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LAKE TANGANYIKA, BURUNDI, RESULTS OF THE 1992-93 CATCH ASSESSMENT SURVEYS

by

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FINNISH INTERNATIONAL DEVELOPMENT AGENCY

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

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PREFACE

The Research for the Management of the Fisheries on Lake Tanganyika project (Lake Tanganyika Research) 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 Programme for United Nations Development Organizations (AGFUND).

This project aims at 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 will be also qiven to the reinforcement of the skills and physical facilities of the fisheries research units in all four beneficiary countries as well as to the buildup of effective coordination mechanisms to ensure full collaboration between the Governments concerned.

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1. INTRODUCTION

1991 and 1992 catch estimates for the Burundi waters of Lake Tanganyika, based on ongoing Catch Assessment Surveys (CAS), were given by Bellemans (1992a & b) and the Burundi Fisheries Department (M.A.T.E., 1993), respectively. After checking, however, the 1992 CAS results were corrected for several mistakes and the updated estimates are presented in this report together with the 1993 CAS results.

After the closure of the FAO/UNDP Project BDI/90/002 "Fisheries Statistics and Information" around mid-1992, the fisheries statistical unit of the Burundi Fisheries Department (BFD) is preparing summary CAS tables for the BFD's annual reports. LTR, in its effort to assist the fisheries statistical units of Lake Tanganyika's riparian countries, checked, corrected and compiled again the 1992-93 CAS data as presented below.

Burundi Frame Survey results for 1992 were described earlier (Coenen *et al.*, 1993; Hanek *et al.*, 1993; Coenen, 1994b). And the (semi)-industrial fishery statistics for Lake Tanganyika, including Burundi, were reported in Coenen (1994a).

2. THE CAS SYSTEM IN BURUNDI

The CAS system in Burundi was described in detail in Coenen (1993). During every fishing period, dependent on the moon cycle, catch/effort data are collected on a daily basis by beach recorders residing in 15 (out of a total of about 37) active landing sites. The CAS forms are sent monthly to the fisheries statistical unit in Bujumbura where the data are entered by 5 BFD assistant-biologists into the computer. Using a specially developed computer program written in dBase III, daily, monthly and annual catch/effort estimates for the whole of the Burundian part of Lake Tanganyika, but also by province and stratum, can be arrived at. Due to lack of national funding, the BFD statistical unit does not always have sufficient means to keep up an adequate level of operation. Therefore, LTR is trying to assist the unit whenever possible.

3. BURUNDI CAS RESULTS FOR 1992 AND 1993

The 1992-93 CAS results from the statistical unit in Bujumbura were thoroughly checked and corrections made by the staff of the BFD unit, when needed. The following chapters, and the corresponding figures, tables and annexes, summarize the main results of the 1992-93 CAS in Burundi.

3.1 Total annual catch

Total fish catch in the Burundi waters of Lake Tanganyika was estimated to amount to 24,560 tonnes in 1992 (during 13 lunar cycle fishing periods) and declining considerably to 15,565 tonnes in 1993 (during 12 lunar cycle fishing periods) (see Tables 1 and 2). This decline was apparent in the

industrial fishery, as well as in the artisanal (liftnet) and traditional fisheries (see Fig. 1 and Tables 3 up to 6).

3.2 Total fishing effort

According to the Frame Survey (FS) results of October 1992 (Coenen, 1994b), the fishing fleet on Lake Tanganyika in Burundi was composed of <u>13</u> purse seiners (industrial fishery), <u>671</u> <u>liftnet units</u> (604 catamarans and 67 apollo units) and <u>298</u> <u>traditional fishing units</u> (planked canoes/dugouts). In 1991, there were <u>15</u> purse seiners. <u>645</u> <u>liftnet units</u> and <u>408</u> <u>traditional fishing units</u> (Bellemans, 1991a and 1992a & b).

In 1993, <u>12 purse seiners</u> were operational. The number of liftnet units and traditional units is not known. The BFD did not execute a FS due to financial constraints. LTR, however, did an aerial FS in May 1993 (report in preparation).

3.3 Catch per unit of effort (CPUE)

The catch per unit of effort (CPUE) <u>decreased</u> for <u>all</u> <u>types</u> <u>of fishery from 1992</u> to <u>1993</u>:

-	purse seiner	:	decrease	from	296	down	to	150	kg/night/unit
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- liftnet unit* : decrease from 153 down to 138 kg/night/unit;
- catamaran : decrease from 145 down to 122 kg/night/unit;
- apollo : decrease from 303 down to 300 kg/night/unit;
- traditional : decrease from 16 down to 15 kg/day or night/
- traditional fishing unit.

The historical evolution of CPUEs for different types of fishery are given in Figures 2 and 3. The major decline of CPUEs during the last decades is apparent for the industrial as well as the traditional fishery. The artisanal liftnet fishery, due to the use of bigger nets, better fishing lamps (apollos) and the choice of more productive fishing grounds in the south, manages to maintain or even to increase its CPUE at a profitable level.

3.4 Species composition and its fluctuations

The overall species composition in 1992 and 1993 was almost similar:

- Clupeids:	69.1 % in 1992, 67.0 % in 1993.
- Luciolates stappersii	: 28.7% in 1992, 31.6 % in 1993;
- <i>Lates</i> species:	0.3% in 1992, 0.2 % in 1993;
- Others:	1.9 % in 1992, 1.2 % in 1993.

In general, the Clupeids (Stolothrissa tanganicae and Limnothrissa miodon) are the most abundant species(group), although monthly fluctuations in species composition do exist, especially when they are compared with the other dominant species, Luciolates stappersii: in 1992, L. stappersii was more abundant than the Clupeids during the periods February-April and

* liftnet unit: average of both catamaran and apollo units

September-October; in 1993, *L. stappersii* was more abundant during the periods May-July and October. During both years, the Clupeids represent almost 100 % of the total catch during the period November-December (see Fig. 4).

3.5 Value of the catch

In 1992, the total value of the fish caught was estimated to be $2,076 \times 106$ Burundi Francs (BIF) or 10.2×106 US\$ (average UN exchange rate 1992: 1 US\$ = 204 BIF). The overall average price per kg of fish in 1992 was <u>85 BIF or 0.42</u> US\$ (see Table

1).

In 1993, the total value of the fish caught was estimated to be $1,649 \ge 106$ Burundi Francs (BIF) or $6.9 \ge 106$ US\$ (average UN exchange rate 1993: 1 USS = 238.5 BIF). The overall average price per kg of fish in 1993 was <u>106 BIF</u> or <u>0.44</u> US\$ (see Table 2)

The values above are recorded at beach level and do not reflect actual retail prices (e.g. *Lates* spp. fish in Bujumbura is now sold at an average of about 700 BIF or 2.8 US\$ per kg).

Total value, per fishery, per month and by species(group) are given in Tables 6 to 9. Average price per kg, per fishery (industrial, catamarans, apollos) and per species(group), namely the Clupeids, Lates stappersii, Lates spp. and Others, for 1992 and 1993 is given in Fig. 5. A general increase of the average price per species(group) from 1992 to 1993 is noticeable; Lates spp. is the most expensive species group with average price ranges between 208-277 FBI in 1992 and 242-366 FBI in 1993. It is respectively followed by the "others" species group (very variable prices because it contains a number of more or less expensive fish), Lates stappersii and the Clupeids. The average prices observed for these latter 3 groups vary respectively between $81{-}152$ FBI (92) and $88{-}178$ FBI (93) , $98{-}137$ FBI (92) and 133-189 FBI (93), and 70-79 FBI (92) and 75-97 FBI (93) Converted into US dollars according to the average exchange rate of the year (see above), species(group) prices for 1992 and 1993 remained almost constant. Noteworthy also is the more expensive average price for the catch of the industrial fishery compared to the catches of the catamaran and apollo fisheries. This is due to the fact that the industrial fishery catch is not auctioned at the (cheaper) landing sites but in the central market of Bujumbura.

4. DISCUSSION

Following a steady increase of total catch in Lake Tanganyika, Burundi, from 1987 up to 1992 from 15,825 up to 24,560 metric tonnes (see Fig. 1), the total catch in 1993 declined to 15,565 metric tonnes. This was mainly due to a continuous reduction of the total fishing effort exercised by theindustrial, artisanal and traditional fishing units (see Table 10). Due to a probable overfishing in the Burundi waters of Lake Tanganyika, also the average catch per unit of effort (CPUE) went drastically down for the industrial and traditional units (see Figs. 2 and 3). Several industrial units already stopped fishing because they do not break even anymore. The artisanal units managed to keep up their profitable level of CPUE due the increasing introduction of bigger apollo units and the use of more powerful fishing lamps to attract the fish.

lake-wide basis, the overall for On а catch Lake Tanganyika in 1992 (for 1993, catch estimates are not yet available) can be estimated to amount to 167.000 metric tonnes (Burundi: 24,000 tonnes; Tanzania: 80,000 tonnes; Zambia: 13,000 tonnes; and Zaïre: 50,000 tonnes, according to Coenen, 1994a). This would mean an overall average catch of 51 kg/ha/year or well below the estimated potential yields for Lake Tanganyika of 90-140 kg/ha/year (Coulter, 1981; Corsi et al., 1986; Mikkola & Lindqvist, 1989). Per country, the average annual catches per hectare could then be estimated to be 92 kg for Burundi, 65 for Zambia, 59 for Tanzania and 34 for Zaïre. Except for Burundi, for which catches in 1992 were around the minimum potential vield level and where indeed some indications of (local) overfishing are apparent, the other three countries still catch considerably less than the estimated potential yields for Lake Tanganyika.

Following the recommendations of the Lake Tanganyika fisheries statistical workshop of July 1993 (Coenen, 1993), this report also includes the standardized Frame Survey 1992 and the standardized Catch Assessment Surveys 1992 and 1993 results output forms for Burundi (see Annexes 1 to 3).

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PERIOD	TC92	TV92	AVKGVAL	TCCLUP	TCL.ST.	TCL.SPP.	TCOTHERS	%CLUP.	%L.ST.	%L.SPP.	%OTH.
22.12-19.01	1944.495	173131.761	89	1131.250	755.779	5.871	51.595	58.2	38.9	0.3	2.7
20.01-18.02	1639.640	146870.174	90	1065.033	529.547	6.922	38.138	65.0	32.3	0.4	2.3
19.02-18.03	1951.249	160642.078	82	607.803	1293.561	2.575	47.310	31.1	66.3	0.1	2.4
19.03-17.04	2641.808	189032.895	72	820.776	1778.552	4.987	37.493	31.1	67.3	0.2	1.4
18.04-16.05	1214.761	126377.453	104	1095.174	79.475	4.687	35.425	90.2	6.5	0.4	2.9
17.05-14.06	1536.310	137376.308	89	1101.483	407.201	1.716	25.910	71.7	26.5	0.1	1.7
15.06-14.07	2144.320	191172.440	89	1882.944	224.687	5.629	31.060	87.8	10.5	0.3	1.4
15.07-13.08	1869.647	160163.286	86	1720.969	117.345	5.193	26.140	92.0	6.3	0.3	1.4
14.08-12.09	1679.380	172548.497	103	1096.392	543.729	2.099	37.160	65.3	32.4	0.1	2.2
13.09-11.10	1591.034	113718.161	71	756.783	792.496	2.200	39.555	47.6	49.8	0.1	2.5
12,10-10.11	2201.803	175168.946	80	1979.194	200.591	2.378	19.640	89.9	9.1	0.1	0.9
11.11-10.12	2652.643	180627.412	68	2588.044	9.914	2.210	52.475	97.6	0.4	0.1	2.0
11.12-08.01	1492.460	149811.493	100	1116.300	318.715	32.380	25.065	74.8	21.4	2.2	1.7
TOTAL 92	24559.550	2076640.904	85	16962.145	7051.592	78.847	466.966	69.1	28.7	0.3	1.9

Table 1: Annual and monthly catch, value and species composition, Burundi, Lake Tanganyika (CAS 1992)

Abbrev.:

TC92 = Total catch in 1992 (expressed in metric tonnes)

TV92 = Total value of the catch in 1992 (expressed in 000' Burundi Francs or BIF)

AVKGVAL = Average price per kg of catch (expressed in BIF)

TCCLUP, TCL.ST., TCL.SPP., TCOTHERS = respectively the total catch of Clupeids,

Lates stappersii, Lates spp. and Others

% species abbreviation = percentage species(group) composition

PERIOD	TC93	TV93	AVKGVAL	TCCLUP	TCL.ST.	TCL.SPP.	TCOTHERS	%CLUP.	%L.ST.	%L.SPP.	%OTH.
09.01-06.02	1033.353	111433.645	108	688.475	334.39	2.468	8.02	66.6	32.4	0.2	0.8
07.02-08.03	1250.265	150312.424	120	843.075	401.475	2.092	3.623	67.4	32.1	0.2	0.3
09.03-06.04	1638.222	153129.450	93	1048.867	580.121	1.408	7.826	64.0	35.4	0.1	0.5
07.04-06.05	562.005	76692.900	136	445.172	110.81	0.643	5.38	79.2	19.7	0.1	1.0
07.05-04.06	749.754	116997.843	156	308.249	421.423	1.447	18.635	41.1	56.2	0.2	2.5
05.06-03.07	547.98	76962.580	140	228.438	296.65	1.052	21.84	41.7	54.1	0.2	4.0
04.07-02.08	1311.704	135629.403	103	1034.489	268.79	0.895	7.53	78.9	20.5	0.1	0.6
03.08-01.09	2371.313	220927.116	93	1244.535	1099.911	1.137	25.73	52.5	46.4	0.0	1.1
02.09-30.09	1601.688	157895.175	99	1053.347	525.758	0.953	21.63	65.8	32.8	0.1	1.4
01.10-30.10	1275.322	152535.264	120	585.717	674.294	2.551	12.76	45.9	52.9	0.2	1.0
31.10-29.11	1864.691	167928.264	90	1676.559	142.157	19.925	26.05	89.9	7.6	1.1	1.4
30.11-28-12	1358.914	128973.305	95	1268.775	63.877	1.622	24.64	93.4	4.7	0.1	1.8
TOTAL 93	15565.211	1649417.369	106	10425.698	4919.656	36.193	183.664	67.0	31.6	0.2	1.2

Table 2: Annual and monthly catch, value and species composition, Burundi, Lake Tanganyika (CAS 1993)

Abbrev.:

TC93 = Total catch in 1993 (expressed in metric tonnes)

TV93 = Total value of the catch in 1993 (expressed in 000' Burundi Francs or BIF)

AVKGVAL = Average price per kg of catch (expressed in BIF)

TCCLUP, TCL.ST., TCL.SPP., TCOTHERS = respectively the total catch of Clupeids,

Lates stappersii, Lates spp. and Others

% species abbreviation = percentage species(group) composition

PERIOD	UNITS	TRIPS	TCCLUP	TCL.ST.	TCL.SPP.	ICOTHERS	1092	C/THIP	%CLUP	76L.81.	The street	- % 0111.
22.12-19.01	13	277	62.951	26.432	1.541	0.165	91.089	0.329	69.1	29.0	1.7	0.2
20.01-18.02	13	318	73.994	19.480	0.901	0.058	94.433	0.297	78.4	20.6	1.0	0.1
19.02-18.03	13	268	41.871	51.037	0.287	0.000	93.195	0.348	44.9	54.8	0.3	0.0
19.03-17.04	13	320	50.433	66.974	0.438	0.000	117.845	0.368	42.8	56.8	0.4	0.0
18.04-16.05	13	244	59.494	6.507	1.067	0.000	67.068	0.275	88.7	9.7	1.6	0.0
17.05-14.06	9	201	40.398	8.171	0.492	0.000	49.061	0.244	82.3	16.7	1.0	0.0
15.06-14.07	10	235	50.487	7.577	1.815	0.000	59.879	0.255	84.3	12.7	3.0	0.0
15.07-13.08	11	254	54.740	8.900	0.514	0.000	64.154	0.253	85.3	13.9	0.8	0.0
14.08-12.09	13	309	48.349	21.299	0.050	0.000	69.698	0.226	69.4	30.6	0.1	0.0
13.09-11.10	13	303	30.112	43.862	0.113	0.040	74.127	0.245	40.6	59.2	0.2	0.1
12.10-10.11	13	331	119.764	17.108	0.665	0.010	137.547	0.416	87.1	12.4	0.5	0.0
11.11-10.12	12	307	96.474	0.863	1.004	0.000	98.341	0.320	98.1	0.9	1.0	0.0
11.12-08.01	13	310	51.425	17.664	4.501	0.005	73.595	0.237	69.9	24.0	6.1	0.0
			780 497	205857/4	13 399	0 278	1090 032	0.296	71.6	27.1	1.2	0.0
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IUIAL 92		5077	100.436		1 10:000							
IUIAL 92		5017	100.332			1 0/0/0			•			
PERIOD	UNITS	TRIPS	TCCLUP	TCL.ST.	TCL.SPP.	TCOTHERS	TC93	C/TRIP	%CLUP	%L.ST.	%L.SPP.	%отн.
PERIOD 09.01-06.02	UNITS 13	TRIPS 297	TCCLUP 19.675	TCL.ST. 10.855	TCL SPP. 1.813	TCOTHERS 0.015	TC93 32.358	C/TRIP 0.109	%CLUP 60.8	%L ST 33.5	%L.SPP. 5.6	%0TH. 0.0
PERIOD 09.01-06.02 07.02-08.03	UNITS 13 12	TRIPS 297 335	TCCLUP 19.675 27.949	TCL.ST 10.855 16.530	TCL.SPP. 1.813 1.648	0.015 0.230	TC93 32.358 46.357	C/TRIP 0.109 0.138	%CLUP 60.8 60.3	%L ST 33.5 35.7	%L.SPP. 5.6 3.6	%OTH. 0.0 0.5
PERIOD 09.01-06.02 07.02-08.03 09.03-06.04	UNITS 13 12 13	TRIPS 297 335 291	TCCLUP 19.675 27.949 33.764	TCL.ST. 10.855 16.530 23.575	TCL SPP. 1.813 1.648 0.906	0.270 TCOTHERS 0.015 0.230 0.280	TC93 32.358 46.357 58.525	C/TRIP 0.109 0.138 0.201	%CLUP 60.8 60.3 57.7	%L ST 33.5 35.7 40.3	%L.SPP. 5.6 3.6 1.5	%OTH. 0.0 0.5 0.5
PERIOD 09.01-06.02 07.02-08.03 09.03-06.04 07.04-06.05	UNITS 13 12 13 12	TRIPS 297 335 291 261	TCCLUP 19.675 27.949 33.764 10.936	TCL.ST. 10.855 16.530 23.575 11.990	TCL SPP. 1.813 1.648 0.906 0.563	0.015 0.230 0.280 0.000	TC93 32.358 46.357 58.525 23.489	C/TRIP 0.109 0.138 0.201 0.090	%CLUP 60.8 60.3 57.7 46.6	%L.ST. 33.5 35.7 40.3 51.0	%L.SPP. 5.6 3.6 1.5 2.4	%OTH. 0.0 0.5 0.5 0.0
PERIOD 09.01-06.02 07.02-08.03 09.03-06.04 07.04-06.05 07.05-04.06	UNITS 13 12 13 12 13 12 13	TRIPS 297 335 291 261 231	TCCLUP 19.675 27.949 33.764 10.936 12.476	TCL.ST. 10.855 16.530 23.575 11.990 36.525	TCL.SPP. 1.813 1.648 0.906 0.563 0.717	TCOTHERS 0.015 0.230 0.280 0.000 0.025	TC93 32.358 46.357 58.525 23.489 49.743	C/TRIP 0.109 0.138 0.201 0.090 0.215	%CLUP 60.8 60.3 57.7 46.6 25.1	%1_ST 33.5 35.7 40.3 51.0 73.4	%L.SPP. 5.6 3.6 1.5 2.4 1.4	%OTH. 0.0 0.5 0.5 0.0 0.0
PERIOD 09.01-06.02 07.02-08.03 09.03-06.04 07.04-06.05 07.05-04.06 05.06-03.07	UNITS 13 12 13 12 13 12 13 12	TRIPS 297 335 291 261 231 246	TCCLUP 19.675 27.949 33.764 10.936 12.476 13.015	TCL.ST 10.855 16.530 23.575 11.990 36.525 25.412	TCL SPP 1.813 1.648 0.906 0.563 0.717 0.826	TCOTHERS 0.015 0.230 0.280 0.000 0.025 0.000	TC93 32.358 46.357 58.525 23.489 49.743 39.253	C/TRIP 0.109 0.138 0.201 0.090 0.215 0.160	%CLUP 60.8 60.3 57.7 46.6 25.1 33.2	%L ST 33.5 35.7 40.3 51.0 73.4 64.7	%L.SPP. 5.6 3.6 1.5 2.4 1.4 2.1	%OTH 0.0 0.5 0.5 0.0 0.1 0.0
PERIOD 09.01-06.02 07.02-08.03 09.03-06.04 07.04-06.05 07.05-04.06 05.06-03.07 04.07-02.08	UNITS 13 12 13 12 13 12 13 12 13	TRIPS 297 335 291 261 231 246 323	TCCLUP 19.675 27.949 33.764 10.936 12.476 13.015 20.766	TCL.ST 10.855 16.530 23.575 11.990 36.525 25.412 23.248	TCL SPP 1.813 1.648 0.906 0.563 0.717 0.826 0.605	TCOTHERS 0.015 0.230 0.280 0.000 0.025 0.000 0.000	TC93 32.358 46.357 58.525 23.489 49.743 39.253 44.619	C/TRIP 0.109 0.138 0.201 0.090 0.215 0.160 0.138	%CLUP 60.8 60.3 57.7 46.6 25.1 33.2 46.5	%L ST 33.5 35.7 40.3 51.0 73.4 64.7 52.1	%L.SPP. 5.6 3.6 1.5 2.4 1.4 2.1 1.4	%OTH 0.0 0.5 0.5 0.0 0.1 0.0 0.0
PERIOD 09.01-06.02 07.02-08.03 09.03-06.04 07.04-06.05 07.05-04.06 05.06-03.07 04.07-02.08 03.08-01.09	UNITS 13 12 13 12 13 12 13 12 13 12 13 13	TRIPS 297 335 291 261 231 246 323 294	TCCLUP 19.675 27.949 33.764 10.936 12.476 13.015 20.766 33.660	TCL.ST 10.855 16.530 23.575 11.990 36.525 25.412 23.248 38.686	TCL SPP 1.813 1.648 0.906 0.563 0.717 0.826 0.605 0.200	TCOTHERS 0.015 0.230 0.280 0.000 0.025 0.000 0.000 0.000	TC93 32.358 46.357 58.525 23.489 49.743 39.253 44.619 72.546	C/TRIP 0.109 0.138 0.201 0.090 0.215 0.160 0.138 0.247	%CLUP 60.8 60.3 57.7 46.6 25.1 33.2 46.5 46.4	%1.51 33.5 35.7 40.3 51.0 73.4 64.7 52.1 53.3	%L.SPP. 5.6 3.6 1.5 2.4 1.4 2.1 1.4 0.3	%0TH 0.0 0.5 0.5 0.0 0.1 0.0 0.0 0.0
PERIOD 09.01-06.02 07.02-08.03 09.03-06.04 07.04-06.05 07.05-04.06 05.06-03.07 04.07-02.08 03.08-01.09 02.09-30.09	UNITS 13 12 13 12 13 12 13 12 13 13 13	TRIPS 297 335 291 261 231 246 323 294 301	TCCLUP 19.675 27.949 33.764 10.936 12.476 13.015 20.766 33.660 18.147	TCL.ST 10.855 16.530 23.575 11.990 36.525 25.412 23.248 38.686 21.601	TCL SPP 1.813 1.648 0.906 0.563 0.717 0.826 0.605 0.200 0.351	TCOTHERS 0.015 0.230 0.280 0.000 0.025 0.000 0.000 0.000 0.000 0.000 0.000	TC93 32.358 46.357 58.525 23.489 49.743 39.253 44.619 72.546 40.099	C/TRIP 0.109 0.138 0.201 0.090 0.215 0.160 0.138 0.247 0.133	%CLUP 60.8 60.3 57.7 46.6 25.1 33.2 46.5 46.4 45.3	%1. ST 33.5 35.7 40.3 51.0 73.4 64.7 52.1 53.3 53.9	%L.SPP. 5.6 3.6 1.5 2.4 1.4 2.1 1.4 0.3 0.9	%0TH 0.0 0.5 0.5 0.0 0.1 0.0 0.0 0.0
PERIOD 09.01-06.02 07.02-08.03 09.03-06.04 07.04-06.05 07.05-04.06 05.06-03.07 04.07-02.08 03.08-01.09 02.09-30.09 01.10-30.10	UNITS 13 12 13 12 13 12 13 13 13 13 13	TRIPS 297 335 291 261 231 246 323 294 301 153	TCCLUP 19.675 27.949 33.764 10.936 12.476 13.015 20.766 33.660 18.147 5.250	TCL.ST. 10.855 16.530 23.575 11.990 36.525 25.412 23.248 38.686 21.601 11.801	TCL SPP 1.813 1.648 0.906 0.563 0.717 0.826 0.605 0.200 0.351 0.161	TCOTHERS 0.015 0.230 0.280 0.000 0.025 0.000 0.000 0.000 0.000 0.000 0.000 0.000	TC93 32.358 46.357 58.525 23.489 49.743 39.253 44.619 72.546 40.099 17.212	C/TRIP 0.109 0.138 0.201 0.090 0.215 0.160 0.138 0.247 0.133 0.112	%CLUP 60.8 60.3 57.7 46.6 25.1 33.2 46.5 46.4 45.3 30.5	%1 ST 33.5 35.7 40.3 51.0 73.4 64.7 52.1 53.3 53.9 68.6	%L.SPP. 5.6 3.6 1.5 2.4 1.4 2.1 1.4 0.3 0.9 0.9	%0TH 0.0 0.5 0.5 0.0 0.1 0.0 0.0 0.0 0.0
PERIOD 09.01-06.02 07.02-08.03 09.03-06.04 07.04-06.05 07.05-04.06 05.06-03.07 04.07-02.08 03.08-01.09 02.09-30.09 01.10-30.10 31.10-29.11	UNITS 13 12 13 12 13 13 13 13 13 13 12	TRIPS 297 335 291 261 231 246 323 294 301 153 233	TCCLUP 19.675 27.949 33.764 10.936 12.476 13.015 20.766 33.660 18.147 5.250 22.367	TCL.ST. 10.855 16.530 23.575 11.990 36.525 25.412 23.248 38.686 21.601 11.801 5.750	TCL SPP 1.813 1.648 0.906 0.563 0.717 0.826 0.605 0.200 0.351 0.161	TCOTHERS 0.015 0.230 0.280 0.000 0.025 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	TC93 32.358 46.357 58.525 23.489 49.743 39.253 44.619 72.546 40.099 17.212 28.606	C/TRIP 0.109 0.138 0.201 0.090 0.215 0.160 0.138 0.247 0.133 0.112 0.123	%CLUP 60.8 60.3 57.7 46.6 25.1 33.2 46.5 46.4 45.3 30.5 78.2	%1 ST 33.5 35.7 40.3 51.0 73.4 64.7 52.1 53.3 53.9 68.6 20.1	%L.SPP 5.6 3.6 1.5 2.4 1.4 2.1 1.4 0.3 0.9 0.9 1.7	%OTH 0.0 0.5 0.0 0.1 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

Fishing effort, total catch and by species(group), CPUE and percentage catch composition Table 3: for the industrial fishing in Burundi, Lake Tanganyika (CAS 1992-93)

Abbrev.:

225.989 226.933

3088

TC92 and TC93 = Total catch (expressed in metric tonnes) in 1992 and 1993

TCCLUP, TCL.ST., TCL.SPP., TCOTHERS = respectively the total catch of Clupeids,

0.550

Lates stappersii, Lates spp. and Others

% species abbreviation = percentage species(group) composition

8.467

C/TRIP = Average catch per fishing trip (or CPUE expressed in metric tonnes per industrial unit fishing night)

461.939 0.150

48.9

49.1

1.8

0.1

TOTAL 93

PERIOD	TRIPS	TCCLUP	TCL.ST.	TCL.SPP.	TCOTHERS	TC92	C/TRIP	%CLUP	%L.ST.	%L.SPP.	%отн.
22.12-19.01	10915	931.008	666.677	0.571	0.000	1598.256	0.146	58.3	41.7	0.0	0.0
20.01-18.02	9604	884.023	471.452	0.306	0.000	1355.781	0.141	65.2	34.8	0.0	0.0
19.02-18.03	9876	535.003	1156.978	0.572	0.000	1692.553	0.171	31.6	68.4	0.0	0.0
19.03-17.04	17267	706.262	1558.056	0.906	0.029	2265.253	0.131	31.2	68.8	0.0	0.0
18.04-16.05	12689	890.731	62.482	0.838	0.000	954.051	0.075	93.4	6.5	0.1	0.0
17.05-14.06	8572	956.649	354.927	0.184	0.000	1311.760	0.153	72.9	27.1	0.0	0.0
15.06-14.07	9714	1658.360	194.648	0.668	0.000	1853.676	0.191	89.5	10.5	0.0	0.0
15.07-13.08	9136	1391.379	96.027	2.215	0.000	1489.621	0.163	93.4	6.4	0.1	0.0
14.08-12.09	11485	904.871	457.463	0.839	0.000	1363.173	0.119	66.4	33.6	0.1	0.0
13.09-11.10	8914	655.066	646.323	0.047	0.295	1301.731	0.146	50.3	49.7	0.0	0.0
12.10-10.11	12293	1610.205	170.944	0.033	0.000	1781.182	0.145	90.4	9.6	0.0	0.0
11.11-10.12	10359	2227.095	7.328	0.038	0.000	2234.461	0.216	99.7	0.3	0.0	0.0
11.12-08.01	10516	977.026	250.781	1.399	0.000	1229.206	0.117	79.5	20.4	0.1	0.0
TOTAL 92	141340	14327.678	6094.086	8.616	0.324	20430.704	0.145	70.1	29.8	0.0	0.0

Table 4: Fishing effort, total catch and by species(group), C	CPUE and percentage catch composition
for the catamaran liftnet fishing in Burundi, Lake T	Tanganyika (CAS 1992-93)

PERIOD	TRIPS	TCCLUP	TCL.ST.	TCL.SPP.	TCOTHERS	TC93	C/TRIP	%CLUP	%L.ST.	%L.SPP.	%OTH.
09.01-06.02	10170	574.741	272.240	0.132	0.000	847.113	0.083	67.847	32.137	0.016	0.000
07.02-08.03	10497	767.417	375.358	0.000	0.000	1142.775	0.109	67.154	32.846	0.000	0.000
09.03-06.04	8897	840.309	428.129	0.188	0.068	1268.694	0.143	66.234	33.746	0.015	0.005
07.04-06.05	6261	417.730	96.012	0.000	0.000	513.742	0.082	81.311	18.689	0.000	0.000
07.05-04.06	5230	198.521	267.483	0.000	0.000	466.004	0.089	42.601	57.399	0.000	0.000
05.06-03.07	4456	191.196	255.424	0.006	0.000	446.626	0.100	42.809	57.190	0.001	0.000
04.07-02.08	6404	705.549	212.399	0.000	0.040	917.988	0.143	76.858	23.137	0.000	0.004
03.08-01.09	10069	996.570	851.308	0.067	0.000	1847.945	0.184	53.929	46.068	0.004	0.000
02.09-30.09	9191	836.193	415.144	0.012	0.000	1251.349	0.136	66.823	33.176	0.001	0.000
01.10-30.10	9027	478.981	527.198	0.000	0.000	1006.179	0.111	47.604	52.396	0.000	0.000
31.10-29.11	8186	1107.275	97.897	0.117	0.000	1205.289	0.147	91.868	8.122	0.010	0.000
30.11-28-12	9223	962.231	45.941	0.409	0.000	1008.581	0.109	95.404	4.555	0.041	0.000
TOTAL 93	97611	8076.713	3844.533	0.931	0.108	11922.285	0.122	67.745	32.247	800.0	0.001

Abbrev.: TC92 and TC93 = Total catch (expressed in metric tonnes) in 1992 and 1993

TCCLUP, TCL.ST., TCL.SPP., TCOTHERS = respectively the total catch of Clupeids,

Lates stappersii, Lates spp. and Others

% species abbreviation = percentage species(group) composition

C/TRIP = Average catch per fishing trip (or CPUE expressed in metric tonnes per catamaran unit fishing night)

PERIOD	TRIPS	TCCLUP	TCL.ST.	TCL.SPP.	TCOTHERS	TC92	C/TRIP	%CLUP.	%L.ST.	%L.SPP.	%OTH.
22.12-19.01	697	132.971	62.670	0.159	0.000	195.800	0.281	67.9	32.0	0.1	0.0
20.01-18.02	565_	94.886	38.615	0.085	0.000	133.586	0.236	71.0	28.9	0.1	0.0
19.02-18.03	279	18.729	85.546	0.026	0.000	104.301	0.374	18.0	82.0	0.0	0.0
19.03-17.04	581	58.581	153.522	0.103	0.004	212.210	0.365	27.6	72.3	0.0	0.0
18.04-16.05	645	142.959	10.486	0.062	0.005	153.512	0.238	93.1	6.8	0.0	0.0
17.05-14.06	491	102.796	44.103	0.000	0.000	146.899	0.299	70.0	30.0	0.0	0.0
15.06-14.07	624	173.487	22.462	0.046	0.000	195.995	0.314	88.5	11.5	0.0	0.0
15.07.13.08	836	273.200	12.418	0.064	0.000	285.682	0.342	95.6	4.3	0.0	0.0
14.08-12.09	645	84.782	64.967	0.000	0.000	149.749	0.232	56.6	43.4	0.0	0.0
13.09-11.10	538	44.315	102.311	0.000	0.000	146.626	0.273	30.2	69.8	0.0	0.0
12.10.10.11	765	239.415	12.539	0.000	0.000	251.954	0.329	95.0	5.0	0.0	0.0
11.11-10.12	579	262.605	1.723	0.028	0.065	264.421	0.457	99.3	0.7	0.0	0.0
11.12-08.01	598	86.299	50.270	0.000	0.000	136.569	0.228	63.2	36.8	0.0	0.0
TOTAL 92	7843	1715.025	661.632	0.573	0.074	2377.304	0.303	72.1	27.8	0.0	0.0
PERIOD	TRIPS	TCCLUP	TCL.ST.	TCL.SPP.	TCOTHERS	TC93	C/TRIP	%CLUP	%L.ST.	%L.SPP.	%OTH.
09.01-06.02	908	94.059	51.295	0.013	0.035	145.402	0.160	64.7	35.3	0.0	0.0
07.02-08.03	327	47.709	9.587	0.054	0.013	57.363	0.175	83.2	16.7	0.1	0.0
09.03-06.04	778	174.644	128.417	0.034	0.028	303.123	0.390	57.6	42.4	0.0	0.0
07 04-06 05	110	14.396	2,808	0.000	0.000	17.204	0.156	83.7	16.3	0.0	0.0

0.000

0.000

0.000

0.000

0.000

0.000

0.000

0.000

0.076

 Table 5:
 Fishing effort, total catch and by species(group), CPUE and percentage catch composition for the apollo liftnet fishing in Burundi, Lake Tanganyika (CAS 1992-93)

Abbrev.:

736

164

914

977

821

804

1639

1434

9612

91.582

11.247

308.014

171.805

182.587

101.386

546.897

292.800

2037.126

117.415

15.814

33.143

209.917

89.013

135.295

38.510

16.976

848.190

TC92 and TC93 = Total catch (expressed in metric tonnes) in 1992 and 1993

TCCLUP, TCL.ST., TCL.SPP., TCOTHERS = respectively the total catch of Clupeids,

Lates stappersii, Lates spp. and Others

0.000

0.000

0.000

0.000

0.000

0.010

0.029

0.005

0.145

% species abbreviation = percentage species(group) composition

C/TRIP = Average catch per fishing trip (or CPUE expressed in metric tonnes per apollo unit fishing night)

208.997

27.061

341.157

381.722

271.600

236.691

585.436

309.781

2885.537

0.284

0.165

0.373

0.391

0.331

0.294

0.357

0.216

0.300

43.8

41.6

90.3

45.0

67.2

42.8

93.4

94.5

70.6

56.2

58.4

9.7

55.0

32.8

57.2

6.6

5.5

29.4

07.05-04.06

05.06-03.07

04.07-02.08

03.08-01.09

2.09-30.09

01.10-30.10

31.10-29.11

30.11-28-12

TOTAL 93

0.0

0.0

0.0

0.0

0.0

0.0

0.0

0.0

0.0

0.0

0.0

0.0

0.0

0.0

0.0

0.0

0.0

0.0

PERIOD	1141745	ICLAIP		Second reactions of the second s	000.855.598.522.55.688	COLLANG.	COTH.	AUI.	1692	C/TRIP	%CLUP	SCAIF.	%CICH.	%L.5PP.	%01H.	%AUI.	1792	AVKGV
22.12-19.01	3648	12.09	4.32	8.11	2.30	1.30	29.08	2.15	59.35	0.016	7.3	20.4	13.7	6.1	49.0	3.6	5441.7	92
20.01-18.02	4532	5.77	12.13	12.57	4.19	1.44	19.74	0.00	55.84	0.012	21.7	10.3	22.5	10.1	35.4	0.0	6566.0	118
19.02-18.03	4004	13.25	12.20	11.22	1.10	0.59	21.30	1.54	61.20	0.015	19.9	21.7	18.3	2.8	34.8	2.5	6335.1	104
19.03-17.04	3804	6.33	5.50	11.10	2.67	0.87	20.02	0.01	46.50	0.012	11.8	13.6	23.9	7.6	43.1	0.0	5639.8	121
18.04-16.05	3487	3.17	1,99	14.89	1.56	1,16	17.35	0.01	40.13	0.012	5.0	7.9	37.1	6.8	43.2	0.0	4738.3	118
17.05-14.06	2454	1.93	1.64	7.23	0.85	0,19	16.74	0.01	28.59	0.012	5.7	6.8	25.3	3.6	58.6	0.0	3551.7	124
15.06-14.07	2741	2.12	0.61	10,18	2.71	0.39	18,76	0.00	34.77	0.013	1.8	6.1	29.3	8.9	54.0	0.0	4544.5	131
15.07-13.08	3004	1.46	1.65	9.41	2.32	0.08	15.27	0.00	30.19	0.010	5.5	4.8	31.2	7.9	50.6	0.0	3886.3	129
14.08-12.09	3984	1.52	58.39	12.01	0.38	0.83	23.63	0.00	96.76	0.024	60.3	1.6	12.4	1.3	24.4	0.0	7215.1	75
13.09-11.10	4001	1.50	27.29	9.82	1.42	0.62	27.90	0.00	68.55	0.017	39.8	2.2	14.3	3.0	40.7	0.0	6986.8	102
12.10-10.11	1417	0.48	9.81	5.93	1.57	0.11	13.22	0.00	31.12	0.022	31.5	1.5	19.1	5.4	42.5	0.0	2665.9	86
11,11-10.12	1485	2.52	1.87	3.67	0.66	0.48	46.22	0.00	55.42	0.037	3.4	4.5	6.6	2.1	83.4	0.0	2619.5	47
11.12-08.01	2102	3.73	1.55	6.12	1.53	24.95	15.21	0.00	53.09	0.025	2.9	7.0	11.5	49.9	28.6	0.0	3491.9	66
TOTAL OR	44247	EE O7	128 95	177 28	23.26	33.01	284 44	372	661 51	0.016	21.0	8.4	18.5	2.5	A	0.6	Sec. 17. 19. 18. 18.	1 (A)
INF PEL DA		99.91		20000000000000000000000000000000000000	<pre>control = 1.4 = 3.400000000</pre>	· · · · · · · · · · · · · · · · · · ·												
		93.64			29.20				******									
<u></u>	10000																	
PERIOD	TRIPS	TCCATE	TCCLUP	TCCICH	TCL. MAR.	TCL.ANG.	тсотн	AUT.	TC93	C/TRIP	%CLUP	%CATF.	жсісн.	%L.SPP.	%отн.	%AUT.	TV93	AVKGV
PERIOD 09.01-06.02	TRIPS 1352	TCCATF 0.64	TCCLUP	TCCICH 0.97	TCL. MAR. 0.46	TCLANG.	тсотн. 6.36	AUT.	TC93 8.48	C/TRIP 0.006	%CLUP 7.5	%CATF.	%CICH.	%L.SPP. 6.0	%0TH. 75.0	%AUT.	TV92 1833.3	AVKGV 216
PERIOD 03.01-06.02 07.02-08.03	TRIPS 1352 245	TCCATE 0.64 1.31	TCCLUP 0.00 0.00	TCCICH 0.97 0.77	TCL MAR 0.46 0.39	TCL.ANG 0.05 0.00	TCOTH 6.36 1.30	AUT.	TC93 8.48 3.77	C/TRIP 0.006 0.015	%CLUP 7.5 34.7	%CATF 0.0 0.0	%CICH. 11.4 20.4	%L.SPP. 6.0 10.3	%0TH. 75.0 34.5	%AUT.	TV93 1833.3 615.4	AVKGV 216 163
PERIOD 09.01-06.02 07.02-08.03 03.03-06.04	TRIPS 1352 245 846	TCCATE 0.64 1.31 1.38	0.00 0.00 0.15	0.97 0.77 2.12	TCL MAR 0.46 0.39 0.25	TCL ANG 0.05 0.00 0.03	6.36 1.30 3.95	AUT.	TC93 8.48 3.77 7.88	C/TRIP 0.006 0.015 0.009	%CLUP 7.5 34.7 17.5	%CATF. 0.0 0.0 1.9	%CICH. 11.4 20.4 26.9	%L.SPP 6.0 10.3 3.6	%0TH. 75.0 34.5 50.1	%AUT.	TV93 1833.3 615.4 1348.2	AVKGV 216 163 171
PERIOD 09.01-06.02 07.02-08.03 03.03-06.04 07.04-06.05	TRIPS 1352 245 846 581	0.64 1.31 1.38 0.29	0.00 0.00 0.15 2.11	0.97 0.77 2.12 1.30	TCL. MAR. 0.46 0.39 0.25 0.08	TCL ANG 0.05 0.00 0.03 0.00	6.36 1.30 3.95 3.79	AUT.	TC93 8.48 3.77 7.88 7.57	C/TRIP 0.006 0.015 0.009 0.013	%CLUP 7.5 34.7 17.5 3.8	%CATF. 0.0 0.0 1.9 27.9	%CICH. 11.4 20.4 26.9 17.2	%L.SPP. 6.0 10.3 3.6 1.1	%OTH. 75.0 34.5 50.1 50.1	%AUT.	TV93 1833.3 615.4 1348.2 875.87	AVKGV 216 163 171 116
PERIOD 09.01-06.02 07.02-08.03 09.03-06.04 07.04-06.08 07.04-06.08	TRIPS 1352 245 846 581 2570	TCCATE 0.64 1.31 1.38 0.29 2.18	0.00 0.00 0.15 2.11 5.67	TCCICH 0.97 0.77 2.12 1.30 3.73	TCL MAR 0.46 0.39 0.25 0.08 0.38	TCL ANG 0.05 0.00 0.03 0.00 0.35	6.36 1.30 3.95 3.79 12.70	AUT.	TC93 8.48 3.77 7.88 7.57 25.01	C/TRIP 0.006 0.015 0.009 0.013 0.010	%CLUP 7.5 34.7 17.5 3.8 8.7	%CATF. 0.0 0.0 1.9 27.9 22.7	94CICH. 11.4 20.4 26.9 17.2 14.9	%L.SPP. 6.0 10.3 3.6 1.1 2.9	%0TH. 75.0 34.5 50.1 50.1 50.8	%AUT.	TY93 1833.3 615.4 1348.2 875.87 3993.5	AVKGV 216 163 171 116 180
PERIOD 09.01-06.02 07.02-08.03 03.03-06.04 07.04-06.05 07.05-04.06 05.06-03.07	TRIPS 1352 245 846 581 2570 3269	TCCATE 0.64 1.31 1.38 0.29 2.18 1.46	0.00 0.00 0.15 2.11 5.67 12.98	TCCICH 0.97 0.77 2.12 1.30 3.73 4.25	TCL. MAR 0.46 0.39 0.25 0.08 0.38 0.22	TCL ANG 0.05 0.00 0.03 0.00 0.35 0.00	6.36 1.30 3.95 3.79 12.70 16.13	AUT.	TC93 8.48 3.77 7.88 7.57 25.01 35.04	C/TRIP 0.006 0.015 0.009 0.013 0.010 0.011	%CLUP 7.5 34.7 17.5 3.8 8.7 4.2	%CATF 0.0 0.0 1.9 27.9 22.7 37.0	%CICH 11.4 20.4 26.9 17.2 14.9 12.1	%L.SPP. 6.0 10.3 3.6 1.1 2.9 0.6	%0TH. 75.0 34.5 50.1 50.1 50.8 46.0	%AUT.	TY93 1833.3 615.4 1348.2 875.87 3993.5 5879.7	AVKGV 216 163 171 116 160 168
PERIOD 09.01-06.02 07.02-08.03 09.03-06.04 07.04-08.08 07.05-04.08 05.06-03.07 04.07-02.08	TRIPS 1352 245 846 581 2570 3269 846	TCCATF 0.64 1.31 1.38 0.29 2.18 1.46 1.39	0.00 0.00 0.15 2.11 5.67 12.98 0.16	TCCICH 0.97 0.77 2.12 1.30 3.73 4.25 2.12	TCL. MAR 0.46 0.39 0.25 0.08 0.38 0.22 0.04	TCL ANG 0.05 0.00 0.03 0.00 0.35 0.00 0.25	TCOTH 6.36 1.30 3.95 3.79 12.70 16.13 3.98	AUT	TC93 8.48 3.77 7.88 7.57 25.01 35.04 7.94	C/TRIP 0.006 0.015 0.009 0.013 0.010 0.011 0.009	%CLUP 7.5 34.7 17.5 3.8 8.7 4.2 17.5	%CATF 0.0 0.0 1.9 27.9 22.7 37.0 2.0	%CICH 11.4 20.4 26.9 17.2 14.9 12.1 26.7	%L.SPP 6.0 10.3 3.6 1.1 2.9 0.6 3.7	%0TH 75.0 34.5 50.1 50.1 50.8 46.0 50.1	%AUT.	TV92 1833.3 615.4 1348.2 875.87 3993.5 5879.7 1348.9	AVKGV 216 163 171 116 160 168 170
PERIOD 09.01-06.02 07.02-08.03 03.03-06.04 07.04-08.08 07.05-04.08 05.08-03.07 04.07-02.08 03.08-01.09	TRIPS 1352 245 846 581 2570 3269 846 3570	TCCATF 0.64 1.31 1.38 0.29 2.18 1.46 1.39 1.43	TCCLUP 0.00 0.15 2.11 5.67 12.98 0.16 42.50	TCCICH 0.97 0.77 2.12 1.30 3.73 4.25 2.12 1.81	TCL MAR 0.46 0.39 0.25 0.08 0.38 0.22 0.04 0.79	TCL ANG. 0.05 0.00 0.03 0.00 0.35 0.00 0.25 0.08	TCOTH 6.36 1.30 3.95 3.79 12.70 16.13 3.98 22.49	AUT	TC93 8.48 3.77 7.88 7.57 25.01 35.04 7.94 69.10	C/TRIP 0.006 0.015 0.009 0.013 0.010 0.011 0.009 0.019	%CLUP 7.5 34.7 17.5 3.8 8.7 4.2 17.5 2.1	%CATF 0.0 1.9 27.9 22.7 37.0 2.0 61.5	%CICH. 11.4 20.4 26.9 17.2 14.9 12.1 26.7 2.6	6.0 10.3 3.6 1.1 2.9 0.6 3.7 1.3	%0TH 75.0 34.5 50.1 50.1 50.8 46.0 50.1 32.5	%AUT.	TV93 1833.3 615.4 1348.2 875.87 3993.5 5879.7 1348.9 5583.3	AVKGV 216 163 171 116 160 168 170 81
PERIOD 09.01-06.02 07.02-08.03 07.02-08.03 07.05-04.06 07.05-04.06 05.06-03.07 04.07-02.08 03.08-01.09 2.09-30.09	TRIPS 1352 245 846 581 2570 3269 846 3570 2029	TCCATF 0.64 1.31 1.38 0.29 2.18 1.46 1.39 1.43	0.00 0.00 0.15 2.11 5.67 12.98 0.16 42.50 16.42	TCCICH 0.97 0.77 2.12 1.30 3.73 4.25 2.12 1.81 3.52	TCL MAR 0.46 0.39 0.25 0.08 0.38 0.22 0.04 0.79 0.24	YCL ANG 0.05 0.00 0.03 0.00 0.35 0.00 0.25 0.08 0.35	1.30 3.95 3.79 12.70 16.13 3.98 22.49 16.47	AUT	7.593 8.48 3.77 7.88 7.57 25.01 35.04 7.94 69.10 38.64	C/TRIP 0.006 0.015 0.009 0.013 0.010 0.011 0.009 0.019 0.019	%CLUP 7.5 34.7 17.5 3.8 8.7 4.2 17.5 2.1 4.2	%CATF 0.0 1.9 27.9 22.7 37.0 2.0 61.5 42.5	%CICH 11.4 20.4 26.9 17.2 14.9 12.1 26.7 2.6 9.1	6.0 10.3 3.6 1.1 2.9 0.6 3.7 1.3 1.5	%0TH. 75.0 34.5 50.1 50.8 46.0 50.1 32.5 42.6	%AUT.	TV93 1833.3 615.4 1348.2 875.87 3993.5 5879.7 1348.9 5583.3 4147.5	Avkgv 216 163 171 116 160 168 170 81 107
PERIOD 09.01-06.02 07.02-08.03 03.03-05.04 07.04-06.08 07.05-04.06 05.06-03.07 04.07-02.08 03.08-01.09 2.09-30.09 01.10-30.10	TRIPS 1352 245 846 581 2570 3269 846 3570 2029 1021	TCCATF 0.64 1.31 1.38 0.29 2.18 1.46 1.39 1.43 1.64 0.42	TCCLUP 0.00 0.015 2.11 5.67 12.98 0.16 42.50 16.42 0.10	TecleH 0.97 0.77 2.12 1.30 3.73 4.25 2.12 1.81 3.52 2.12	TCL. MAR 0.46 0.39 0.25 0.08 0.38 0.22 0.04 0.79 0.24 2.14	FCL ANG. 0.05 0.00 0.03 0.00 0.35 0.00 0.35 0.00 0.35 0.00 0.35 0.00 0.25 0.08 0.35 0.24	1007H 6,36 1.30 3.95 3.79 12.70 16.13 3.98 22.49 16.47 10.22		TC93 8.48 3.77 7.88 7.57 25.01 35.04 7.94 69.10 38.64 15.24	C/TRIP 0.006 0.015 0.009 0.013 0.010 0.011 0.0019 0.019 0.015	%CLUP 7.5 34.7 17.5 3.8 8.7 4.2 17.5 2.1 4.2 2.1 4.2 2.8	%CATF 0.0 1.9 27.9 22.7 37.0 2.0 61.5 42.5 0.7	96CICH 11.4 20.4 26.9 17.2 14.9 12.1 26.7 2.6 9.1 13.9	%I.SPP 6.0 10.3 3.8 1.1 2.9 0.6 3.7 1.3 1.5 15.6	%0TH. 75.0 34.5 50.1 50.1 50.8 46.0 50.1 32.5 42.6 67.1	%AUT.	TV92 1833.3 615.4 1348.2 875.87 3993.5 5879.7 1348.9 5683.3 4147.5 2554.4	AVKGV 216 163 171 116 160 168 170 81 107 168
PERIOD 09.01-06.02 07.02-08.03 03.03-06.04 07.04-06.05 07.05-04-06 05.06-03.07 04.07-02.08 03.08-01.09 2.09-30.09 01.30-30.10 31.10-20.11	TRIPS 1352 245 846 581 2570 3269 846 3570 2029 1021 2077	TCCATF 0.64 1.31 1.38 0.29 2.18 1.46 1.39 1.43 0.42 3.23	TCCLUP 0.00 0.15 2.11 5.67 12.98 0.16 42.50 16.42 0.10 0.02	TOCICH 0.97 0.77 2.12 1.30 3.73 4.25 2.12 1.81 3.52 2.12 2.51	TCL. MAR. 0.46 0.39 0.25 0.08 0.38 0.22 0.04 0.79 0.24 2.14 19.00	TCL ANG. 0.05 0.00 0.33 0.00 0.35 0.00 0.25 0.08 0.36 0.24 0.29	FCOTH 6.36 1.30 3.95 3.79 12.70 16.13 3.98 22.49 16.47 10.22 20.31		TC93 8.48 3.77 7.88 7.57 25.01 35.04 7.94 69.10 38.64 15.24 45.36	C/TRIP 0.006 0.015 0.009 0.013 0.010 0.011 0.009 0.019 0.019 0.015 0.022	%CLUP 7.5 34.7 17.5 3.8 8.7 4.2 17.5 2.1 4.2 2.8 7.1	%CATF 0.0 1.9 27.9 22.7 37.0 2.0 61.5 42.5 0.7 0.0	94CICH 11.4 20.4 26.9 17.2 14.9 12.1 26.7 2.6 9.1 13.9 5.5	%L.SPP. 6.0 10.3 3.6 1.1 2.9 0.6 3.7 1.3 1.5 15.6 42.5	%0TH. 75.0 34.5 50.1 50.1 50.8 46.0 50.1 32.5 42.6 67.1 44.8	%AUT.	TV93 1833.3 615.4 1348.2 875.87 3993.5 5879.7 1348.9 5583.3 4147.5 2554.4 3955.3	AVKGV 216 163 171 116 160 168 170 81 107 168 87

Table 6: Fishing effort, total catch and by species(group), CPUE, percentage catch composition, total value and average value per kg for the traditional fishing in Burundi, Lake Tanganyika (CAS 1992-93)

139,66 Abbrev.: TC92 and TC93 = Total catch (expressed in metric tonnes) in 1992 and 1993

TCCLUP, TCCATF, TCCICH, TCL.MAR., TCL.ANG., TCOTH. = respectively the total catch of clupeids, catfish, cichlids,

295.45 0.015

5.4

29.1

9.3

9.0

47.3

Lates mariae, Lates angustifrons and Others

AUT. = autoconsumption by the fishermen

1.84

% species abbreviation = percentage species(group) composition

C/TRIP = Average catch per fishing trip (or CPUE expressed in metric tonnes per traditional unit fishing night)

TV92 and TV93 = Total landing site value (expressed in 000' Burundi France of BIF)

AVKGV = the average price in BIF per kg

24.81

TOTAL 93 20209 15.94 85.87 27.33

35949.67 122

PERIOD	TVCLUP	TVL.ST.	TVL.SPP.	TVOTH.	TV92	AVCLUP	AVLST	AVLSPP	AVOTH
22.12-19.01	4027.885	4250.389	356.827	19.300	8654.401	64	161	232	117
20.01-18.02	4028.945	3224.200	211.130	5.867	7470.142	54	166	234	101
19.02-18.03	2595.744	5585.148	71.500	0.000	8252.392	62	109	249	
19.03-17.04	2983.353	6338.963	107.342	0.000	9429.658	59	95	245	
18.04-16.05	5154.167	1166.547	358.618	0.000	6679.332	87	179	336	
17.05-14.06	3147.092	1459.175	129.643	0.000	4735.910	78	179	264	
15.06-14.07	4041.300	1526.500	497.800	0.000	6065.600	80	201	274	
15.07-13.08	4892.850	1937.500	132.500	0.000	6962.850	89	218	258	
14.08-12.09	3826.300	3819.200	12.000	0.000	7657.500	79	179	240	
13.09-11.10	2264.100	5376.700	36.000	15.000	7691.800	75	123	319	375
12.10-10.11	7751.005	2069.772	175.938	1.500	9998.215	65	121	265	150
11.11-10.12	5617.400	173.700	331.500	0.000	6122.600	58	201	330	
11.12-08.01	4092.400	3680.700	1290.000	0.600	9063.700	80	208	287	120
TOTAL 92	54422.541	40608.494	3710.798	42.267	98784.100	70	137	277	152

Table 7:	Total value and by species(group), average price per kg for the
	industrial fishery in Burundi, Lake Tanganyika (CAS 1992-93)

PERIOD	TVCLUP	TVL.ST.	TVL.SPP.	TVOTH.	TV93	AVCLUP	AVLST	AVLSPP	AVOTH
09.01-06.02	2001.805	2382.350	753.500	4.000	5141.655	102	219	416	267
07.02-08.03	2994.600	2867.300	558.900	16.800	6437.600	107	173	339	73
09.03-06.04	2790.450	4122.700	302.700	19.600	7235.450	83	175	334	70
07.04-06.05	1644.000	2640.100	194.000	0.000	4478.100	150	220	345	
07.05-04.06	1501.300	7460.300	256.500	7.800	9225.900	120	204	358	312
05.06-03.07	1399.900	5157.800	323.700	0.000	6881.400	108	203	392	
04.07-02.08	2322.100	4780.100	198.000	0.000	7300.200	112	206	327	
03.08-01.09	_2192.300	6196.000	81.500	0.000	8469.800	65	160	408	
02.09-30.09	1595.235	3861.283	119.000	0.000	5575.518	88	179	339	
01.10-30.10	518.700	2108.200	66.500	0.000	2693.400	99	179	413	
31.10-29.11	1986.421	1019.228	170.220	0.000	3175.869	89	177	348	
30.11-28-12	889.705	238.000	78.000	0.000	1205.705	111	248	415	
TOTAL 93	21836.516	42833.361	3102.520	48.200	67820.597	97	189	366	88

Abbrev.: TV92 and TV93: Total fish landing value (expressed in 000' FBI) in 1992 and 1993 TVCLUP, TVL.ST., TVL.SPP., TVOTH. = respectively the total value of clupeids

Lates stappersii, Lates spp. and Others AV followed by species abbreviation = the average price per kg (expressed in FBI) for that species

PERIOD	TVCLUP	TVL.ST.	TVL.SPP.	TVOTH.	TV92	AVCLUP	AVLST	AVLSPP	AVOTH
22.12-19.01	66866.803	75949.936	191.654	0.000	143008.393	72	114	336	
20.01-18.02	58423.582	62281.820	93.306	0.000	120798.708	66	132	305	
19.02-18.03	49173.001	88573.969	146.544	0.000	137893.514	92	77	256	
19.03-17.04	62999.686	98270.258	240.444	7.732	161518.120	89	63	265	267
18.04-16.05	90920.976	10671.662	236.093	0.000	101828.731	102	171	282	
17.05-14.06	68215.618	48008.120	32.054	0.000	116255.792	71	135	174	
15.06-14.07	122036.150	39848.227	127.168	0.000	162011.545	74	205	190	
15.07-13.08	115467.138	10872.320	350.710	0.000	126690.168	83	113	158	
14.08-12.09	81932.660	60488.309	91.634	0.000	142512.603	91	132	109	
13.09-11.10	43376.701	45329.626	9.115	18.429	88733.871	66	70	194	62
12.10-10.11	124689.144	20857.587	7.990	0.000	145554.721	77	122	242	
11.11-10.12	156917.747	767.779	2.174	0.000	157687.700	70	105	57	
11.12-08.01	85222.807	37927.865	260.689	0.000	123411.361	87	151	186	
TOTAL 92	1126242.013	599847.478	1789.575	26.161	1727905.227	79	98	208	81

Table 8:	Total value and by species(group), average price per kg for the
	catamaran liftnet fishery in Burundi, Lake Tanganyika (CAS 1992-93)

PERIOD	TVCLUP	TVL.ST.	TVL.SPP.	TVOTH.	TV93	AVCLUP	AVLST	AVLSPP	AVOTH
09.01-06.02	53704.166	35234.632	36.868	0.000	88975.666	93	129	279	
07.02-08.03	83804.519	54329.200	0.000	0.000	138133.719	109	145		
09.03-06.04	66021.172	52450.967	36.031	9.826	118517.996	79	123	192	145
07.04-06.05	55273.977	14014.726	0.000	0.000	69288.703	132	146		
07.05-04.06	37486.016	43433.097	0.000	0.000	80919.113	189	162		
05.06-03.07	22410.809	38091.838	1.191	0.000	60503.838	117	149	199	
04.07-02.08	69064.237	27302.338	0.000	9.246	96375.821	98	129		231
03.08-01.09	65413.828	105563.749	16.759	0.000	170994.336	66	124	250	
02.09-30.09	62599.199	58601.541	3.618	0.000	121204.358	75	141	302	
01.10-30.10	54501.777	66807.436	0.000	0.000	121309.213	114	127		
31.10-29.11	90942.944	26300.046	23.910	0.000	117266.900	82	269	204	
30.11-28-12	88836.262	6747.209	131.997	0.000	95715.468	92	147	323	
TOTAL 93	750058.906	528876.779	250.374	19.072	1279205.131	93	138	269	177

Abbrev.:

TV92 and TV93: Total fish landing value (expressed in 000' FBI) in 1992 and 1993 TVCLUP, TVL.ST., TVL.SPP., TVOTH. = respectively the total value of clupeids Lates stappersii, Lates spp. and Others

AV followed by species abbreviation = the average price per kg (expressed in FBI) for that species

PERIOD	TVCLUP	TVL.ST.	TVL.SPP.	туотн	TV92	AVCLUP	AVLST	AVLSPP	AVOTH
22.12-19.01	8719.492	7283.448	24.327	0.000	16027.267	66	116	153	
20.01-18.02	6545.534	5468.362	21.428	0.000	12035.324	69	142	252	
19.02-18.03	1321.762	6827.790	11.520	0.000	8161.072	71	80	443	
19.03-17.04	3724.955	8696.843	21.864	1.655	12445.317	64	57	212	414
18.04-16.05	11125.866	1992.043	11.872	1.309	13131.090	78	190	191	262
17.05-14.06	7108.396	5724.510	0.000	0.000	12832.906	69	130		
15.06-14.07	14584.457	3958.106	8.232	0.000	18550.795	84	176	179	
15.07-13.08	21220.368	1387.004	16.596	0.000	22623.968	78	112	259	
14.08-12.09	6174.523	8988.771	0.000	0.000	15163.294	73	138		
13.09-11.10	3955.113	6350.577	0.000	0.000	10305.690	89	62		
12.10-10.11	14941.669	2008.441	0.000	0.000	16950.110	62	160		
11.11-10.12	13992.527	198.004	3.850	3.231	14197.612	53	53 115		50
11.12-08.01	5882.964	7961.568	0.000	0.000	13844.532	68	158		
TOTAL 92	119297.626	66845.467	119.689	6.195	186268.977	70	101	209	84

Table 9:Total value and by species(group), average price per kg for the
apollo liftnet fishery in Burundi, Lake Tanganyika (CAS 1992-93)

PERIOD	TVCLUP	TVL.ST.	TVL.SPP.	ТУОТН	TV93	AVCLUP	AVLST	AVLSPP	AVOTH
09.01-06.02	7603.268	7869.319	4.020	6.417	15483.024	81	153	309	183
07.02-08.03	3891.166	1223.643	9.182	1.714	5125.705	82	128	170	132
09.03-06.04	12891.213	13123.009	8.165	5.417	26027.804	74	102	240	193
07.04-06.05	1611.261	438.966	0.000	0.000	2050.227	112	156		
07.05-04.06	8326.651	14532.679	0.000	0.000	22859.330	91	124		
05.06-03.07	1175.481	2522.161	0.000	0.000	3697.642	105	159		
04.07-02.08	24020.092	6584.390	0.000	0.000	30604.482	78	199		
03.08-01.09	11712.866	24166.814	0.000	0.000	35879.680	68	115		
2.09-30.09	12021.791	14946.008	0.000	0.000	26967.799	66	168		
01.10-30.10	8207.494	17768.837	1.920	0.000	25978.251	81	131	192	
31.10-29.11	35979.026	7540.770	10.399	0.000	43530.195	66	196	359	
30.11-28-12	25815.560	2420.908	1.364	0.000	28237.832	88	143	273	
TOTAL 93	153255.869	113137.504	35.050	13.548	266441.971	75	133	242	178

Abbrev.:

TV92 and TV93: Total fish landing value (expressed in 000' FBI) in 1992 and 1993 TVCLUP, TVL.ST., TVL.SPP., TVOTH. = respectively the total value of clupeids Lates stappersii, Lates spp. and Others

AV followed by species abbreviation = the average price per kg (expressed in FBI) for that species

TEAS	16	RC.	114425	UNITS	1. 61.	CLUP	L. SPP.	OTH,	% ITC	456	TRIPS	UNITS	L. ST.	CLUP.	L. SPP	отн.	%ARTC	TAC	TREPS	UNITS	CLUP.	OTHERS	%TTC
1950	1010																	1010			1010		100.0
1951	1500															1		1500			1500		100.0
1952	3000																	3000		1360	2500	500	100.0
1953	3220																	3220			3000	220	100.0
1964	4917	317		2			317	0	6.4									4600		1512	4000	600	93.6
1955	5182	482		2			482	0	9.3									4700		1578	4200	500	90.7
1956	4892	1817		4	288	1257	272	0	37.1									3075		1350	2675	400	62.9
1957	8477	2912		8	535	1648	729	0	34.4			12				-		5565		1452	5065	500	65.6
1958	10333	3657		12	287	1038	2332	0	35.4			22						6676		1500	6167	500	64.6
1969	10083	3346		12	240	1617	1489	0	33.2	620		32		600		20	6.1	6117		1475	5617	500	60.7
1960	8120	2881		12	559	1454	868	0	35.5	327		32		304		23	4.0	4912		1488	4412	500	60.5
	5240	1963		8	259	1326	378	0	37.5	410		59		397		13	7.8	2867		1458	2617	250	54.7
1982	7151	2195		8	794	1114	287	0	30.7	1021		56		939		82	14.3	3935		1458	3635	300	55.0
1963	10624	2396		9	1201	936	259	0	22.6	896		82		821		75	8.4	7332		1343	7082	250	69.0
1964	10433	2598			394	1974	230	0	24.9	1479		127	_	1415		64	14.2	6356		1343	6310	46	60.9
1965	20207	2686		8	215	2376	95	0	13.3	2134		180		2041		93	10.6	15387		1660	15387	0	76.1
1966	17803	5045		9	409	4426	210	0	28,3	2657		198		2549		108	14.9	10101		1624	9983	118	56.7
1967	13521	4941		8	945	3677	319	0	36.5	1947		221		1907		40	14.4	6633		1624	6578	55	49.1
1968	12288	5046		10	1213	3437	396	0	41.1	1493		221		1422		71	12.2	5749		1624	5556	193	46.8
1969	15558	4138		11	1340	2367	431	0	26.6	5123		506		4889		234	32.9	6297		1459	6230	67	40.5
1970	13291	5457		13	1227	3686	544	0	41.1	3760		516		3473		287	28.3	4074		1459	4064	10	30.7
1971	16896	6054		15	180	5511	363	0	35.8	4876		516		4693		183	28.9	5966		1459	5963	3	35.3
1972	7443	4327		13	316	3763	248	0	58.1	1270		418		1238		32	17.1	1846		1200	1258	588	24.8
19/3	8525	5621		14	707	4655	259	0	65.9	1336		65		1312		24	15.7	1568		386	1145	423	18.4
1974	15062	6211		15	967	5087	157	0	41.2	6776		134	45	6716	12	3	45.0	2075		527	1917	158	13.8
1976	17806	6144		18	1788	4037	319	0	34.5	7834		259	287	7123	22	402	44.0	3828		729	3567	261	21.5
1976	23871	8/15	6628	22	3354	4877	472	12	36.5	11462		451	1812	9496	126	28	48.0	3694		707	2617	1077	15.5
	30530	6646	5044	19	3307	2886	431	22	21.8	18312		574	4399	13572	164	177	60.0	5572		866	5456	116	18.3
13778	25353	4042	4408	17	2480	1447	91	24	15.9	14607		751	3135	11276	42	154	57.6	6704		1000	6525	179	26.4
19/9	16468	4670	5400	20	2054	2534	79	3	28.4	9434		442	1040	8302	20	72	57.3	2364		706	2037	327	14.4
19980	28531	6409	6050	22	2243	4101	64	1	22.5	21025		500	1061	19950	7	7	73.7	1097		372	822	275	3.8
1981	16895	5798	6515	22	1883	3852	58	3	34.3	10099		600	1050	9038	6	5	59.8	1000		285	387	613	5.9
1982	18799	5894	5313	21	2038	3773	78	5	31.4	11905		656	896	11008	1	0	63,3	1000		258	360	640	5.3
1983	19986	5946	5071	19	3597	2222	119	8	29.8	13040		670	4313	8717	10	0	65.2	1000		255	350	650	5.0
1984	21119	6525	5638	20	2295	4173	53	4	30.9	13594		602	2157	11431	6	0	64.4	1000		269	340	660	4.7
1985	16753	4629	4566	17	1016	3581	30	2	27.6	11124		613	1685	9392	29	18	66.4	1000		269	320	680	6.0
00000000	19776	4248	6025	17	1670	2492	80	6	21.5	14528		660	1875	12632	16	5	73.5	1000		337	310	690	5.1
	15829	3440	4037	16	1369	1900	168	3	21.7	11389		556	2993	8269	16	111	72.0	1000		341	300	700	6.3
1988	17017	3016	3939	16	1146	1831	32	7	17.7	13001		582	2494	10484	23	0	76.4	1000		380	290	710	5.9
1989	21190	3332	4602	16	752	2560	19	1	15.7	16858		623	2827	14030	1	0	79.6	1000		376	280	720	4.7
1990	21529	2748	4355	16	587	2127	33	1	12.8	18114		671	1920	16179	8	7	84.1	667		425	116	551	3.1
1991	23498	2548	4265	15	464	2057	25	2	10.8	19882		645	1935	17935	11	1	84.6	1068		408	302	766	4.5
1992	24560	1090	3677	13	296	780	13	0.3	4.4	22808	149183	671	6756	16043	9.2	0.4	92.9	662	40663	298	139	523	2.7
1993	15565	462	3088	12	227	226	8	0.6	3.0	14808	107223	671?	4693	10114	1.1	0.2	95.1	295	20209	298?	86	209	1.9

Table 10:	Historical evolution of total effort and catch,	by species(group),	, and per type of fishery in Lake	Tanganyika, Burundi (1950-1993)
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Abbreviations: TC = Overall total annual catch (tonnes); % TYPE FISHERY ABBREV. = Percentage contribution of that type of fishery to total catch

IC = Total industrial catch; ARC = Total artisanal catch; TRC = Total traditional catch

Catch in tonnes of : L. ST. = Lates stappersii; CLUP. = Clupeids; L. SPP. = Lates spp. Oth. = Others

STANDARDIZED FRAME SURVEY RESULT OUTPUT FOR LAKE TANGANYIKA YEAR: 1992 Country : BURUNDI Prepared by: E. COENEN, LTR Date FS : 28 - 31.10.92 Approved by: S. BAMBARA, BFD _____ Total number of landing sites: 37Total number of active fishermen: 4600*Total number of active fishing units: 982 (1) * total number of industrial units : 13
* total number of artisanal units : 969 (2)(3) - total number of trimarans : - total number of catamarans 604 (5) : (6) 67 - total number of appollos : - total number of dugouts :) (7) :) - total number of single planked units 298** (8) (9) - total number of single fiberglass units : (10) - total number of other type (specify) : (1=2+3; 4+5+6+7+8+9+10=3)Total number of transport boats Total number of auxiliary boats : : 19 (auxiliary boat = e.g. lampboat) Total number of outboard engines : 319* Total number of inboard engines : 13 Total number of fishing gear per type : * Industrial fishing : - industrial purse seine net ('senne tournante industr.') : 13 * Artisanal fishing : - chiromila ('senne tournante artisanale') 671 - liftnet ('carrelet') : - gillnet ('filet maillant') : ? - beach seine ('senne de plage') 36* : - scoop net ('épuisette') 33* - trap ('nasse') ? - handline ('ligne')
- hookline ('palangre') ? ? : - other ('autre'), specify : : **REMARKS/OBSERVATIONS** : Details of the above 1992 Frame Survey are reported in COENEN (1994), GCP/RAF/271/FIN - TD/18 (En) 28p. * estimates based on partial counts during the survey. ** represents total number of dugouts plus single planked units.

STANDARDIZED CATCH ASSESSMENT SURVEY RESULT OUTPUT FOR LAKE TANGANYIKA YEAR: 1992 Prepared by: E.COENEN, LTR Country : BURUNDI Date CAS : 22.12.91-08.01.93 Approved by: S.BAMBARA, BFD Total annual catch (all species) : 24560 tons (1) Total annual catch by species(group) : tons (2) tons (3) - Clupeids (Stolothrissa t./Limnothrissa m.) : 16962 - <u>Lates (Lates) spp.</u> (3 species) : - <u>Lates (Luciolates) stappersii</u> : (3) 79 7052 tons tons (4) - Tilapia spp. : (5) : 467 - Others tons (6) (1=2+3+4+5+6): 1090 : 23470 tons (7) tons (8) Total annual catch industrial fishing (8) Total annual catch artisanal fishing - total annual catch liftnet fishery : 22808 - total annual catch gillnet fishery : -- total annual catch beach seine fishery : tons (9) tons (10) tons (11) - total annual catch for other types of artisanal fishery, if data available : - total traditional : 662 tons (12) tons (13) : - tons (13) : - tons (14) (1=7+8; 9+10+11+12+13+14=8)Average catch per unit of effort (CPUE) for each type of fishing, keeping in mind that the unit of effort is defined as the fishing effort performed by one fishing unit per night (or per day, depending on when the fishing trip takes place) : * CPUE for industrial fishing : 296 kg/night * CPUE for artisanal fishing : liftnet fishery
gillnet fishery
beach seine fishery
total traditional
catamaran liftnet
apollo liftnet
153 kg/night
kg/night
kg/night **REMARKS/OBSERVATIONS** : Frame Survey done by Burundi Fisheries Department (BFD) and LTR in October 1992 (see Frame Survey sheet for 1992). Burundi was also included in lake-wide aerial Frame Survey done by LTR from 29.09 - 03.10.92. (if new FS data available for this year, add FS summary in annex)

STANDARDIZED CATCH ASSESSMENT SURVEY RESULT OUTPUT FOR LAKE TANGANYIKA YEAR: 1993 Country : BURUNDI Prepared by: E.COENEN, LTR Approved by: S.BAMBARA, BFD Date CAS : 9.01 - 28.12.93 ______ ______ Total annual catch (all species) : 15565 tons (1) Total annual catch by species(group) : tons (2) tons (3) - Clupeids (Stolothrissa t./Limnothrissa m.) : 10425 (3) (4) - Lates (Lates) spp. (3 species) : 36 - Lates (Luciolates) stappersii : 4920 tons tons (5) - <u>Tilapia spp.</u> : - Others : 184 tons (6) (1=2+3+4+5+6) : 462 tons (7) : 15103 tons (8) Total annual catch industrial fishing Total annual catch artisanal fishing - total annual catch liftnet fishery : 14808 - total annual catch gillnet fishery : -(9) tons - total annual catch beach seine fishery : tons (10) tons (11) - total annual catch for other types of artisanal fishery, if data available : - total traditional : 295 tons (12) : - tons (13) : - tons (14) (1=7+8; 9+10+11+12+13+14=8)Average catch per unit of effort (\overline{CPUE}) for each type of fishing, keeping in mind that the unit of effort is defined as the fishing effort performed by one fishing unit per night (or per day, depending on when the fishing trip takes place) : * CPUE for industrial fishing : 150 kg/night * CPUE for artisanal fishing : liftnet fishery
gillnet fishery
beach seine fishery
total traditional
catamaran liftnet
apollo liftnet
138 kg/night
kg/night
kg/night **REMARKS/OBSERVATIONS** : No Frame Survey done in 1993 by Burundi Fisheries Department (BFD). Aerial Frame Survey of Lake Tanganyika done by LTR in May 1993 (report in preparation). (if new FS data available for this year, add FS summary in annex)