FISH	ERN	IEN, VESSELS	AND) M	то	OF	RIZA	гю	N																A	ppe	ind	ix 2
DATE	AREA	OULLAGE (SITE) SURVEYED	CODE MAP	O PERMANENT SITE	C TEMPORAL SITE		No. of FISHERMEN	No. of DUGOUTS	No. of WOODEN CAN.	H No. of METAL CAN.	No. of FIBERGLASS CAN.	M No. of CATAMARANS	No. of IND. UNITS	No. OUT FISHING	B No. OUT TRANSPORT	No. MOVED		A No. VISITING		No. of FISHING VES.	C No. of LAMP CARRIERS	Mo. of AUXILLIARY VES.	No. of TRANSPORTERS	GRAND TOTAL	A No. of ACTIVE VES.	Mo. of BROKEN VES.	K HP of Ma, of OUTBOARDS	T HP of ING. of INBOARDS
15-₩ar	3	NZOVWE (B)	66	1	0		4 3 4 2 1 1 1 2 2 3 2 2 2 6 38	1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	. 0	0	0	0	0	0	0	_	0		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0	0	0	17	$ \begin{array}{c} 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\$	1	10	0
15-Mar	3	KATUKULA	67	1	0	-	8 8 1 1 4 1 1 1 1 35	1	1 1 1 1 1 1 1 1 1	0	0	0	0	0	0	0	_	0	_	1 1 1 1 1 1 1 8	1 1	1	0	11	1 1 1 1 1 1 1 1 1	0	0	0
16-Mar	3	MWELA	68	1	0	_	3 4 4 4 3 21	0	1 1 1 1 1 6	0	0	0	0	0	0	0	_	0		1 1 1 1 1 6	0	D	0	6	1 1 1 1 1 6	0	0	0
16-Mar	3	KASENGA	69	1	0		7 1 1 9	1	1 1 1 3	0	0	0	0	0	0	n	_	0		1	0	1	0	4	1 1 1 3	1	0	0
16-Mar	3	FUNDA	70	1	0	-	2 8 2 2 1 17	0	1 1 1 1 1 1 6	0	0	0	0	,	0	0	-	0	-	1 1 3	1 1 2	1	0	6	1 1 1 1 1 6	0	0	0
16-Mar	3	NACHUPO	71	1	0		1 1 1 2 2 8	0	1 1 1 1 1 1 6				0	0	0	<u>.</u>		0	_	1	1 1 1 1		0	6	1 1 1 1		0	
16-Mar	3		72			~	2 2 2 7 2 2 7 2 2 4 4	2	1 1 1 1 1 1 1 1	0	<u> </u>		2		<u> </u>	<u> </u>	-	<u> </u>	-	2 1 1 1 1 1	1		1	0	0 1 1 1 1 1 1 1	1		

r -	-15H		MEN, VESSEL	5 AN		MU	ΠL	IHIZ	11	UN																	App	enc	dix 2
1	DATE	E AREA	PICTURE (SITE) SURVEYED	CODE MAP	O PERMANENT SITE	D TEMPORAL SITE	U OCCUPATION PERIOD (months)	no. of FISHERMEN	No. of DUGOUTS	H No. of WOODEN CAN.	O NO. OF METAL CAN.	No. of FIBERGLASS CAN.	IN No. of CATAMARANS	No. of IND. UNITS				DESTINATION SITE	No. VISITING	CRIGIN SITE-CODE/COUNTRY	No. of FISHING VES.	C No. of LAMP CARRIERS	Mo. of AUXILLIARY VES.	No. of TRANSPORTERS	GRAND TOTAL	ANO. OF ACTIVE VES.	A Na. of BROKEN VES.	Z HP of No. of DUTBOARDS	O THP offNo. of INBOARDS
										1		1									'			1			1	6	
1	6-Mai	13 13	Location 73 total CHEZI	74	0	1	3	6 1	0	2	_0	1	0	0	1	D 0 1	0	-	0		1	0	0	1	3	2	1	1	0
		3	Location 74 total		1	0		2 8 1 2 2 1 1 1 1 2 7 1 1 7 1 1 2 2 1 1 2 2 1 5 1	0	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0	0	Ο	0	T	0	0	_	0		1 1 1 1 1 1 1 1 1 1 1 1 9	1 1 1 7 1 1 1 1 1 1 1 1 1		1	28	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1	10	
16	ò-Mar	3	KOMBE	75	1	0		8 1 8 1 7 2 7 2 2 1 2 1 1 1 1 1 46	0	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		0	0	0	1	0	0	_		_	1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1	0	0	18	24 1 1 1 1 1 1 1 1 1 1 1 1 1	1	0	0
16-	-Mar	3	KATOTO	76	1 25	0	-	7 1 1 1 7 1 18 882	0 29	1 1 1 1 1 6 334	0	0	0	0	0	0	0		0	-	1	3 1 1 1 1 1 4	0	0	6	1 1 1 1 1 1 6	0	0	<u> </u>
						÷.,	_				~~~	-		~ 1			<u> </u>		-		100	101	14	7	J/4	307	29	D	U

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		0																									
ЭАТЕ	AREA	VILLAGE (SITE) SURVEYEI	CODE MAP	PERMANENT SITE	TEMPORAL SITE	DCCUPATION PERIOD (months)	No. of FISHERMEN	No. of DUGOUTS	No. of WOODEN CAN.	No. of METAL CAN.	No. of FIBERGLASS CAN.	No. of CATAMARANS	No. of IND. UNITS	No. OUT FISHING	No. OUT TRANSPORT	No. MUVEU DESTINATION SITE	No. VISITING	ORIGIN SITE-CODE/COUNTRY	No. of FISHING VES.	No. of LAMP CARRIERS	No. of AUXILLIARY VES.	No. of TRANSPORTERS	GRAND TOTAL	No. of ACTIVE VES.	No. of BROKEN VES.	HP of Mo. of OUTBOARDS	
19.142-				0		P.	0	<u> </u>	TYPE	OF	VES	SĒL	0		DISP		EMEI 0	<u>л</u>	0	US 0	E	0	0	STA 0		<u>М</u>	2
13-Mar 13-Mar	4	KANYENGELE	78	U	_ 1	0	2 1 2 1 1 2	0	0 1 1 1 1 1 1		1	0		0	0	<u>u -</u>			1	1		0	0	1 1 1	1 1 1		-
	4	Location 78 total		1	0	-	9	0	8	0	1	0	0	0	0	0 -	0	-	4	2	0	1	10	1 7	3	80	
12-Mar		TELEKA	79				9 9 1 1 7 7 1 1 1 1 1 1 1 2 2 2 2 2 8 8 1 3	1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1						1	83/84	1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1				1 1 1 1 1 1	10	
12JAar	4	Location 79 total	80	1	0	-	82	1	30	0	1	0	0	0	0	0 -	1	\$3/\$4	8	8	6	3	33	25	7	3	-
	4			1	0		1 2 3 2 2 2 1 1	1	1 1 1 1 1 1 1 1	0	0	0	0	n	0	0 -	n		1 1 1 1 1	1 1 1	0	1	11	1 1 1 1 1 1 1 1		10	
12-Mar	4	MWANDO	81	╞╴	•	-	2	-	1	0	•			ľ	0	• -	U	-	1	0	v	-		1			
12.14-	4	Location 81 total	83	1	0	-	1 1 4	0	1 1 1 5	0	0	0	0	0	0	<u>0 -</u>	0	-	1	1	0	0	5	1 1 3	1 2 0	0	_

III-Mar	11-Mar	11-Mar	11-Mar	11-Mar	DATE
4	4	4	4	4	AREA
NUULE LUUGE	NDOLE VILLAGE	N TINGILA	MWAFYENGA	Location 83 total KACHESE (B)	NILLAGE (SITE) SURVEYED
88	87	00	85	84	CODE MAP
1	1	1	1	1	O PERMANENT SITE
n	0	0	0	0	2 TEMPORAL SITE
		-		-	
0	1 1 2 1 2 2 8 1 7 1 2 2 2 33	2 2 7 1 13	15 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	4 2 2 14 0	No. of FISHERMEN
n	1	0	0	0	No. of DUGOUTS
n	1 1 1 1 1 1 1 1 1 1 1 4	1 1 1 1 6	1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 6 0	A No. of WOODEN CAN.
n	0	0	0	0	H No. of METAL CAN.
1 1 1 1 4	0	0	0	0	A No. of FIBERGLASS CAN.
n	0	0	0	0	S No. of CATAMARANS
Π	0	0	0	0	No. of IND. UNITS
0	0	0	0	0	No. OUT FISHING
0	0	0	0	0	No. OUT TRANSPORT
ı _) -	D -	0 -	<u>) -</u>	DESTINATION SITE
0	0	0	0	0	
_		-			C ORIGIN SITE-CODE/COUNTRY
	1 1 1 1 1 1 7	1	1 1 1 3	1 1 1 5 0	No. of FISHING VES.
Ο	1 1 1 1 1 7	1 1 1 1	1 1 1 1 1 1 1 8	0	C No. of LAMP CARRIERS
A	0	0	1	0	M No. of AUXILLIARY VES.
1 1 1	0	1	0	0	No. of TRANSPORTERS
4	16	6	12	6	GRAND TOTAL
ו 1 1 3	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 6	1 1 1 1 1 1 1 1 1 1 1 2	1 1 1 5 0	S No. of ACTIVE VES.
1	1	0	0	1	H No. of BROKEN VES.
0	0	10 1	0	0	HP of INO. of OUTBOARDS
Ω	0	0	0	0	HP of No. of NBDARDS

DATE	AREA AREA 2001LAGE (SITE) SURVEYED	CODE MAP O PERMANENT SITE D TEMPORAL SITE	No. of FISHERMEN	No. of DUGOUTS No. of WOODEN CAN.	0. A No. of METAL CAN. A No. of FIBERGLASS CAN. FIB No. of CATAMAPANS No. of IND. UNITS	No. OUT FISHING No. OUT TRANSPORT STINON MOVED MARADDESTINATION SITE No. VISITING AMAIN STECCORECOUNTRY	 No. of FISHING VES. No. of LAMP CARRIERS No. of AUXILLIARY VES. No. of TRANSPORTERS CRAND TOTAL 	LIN No. of ACTIVE VES. TATA No. of BROKEN VES. THP outbook of INBOARDS THP outbook of INBOARDS
10-Mar		03	7 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
10-Mar	4 Location 89 total 4 MUNJELA	<u> </u>	2 1 2 1 7 2 7 2 85 85 2 3	1 1 1 1 1 1 1 1 1 1 0 28 1 1 1	0000	11 0 0 - 0 -		
10-Mar	4 Location 90 total	<u> </u>	1 2 1 6 7 1 23	1 1 1 1 1 1 9 1	0000	0.00-0-		
	4 Location 91 total	1 0 -	1 1 7 1 2 6 1 1 3 25	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0 0 0 0	000-0-		

,	113116		TEN, PEDDELD		<u> </u>			T																	·····		
	DATE	AREA	E SURVEYED Z Z Z	CODE MAP	O PERMANENT SITE	C TEMPORAL SITE	No. of FISHERMEN	No. of DUGOUTS	No. of WOODEN CAN.	A No. of METAL CAN.	M No. of FIBERGLASS CAN.	M No. of CATAMARANS	No. of IND. UNITS	- No. OUT FISHING	図 No. OUT TRANSPORT Z No. MOVED	DESTINATION SITE	No. VISITING	A ORIGIN SITE-CODE/COUNTRY	No. of FISHING VES.	C No. of LAMP CARRIERS	Mo. of AUXILLIARY VES.	No. of TRANSPORTERS	GRAND TOTAL	S No. of ACTIVE VES.	HI No. of BROKEN VES.		T HP of No. of INBDARDS
	10-Mar	T	Location 92 total	92	1	0 -	7 1 2 1 6 1 1 7 1 1 6 1 1 7 1 1 6 1 7 1 1 7 1 1 7 1 1 7 1 1 7 1 1 7 7 1 7 1 7 1 7 1 7 1 7 7 1 7 1 7 1 7 1 7 1 7 7 1 7 7 1 7 7 1 7 7 1 7 7 7 1 7 7 7 7 1 7 7 7 7 7 7 7 7 7 7 7 7 7	0	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0	0	0	0		<u>ō</u> 0		0		3 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1	0	0	31	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1	25 2	0
	10-Mar	4	KAMIMUNU	93	1	0 -	/ 2 1 1 1 1	0	1 1 1 1 1 1 1 1 1 9	Ω	Û	Ω	0	Ω	0 0	-	Π		1	1 1 1	Π	0	9	1 1 1 1	1 1 1	Π	ſ
	10-Mar	4	KASENGA	94	1	0 -	7 1 1 1 1 1 12	0	1 1 1 1 1 1 7	0	0	0	0	0	0 0		0	_	1	1 1 1 1 5	0	0	7	1 1 1 1 1 1 6	1	0	
	10-Mar 10-Mar	4	CHIMBA	95	1	0 -	1 2 3 3	1 1 2	1 1 1	0	1 1 1 3	0	0	0	0 0	i -	1	97 97	1 1 2 1	0	0	0	7	1 1 2 1	1 1 1 4	0	0
		4	Location 96 total		1	0 -	2 5	0	1 2	0	0	0	0	0	0 0	_	0	-	1	0	0	0	2	1 2	0	0	0

9-Mar							10-Mar	DATE
4	4	وليتعار والمحافظ					4	AREA
MUSHI Location 98 total	Location 97 total						KALOMO	VILLAGE (SITE) SURVEYED
98							97	CODE MAP
1 0	1 0							PERMANENT SITE
-	1 -						υ Ρ .	DCCUPATION PERIOD (mouths)
2 1 2 2 1 1 2 1 2 1 2 1 1 8	2 2 1 89	7 2 4 2 1 1 1	7 2	7 2 2 2 8 2 2	1	2 2 2 7	8 1 2	No. of FISHERMEN
1	4	1 1 1 1						No. of DUGOUTS
- 1 1 1 1 1 1 1 1 1	1 1 1 1 1 44	1 1 1 1 1 1	1 1 1 1 1 1 1	1 1 1 1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	No. of WOODEN CAN.
0	0							No. of METAL CAN.
0	Û						VES	No. of FIBERGLASS CAN.
0	1	1					SEL	No. of CATAMARANS
0	0							No. of IND. UNITS
0	0	والمتركبة والمستقدية والمتركبة والمستقد والمستقد والمستقد والمستقد والمستقد والمستقد والمستقد والمستقد والمستقد						No. OUT FISHING
0	0						<u>Л5Р</u>	No. OUT TRANSPORT
0 -	0 -							DESTINATION SITE
0	0							DNITING
_	_						<u>41</u>	OPICIN SITE-CODE/COUNTRY
1 1 1 1 1 6	1 1 14	1	1	1		1	1 1 1	No. of FISHING VES.
1 1 1 1	1	1 1 1	1	1 1 1 1	1	1 1 1		No. of LAMP CARRIERS
0	3	1		1	1			No. of AUXILLIARY VES.
1	1	1						No. of TRANSPORTERS
13	49							GRAND TOTAL
1 1 1 1 1 1 1 1 1 1 1 1 1 2	1 1 1 <u>32</u>	1 1 1 1 1 1 1 1	1	1 1 1 1 1	1	1 1 1	1	No. of ACTIVE VES.
1	1 1 1 17	1	1 1 1 1 1	1	1 1 1	1		No. of BROKEN VES.
25	2	10 10					MIC	HP of Mo. of OUTBOARDS
0	0						<u>.</u>	HP of Mo. of INBOARDS

8-Mar	9-Mar	9-Mar	9-Mar	DATE
4	4	4	4	AREA
KATETE	Location 102 total	CHISHIKI (A)	CHIBENGU	COLLAGE (SITE) SURVEYED
103	102	101	100	CODE MAP
1	1	1	1	O PERMANENT SITE
0	0	0	0	Q TEMPORAL SITE
		-		OCCUPATION PERIOD (months)
6 1 3 2 2 4 21	2 7 2 7 2 7 2 2 2 2 2	6 2 2 2 2 14	7 1 1 1 6 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	No. of FISHERMEN
0	0	0	0	No. of DUGOUTS
1 1 1 1 1 1 1 1 1 1 1 5	1 1 1 1 6	1 1 1 5	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	A No. of WOODEN CAN.
0	0	0	<u> </u>	9 No. of METAL CAN.
0	0	0	0	M No. of FIBERGLASS CAN.
0	0	0	0	D No. of CATAMARANS
0	0	0	0	No. of IND. UNITS
0	0	0	0	No. OUT FISHING
0.0	0 0	0 0	0 0	B No. OUT TRANSPORT
ı -	<u> </u>) _	<u>) </u>	DESTINATION SITE
0	0	0	2	No. VISITING
	-	-	97	CRIGIN SITE-CODE/COUNTRY
1 1 1 5	1 1 3	1	1 1 1 1 1 7 0	No. of FISHING VES.
1	1 1 1 3	1 1 1 1 4	1 1 1 1 1 1 1 1 1 1 1 1 1 1	C No. of LAMP CARRIERS
1	0	0	1	THE No. of AUXILLIARY VES.
1	0	0	0	No. of TRANSPORTERS
15	6	5	<u>34</u>	GRAND TOTAL
1 1 1 1 1 1 9	1 1 1 1 6	1 1 1 1 5	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	S No. of ACTIVE VES.
1 1 1 1 1	0	0	1 1 1 3 0	Mo. of BROKEN VES.
25	0	0	0	
0	0	0	0	T HP OFFINO. OF INBOARDS

113116	-110	IEN, VEJJELJ	Ann	D M	010	1112*		111																		
DATE	AREA	OO VILLAGE (SITE) SURVEYED Z	CODE MAP	O PERMANENT SITE	Ž TEMPORAL SITE To occupation period (months)	No. of FISHERMEN	No. of DUGOUTS	HAND ODEN CAN.	O No. of METAL CAN.	No. of FIBERGLASS CAN.	S No. of CATAMARANS	No. of IND. UNITS	No. OUT FISHING	K No. OUT TRANSPORT	DESTINATION SITE	No. VISITING	C ORIGIN SITE-CODE/COUNTRY	No. of FISHING VES.	C No. of LAMP CARRIERS	M No. of AUXILLIARY VES.	No. of TRANSPORTERS	GRAND TOTAL	S No. of ACTIVE VES.	M No. of BROKEN VES.		T HP of IND OF I
8-Mar	4	CHINTAMPA	104			461262211282222					1					I	107	1	1111111				1 1 1 1 1 1 1 1 1 1		25	
8-Mar	4	Location 104 total KAWELWA	105	0	<u>15</u>	2 2 2 2 2 2 2 2 2 2 2 2 1 7 1 7 1 7 1 7	0	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0	1	1	0	0	0 () -	1	107	4 1 1 1 6	1 1 1 1 1 1 1 1 1 1 1 1 1 8	1 1 1 1 3	0	19	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0	2	0

	ELVER STATE
4	AREA
Location 106 total	LICATION LOCATION KAMAFITA
	CODE MAP
0	O PERMANENT SITE
1 6	
2 2 2 1 1 1 6 1 5 10 2 2 2 2 2 10 2 8 2 2 2 2 2 2 2 2 10 2 2 2 2 2 7 2 2 6 2 5 1 1 1 1 1 2 2 2 10 2 2 2 2 10 2 2 2 2 7 2 2 6 2 5 1 1 1 1 1 2 2 2 155	4 Na. of FISHERMEN
D	No. of DUGOUTS
	TAND. of WOODEN CAN.
0	A No. of METAL CAN.
1	Mo. of FIBERGLASS CAN.
1	S No. of CATAMARANS
0	No. of IND. UNITS
) 0	No. MOVED
	DESTINATION SITE
0	Ma. VISITING
	7 ORIGIN SITE-CODE/COUNTRY
1 1 1 1 1 1 1 1 1 1	- No. of FISHING VES.
ייייי אמני הייייי אמני הייייייייייייייייייייייייייייייייייי	C No. of LAMP CARRIERS
1	Mo. of AUXILLIARY VES.
1 1 1	No. of TRANSPORTERS
52	GRAND TOTAL
1	- S No. of ACTIVE VES.
0	너 No. of BROKEN VES.
10 25 25 25 25 25	HP of No. of OUTBOARDS
0	T HP of Mo. of INBOARDS

1911	1116	IEN, YESSELS AN		MUTU	niz.A	110	11													<u>יי</u>	per	
DATE	AREA	O VILLAGE (SITE) SURVEYED CODE MAP	O PERMANENT SITE	C TEMPORAL SITE C DCUPATION PERIOD (months)	No. of FISHERMEN	No. of DUGOUTS	No. of WOODEN CAN.	H No. of METAL CAN.	No. of FIBERGLASS CAN.	The structure of the st	No. OUT FISHING 20 No. OUT TRANSPORT	Z No. MOVED	No. VISITING	C ORIGIN SITE-CODE/COUNTRY	No. of FISHING VES.	C No. of LAMP CARRIERS	Mo. of AUXILLIARY VES.	No. of TRANSPORTERS	GRAND TOTAL	S No. of ACTIVE VES.	M No. of BROKEN VES.	K HP offNo. of OUTBOARDS H HP offNo. of INBOARDS
8-Mar	4	CHIBANGA 107	+	JCCUP.	1		1		(E33		2			11	1	Ua	с. 	-		1		MOT.
					1		1			1					1					1		
			ľ		1		1									1				1	1	
					1		1 1								1					1		
			ŀ		1		1								1	1				1		
			Ì		1		1								1					1		
					3		1								1					1		
					2		1									1				1		
					6 1		1 1								1	1				1 1		
					2		1								1					1 1		
					3 ⊿		1								1					1		
					3		1								i					1		
					'		1											1		1		15
							1											1		1		25 25
					1		1 1									1		1		1		25
	4	Location 107 total	1	0 -	42	0	1 27	0	0	1 0	2 0	0 -	0	-	16	6	0	4	30	26	1 2	4 0
	1	Stratum IV total	28	33-	971	13	409	1	19	4 1	14 0	0 -	5	-	146	195	20	22	466	383	64	26 O
	Z	ambian grand total	94	1 13 -	4118	46	1378	86	26 2	8 23	49 3	7 -	38	-	774	449	52	62	1677	1337	250	98 1

Appendix 3: Results of the simultaneous frame survey for the Zambian part of Lake Tanganyika, March 1995. Number and type of fishing gears per location along the coast from area I (East Coast) to Area IV (Nsumbu).

NUMBER AND TYPE	OF FISHING GEARS	·	Appendix 3
AREA 2 VILLAGE (SITE) SURVEYED	CODE MAP DE PERMANENT SITE ETEMPORAL SITE BOOODFATTORIFENDO (manutu) No. of LAMPS No. of PURSE SENES	Mo d'NIGHT B SEINES Mo d'NIGHT B SEINES 21 No d'CHRY EISINES 22 No d'CHRY SEINES No d'UFTNETS	No. of GILLINETS BAL No. of LONGLINES No. of TRAPS No. of OTHER GEAR REMARKS
CHIEWA	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
) Location Liolal MAMEA	2 1 B - 56	2 0 0 0 1 1	16 0 13 0 0 18 BOATS SURVEYED
) Location 2 total 1 TUKULUNGO 1 KASANGULA	1 0 - 18 3 1 0 - 2 0 4 2	2 0 0 0 0 0 0 0 1	1 1 2 1 4 0 0 0 0 1 580ATSURVEYED 1 580ATSURVEYED 2VISITING BOATS TOTAL 7 00ATS
t <u>Location 4 total</u> t CHITLI (A)	1 0 - 2 0 5 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	1 1 0 0	1 12 BOATS SURVEYED 1 12 BOATS SURVEYED 1 1
1 Location 5 total i OHITILI (5)	6 1 0 - 16 0	1 0 0 0	0 0 0 2 12 BOATS SURVEYED 2 2 2 2 2 2 2 2
Location 6 total	10-10	1 0 0 0	2 0 0 14 0 0

NUM	BER AND TYPE	OF F	ISHING G	EARS										Appendix 3
AREA	ZOLLAGE (SITE) SURVEYED	CODE MAP	O PERMANENT SITE D TEMPORAL SITE Occupation Period (monthe)	No. of LAMPS	DIN NO. OF PURSE SEINES H	No. of NIGHT B. SEINES	H No. of DAY B. SEINES In No. of CHIR. SEINES	L No. of LIFTNETS	No. of GILLNETS	D No. of LONGLINES	P No. of HANDLINES	No. of TRAPS	No. of OTHER GEAR	REMARKS
1	MILALA	7				1					2			7 BOATS SURVEYED
1	Location 7 total		10-	2 3 5	0	1	0 0	1	0	0	2 2 2 2 2 2 14	0	0	
1	ISANGA	8		2				1						4 BOATS SURVETED
				48	1						2			Isanga bay - company
	ltin 0 inlei			62				2	•	•	2			
1	CHISANZA (A)	9	10-	3	1	0	0 0	1	0		4	0	0	38 BOATS SURVEYED
1	Location 9 total CHISANZA (B)	10	1 0 .	3 3 3 10 4 4 4 4 2 2 4 2 2 50 2	0	1	<u>0 1</u>	1 1 4	4 10 4 5 14 3 9 8 57	0	3 3 2 1 2 1 1 5	2	0	18 BOATS SURVEYED
	Location 10 total		1 0	2 2 2 4 2 2 18	D	1	1	1	8 10 13 10 5 4 1 1 5 8 7 7 2	0	2 1 1 1 1 1 2 9	0	0	1 OUT FOR FISHING TOTAL 19 BOATS

NU	MBER AND TYPE	EOF	FIS	HING	GEAF	IS	·				r					Appendix 3
AREA	OOLLAGE (SITE) SURVEYED	CODE MAP	O PERMANENT SITE	X TEMPORAL SITE 0000UPATION PERIOD (marker)	No. of LAMPS	NO. 01 PURSE SEINES	\ge No. of NIGHT B. SEINES.	H No. of DAY B. SEINES	S No. of CHIR. SEINES	HO. Of LIFTNETS		S No. of LONGLINES	SI No. of HANDLINES T	No. of TRAPS	No. of OTHER GEAR	REMARKS
1	KAKOMA	11			2		1				5					10 BOATS SURVEYED
					2						5		1			
					2						3					
													2			
											2		1			
1	Location 11 total ITONGO	12	1	0 -	6	0	1	<u>0</u> 1	0	0	15	0	4	0	0	32 BOATS SURVEYED
							1									
							1						1			
					1								1			
					1 1											
					1								1			
													1 1			
					1			1								
					1		1									
					1		1					1				
					1 1								1			
					1											
					2 1								2			
					1 1								1 1			
				_	1			_	_	_	2		1	_		
1	Location 12 total MUZUMWA	13	1	0 -	18	0	4	2	0	0	2	1	12	0	0	15 BOATS SURVEYED
						:	1									
					2								1			
					2								1			
					2								2			
					2			1								
					4						4					
,	Location 13 total		1	0 -	18	D	3	1	0	0	4	0	8	0	0	

NUI	MBER AND TYPE	OF	FI:	SHIN	G GE/	ARS								r	Appendix 3
AREA	PURVEYED	CODE MAP	Q PERMANENT SITE		No. of LAMPS	No. of PURSE SEINES HIDD. DURSE SEINES	P No. of NIGHT B. SEINES	H No. of DAY B. SEINES	H No. of CHIR. SEINES T No. of LIFTNETS	H No. of GILLNETS	D No. of LONGLINES	년 50 No. of HANDLINES	No. of TRAPS	No. of OTHER GEAR	REMARKS
	KAWE	14			4							з			ST BOATS SURVETED
							1			10					
					з							4			
					2					8		3			
										14 10		4			
					2					8		5 4 4			
					2							5			
					2 2 2							5 4 2			
							1			8		4			
					1					8		6			
										7					
	1 14 1				20		1		•	00		61			
1	KASAKAMULWA	15		0 -	23	0	3	0		25	<u> </u>	2	0		32 BOATS SURVEYED 5 BOATS OUT
					2					12 6		3			1 BOAT VISITING TOTAL 38 BOATS
					2 4					5		2			
					2	-						2			
							1	1							
					,		1					2		ŀ	
					1 4							2 4			
					23							2			
					2							3			
					2 2 2							5 5 4			
					34							2			
					4 2 4							4 2 4			
	Location 15 total			0	63				0 0	67	•	80	~		
1	KAMUSWILO	16		<u> </u>	52		1	1	0 0	51		υU	U		11 BOATS SURVEYED
					2 2 4							2 3 2			
					2					2		2			
					2					24		4			
1	Location 16 total		1	0 -	12	0	1	1	0 0	12	0	2 15	۵	0	

NUN	IBER AND TYPE OF F	FISHING G	EARS											Appendix 3
AREA	UILLAGE (SITE) SURVEYED	O PERMANENT SITE D TEMPORAL SITE OCCUPATION PERIOD (months)	No. of LAMPS	NO. OF PURSE SEINES	No. of NIGHT B. SEINES	T No. of DAY B. SEINES	ST No. of CHIR. SEINES	No. of LIFTNETS	No. of GILLNETS LL	D No. of LONGLINES	T No. of HANDLINES	No. of TRAPS	No. of OTHER GEAR	REMARKS
1	CHITUTA (A) 17					1			5					8 BOATS SURVEYED
	Leading 17 total	1.0	0	n in the second s		1	0	0	7 6 9	0	0	0	0	
1	CHITUTA (B) 18	1 0 -		<u> </u>	0	£		-	5				-	12 BOATS SURVEYED
	Location 18 total	1 0 -	٥	0	a	0	D	0	6 6 7 11 12 3 5 43 5 43 5 6 125	0	2 4 1 7	0	0	
1	KAPATA 19		2 8				1		3					49 BOATS SURVEYED 5 BOATS OUT
			6				1		3 4 5 4 7					TOTAL 54 BOATS
			2 2 2 2 2 2 2 2 2 2			1			5		1 2			
			2 2 3				1		5 7 9 8 9		1			
	Location 19 total	1.0	3 2 2 2 2	0	0	1	1	0	60	0	4		0	
Ľ-	Stratum I total	19 0 -	405	1	29	10	5	8	574	1	251	3	0	

NUMBER AND TY		SHING	GEARS	5									Appendix
AREA NULLAGE (SITE) SURVEYED	CODE MAP	O PERMANENT SITE	· OCCUPATION PERIOD (months) Na. af LAMPS	No. of PURSE SEINES	No. of NIGHT B. SEINES	LANO. OF DAY B. SEINES	gd No. of CHIR. SEINES No. of LIFTNETS	HNO. OF GILLNETS	D No. of LONGLINES	D No. of HANDLINES	No. of TRAPS	No. of OTHER GEAR	REMARKS
2 KASENGA	20		2 2 2 2 2 2		1			7		2 4 2 2			8 BOATS SURVEYED
2 Location 20 total 2 CHIKONDE	21	1 0	- 10 2	0	1	0	0 0	7	0	10	0	a	13 BOATS SURVEYED
			32		1					3 2 2			
2 Location 21 total 2 CHINA	22	1 0	- 9	0	2	0	0 0	1	0	7	O	0	14 BOATS SURVEYED
			4 4 4					10 10		1 2			
2 Location 22 total	1	1 0	3	0	1	0	0 0	20	0	1 9	o	0	
2 LUKUNGU	23	1 0		0	0	0	0 0	10 20 15 45	0	1	0	0	4 BOATS SURVEYED
2 KASEPE	24							48					4 BOATS SURVEYED
								4		4			
2 Location 24 total 2 CHILILA	25	0 1	1 0 3 3 3 3 2 2 2 2 3 3 3 2	0	0 1 1	0	00	2	0		_0		23 BOATS SURVEYED
			2 2										
2 Location 25 total	1	1 0	2 2 - 34	0	6	0	0 0	2	0	0	0	0	

NU	MBER AND TYPE	OF	FISHING	GEAF	ks									Appendix 3
AREA	O VILLAGE (SITE) SURVEYED	CODE MAP	O PERMANENT SITE 20 TEMPORAL SITE 10 OCCUPATION PERIOD (MONINE)	No. of LAMPS	MD. of PURSE SEINES DI DI FISH.	> No. of NIGHT B. SEINES	H No. of DAY B. SEINES	Ho. of CHIR. SEINES No. of LIFTNETS	Ho. of GILLNETS	D No. of LONGLINES	S No. of HANDLINES	No. of TRAPS	No. of OTHER GEAR	REMARKS
2	ONZYE	26		2222 2 1 21222		1		1 1 1	2 8 2		4 2 3 2 4 3			25 BOATS SURVEYED 1 VISITING 26 BOATS IN TOTAL
						1					2			
2	Location 26 total TONGA	27	10- 1	20	0	2	0	0 4	12	0	20	0	0	16 BOATS SURVEYED
				4 4 4 4 2 2 2 4		1 1 1		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	5		2 2 3			
2	SONDWA	28	10-	32	10	3	1	0 /	5	U	10	U.	0	15 BOATS SURVEYED
				2				1	6 4 8		2 2 5 2 3 2			
2	Location 28 total	20	10-	4	٥	0	1	02	22	0	16	0	0	3 BOATS SUBVEYED
2	Location 20 Later	20	1 0		_	ļ ,	^	0 0		~	5	•		S SOLID SOLID
2	CHANGWENA	30		4 2 2 2	U	1		1	U	0	2	U	0	13 BOATS SURVEYED

NU	MBER AND TYPE	OF F	ISH	ING (SEARS	j									-	Appendix 5
AREA	OTILIAGE (SITE) SURVEYED	CODE MAP	O PERMANENT SITE		No. of LAMPS	No. of PURSE SEINES	> No. of NIGHT B. SEINES	T No. of DAY B. SEINES	ON OF CHIR. SEINES	No. of LIFTNETS	H No. of GILLNETS	E No. of LONGLINES	型 好 No. of HANDLINES	No. of TRAPS	No. of OTHER GEAR	REMARKS
2	CHIKULA	31											1			7 BOATS SURVEYED
					4			•		•	4		2 2 2			
2	KATONYA	32	H	0		0		0	0	0	4	0	<u>_</u>	0		NO FISHERMEN
2	KASASA	33	+	<u> </u>	4	+	ا د			1			-	-	Ť	20 BOATS SURVEYED
					3						8 2	1	2			1 BOAT OUT FISH. 21 BOATS IN TOTAL
					2						3	1	1 1			THOSE WITH LAMPS FISH AT NIAMUKOLO WITH NIGHT B. SEINE
													2			
					ľ							1	1			
					2								2			
					ľ		1						2			
2	Location 33 total		-	0	. 20	0	0	1 1 2	0	1	13	3	1	0	0	
2	NIAMUKOLO	34		-			1									10 BOATS SURVEYED
-					2 2							2				10 OUT FOR FISHING TOTAL 20 BOATS
												2				
2	Location 34 total	35	1	0 .	. 6		1	0	0	0	0	4	0	0	10	ONLY VISITING
							1									
2	Location 35 total	36	0	1 .	0	0	0	0	0	0	0	0	0	0	0	2 BOATS SUDVEVED
2	Location 36 total		0	1	0	0	0	0	0	0	24 47	0	0	0	0	
2	KAZI	37	0	1	0	0	0	0	0	0	0	0	0	0	0	NO FISHERMEN
ļ. <u>.</u>	MPULUNGU PORTI	38	ł		75	1	<u> </u>				>			·····	<u>+</u>	Sopelac - company
					75	1	1									Sopelac company
					54 75											Sopelac - company Sopelac - company
							1									Sopelac - company
																Jimmy - company
			1		62 48	1										Mpul. 11sn company Mpul. 11sh company
					75	1										Mpul. fish company
					72											Mpul. fish company
					69	1										Andreas - company Andreas - company
2	Location 38 total	••••••	0	1 .	674	10	0	n	n	0	5 10	n	0	0	0	

NU	MBER AND TYPE	EOF	FIS	HING	GEAF	is	1								I	Appendix
AREA	O VILLAGE (SITE) SURVEYED	CODE MAP	Q PERMANENT SITE	Ó TEMPORAL SITE To occupation period (months)	No. of LAMPS	NO. of PURSE SEINES HIS	A No. of NIGHT B. SEINES	H No. of DAY B. SEINES	T No. of CHIR. SEINES	No. of LIFTNETS		D No. of LONGLINES	Di No. of HANDLINES	No. of TRAPS	No. of OTHER GEAR	REMARKS
2	KASISI (MPULUNGU BAY)	39	1				1								Γ	16 BOATS SURVEYED
					3 2 2 3 2 2 2 2 2 2 2 2 2 2		1						2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2			
					50	1										Sabraa - company GMC - company
					69 69 104 76	1 1 1										St. George - company St. George - company Samaki - company Samaki - company Samaki - company Samaki - company
2	Location 39 total MUSENDE (MPULUNGU BAY)	40	1	0 -	388	5	3	0	0	0	0	0	20	0	0	20 BOATS SURVEYED 1 OUT FOR FISHING 7 VISITING BOATS
					2 2 2 2 2 2 2 2								3 2 2 2			TOTAL 28 BOATS
					4 2 3 2 2 2 3						4 2 6		2 3 3 2 2 2			
,	Location 40 total			0 -	2 4 34	0	0	0	n		12	n	2 2 32	0	n	
2	CHIBULULA	41					1			-			3	-		6 BOATS SURVEYED
					2			1			16		1			
2	Location 41 total		1	0 -	2	0	1	1	0	0	5 21	0	4	0	0	
2	CHANZIMU	42			2								2			18 BOATS SURVEYED
					2						7		2			TOTAL 19 DOATS
					2 2 2		1 1				1		3			
2	Location 42 total		1	0 -	2 2 14	0	2	0	0	0	8	0	1 1 10	0	0	

NOM	DEN AND TIFE U	ГΓ	าวการน น	EMD)												
AREA	VILLAGE (SITE) SURVEYED	CODE MAP	O PERMANENT SITE D TEMPORAL SITE Occuration period (anala)	No. of LAMPS	D Mo. of PURSE SEINES H	No. of NIGHT B. SEINES	T No. of DAY B. SEINES In No. of CHIR. SEINES No. of LIFTNETS		E No. of LONGLINES	S No. of HANDLINES	No. of TRAPS	No. of OTHER GEAR	REMARKS				
2 1	KASAKALABWE	43						25					64 BOATS SURVEYED				
								9									
										1							
									4								
								20		2							
				1				20		3							
								20		2							
								20		3							
								30		2							
						1											
								[
						1											
				4						2							
				3						1							
				2						1							
				3				12		3							
				6				6		2							
				2				20		2							
								36		3							
								15		2							
									1	2							
								30		2							
								30		3							
								30									
				2				30		1							
										•							
								9		2							
								20		1							
								20		2							
								20		2							
								18		2							
								15		2							
								12		2							
]																	
				_						~							
				2				30		2							
								20		2							
1								18		23							
								13		~							
				4				10		2							
								10		2							
								20		2							
2 1	ocation 43 total		10-	36	0	2	1 0 0	723	6	89	0	0					
NU	MBER AND TYPE O)F FI	SH	NG	GE	ARS		-									Appendix 3
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AREA	O VILLAGE (SITE) SURVEYED Z	CODE MAP	Q PERMANENT SITE	Z TEMPORAL SITE	T OCCUPATION PERIOD (months)	No. of LAMPS	N. of PURSE SEINES BI No. of PURSE SEINES 'H	P No. of NIGHT B. SEINES	H No. of DAY B. SEINES	D No. of CHIR. SEINES	- No. of LIFTNETS	L No. of GILLNETS	D No. of LONGLINES	G No. of HANDLINES	No. of TRAPS	No. of OTHER GEAR	REMARKS
2	КАРОКО	44				4			1		1	20 12 10 8 6 15	1	3 1 3			21 BOATS SURVEYED 4 OUT FOR FISHING TOTAL 25 BOATS
2	Location 44 total MBETE (A)	45	1	0	-	4	0	0	1	0	1	75 4 2	1	7 2 2 2	0	0	3 BOATS SURVEYED 2 BOATS VISITING 5 BOATS IN TOTAL
2	Location 45 total MBETE (B)	46	1	0		0	0	0	0	0	0	6 2 4 10 3	0	6 2 2 2	0	0	6 BOATS SURVEYED 4 OUT FOR FISHING 10 BOATS IN TOTAL
2	Location 46 total Stratum II total		1 22	0 5	-	0 1322	0 15	0 31	0 6	0	0 15	19 1119	0 14	6 276	0 0	0 0	
3	NAKASAZA (LUFUBU RIVER)	47	n	1	7	0	Π	Π		0	0	2 2 2 6				n	5 EOATS SURVEYED
3	KABYOLWE	48	7						1 1			754763645		2 2 1			20 BOATS SURVEYED 3 OUT FISHING 1 OUT TRANSPORT TOTAL 24 BOATS
Ľ.			•	0		,			-	0	9	14	~				

	NUMBER AND	TYPE	OF	FISHING	GEARS
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	AREA AREA VILLAGE (SITE) SURVEYED VILLAGE (SITE) SURVEYED CODE MAP CODE MAP	C PERMANENT SITE			o د No. of LAMPS	Na. of PURSE SEINES H. H.	L No. of NIGHT B. SEINES	T No. of DAY B. SEINES	G No. of CHIR. SEINES	No. of LIFTNETS		D No. of LONGLINES	G No. of HANDLINES	No. of TRAPS	No. of OTHER GEAR	S S S S S BOATS SURVEYED
	B Location 49 total	1	() -	3 2 8	0	1	0	0	0	10 15 25	0	0	0	0	
	3 MWENSE 50				2	_										4 BUATS SURVEYED
	3 Location 50 total 3 NKUMBA 51		() –	2	0	1	0	0	0	0 3	0	0 1 1	0	Û	4 BOATS SURVEYED FISHING IS DONE DURING THE DAY TIME
	B Location 51 total B MISEPA 6		1	6	0	0	1	0	0	0	3 6 5	0	2	0	0	4 BOATS SURVEYED
	3 Location 52 total 3 CHITWESHIBA 53	1	() –	02	0	0 1	0	0	0	15	0	8	0	0	9 BOATS SURVEYED 2 VISITING BOATS TOTAL 11 BOATS
	Location 53 total	1	(] -	2 1 2 9	0	1 2	0	0	0	0	0	1 1 1 6	0	0	
3	8 KAMIKONGOLO 54			-			Terre						1			17 BOATS SURVEYED
		a contraction of the state of the			2		1						2 1			
					2 3 2 2		1									
3	Location 54 total KABWENSOLO 55	1	0	-	13 2 2	0	4	0	0	0	0	0	4	0	0	4 BOATS SURVEYED
3	Location 55 total	1	0	_	4	0	1	0	0	0	0	0	0	0	0	

		1.0			
AREA AREA CODE MAP CODE MAP	C PERMANENT SITE TEMPORAL SITE 	No. of PURSE SEINES HSI No. of PURSE SEINES	L R No. of NIGHT B. SEINES T No. of DAY B. SEINES T No. of CHIR. SEINES No. of LIFTNETS	No. of Gillnets Dav. of Longlines Set No. of Longlines Handlines No. of Traps No. of Other Gear	
3 KAPEMBWA 56	2 2 2 2 2 2 2 2 2 2 2 3 2 3 2 3 2 3 2 3			5 1 9 2 2 3 1 1 1	50 BOATS SURVEYED
3 Location 56 total	10-61	0	11 0 0 0	14 0 10 0 0	

NUMBER AND TYPE OF FISHING GEARS

Table 3

Status Status<	NUN	IBER AND TYPE OF	FISHING	GEAF	as 🛛						Appendix 3
3 ZWEMA 57 - - 1 - - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 <td>AREA</td> <td>VILLAGE (SITE) SURVEYED VOLE MAP</td> <td>O PERMANENT SITE O TEMPORAL SITE "a occupation deniod (memba)</td> <td>No. of LAMPS</td> <td>NO. OF PURSE SEINES</td> <td>No. of NIGHT B. SEINES LEV No. of DAY B. SEINES H</td> <td>G No. of CHIR. SEINES T No. of LIFTNETS</td> <td>No. of GILLNETS D. No. of LONGLINES</td> <td>며 No. of HANDLINES - No. of TRAPS</td> <td>No. of OTHER GEAR</td> <td>REMARKS</td>	AREA	VILLAGE (SITE) SURVEYED VOLE MAP	O PERMANENT SITE O TEMPORAL SITE "a occupation deniod (memba)	No. of LAMPS	NO. OF PURSE SEINES	No. of NIGHT B. SEINES LEV No. of DAY B. SEINES H	G No. of CHIR. SEINES T No. of LIFTNETS	No. of GILLNETS D. No. of LONGLINES	며 No. of HANDLINES - No. of TRAPS	No. of OTHER GEAR	REMARKS
3 Location 57 total 1 0 9 0 0 1 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0		<u>Zvrema</u> ji		4 3 4 2 3 4 3 3 3 3 3 3 3 3 3 4 4 4 4 4		1	5		1		
	3 3	Location 57 total NAKAKU 58	1 0 -	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	C	1 1 9 0 1	0 1	0 0	1 0 1 2 1 1 1 2 1	0	19 BOATS SURVEYED

NUMBER	AND	TYPE	OF	FISHING	GEARS	
						_

3 TONGWA 59 1 1 1 4 1 </th <th>ADE A</th> <th>MILLAGE (SITE) SURVEYED</th> <th>O PERMANENT SITE</th> <th>O TEMPORAL SITE</th> <th>. OCCUPATION PERIOD (months)</th> <th>No. of LAMPS</th> <th>No. of PURSE SEINES H H</th> <th>Do. of NIGHT B. SEINES</th> <th>H No. of DAY B. SEINES</th> <th>Z No. of CHIR. SEINES</th> <th>No. of LIFTNETS</th> <th></th> <th></th> <th>T No. of HANDLINES</th> <th>No. of TRAPS</th> <th>No. of OTHER GEAR</th> <th>REMARKS</th>	ADE A	MILLAGE (SITE) SURVEYED	O PERMANENT SITE	O TEMPORAL SITE	. OCCUPATION PERIOD (months)	No. of LAMPS	No. of PURSE SEINES H H	Do. of NIGHT B. SEINES	H No. of DAY B. SEINES	Z No. of CHIR. SEINES	No. of LIFTNETS			T No. of HANDLINES	No. of TRAPS	No. of OTHER GEAR	REMARKS
3 Location 59 total 1 0 - 0 1 0		3 TONGWA 59						1						4 2 2 1 2 2 2			11 BOATS SURVEYED FISHING ONLY DURING DAYTIME
3 PUNGWA 60 2 2 2 2 2 2 2 3 Location 60 total 0 1 6 1 2 2 1 1 2 2 3 Location 60 total 0 1 6 1 2 1 2 1 2 1 4 0 4 0 4 0 4 0 4 0 1 0 0	ş	3 Location 59 total	1	0	-	0	0	1	0	0	0	0	0	2 1 1 17	0	0	
3 Location 60 total 0 1 6 8 0 2 0 0 1 0 4 0 0 3 MUPAPA 61 - 2 - 1 - 8 - - 8 - - 5 BOATS SURV 3 Location 61 total 1 0 - 2 0 1 0		3 PUNGWA 60				2 2 2 2		1				1		22			9 BOATS SURVEYED
3 MOPAPA 01 1 </td <td>1</td> <td>Location 60 total</td> <td>0</td> <td>1</td> <td>6</td> <td>8</td> <td>0</td> <td>2</td> <td>0</td> <td>0</td> <td>0</td> <td>1</td> <td>0</td> <td>4</td> <td>0</td> <td>0</td> <td></td>	1	Location 60 total	0	1	6	8	0	2	0	0	0	1	0	4	0	0	
3 Location 61 total 1 0 - 2 0 1 0 0 1 0		5 MUPAPA 61				2		1				6					5 BUATS SURVETED
3 Location 62 total 1 0 - 4 0 1 0 0 1 0 7 0 0 3 NACHISA 63 - - 4 0 1 0 0 1 0 7 0 0 3 NACHISA 63 - - - 1 3 1 1 1 3 Location 63 total 1 0 - 0 0 0 0 12 0 8 0 0 3 KAMFONKI 64 - - - - 35 - 7 BOATS SURV 3 Location 64 total 0 1 5 0 0 0 0 12 0 8 0 0 3 Location 64 total 0 1 5 0 0 0 0 171 0 0 0 0 3 NZOVWE (A) 65 2 2 2 2 1 1 1 1 <td></td> <td>Location 61 total KALALA 62</td> <td>1</td> <td>0</td> <td>-</td> <td>2</td> <td>0</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>19 1</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>8 BOATS SURVEYED</td>		Location 61 total KALALA 62	1	0	-	2	0	1	0	0	0	19 1	0	0	0	0	8 BOATS SURVEYED
3 Location 62 total 1 0 - 4 0 1 0 0 1 0 7 0 0 3 NACHISA 63 - - 4 0 1 0 0 1 0 7 0 0 3 NACHISA 63 - - - 1 3 1 2 1 2 1 8 1 <t< td=""><td></td><td></td><td></td><td></td><td></td><td>2</td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td>1 2 2 2</td><td></td><td></td><td></td></t<>						2						-		1 2 2 2			
3 Location 63 total 1 0 - 0 0 0 0 12 0 8 0 0 3 Location 63 total 1 0 - 0 0 0 0 12 0 8 0 0 3 KAMFONKI 64 - - 0 0 0 0 12 0 8 0 0 3 KAMFONKI 64 - - 0 0 0 0 12 0 8 0 0 3 Location 64 total 0 1 5 0 0 0 0 171 0 0 0 0 3 Location 64 total 0 1 5 0 0 0 0 171 0	8	Location 62 total NACHISA 63	1	0	-	4	0	1	0	0	0	1	0	7	0	0	6 BOATS SURVEYED
3 Location 63 total 1 0 0 0 0 0 12 0 8 0 3 KAMFONKI 64 35 32 20 20 20 20 20 20 20 20 20 25 23 32 16 35 16 16 0 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>_</td><td>_</td><td>_</td><td></td><td>8 3</td><td></td><td>2 1 1 1</td><td></td><td></td><td></td></t<>								_	_	_		8 3		2 1 1 1			
3 Location 64 total 0 1 5 0 0 0 0 0 1 1 0		S Location 63 total KAMFONKI 64	1	0	-	0	0	0	0	0	0	12 35 20 20 25 23 32 16	0	8	0	0	7 BOATS SURVEYED
	3	Location 64 total NZOVWE (A) 65	1°	1	5	0	0	0	0	0	0	171	0	2	0	0	10 BOATS SURVEYED
			-	0		2		0	0	0	0	4	0	2 2 3 2 1 1		0	

NUMBER AND TYPE	OFF	ISHI	NG GE	EARS											Appendix 3
AREA VILLAGE (SITE) SURVEYED	CODE MAP	O PERMANENT SITE	전 TEMPORAL SITE	No. of LAMPS	No. of PURSE SEINES Hard No. of PURSE SEINES	P No. of NIGHT B. SEINES	T No. of DAY B. SEINES	정 No. of CHIR. SEINES			B No. of LONGLINES	ゴ S No. of HANDLINES	No. of TRAPS	No. of OTHER GEAR	REMARKS
3 NZOVWE (B)	66									29 13					17 BOATS SURVEYED
				2						10		4 2 1			
												1 1 2			
				4						4		2 1 2			
										11 1		2			
3 Location 66 total		1	0 -	6	0	0	0	a	0	20 34 122	Ð	18	0	0	
3 KATUKULA	67	-	-			1		<u>_</u>							11 BOATS SURVEYED
				3 3								4			
				ĩ						6		1			
3 Location 67 total		1	0 -	٩	0	3	n	n	0	11	0	1 1 7	0	0	
3 MWELA	68				0					15 13 21					6 BOATS SURVEYED
										16 22					
3 Location 68 total 3 KASENGA	69	1	0 -	0	0	0	0	0	0	97	0	0	0	0	4 BOATS SURVEYED
2 Location 60 total		1	0				4	•			•	1	•	•	
3 FUNDA	70		0 -	2		1		<u> </u>		<u> </u>	<u> </u>	1	-	0	6 BOATS SURVEYED
				2 2 2						4 6					
3 Location 70 total 3 NACHUPO	71	1	0 -	8	0	1	0	0	0	10	0	1	0	0	6 BOATS SURVEYED
				2 2 2		a 8									
3 Location 71 total		1	0 -	2 2 10	0	0	0	0	0	8 8	1	2	0	0	
3 TUMBILI	72			2	-					1		2	-	-	11 BOATS SURVEYED
				-		1				8		2			
										2		ž			
3 Location 72 total		1	ο -	4	o	1	o	0	0	20 20 49	0	8	0	0	

	AREK AND TYPE (ו⊦ו	-151	-IIN	GC	iEAR	5					•					
AREA IM	D D NILAGE (SITE) SURVEYED VOI	CODE MAP	O PERMANENT SITE	Z TEMPORAL SITE	U OCCUPATION PERIOD (manthr)	No. of LAMPS	I. No. of PURSE SEINES I. No. of PURSE SEINES I. No. of PURSE SEINES	AND. OF NIGHT B. SEINES	H No. of DAY B. SEINES	$\overline{\overline{0}}$ No. of CHIR. SEINES	No. of LIFTNETS		E No. of LONGLINES	S No. of HANDLINES	No. of TRAPS	No. of OTHER GEAR	REMARKS
3 K	APEMBWAMPANDO	73										15					3 BOATS SURVEYED
3	Location 73 total		0	1	2	n	ß	 	n	a	п	15	n	n	n	n	
3	CHEZI	74	U	1	2	U	U	1		0	U	2	0		U	U	27 BOATS SURVEYED 1 BOAT OUT 28 BOATS IN TOTAL
						2 1 2 3 0						- - - - - - - - - - - - - - - - - - -					
						3						4					
						1		1									
						2		1									
						2											
												3 4					
						4 2 2						8 6					
3	Location 74 total		1	D	-	30	0	3	0	0	0	27	0	0	0	0	
3	KOMBE	75						1									17 BOATS SURVEYED 1 BOAT OUT
						3 3											18 BOATS IN TOTAL
						2		1	1					1	-		
						2		1									
						3 3						6					
						3						3		1			
3	Location 75 total		1	n	-	19	Π	3	1	n	0	a	ß	1 1 2 2 8	п	0	
3	KATOTO	76		. U		-13	U	1			U	3	0	U	U	U	6 BOATS SURVEYED
						2 2 2	-	1									
3	Location 76 total		1	0 F	-	8	0	2	0	0	0	0	0	0	0	0	
			E U	U	- 1	JU	U					000	1	1.3.3	01		

NU	MBER AND TYPE	UFF	121	IING D	LAHS) 										- inheritaise a
AREA	OTILAGE (SITE) SURVEYED	CODE MAP	O PERMANENT SITE	O TEMPORAL SITE	No. of LAMPS	ZI No. of PURSE SEINES 'H	2 No. of NIGHT B. SEINES	H No. of DAY B. SEINES	Mo. of CHIR. SEINES	No. of LIFTNETS		E No. of LONGLINES	S No. of HANDLINES	No. of TRAPS	No. of OTHER GEAR	REMARKS
4	CHISANSE	77	0	16	0	0	0	0	0	0	0	0	0	0	0	NO FISHERMEN
4	KANYENGELE	78	والمراجع المراجع المراجع والمراجع والمراجع والمراجع والمراجع والمراجع والمراجع والمراجع والمراجع والمراجع		3 2 2						5 6 4		1			10 BOATS SURVEYED
4	Location 78 total		1	0 -	7	0	0	0	0	۵	15	Û	1	0	0	
4	TELEKA	79		<u> </u>			1	1								32 BOATS SURVEYED 1 BOAT VISITING 33 BOATS IN TOTAL
					3 3 3				1							
					22222			1 1								
													3			
4	Location 79 total	~~~~	1	0 -	19	0	2	4	1	0	0	0	3	0	0	
	KALLA	đU			2 2 2						10 18 24 15	1	1			TI BOATS SURVEYED
4	Location 80 total	04	1	0 -	6	0	0	0	0	0	67	1	2	0	0	E DOATE OF THE CONTRACT
4	MWANDU	81	1	0 -	2 3 5	0	0	0	0	0	16	0	1	0	0	S BUATS SURVEYED
4	NSUMBU FIS. IND.	82	1	0 -	0	0	0	0	0	0	0	0	0	0	0	NO FISHERMEN

NUMBER AND TYPE OF FISHING GEARS

		01.1	1011		<u>a u</u>												
AREA	VILLAGE (SITE) SURVEYED	CODE MAP	o permanent site	🛱 TEMPORAL SITE	U OCCUPATION PERIOD (months)	No. of LAMPS	H H H H No. of PURSE SEINES	No. of NIGHT B. SEINES	H No. of DAY B. SEINES	<u> 영</u> No. of CHIR. SEINES 표	No. of LIFTNETS		D No. of LONGLINES	PL No. of HANDLINES	No. of TRAPS	No. of OTHER GEAR	REMARKS
4	Kachese (A)	83										25					6 BOATS SURVEYED
4	Location 83 total	- 04	1	0	-	0	0	0	0	0	0	32 30 14 20 121	0	0	0	0	
4		84		0	-	<u> </u>	<u> </u>	U	U	1		U		U		U	12 BOATS SURVEYED
4	MWAFTENGA	60				3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3				I							
A	Location 95 total		1	n		23	Ω	n	Π	1	0	30 22 52	ก	n	n	n	
4	NTINGILA	86	<u> '</u>	<u> </u>		23											6 BOATS SURVEYED
						2 3 2	_	1	_	_	_		_	_			
4	Location 86 total	87	1	0	<u> </u>	9	0	1	0	0	0	0	0	0	0	0	16 BOATS SUBVEYED
4	NDOLL VILLAGE	Ur				3 3 2 4						4 10					
A	Location 97 total		1	ρ		2	D	1	1	n	0	12 20 30 76	1	Π	n	0	
4	NDOLE LODGE	88		<u> </u>	-	10	U		1	0	U	10	<u> </u>	<u> </u>	U	U	4 BOATS SURVEYED NO FISHERMEN
4	Location 88 total		1	0	-	0	0	0	0	0	0	0	0	0	0	0	

4 Location 89 total 1 0 7 0 1 1 2 2 1 2 2 1 33 BOATS NITOFAL 33 BOATS SURVEYED 4 Location 89 total 1 0 7 0 1 1 0 0 0 9 </th <th>NU</th> <th>IMBER AND TYPE</th> <th>E OF</th> <th>- FI:</th> <th>SHIN</th> <th>GC</th> <th>iE/</th> <th>ARS</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>··</th> <th>Appendix 3</th>	NU	IMBER AND TYPE	E OF	- FI:	SHIN	GC	iE/	ARS									··	Appendix 3
4 KAPULUMUKO 89 1 1 1 2 20 1 <t< td=""><td>AREA</td><td>O VILLAGE (SITE) SURVEYED</td><td>CODE MAP</td><td>O PERMANENT SITE</td><td></td><td></td><td>NO. OF LAMPS</td><td>No. of PURSE SEINES BI No. of PURSE SEINES 'T</td><td>P No. of NIGHT B. SEINES</td><td>T No. of DAY B. SEINES</td><td>🛱 No. of CHIR. SEINES</td><td>No. of LIFTNETS</td><td>H No. of GILLNETS</td><td>A No. of LONGLINES</td><td>표 No. of HANDLINES</td><td>No. of TRAPS</td><td>No. of OTHER GEAR</td><td>REMARKS</td></t<>	AREA	O VILLAGE (SITE) SURVEYED	CODE MAP	O PERMANENT SITE			NO. OF LAMPS	No. of PURSE SEINES BI No. of PURSE SEINES 'T	P No. of NIGHT B. SEINES	T No. of DAY B. SEINES	🛱 No. of CHIR. SEINES	No. of LIFTNETS	H No. of GILLNETS	A No. of LONGLINES	표 No. of HANDLINES	No. of TRAPS	No. of OTHER GEAR	REMARKS
4 Location 89 total 1 0 - 3 1 -	4	KAPULUMUKO	89				222222222222222222222222222222222222222		1	1	1							28 BOATS SURVEYED 11 BOATS OUT FISH. 39 BOATS IN TOTAL
4 MUNJELA 90 1 1 12 12 15 1 12 15 1 <	4	Location 89 total		1	0		2 2 2 2 2 2 2 3 3 2 2 3 9	0	1	1	1	0	5	0	0	0	0	
4 CHIBWENSOLO (A) 91 1 1 12 BOATS SURVEYED 2 2 1 1 1 1 3 1 1 1 1 1 1 1 1 1 2 1 1 1 1 3 1 1 1 1 2 2 2 1 1	4	MUNJELA	90		0 -		2 3 2 7	0	1	1	0	0	12 15 27	0	0	1	0	9 BOATS SURVEYED
	4	CHIBWENSOLO (A)	91		0		1 2 2 3	0	2	1	1		3	1	1	0		12 BOATS SURVEYED

NU	MBER AND TYPE	OF	FIS	HING	GEAR	s									Appendix 3
AREA	VILLAGE (SITE) SURVEYED	CODE MAP	g PERMANENT SITE	ŎŢĔMPORAL SITE ^{To} occupation period (mentu)	No. of LAMPS	Z Ma. of PURSE SEINES H	2 No. of NIGHT B. SEINES	H No. of DAY B. SEINES	成 No. of CHIR. SEINES T No. of LIFTNETS	No. of GILLNETS	No. of LONGLINES	S No. of HANDLINES	No. of TRAPS	No. of OTHER GEAR	REMARKS
4	CHIEWENSOLO (8)	92			2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			3		1			30 BOATS SURVEYED 1 BOAT OUT FISH. 31 BOATS IN TOTAL
4	Location 92 total KAMIMONO	93		<u>U</u> -	38 2 2 2 2	U	1	U	<u> </u>		<u> </u>	2	U		9 BOATS SURVEYED
4	Location 93 total KASENGA	94	1	0 -	8 2 2 2 2 10	<u>0</u>	1	<u>0</u> 0	00	0	<u>0</u> n	<u>0</u>	0	0	7 BOATS SURVEYED
4	CHIMBA	95		U	10			3		4	0				6 BOATS SURVEYED 1 BOAT VISITING 7 BOATS IN TOTAL
4 4 4	Location 95 total MAPALA Location 96 total	96	1	0 -	0	0	0	00	00	10 30 27 57	0	00	0	0 0	2 BOATS SURVEYED

nor	IDEITAND THE	01.1	iorninia ai	LUID										1
AREA	TOLITAGE (SITE) SURVEYED	CODE MAP	O PERMANENT SITE O TEMPORAL SITE O DECURATION PERIOD ((ANALA)	No. of LAMPS	년 11 No. of PURSE SEINES H	2 No. of NIGHT B. SEINES	A No. of DAY B. SEINES	55 No. of CHIR. SEINES T No. of LIFTNETS	H No. of GILLNETS	DNo. of LONGLINES	면 없 No. of HANDLINES	No. of TRAPS	No. of OTHER GEAR	REMARKS
4	KALOMO	97		•		1					1			50 BOATS SURVEYED
				333										
				3										
						1								
				3										
						1						:		
				3 3					1					
				3					1					
				٤										
				3										
									1					
				3										
				2					1		_			
				2 3						1	2			
										1				
				2 2					5		1			
										-	-	•		
4	MUSHI	98	10-	49	U	3	0	<u> </u>	7	٤	<u> </u>	U	U	13 BOATS SURVEYED
				3							2			
				2					5		2			
				2					8		2			
				-					4	1	-			
4	Location 98 total		10-	11	0	0	0	0 0	24	1	1 10	0	0	

NU	MBER AND TYPE	OF F	ISH	ING	GE	ARS											Appendix 3
AREA	OCATE) SURVEYED	CODE MAP	Q PERMANENT SITE		· UCCUPATION PERIOD (months)	No. of LAMPS	T Mo. of PURSE SEINES	≥ No. of NIGHT B. SEINES	H No. of DAY B. SEINES	g No. of CHIR. SEINES	- No. of LIFTNETS	No. of GILLNETS	S No. of LONGLINES	표 또 표	- No. of TRAPS	No. of OTHER GEAR	REMARKS
4	CHIBENGU	99				2		1									32 BOATS SURVEYED 2 BOATS VISITING
						2 3		1									34 BOATS IN TOTAL
						2 2 2 2							1	2 1 2			
						2 2 2 2							1	2			
						3 3											
						2 2		1									
						2 5 2 2		1						1			
						3						5					
4	Location 99 total			0	_	2 2 51	0	1	0	0	0	5	2	10	0	0	
4	MUWONGA	100	1	Ő	-	0	0	0	0	0	0	0	0	0	Ō	0	
4		101		_		3 4 4 2				_			-				5 BOATS SORVETED
4	Location 101 total CHISHIKI (B)	102		0	-	13	0	1	0	0	0	0	0	1	0	0	6 BOATS SURVEYED
						3 3		1									
4	Location 102 total	102	1	0	-	2 10	0	2	0	0	0	0	0	1	0	0	
4	MILLE	103				2 2						13 5		1 1			IN BUATS SURVEYED
												22					
	1			•			<u> </u>			~	~	10	~	~	~		
14	Locason 103 total		11	U	- 1	4	U U	1 1	υ	0	U	1 20	U	2	U	10	

, NU	MOEN AND LIFE	UF FI	SUI	NU	uc	Ano	-										Appendix 2
AREA	OILAGE (SITE) SURVEYED	CODE MAP	Q PERMANENT SITE	D TEMPORAL SITE	.00 OCCUPATION PERIOD (month≤)	No. of LAMPS	D D No. of PURSE SEINES H	No. of NIGHT B. SEINES	H No. of DAY B. SEINES	G No. of CHIR. SEINES	No. of LIFTNETS		D No. of LONGLINES	D No. of HANDLINES	- No. of TRAPS	No. of OTHER GEAR	REMARKS
4	CHINTAMPA	104				2		1			1						18 BOATS SURVEYED
						2 3					-						19 BOATS IN TOTAL
						2		1									
						2 2											
						2 3											
						3				1							
						3 3											
						3											
	Leasting 104 total		•	4	_	3											
4	KAWELWA	105	0	<u> </u>	-	30	0	2	0	1	-1	0	0	0	0	0	17 BOATS SURVEYED
						3											
						3											
						۷											
						2											
						-		1									
						2		1									
						3		1						1			
								•				2		1			
4	Location 105 total		1	0	-	21	0	3	0	0	0	2	0	3	0	0	

NUMBER AND TYPE OF FISHING GEARS.

Appendix 3

															<u> </u>			
AREA	VILLAGE (SITE) SURVEYED	CODE MAP	C PERMANENT SITE C TEMPORAL SITE	OCCUPATION PERIOD (MENALLY)	No. of LAMPS	No. of PURSE SEINES DI TUN	👱 No. of NIGHT B. SEINES	H No. of DAY B. SEINES	H No. of CHIR. SEINES	No. of LIFTNETS	H No. of GILLNETS	D No. of LONGLINES	S No. of HANDLINES	No. of TRAPS	No. of OTHER GEAR		REMARKS	
4	KAMAFUTA 1	106			İ		<u> </u>								H	52 BOAT	S SURV	/EYED
		-			3 4 3 2 2 2		1		1	1								
					2 2 2 3		1						1					
					6				1		ļ							
					3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3				1									
				-	2 2 2				,									
					2 4 3 2		- - - - - - - -		1									
					33		1											
4	Location 106 total	-	0 1	F	3 2 2 2 2 2 3 3 2 3 3 2 3 3 2 3 3	n	П	п	А	1	6	η	1	n	ſ			

NUMBER AND TYPE OF FISHING GEARS

4 Location 107 total 10 - 23 0 1 0 0 1 5 1 2 28 BOATS SURVEYED 2 OUT FISHING 30 BOATS IN TOTAL 4 Location 107 total 1 0 - 22 - - 1 1 1 3 3 - 1 1 1 1 1 1 1 - 22 - - 1 1 1 1 - 2 - - 1 <td< th=""><th>NUMBER AND TYPE OF F</th><th>SHING GEARS</th><th></th><th></th><th></th><th>Appendix 3</th></td<>	NUMBER AND TYPE OF F	SHING GEARS				Appendix 3
4 CHIBANGA 107 2 1 1 2 2017 FISHING 2 1 1 1 1 3 1 1 3 3 3 1 1 1 1 3 3 3 1 1 1 3 1<	AREA O VILLAGE (SITE) SURVEYED O CODE MAP	O PERMANENT SITE D TEMPORAL SITE "0 OCCUPATION PERIOD (months) No. of LAMPS	DZI No. of PURSE SEINES	No. of NIGHT B. SEINES Lavo. of DAY B. SEINES Sho. of CHIR. SEINES H. No. of LIFTNETS	A No. of GILLNETS B O No. of LONGLINES I No. of HANDLINES No. of TRAPS No. of OTHER GEAR	REMARKS
4 Location 107 total 1 0 - 23 0 1 0 0 1 5 0 26 0 0 3 0 1 0 0 1 5 0 26 0 0	4 CHIBANGA 107				1 2	28 BOATS SURVEYED 2 OUT FISHING
4 Location 107 total 1 0 - 23 0 1 0 0 1 5 1		2		1	1	30 BOATS IN TOTAL
4 Location 107 total 1 0 - 23 0 1 0 0 1 5 0 2689 1 0 - 23 0 1 0 0 1 5 0 26 0 0 Stratum IV total 28 3 - 5 0 1 0 9 3 591 8 71 1 0		3			1	
4 Location 107 total 1 0 - 23 0 1 0 0 1 5 0 26 0 0 5 510 0 1 0 0 1 5 0 26 0 0 Stratum IV total 28 3 - 510 0 43 10 9 3 591 8 71 1 0					1	
4 Location 107 total 1 0 - 23 0 1 0 0 1 5 1 - 3 - 1 - 2 3 - 1 - - 5 1 - 2 - - 5 1 - 2 - - - 5 1 - - 3 - - - 5 1 -		8				
4 Location 107 total 1 0 - 23 0 1 0 0 1 5 1 - 3 - - 3 - - 3 -					1	
4 Location 107 total 1 0 - 23 0 1 0 0 1 5 1 - - 3 - 3 - - 3 - - 3 - - 3 - - 3 - - 3 - - 3 - - 3 - - 3 - - 3 -		3			3	
4 Location 107 total 1 0 - 23 0 1 0 0 1 5 1		3		1		
4 Location 107 total 1 0 - 23 0 1 0 0 1 5 0 26 0 0 Stratum IV total 28 3 510 0 43 10 9 3 591 8 71 1 0		2			5 1	
4 Location 107 total 1 0 - 23 0 1 0 0 1 5 0 26 0 0 4 Location 107 total 1 0 - 23 0 1 5 0 26 0 0 Stratum IV total 28 3 - 510 0 43 10 9 3 591 8 71 1 0					23	
4 Location 107 total 1 0 - 23 0 1 0 0 1 5 0 26 0 0 Stratum IV total 28 3 - 510 0 43 10 9 3 591 8 71 1 0					4	
4 Location 107 total 1 0 - 23 0 1 0 0 1 5 0 26 0 0 Stratum IV total 28 3 - 510 0 43 10 9 3 591 8 71 1 0					1	
4 Location 107 total 1 0 - 23 0 1 0 0 1 5 0 26 0 0 Stratum IV total 28 3 - 510 0 43 10 9 3 591 8 71 1 0						
4 Location 107 total 1 0 23 0 1 0 0 1 5 0 26 0 Stratum IV total 28 3 - 510 0 43 10 9 3 591 8 71 1 0		2				
4 Location 107 total 1 0 - 23 0 1 0 1 5 0 26 0 0 Stratum IV total 28 3 - 510 0 43 10 9 3 591 8 71 1 0 Torphics grand total 04 12 2569 16 154 20 16 27 2960 24 721 4 0	4 4 4 4 7 4 4					
Stratum revola 200 - 510 0 + 10 0 311 0 - 10 0 Tambian group dottel 0.4 2 250 - 510 0 + 10 5 5 351 0 11 1 0 Tambian group dottel 0.4 2 2502 15 15.4 0.16 27 2050 2.731 4 0	4 Location 10/ total	1 U - 23 28 3 510	U		501 8 71 1 0	
	Zambian grand total	94 13 - 258	16	154 30 16 27	2950 24 731 4 0	+