

THE FISHERY OF LAKE VICTORIA, UGANDA

By

J.O. Okaronon and A.W. Kudhongania
UFFRO, JINJA

STATUS OF THE FISHERY

The only comprehensive assessment of fish stocks in Lake Victoria was undertaken during the period 1968/71 by the UNDP/FAO/EAFFRO. This work established for the first time an order of magnitude for the standing stocks of fish at 248,029 metric tons; in the Uganda portion of the lake, of which 205,592 tons (83%) comprised Haplochromis (NKEJJE). The other dominant species (in order of dominance) included the tilapiines (NGEGE), Bagrus docmac (SEMUTUNDU), Clarias mossambicus (MUDFISH), Synodontis victoriae (NKOLONGO) and Protopterus aethiopicus (MAMBA), Lates niloticus (NILE PERCH) then comprised less than 0.1% of the standing stock (Kudhongania and Cordone, 1974). Rastrineobola argentea (MUKENE), a pelagic shoaling species, was also rare. About 80% of this standing stock was concentrated in shoreline waters of 0-49 metres deep, mostly within the artisanal fishery zone. The vast open and deeper waters had only about 20% of the standing stock.

Since the 1968/71 stock assessment work on the lake, sporadic experimental trawl fishing in limited areas of the Uganda portion of Lake Victoria and analysis of landed commercial catch records from these areas indicate that the composition (by weight) of Lates niloticus in the trawl and commercial catches (in brackets) in the northern portion of the lake (mainly within 0-49 metres depth zone) rose from 0.92% (0.4%) in 1981 to 16.17% (62.7%) in 1983 to 95.63% (13.0%) in 1985. The corresponding figures for haplochromines were 91.4% (96.38%) in 1981, 76.22% (1.35%) in 1983 and 1.15% (NIL) in 1985 (Table 1). The contribution of Rastrineobola argentea in the commercial landings were 0.47% in 1981, 9.07% in 1983 and 72.07% in 1985 (Table 1). During 1989 the catch composition in the commercial catches landed at Masese in Jinja comprised predominantly (percentage by weight in brackets) of Lates niloticus (53.52), Rastrineobola argentea (30.08) and tilapiine species (16.06) (Table 1).

The catch rates in the trawl (i.e. experimental) catches declined from 797 kg/hr in 1968/71 to about 575 kg/hr in 1981 and 166 kg/hr in 1985 while the landed commercial catches from the same area declined from about 18,000 kg/day in 1981 to about 1,000 kg/day in 1983, rising later to about 16,000 kg/day (Table 2).

The trawl data and landed commercial catch statistics (Table 1 and 2) from the northern portion of Lake Victoria indicate, among other things, that the composition of the fish stocks during the

experimental trawling in 1981/85 was not qualitatively different from commercial catch composition. Furthermore the trends in the data may reflect more or less what is prevailing in the fishery.

Lake Victoria was originally a multi-species fishery. Of late, the fish stocks in many parts of the lake are tending to be dominated by the two of the introduced species (L. niloticus and O. eduardianus) and one indigenous cyprinid (R. argentea). Most of the traditional fish species, including the once ubiquitous and preponderant haplochromines, have either declined or almost disappeared from the lake. The standing stocks and, therefore, the estimates of sustainable yields of the most important fish species have unquestionably changed since the survey of 1968/71.

FISH PRODUCTION

During 1988 fish production from Lake Victoria was estimated at 107,092 metric tons of which 92,032 tons comprised Lates niloticus, and the tilapiines contributed 11,570 tons (Drach-Meza, 1988); the fish production from Lake Victoria was estimated at about 30,000 tons in 1970s. In Masese Fish Landing, the landed catch was estimated at 3,675 tons in 1988. This thus gives daily landings of 293 tons for the Uganda portion of the lake and about 10 tons for Masese (Table 3). The current production levels are completely absorbed by the existing local market demand. This calls for caution when planning for export markets. The development of export markets should proceed in graded steps to ensure that local demand is not jeopardized.

Table 3: Estimated fish production (metric tons) for 1988

	<u>LAKE VICTORIA</u>	<u>MASESE FISH LANDING</u>
a) <u>ANNUAL</u>		
All species	107,092	3,675
<u>Lates niloticus</u>	92,032	1,618
Tilapiine species	11,570	1,036
<u>Rastrineobola argentea</u>	2,510	993
Others	980	28
b) <u>DAILY</u>		
All species	293	10
<u>Lates niloticus</u>	250	4.4
Tilapiine species	32	2.8
<u>Rastrineobola argentea</u>	7	2.7
Others	4	0.1

whatever source (e.g. industries, fish processing plants, etc) must be adequately treated before being released into the lake, as a Government aquatic environmental policy. Prevention is better than cure.

Table 1. Percentage catch (by weight) by species in, the Northern portion of Lake Victoria, Uganda.

	BOTTOM TRAWL - Ibis										COMMERCIAL CATCH LAND-LESS				
	1981	1982	1985	1984	1985	1981	1982	1983	1984	1985	1987	1988	1989		
<u>Haplochromine spp</u>	91.14	81.02	76.22	42.53	1.15	96.32	65.79	1.35	0.36	-	-	-	-		
<u>Rebridicobola argentea</u>	-	-	-	-	-	0.47	3.33	9.07	11.89	72.07	12.21	27.03	30.78		
<u>Cratichneumon esculentus</u>	0.02	0.02	0.00	-	-	0.03	0.02	0.06	-	-	-	-	-		
<u>C. variabilis</u>	1.91	0.54	0.30	0.01	0.00	0.53	1.13	1.30	3.12	1.30	0.93	0.00	0.10		
<u>C. niloticus eduardianus</u>	2.14	1.81	1.42	0.71	1.95	1.47	5.49	14.01	21.65	10.40	43.40	29.18	16.06		
<u>C. eustomictus</u>	0.02	0.01	0.01	0.00	0.00	0.03	0.06	0.12	0.30	0.07	0.04	0.01	-		
<u>Tilapia zillii</u>	-	-	-	-	-	0.03	0.06	1.22	8.50	2.63	1.52	0.01	-		
<u>Baetis doanac</u>	0.73	2.30	3.16	1.55	0.79	0.13	0.55	0.67	0.37	0.12	0.05	0.02	0.01		
<u>Clarias mossambicus</u>	2.52	1.97	1.15	0.92	0.04	0.08	0.95	2.04	0.57	0.13	0.10	0.09	0.16		
<u>Protoparvus spp</u>	0.42	0.30	0.63	0.10	0.30	0.28	1.31	5.09	2.09	0.40	0.33	0.18	0.12		
<u>Lebeo spp</u>	0.92	11.58	16.17	53.72	95.63	0.40	20.32	62.70	50.50	13.00	37.83	44.46	53.52		
Others	0.18	0.45	0.18	0.27	0.14	0.03	0.93	2.02	0.54	0.15	0.13	0.02	0.00		

Table 2. Catch rates of fish in the northern portion of Lake Victoria (U)

PERIOD	TRAWL CATCH (Kg/hr)	COMMERCIAL (Kg/day)	LANDINGS AT MASESE (Kg/month)
1981	547.82	17993	547299
1982	363.30	3884	118151
1983	355.33	1171	35617
1984	254.46	1837	56034
1985	166.22	2359	71749
1986	-	-	-
1987	-	5062	153982
1988	-	10040	306230
1989	-	16393	498619

Table 4.

Estimated daily landings of fish at Masese, Jinja.

PERIOD	FISH LANDINGS (Kg/day)							TABLE FISH	
	TOTAL	Ha	Ra	Ti	Ln	Others	TABLE FISH		
							Kg. day	% of Total	
1981	17993	17342	85	339	7	220	566	3.15	
1982	3884	2555	129	263	789	148	1200	30.90	
1983	1171	16	106	199	734	116	1049	89.58	
1984	1837	7	218	617	928	67	1612	87.75	
1985	2359	-	1700	340	307	12	659	27.94	
1986	-	-	-	-	-	-	-	-	
1987	5062	-	618	2495	1916	33	4444	87.79	
1988	10040	-	2714	2831	4422	73	7326	72.97	
1989	16390	-	4930	2632	8772	56	11460	69.92	

Where Ha = Haplochromines; Ra = Rastrineobola argentea; Ti = Tilapia species;
& Ln = Lates niloticus.