

**REPUBLIC OF KENYA**



# 2023 FISHERIES STATISTICAL BULLETIN



*ISSUED JUNE 2024*

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## 1.0 INTRODUCTION

Kenya is endowed with a rich diversity of marine and inland water fisheries resources. The country's marine resources include the nearshore resources along the coastline and in the EEZ in the Indian Ocean, while the inland water resources consist of several large lakes, small lakes, dams, rivers and wetlands. The Kenyan fishery is mostly artisanal, with few commercial/industrial vessels targeting mainly shallow water shrimps, deep water shrimps and lobsters. The country has been developing its industrial fleet and in 2023 had five active longliners and two pot vessels fishing in the Economic Exclusive Zone (EEZ). The artisanal fishery accounts for the larger part of the inland and marine water catches reported here and consequently is currently the main fishery in the country, even though our EEZ, which is predominately exploited by commercial fishery, is less exploited compared to the nearshore fishery. The EEZ fishery is mainly composed of the highly migratory tuna and tuna-like species, though deep water snappers are also harvested in the Northern Kenya bank which lies about 45miles off the coastline.

The fisheries sector plays a significant role in employment and income generation. In 2023, the industry directly supported approximately 65,000 people as fishermen and 70,000 fish farmers, with 149,000 stocked fish ponds. The sector supports about 1.5 million people directly and indirectly working as fishers, traders, processors, suppliers, and merchants of fishing accessories, employees and their dependents. Besides being a rich source of protein, especially for riparian communities, the sector is also essential for preserving culture, national heritage, and recreational purposes. In 2023, the total fish production was 161,308 MT worth 35.9 billion Kenya shillings. This was a 7% decrease in production compared to 173,741 MT worth 37.0 billion Kenya shillings in 2022. As has been the trend, most of the production was from inland capture fisheries, amounting to 121,357MT with an ex-vessel value of Ksh. 26 billion. The fish production from marine and aquaculture was 39,950 and 31,767 MT worth Ksh. 9.9 and 10.0 billion shillings, respectively.

Inland capture fisheries contributed 72% of Kenya's total fish production, with the principal catches coming from Lake Victoria. The lake accounted for 70,313 MT, an 18.8% decrease in catch compared to 86,394 MT in the previous year. Overfishing and use of illegal fishing gears have significantly contributed to Lake Victoria's decline in fish catch. These practices cause severe harm to fish populations and directly contribute to the reduction in overall

catch.

Lake Turkana, the world's largest desert lake, produced 15,899 MT of fish during the year under review, which amounted to a 7.8% decrease compared to 17,251 MT caught in 2022. Other commercially important freshwater bodies whose catches decreased in 2023 were lake Baringo from 442 MT to 420 MT, lake Naivasha from 2,190 MT to 1,140 MT and Kanyaboli from 387 MT to 84 MT. Water bodies that recorded an increase in the catch were the Jipe from 280 MT to 282 MT, Tana Delta from 129 MT to 133 MT, Tana River dams from 210 MT to 226 MT, small dams from 374 MT to 434 MT and the riverline catches from 401 MT to 486.

Marine artisanal production increased from 37,600 MT worth 9.8 billion in 2022 to 39,950 MT worth 10.0 billion in 2023. Marine industrial fishing increased for deep-water crab potterly, shallow prawn trawl fishery and deep-water trawl fishery but decreased for deep-sea longlining fishery. Deep-water trawling is undertaken from November to March, while shallow-water trawling commences from April to October. Deep-water trawl catches increased from 1,158 MT to 2,063 MT, while deep-water crab catches increased from 104 MT to 184 MT. Shallow-water trawling catches increased from 128 MT to 156 MT, while longline catches decreased to 452 MT from 508 MT (Table 1, Figure 1).

Generally, the total fresh water production was 89,702 MT representing 55% of the total production. Marine production 39,950 MT representing 25% of the total production while aquaculture at 31,655 MT represented 20% of the fish production in Kenya during the year 2023 (Figure 2).

Table 1. Quantity and Value of fish landings 2018 – 2023

Categories	2018		2019		2020		2021		2022		2023	
	M. Tons	Value '000 Kshs.	M. Tons	Value '000 Kshs.	M. Tons	Value '000 Kshs.	M. Tons	Value '000 Kshs.	M. Tons	Value '000 Kshs.	M. Tons	Value '000 Kshs.
<b>Fresh Water</b>												
Lake Victoria	98,150	14,487,650	90,743	11,640,537	88,223	12,687,298	94,349	14,082,375	86,394	14,344,784	70,313	12,065,790
Lake Turkana	7,587	564,739	7,031	645,107	13,190	1,177,193	15,644	1,478,953	17,251	3,350,628	15,899	3,132,103
Lake Naivasha	2,287	287,194	3,087	391,719	2,216	238,638	1,804	216,974	2,190	263,715	1,140	147,429
Lake Baringo	145	43,442	203	49,499	162	39,502	406	118,590	442	129,328	420	141,482
Lake Jipe/ Challa	131	38,260	157	45,957	197	57,549	227	66,051	280	89,124	282	89,231
Lake Kanyaboli	203	29,656	300	43,826	264	60,201	286	70,074	387	63,438	84	74,777
Lake Kenyatta	14	1,330	32	2,725	72	7,295	68	6,816	150	14,205	192	19,242
Tana River Dams	297	37,373	394	60,571	283	50,960	197	28,563	210	30,348	226	33,901
Tana River Delta	46	5,069	202	17,595	158	20,360	135	13,048	129	11,634	133	12,545
Aquaculture	15,120	4,480,875	18,542	5,581,142	19,945	6,303,617	20,973	6,711,360	27,833	8,735,512	31,655	9,971,325
Turkwel	34	9,822	50	12,850	107	16,112	98	14,750	100	20,257	93	28,117
Riverine	320	86,400	380	106,371	411	115,049	393	109,454	401	111,643	486	160,380
Small Dams	339	42,015	459	126,455	358	95,022	380	83,465	374	82,381	434	120,451
<b>Total Fresh Water</b>	<b>124,673</b>	<b>20,113,825</b>	<b>121,580</b>	<b>18,724,354</b>	<b>125,586</b>	<b>20,868,796</b>	<b>134,960</b>	<b>23,000,473</b>	<b>136,141</b>	<b>27,246,997</b>	<b>121,357</b>	<b>25,996,773</b>
Marine (Artisanal)	23,145	4,246,962	25,670	4,477,577	23,684	4,831,948	25,380	5,491,800	35,596	8,709,850	36,983	8,309,753
Mariculture	64	1,920	76	1,895	85	2,119	103	2,568	106	2,605	112	2,830
<b>Industrial (Marine)</b>												
Shallow prawn trawl fishery	520	189,605	535	185,900	273	177,446	330	115,231	128	176,403	156	225,741
Deep water trawl fishery	10	42,341	626	170,089	943	518,385	1,026	350,933	1,158	485,425	2063	908,034
Deep water crab pottery	1	251	38	19,072	86	71,295	137	119,680	104	132,620	184	246,367
Deep sea longlining	508	20,362	795	30,759	670	26,855	433	170,965	508	247,694	452	231,409
<b>Total Industrial</b>	<b>1,039</b>	<b>252,559</b>	<b>1,994</b>	<b>405,820</b>	<b>1,972</b>	<b>793,981</b>	<b>1,926</b>	<b>756,809</b>	<b>1,898</b>	<b>1,042,142</b>	<b>2,855</b>	<b>1,611,551</b>
<b>Total Marine</b>	<b>24,248</b>	<b>4,501,441</b>	<b>27,740</b>	<b>4,885,292</b>	<b>25,741</b>	<b>5,628,048</b>	<b>27,409</b>	<b>6,251,177</b>	<b>37,600</b>	<b>9,754,597</b>	<b>39,950</b>	<b>9,924,134</b>
<b>Grand Total</b>	<b>148,921</b>	<b>24,615,266</b>	<b>149,320</b>	<b>23,609,646</b>	<b>151,327</b>	<b>26,496,844</b>	<b>162,369</b>	<b>29,251,650</b>	<b>173,741</b>	<b>37,001,594</b>	<b>161,308</b>	<b>35,918,076</b>

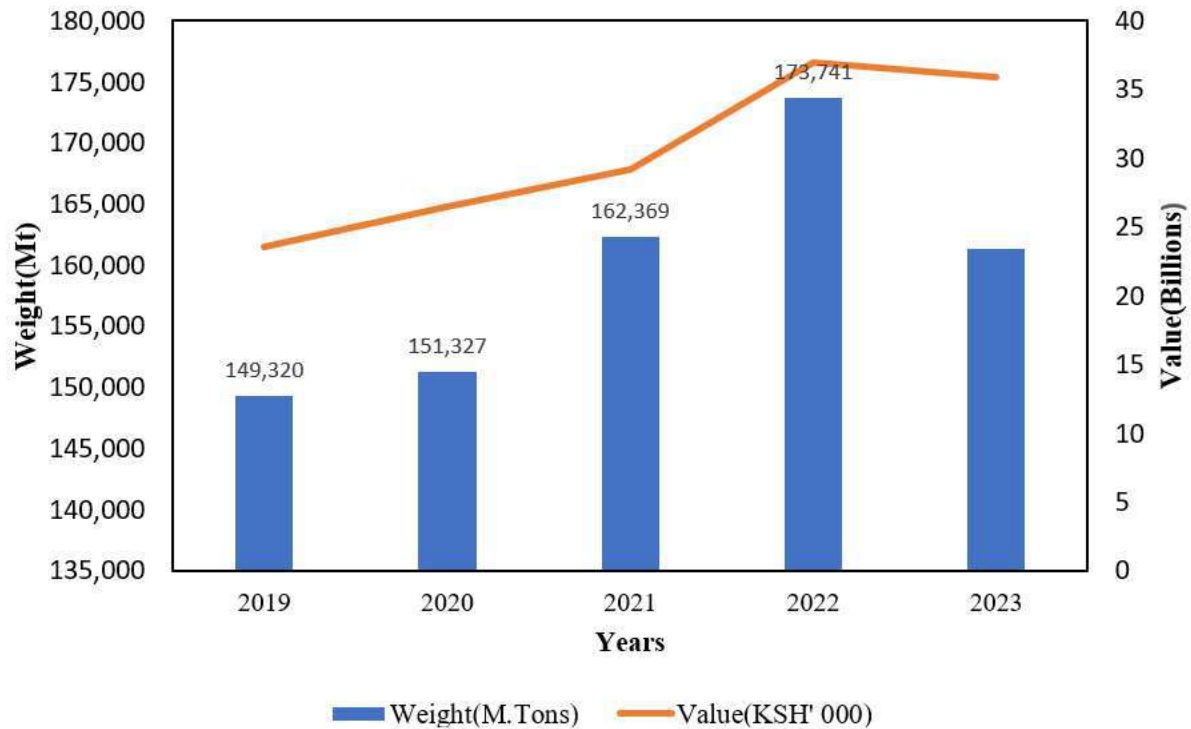


Figure 1: Quantity and Value of fish landings 2019 – 2023

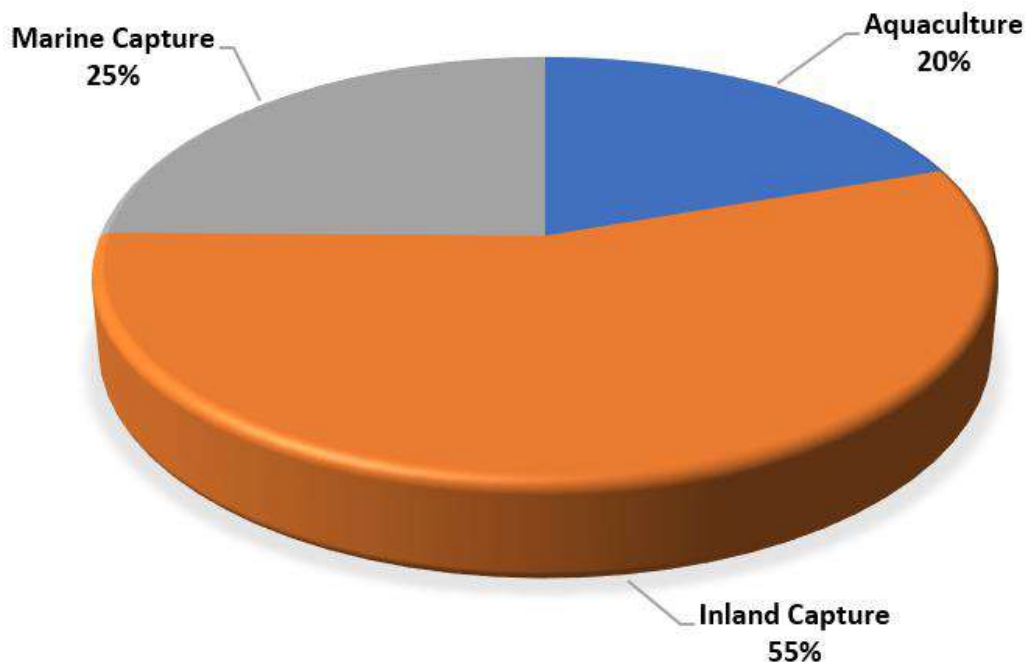


Figure 2: Pie chart showing the proportions of the major types of Fisheries in the country



### 1.1 Lake Victoria Fishery

Lake Victoria’s Fishery accounted for 70,313 MT valued at 12 billion (Table 1) an 18.3% decrease in catch compared to 86,394 MT recorded in the year 2022. The decrease was attributed to increasing overfishing and illegal fishing practices. Overfishing has been an ongoing issue in the lake for several years. The lake has experienced a rapid increase in fishing activity, driven by population growth and economic factors, which has put immense pressure on fish stocks. Lake Victoria is a multi-species fishery with many of known species, but only *Rastrineobola argentea* (Omena), *Lates niloticus* (Nile perch) and *Oreochromis niloticus* (Nile tilapia) are of major economic significance. The catch for the major species was recorded as; *Rastrineobola argentea* at 35,910 MT, *Oreochromis niloticus* 20,677 MT and *Lates niloticus* at 19,907 MT.

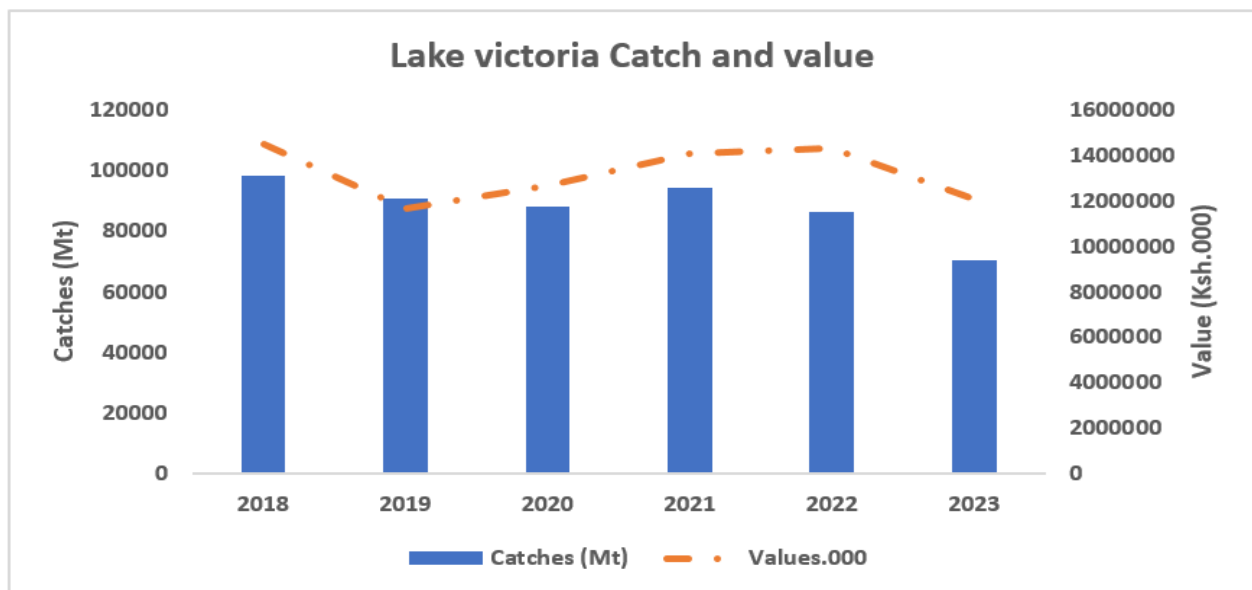


Figure 3: Trends in annual fish landings from Lake Victoria for the year 2019 – 2023

*Rastrineobola argentea* dominated the way with 54% of the total fish captured from Lake Victoria, followed by *Oreochromis niloticus*, *Haplochromis spp* and *Lates niloticus* at 13%, at 9%, *Clarias* at 2%, *Caradina niloticus*, *Synodontis* and *Protopterus* at 1%. (Figure 4).

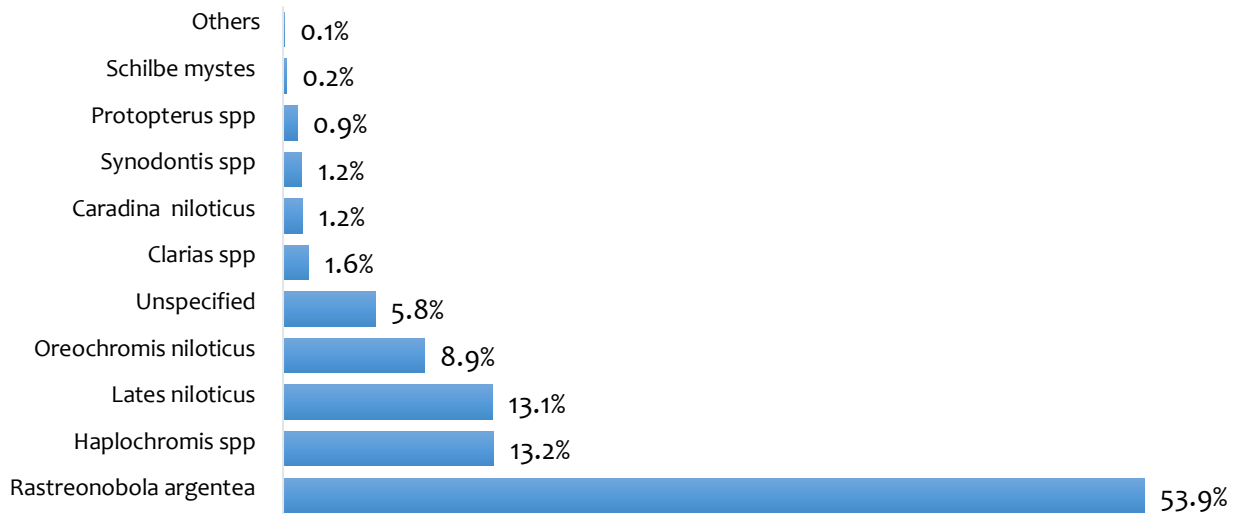


Figure 4: Lake Victoria fish landings by species 2023

Analysis was done to compare the fish catch from Lake Victoria per riparian County (Table 2). Homa Bay County recorded the highest catch at 58%, Siaya 32%, Kisumu 4%, while Busia and Migori recorded the lowest catch at 3% (Figure 5).

Figure 5: Fish weight (MT) caught per Lake Victoria riparian county during 2023.

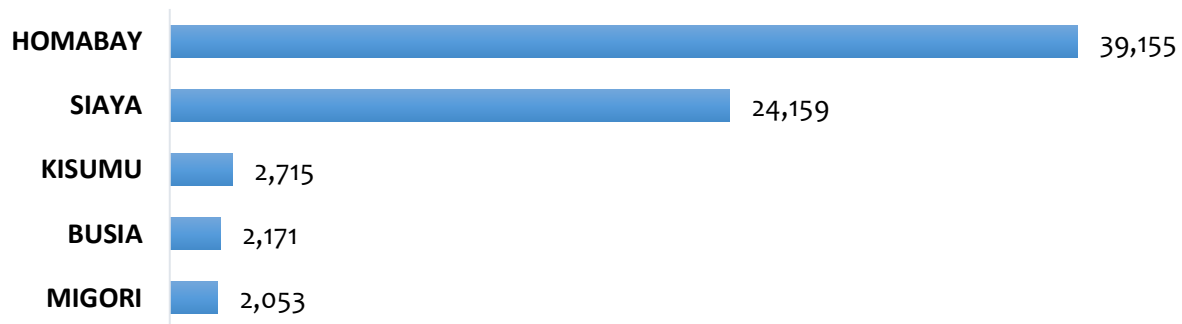


Table 2. Lake Victoria Annual fish landings by Counties by Weight 2013 – 2023

COUNTY	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
BUSIA	5,079	5,468	4,515	4,670	7,010	4,878	5,004	3,216	3,434	2,491	2,171
SIAYA	24,509	28,385	29,257	28,255	36,171	32,084	25,164	28,273	30,489	27,906	24,159
KISUMU	5,550	5,556	4,354	4,149	5,004	4,115	2,013	1,938	3,932	3,298	2,715
HOMABAY	80,150	81,399	66,598	54,540	42,532	53,989	55,523	52,375	53,347	50,053	39,155
MIGORI	9,400	7,899	5,178	6,553	2,003	3,082	3,036	2,422	3,144	2,646	2,053

Table 3. Lake Victoria Monthly fish landings by Species, Weight and Value (Kg) in 2023.

Months	unit	Alestes spp	Bagrus spp	Barbus spp	Clarias spp	Rastreonobola argentea	Labeo spp	Haplochromis spp	Lates niloticus	Mormyrus spp	Protopterus spp	Synodontis spp	Oreochromis niloticus	Carpis	Unspecified	Caradina niloticus	Schilbe mystes	TOTAL
Jan	Kg	250	563	0	104365	4871006	484	316446	529074	1319	27516	53480	614438	33	391508	93300	8674	7012455
	Ksh	63,418	84,358	0	17,493,347	704,765,566	91,981	35,052,421	181,222,485	172,413	6,356,378	5,907,194	116,124,849	8,455	20,644,911	10,395,745	2,165,716	1,100,549,237
Feb	Kg	434	127	32	121719	4859429	734	2049261	618433	795	159796	144848	435609	100	190952	59925	11297	8653490
	Ksh	91,764	19,319	6,439	18,523,700	604,890,227	171,990	293,355,655	176,758,787	155,710	98,447,396	16,290,765	118,906,726	25,367	17,534,399	10,927,923	2,648,609	1,358,754,774
Mar	Kg	242	379	8	113492	4210981	1011	2510392	656423	776	40761	94564	472953	40	241299	54602	12620	8410544
	Ksh	68,660	21,197	5,152	19,157,397	670,629,186	227,360	323,722,263	228,170,120	125,177	9,772,145	10,634,802	121,881,961	10,147	22,907,754	13,053,770	3,400,326	1,423,787,417
Apr	Kg	213	296	0	100789	3460436	847	658967	605267	1215	32474	95222	570539	59	340240	55055	7712	5929330
	Ksh	54,708	70,298	0	16,644,672	449,008,581	212,036	85,839,107	219,321,862	214,050	7,997,327	11,828,734	143,665,831	14,797	31,733,381	10,499,903	2,274,644	979,379,935
May	Kg	584	184	6	50164	3540575	783	156154	703199	2389	63569	65434	491538	41	456667	55810	9893	5596992
	Ksh	165,732	16,850	1,287	12,346,226	530,961,405	208,349	16,504,805	241,347,979	421,223	13,648,432	10,414,622	132,591,305	10,570	47,058,258	13,301,569	2,593,652	1,021,592,265
June	Kg	116	692	64	147812	3294757	710	145034	565712	2704	51232	60169	619575	50	418629	56573	7326	5371156
	Ksh	33,146	35,986	6,439	24,180,236	432,227,255	157,783	14,829,242	194,456,494	517,070	11,417,080	7,581,729	129,232,422	12,683	38,961,329	20,470,515	2,155,174	876,274,586
July	Kg	377	178	0	99482	2630988	927	172378	519547	1624	43678	64407	463199	33	393895	75843	14555	4481112
	Ksh	107,015	9,015	0	17,609,175	408,287,444	195,835	15,806,497	182,367,103	293,958	9,641,013	7,456,613	121,244,753	8,455	37,343,748	13,852,182	4,292,620	818,515,429
August	Kg	550	0	0	82924	2031700	1186	911575	767407	1234	34888	74461	641251	25	344652	59839	7830	4959521
	Ksh	156,262	0	0	14,829,679	260,561,333	247,939	52,729,026	273,250,876	220,773	7,706,805	10,219,404	176,057,009	6,342	32,085,442	11,107,749	2,124,822	841,303,462
Sep	Kg	400	0	0	113451	3172297	449	1493785	732804	1904	61492	63962	571330	41	273421	53643	10623	6549602
	Ksh	113,645	0	0	18,401,101	453,708,136	108,402	88,898,025	265,170,692	344,477	11,888,361	9,114,976	149,492,476	10,570	25,917,955	12,466,270	3,010,346	1,038,645,433
Oct	Kg	301	0	0	82221	3089871	905	491332	712550	1346	36605	57981	568459	50	375786	171113	12625	5601144
	Ksh	85,234	0	0	15,465,558	423,476,009	160,269	57,064,251	495,006,020	242,601	8,466,090	7,486,972	153,118,337	12,683	37,151,471	19,722,986	3,335,742	1,220,794,227
Nov	Kg	142	0	7867	69376	1496750	470	181819	656167	1039	30523	25979	357428	25	337131	63247	15459	3243423
	Ksh	40,249	0	547,190	12,638,416	223,892,452	112,454	24,643,531	257,823,967	144,324	7,839,509	6,454,595	91,679,164	6,342	18,203,357	11,642,898	3,384,756	659,053,206
Dec	Kg	100	0	785	47258	1251318	611	187413	2153621	810	35730	32843	418321	25	294950	61279	19166	4504230
	Ksh	28,411	0	113,980	9,526,314	162,190,619	150,326	15,588,781	235,820,162	124,758	9,022,798	5,714,857	71,720,910	6,342	201,827,185	11,666,134	3,638,913	727,140,489
Total	Kg	3,709	2,419	8,762	1,133,053	37,910,108	9,117	9,274,556	9,220,204	17,155	618,264	833,350	6,224,640	522	4,059,130	860,229	137,780	70,312,999
	Ksh	1,008,244	257,023	680,487	196,815,821	5,324,598,213	2,044,724	1,024,033,604	2,950,716,547	2,976,534	202,203,334	109,105,263	1,525,715,743	132,753	531,369,190	159,107,644	35,025,320	12,065,790,460

## 1.2 Lake Turkana Fishery

The lake has about 48 species of fish with a dozen supporting a commercial fishery. The species exploited commercially include, Nile perch (*Lates niloticus*), Nile Tilapia (*Oreochromis niloticus*), Catfish (*Clarias gariepinus*), mochokid catfishes (*Synodontis schall*), Elongate Trigerfish (*Hydrocynus forskalii*), Assuan labeo (*Labeo horie*), Bagrid catfish (*Bagrus spp*), Nile distichodus (*Distichodus niloticus*), Moonfish (*Citharinus spp*), Common barbel (*Barbus spp*) and African Characidae (*Alestes spp*). The fishery is characterized by bust cycles in fish landings associated with fluctuations in lake levels due to the dynamics of the climatic conditions especially precipitation leading to filling or drying up of the Ferguson's gulf.

During the year under review, 15,899 MT of fish was landed with an ex-vessel value of 3.1 billion Kshs. from both sides (Turkana and Marsabit Counties) of the lake (Table 4 & 5). This was a decrease in quantity from 17,251 MT recorded in the previous year to 15,899 MT this year. This translates to a 7.8% decrease. The trends in annual fish catches from Lake Turkana are determined by the lake's water level due to which the catches have been unpredictable for a long time. The annual trend of the catches in Lake Turkana from 2012 to 2023 are shown in figure 6.

Table 4. Lake Turkana Annual fish landings by Species, Weight (Kgs) in 2023.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
<i>Alestes spp</i>	139,969	157,299	221,559	268,500	272,436	468,801	454,623	263,913	421,173	287,353	481,698	446,186	3,883,510
<i>Bagrus spp</i>	0	1,896	55	0	0	0	4,945	1,510	4,029	4,394	115,828	160,463	293,120
<i>Clarias spp</i>	6,141	13,979	29,155	31,374	9,014	11,943	25,372	11,250	17,030	10,903	36,104	293,433	495,698
<i>Labeo spp</i>	218,669	214,127	223,027	277,012	217,323	230,128	180,994	162,383	181,758	212,596	268,792	386,097	2,772,906
<i>Lates niloticus</i>	27,897	38,314	27,811	36,593	14,038	35,697	38,275	31,797	38,263	34,284	55,021	300,330	678,320
<i>Synodontis spp</i>	0	6,963	715	424	751	703	1,988	826	617	11,371	23,787	145,876	194,021
<i>Oreochromis niloticus</i>	570,125	414,930	413,202	391,427	788,323	211,158	589,455	460,412	631,482	1,407,687	867,010	229,645	6,974,856
<i>Tilapia others</i>	897	751	680	986	1,206	1,228	937	684	449	661	1,252	1,454	11,185
<i>Citharinus spp</i>	0	1,896	0	0	0	2,265	617	0	1,751	1,459	423	14,588	22,999
<i>Hydrocynus spp</i>	0	0	0	0	0	0	0	0	0	0	11,444	408,452	419,896
<i>Distichodus niloticus</i>	0	4,773	4,356	9,208	532	15,934	14,677	9,847	15,492	6,014	6,540	65,644	153,017
<b>Total</b>	<b>963,698</b>	<b>854,928</b>	<b>920,560</b>	<b>1,015,524</b>	<b>1,303,623</b>	<b>977,857</b>	<b>1,311,883</b>	<b>942,622</b>	<b>1,312,044</b>	<b>1,976,722</b>	<b>1,867,899</b>	<b>2,452,168</b>	<b>15,899,528</b>

Table 5. Lake Turkana Annual fish landings by Species, Value (Ksh) in 2023.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
<i>Alestes spp</i>	25,845,733	29,628,851	39,204,307	52,021,465	55,784,398	116,291,036	56,833,541	52,093,735	79,959,081	44,604,636	92,228,892	59,440,162	703,935,836
<i>Bagrus spp</i>	0	409,363	11,470	0	0	0	890,261	238,544	625,250	625,250	43,155,755	18,676,012	64,631,904
<i>Clarias spp</i>	1,473,707	4,339,060	6,234,581	5,841,630	2,054,927	3,560,610	6,477,761	3,667,290	5,060,328	2,067,548	17,930,009	45,688,882	104,396,333
<i>Labeo spp</i>	42,200,260	42,485,154	44,591,921	63,482,582	42,022,385	42,084,223	34,904,221	32,469,095	40,348,844	41,360,711	50,149,155	72,149,508	548,248,059
<i>Lates niloticus</i>	17,219,472	28,403,875	17,970,474	24,980,203	7,770,541	18,624,360	19,498,247	19,116,162	27,257,545	22,559,641	30,375,605	91,079,325	324,855,450
<i>Synodontis spp</i>	0	1,260,574	118,791	76,855	136,014	127,299	359,975	108,762	111,717	2,533,712	4,306,605	11,318,795	20,459,099
<i>Oreochromis niloticus</i>	112,401,279	82,816,473	75,448,975	68,668,779	171,585,764	36,360,331	126,299,473	118,513,519	128,080,391	178,749,833	152,552,421	29,713,165	1,281,190,394
<i>Tilapia others</i>	279,197	230,715	239,204	382,575	468,032	476,521	363,333	196,004	153,181	209,775	485,576	502,366	3,986,480
<i>Citharinus spp</i>	0	409,363	0	0	0	175,758	191,514	0	452,752	264,105	109,415	3,395,639	4,998,546
<i>Hydrocynus spp</i>	0	0	0	0	0	0	0	0	0	0	2,959,789	42,256,835	45,216,624
<i>Distichodus niloticus</i>	0	891,619	965,720	2,092,921	96,398	173,178	3,292,185	2,509,000	4,252,094	1,555,580	1,620,089	12,733,644	30,182,427
	199,419,648	190,875,047	184,785,443	217,547,010	279,918,459	217,873,316	249,110,511	228,912,111	286,301,183	294,530,791	395,873,311	386,954,333	3,132,101,152

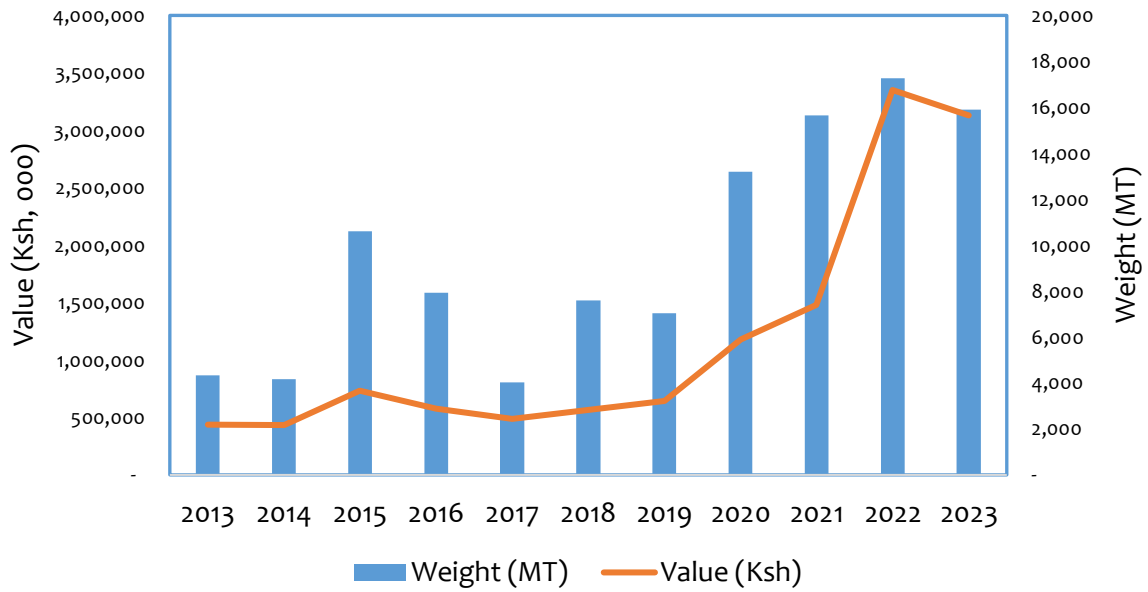


Figure 6: Trends in annual fish landings from Lake Turkana fishery 2013-2023

### 1.2.1 Species Composition

In terms of species contribution to the total weight of fish landed from the lake, *Tilapia niloticus* took the lead with 44%, *Alestes* 25%, *Labeo* 17%, *Lates niloticus* 4%, *Clarias* and *Hydrocynus* 3%, and *Synodontis* and *Distichodus niloticus* 1%, as shown in figure 7 below.

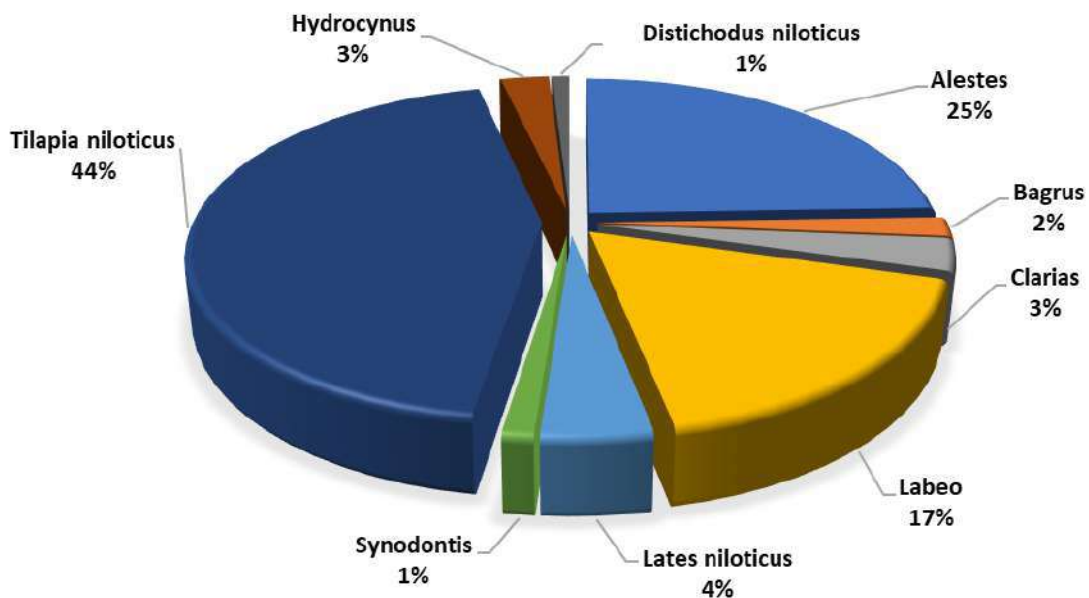


Figure 7: Species composition (Kgs) in catches of Lake Turkana Fishery 2023

### 1.3 Lake Baringo Fishery

The fishery of Lake Baringo is currently based on four species including Nile Tilapia (*Oreochromis niloticus*), Common barbel (*Barbus spp*), Catfish (*Clarias mossambicus*) and Marbled Lungfish (*Protopterus aethiopicus*) which was introduced in the lake. During the year under review a total of 420 MT of fish with an ex-vessel value of Kshs 142 million were landed. This was a 0.5% decrease in quantity compared to last year's production of 422 MT with an ex-vessel value of Kshs. 129 million. The monthly landings by species, weight and value for Lake Baringo are as shown in table 6 & 7 below while the annual landings for Lake Baringo from 2015 to 2023 are shown below (fig. 8).

Table 6. Lake Baringo Monthly fish landings by Species, Value (Ksh) in 2023

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Barbus	357,750	343,500	324,150	312,150	369,600	402,000	336,000	402,000	336,000	357,600	351,150	394,500
Clarias	1,216,400	1,292,400	1,264,400	1,348,800	1,200,400	1,299,600	1,372,400	17,916,000	1,385,600	1,509,600	1,471,200	1,476,000
Protopterus	1,899,000	1,800,000	1,725,000	1,750,000	1,850,000	1,710,000	1,807,500	1,875,000	1,924,000	1,600,000	1,712,500	1,825,000
Tilapia others	5,214,000	4,938,000	5,473,800	4,274,400	4,106,400	7,392,300	9,074,400	9,516,900	8,541,300	7,401,300	9,127,800	7,903,800
<b>TOTAL</b>	<b>8,687,150</b>	<b>8,373,900</b>	<b>8,787,350</b>	<b>7,685,350</b>	<b>7,526,400</b>	<b>10,803,900</b>	<b>12,590,300</b>	<b>29,709,900</b>	<b>12,186,900</b>	<b>10,868,500</b>	<b>12,662,650</b>	<b>11,599,300</b>

Table 7. Lake Baringo Monthly fish landings by Species, Weight (Kgs) in 2023

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Barbus	1,385	1,290	1,161	1,081	1,464	1,680	1,240	1,680	1,240	1,384	1,341	1,630
Clarias	3,041	3,231	3,161	3,372	3,001	3,249	3,431	3,583	3,464	3,774	3,678	3,690
Protopterus	7,596	7,200	6,900	7,000	7,400	6,840	7,230	7,500	7,696	6,400	6,850	7,300
Tilapia others	17,380	16,460	18,246	14,248	13,688	24,641	30,248	31,723	28,471	24,671	30,426	26,346
<b>TOTAL</b>	<b>29,401</b>	<b>28,181</b>	<b>29,468</b>	<b>25,701</b>	<b>25,553</b>	<b>36,410</b>	<b>42,149</b>	<b>44,486</b>	<b>40,871</b>	<b>36,229</b>	<b>42,295</b>	<b>38,966</b>



Figure 8: Trends in annual fish landings from Lake Baringo fishery 2015-2023

The species catch composition was dominated by *Tilapia others* contributing 66% followed by *Proopterus aethiopicus* 20 %, *Clarias* with 10% and *Barbus* 4% as shown below by Fig 9.

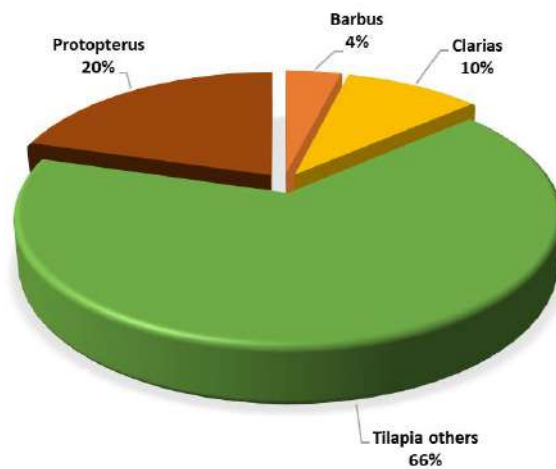


Figure 9: Species composition in catches of Lake Baringo Fishery 2023

#### 1.4 Lake Naivasha Fishery

The present fish population of Lake Naivasha comprises of the introduced species which includes; largemouth bass (*Micropterus salmoides*), *Tilapia zilli*, *Oreochromis leucostictus* and other tilapia species. The exotic rainbow trout (*Onchorhynchus mykiss*) also occasionally strays into the lake from river Malewa while, *Barbus amphigramma* migrates between the lake and river Malewa.

During the year under review, a total of 1,140 tons of fish with an ex-vessel value of Kshs. 147 million were landed from Lake Naivasha as shown in table 8 & 9. This was a decrease of 47.9% in quantity compared to 2022 landings of 2,190 tons which was valued at Kshs.263 million. (Fig 10) compares the landings and ex-vessel values from 2015 to 2023. The huge decline on the Lake Naivasha catches was due to decline in the tilapia catches. This situation led to restocking of the lake with tilapia in 2023.



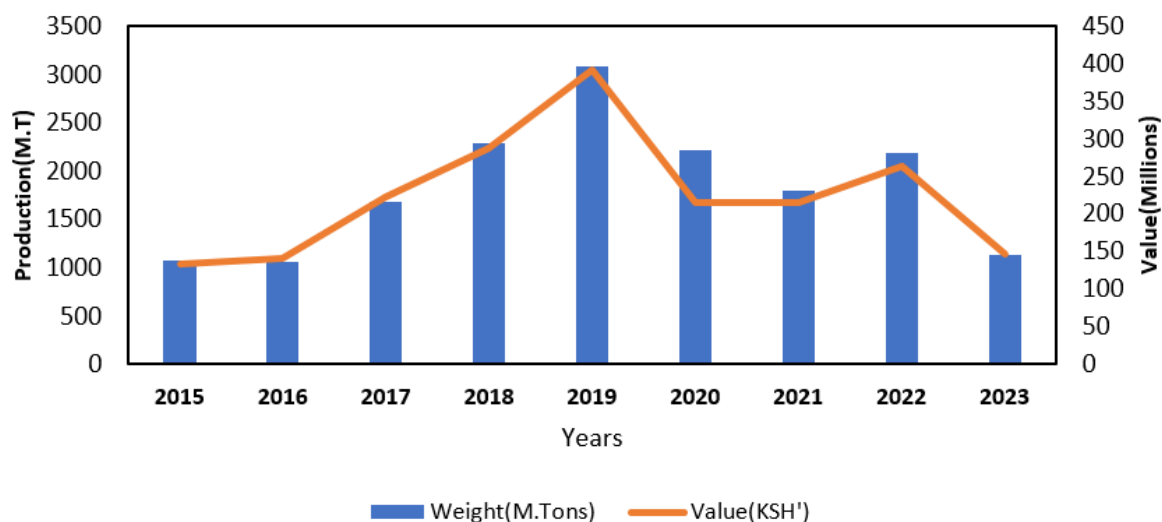


Figure 10: Trends of landings from Lake Naivasha from 2015 to 2023.

Table 8. Lake Naivasha Monthly fish landings by Species, Weight and Value 2023

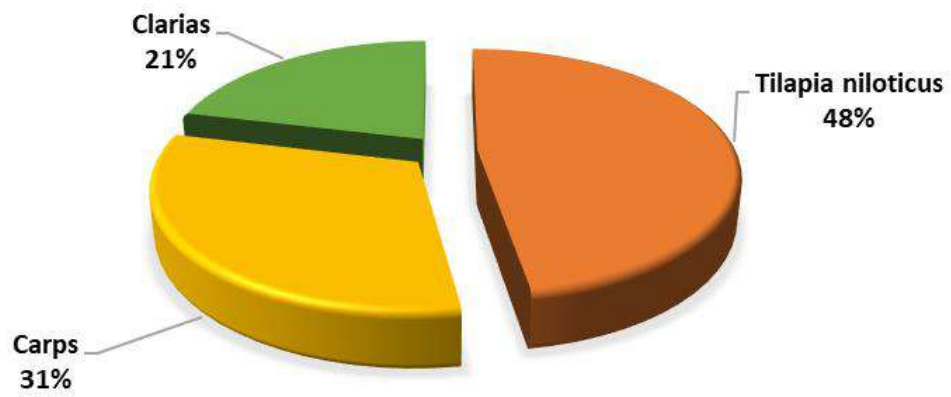
Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Black bass	3	11	10	9	8	14	10	43	7	3	6	5	129
Clarias	8,916	6,246	14,941	10,401	19,022	47,935	26,158	21,483	16,720	19,109	28,823	22,669	242,423
Tilapia niloticus	63,076	64,997	58,215	42,865	47,649	55,240	37,700	43,512	47,508	53,991	16,335	10,975	542,063
Carps	46,589	30,629	33,294	28,488	28,274	22,834	16,089	26,775	25,957	35,873	33,074	27,634	355,510
<b>Total</b>	<b>118,584</b>	<b>101,883</b>	<b>106,460</b>	<b>81,762</b>	<b>94,952</b>	<b>126,023</b>	<b>79,957</b>	<b>91,813</b>	<b>90,192</b>	<b>108,976</b>	<b>78,238</b>	<b>61,283</b>	<b>1,140,123</b>

Table 9. Lake Naivasha Monthly fish landings by Species, Weight and Value 2023

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Black bass	478	1,103	1,030	1,270	970	1,617	2,066	8,086	1,156	1,200	1,145	1,500	21,621
Clarias	719,185	426,027	1,502,275	866,601	1,676,495	4,454,047	2,958,397	2,952,293	2,138,550	2,844,228	2,526,975	2,724,354	25,789,427
Tilapia niloticus	9,165,936	10,569,111	9,121,564	6,173,020	6,624,765	7,692,375	5,353,699	6,460,070	6,873,558	7,131,973	3,144,034	1,561,832	79,871,937
Carps	4,813,097	3,764,962	3,664,878	3,217,030	3,065,531	2,751,032	790,496	3,480,285	3,009,596	4,778,811	4,273,590	4,137,525	41,746,833
<b>Total</b>	<b>14,698,696</b>	<b>14,761,203</b>	<b>14,289,747</b>	<b>10,257,921</b>	<b>11,367,761</b>	<b>14,899,071</b>	<b>9,104,658</b>	<b>12,900,734</b>	<b>12,022,860</b>	<b>14,756,212</b>	<b>9,945,744</b>	<b>8,425,211</b>	<b>147,429,818</b>

Species composition in catches from the lake has changed over the years, as there has been restocking of the lake with tilapia whereby the species has regained its prominence in the landings almost being at same proportion with *Cyprinus carpio* which had previously dominated the fishery. Currently, species contribution to the total weight of fish landed are; Nile Tilapia (*Oreochromis niloticus*) contributed 48% of the total catch. Carps (*Cyprinus carpio*) was the next most dominant species accounting for 31% and *Clarias gariepinus* had 21% of the total catch as shown in (Fig 11) while the monthly fish catches

peaked in the month of June 2023 as shown in (Fig. 12).



*Figure 11: Lake Naivasha species composition landings in metric MT 2023*

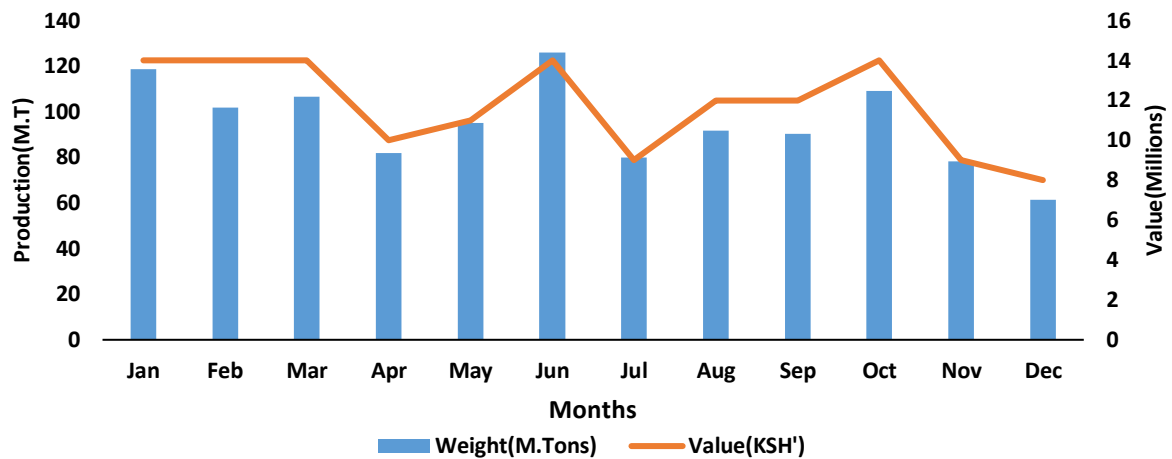


Figure 12: Lake Naivasha monthly catches in Metric tonnes 2023

### 1.5 Lake Jipe and Challa Fishery

Lake Jipe watershed is an important transboundary wetland ecosystem between Kenya and Tanzania. The lake is fed by river Limu which originates from Mt Kilimanjaro slopes and River Muvulani from Pare Mountains. The lake Outflows into River Ruvu. Lake Jipe is experiencing severe catchment degradation mainly due to anthropogenic activities that lead to eutrophication, siltation and pollution.

During the year 2023, a total of 282 MT of both Tilapia and Clarias with an ex-vessel value of Kshs 89 million were landed whereby Lake Jipe contributed 212 MT while Lake Challa contributed 69 MT (Table 10 & 11). The combined trends of fish landing of both Lake Jipe and Challa from 2013 to 2023 (Figure 13).

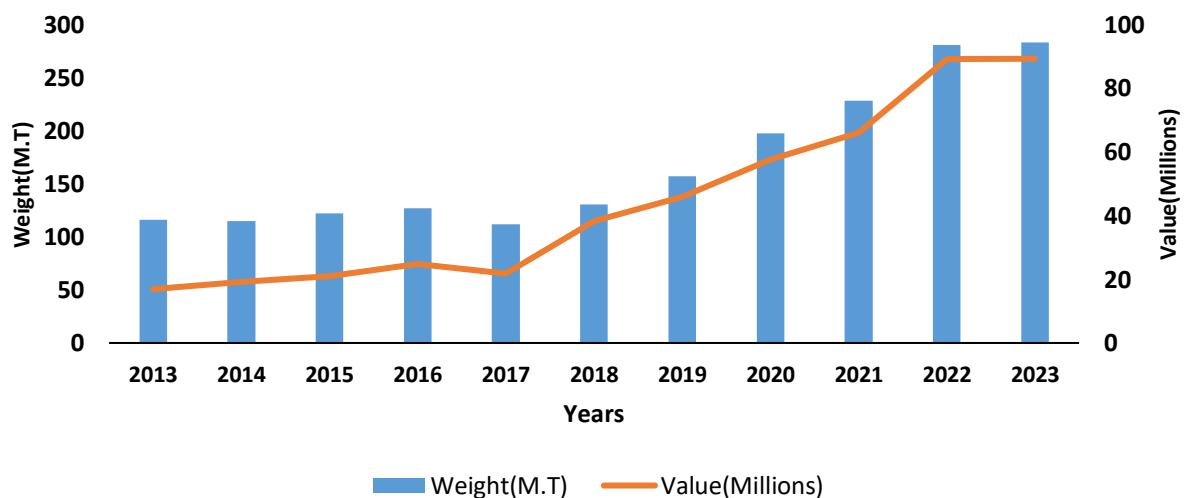


Figure 13: Combined Trends of landings from Lake Jipe and Challa from 2013 to 2023

Table 10. Lake Jipe and Challa Monthly fish landings by Species, Weight and Value 2023

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Clarias (Jipe)	3,744	2,876	3,722	4,600	5,988	3,796	3,188	2,976	2,432	3,654	4,808	5,312	47,096
Tilapia Niloticus (Jipe)	17,104	16,035	15,970	13,480	11,540	13,805	12,706	9,230	10,400	12,712	15,224	17,330	165,536
Tilapia Others (Challa)	4,708	3,942	2,886	6,115	6,708	6,807	6,904	7,005	6,816	6,042	5,571	5,988	69,492
Total	25,556	22,853	22,578	24,195	24,236	24,408	22,798	19,211	19,648	22,408	25,603	28,630	282,124

Table 11. Lake Jipe and Challa Monthly fish landings by Species, Weight and Value 2023

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Clarias (Jipe)	936,000	719,000	930,500	1,150,000	1,497,000	949,000	797,000	744,000	608,000	913,000	1,202,000	1,328,000	11,773,500
Tilapia Niloticus (Jipe)	5,131,200	4,810,500	4,791,000	4,044,000	3,462,000	4,141,500	3,811,800	2,769,000	3,120,000	3,813,600	4,567,200	5,199,000	49,660,800
Tilapia Others (Challa)	1,883,200	1,576,800	1,154,400	2,446,000	2,683,200	2,722,800	2,761,600	2,802,000	2,726,400	2,416,800	2,228,400	2,395,200	27,796,800
Total	7,950,400	7,106,300	6,875,900	7,640,000	7,642,200	7,813,300	7,370,400	6,315,000	6,454,400	7,143,400	7,997,600	8,922,200	89,231,100

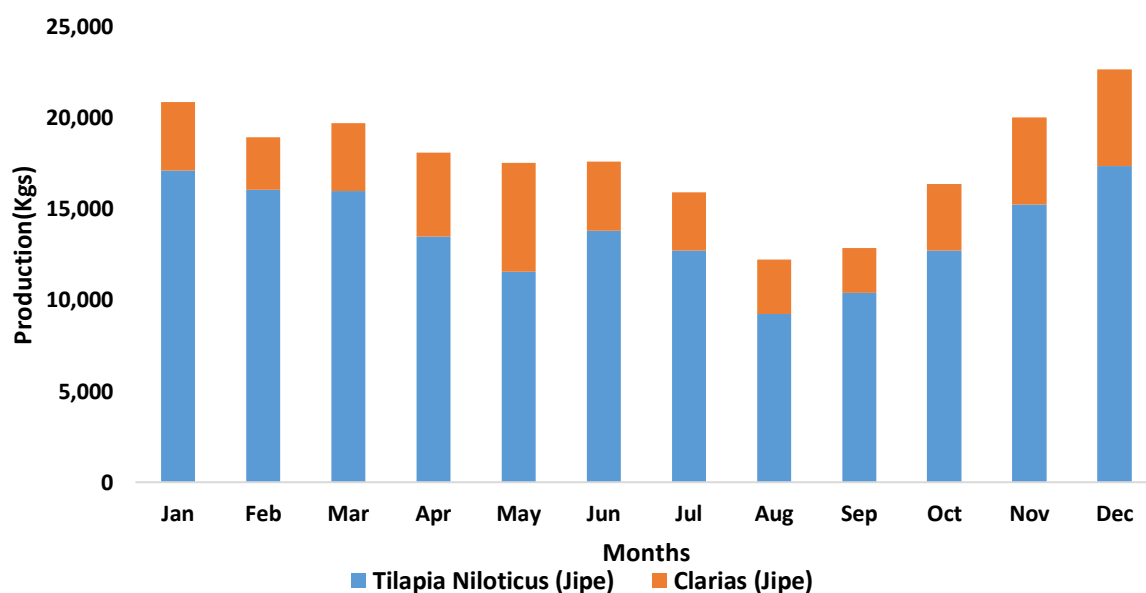


Figure 14: Lake Jipe monthly fish production in 2023

There are only two species caught in Lake Jipe namely; Tilapia and Clarias species with a species composition; Tilapia 78% and Clarias 22% while Lake Challa contributed 100% tilapia as shown in Figure 15 below.

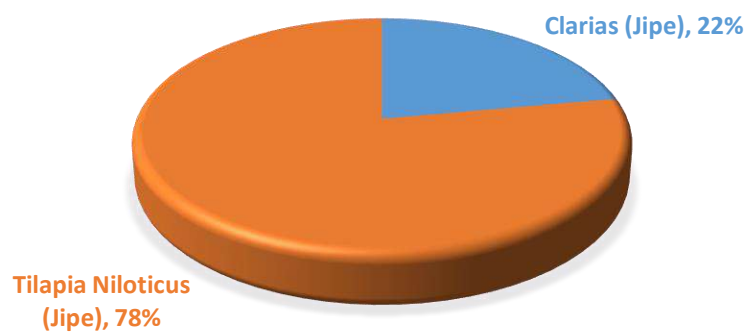


Figure 15: Lake Jipe species composition landings in metric Kgs 2023

### 1.6 Turkwel Dam

Turkwel Dam is one of the major hydro-electric power stations in Kenya. It is situated in Northwest of Kenya, in the border of Turkana, West Pokot Counties. During 2023 a total of 93 MT of fish with an ex-vessel value of Kshs 28 million were landed from the dam. The fisheries of the dam are comprised of two species: Tilapia (*Oreochromis niloticus*) and *Clarias spp.* Tilapia landings contributed 91% (85.1MT) while Clarias contributed 9% (8.3 MT) during the review period. The months of August and January recorded the highest catch while December recorded the lowest catch in 2023, as shown in the monthly fish landings as shown in figure 17. The percentage composition of species catch is shown in figure 16. The monthly combined weight and value of Tilapia and Clarias landing trends in Table 12 and 13 respectively as follows here below.

Table 12. Monthly Fish Production total (Kgs) of Turkwel dam by Species in 2023

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Clarias	817	799	110	626	594	706	762	835	926	715	724	691	8,305
Tilapia Niloticus	7,543	7,401	7,296	7,412	7,233	6,847	7,193	7,525	7,052	7,159	6,507	5,953	85,120
<b>Total</b>	<b>8,360</b>	<b>8,200</b>	<b>7,406</b>	<b>8,038</b>	<b>7,827</b>	<b>7,553</b>	<b>7,955</b>	<b>8,360</b>	<b>7,978</b>	<b>7,874</b>	<b>7,231</b>	<b>6,644</b>	<b>93,425</b>

Table 13. Monthly Fish Value total (Ksh) of Turkwel dam by Species in 2023

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Clarias	245,100	239,904	121,968	187,920	178,164	211,692	228,528	250,608	277,920	214,434	217,056	207,375	2,580,669
Tilapia Niloticus	2,262,816	2,220,192	2,188,800	2,223,570	2,169,990	2,054,088	2,157,786	2,257,490	2,115,720	2,147,580	1,952,100	1,785,780	25,535,912
<b>Total</b>	<b>2,507,916</b>	<b>2,460,096</b>	<b>2,310,768</b>	<b>2,411,490</b>	<b>2,348,154</b>	<b>2,265,780</b>	<b>2,386,314</b>	<b>2,508,098</b>	<b>2,393,640</b>	<b>2,362,014</b>	<b>2,169,156</b>	<b>1,993,155</b>	<b>28,116,581</b>

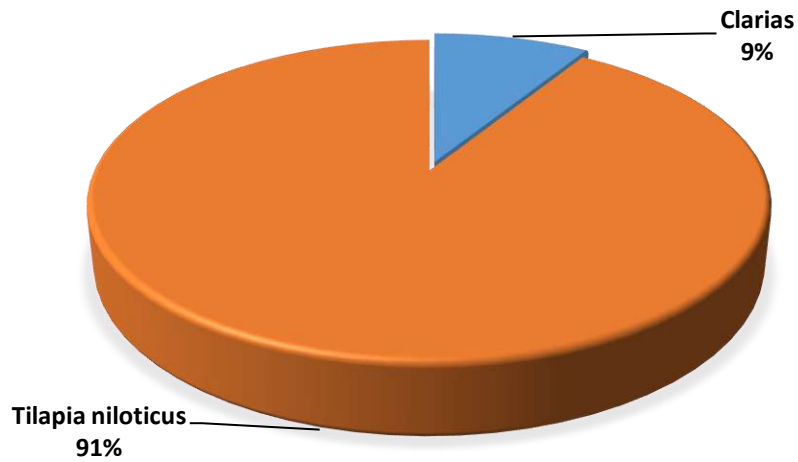


Figure 16: Percentages composition of species catch in Turkwel dam 2023

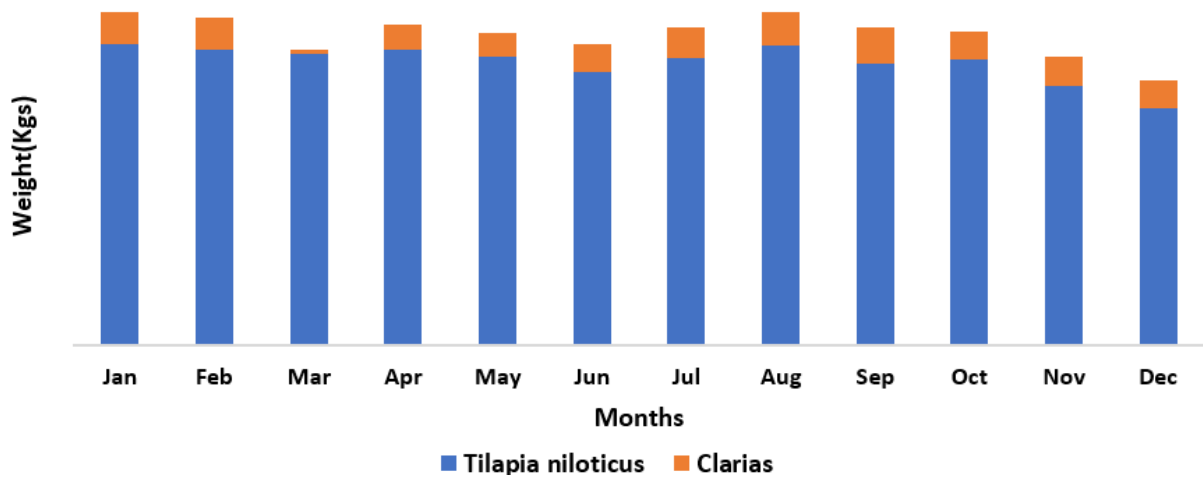


Figure 17: Turkwel Dam monthly landings trends in 2023

### 1.7 Riverine

During the year 2022, fish landings from Riverine amounted to 486 tons with an ex-vessel value of Kshs 160.4 million. The riverine fishery consists of both permanent and seasonal river network in the country. Tilapia (*Oreochromis niloticus*) and *Clarias spp* and were the most landed species from the riverine fishery contributing 70% and 21% of the total landings respectively. Trout and carps contributed 3% of the total landings as shown in both table 14 and Figure 18 as follows.

Table 14. Riverine fish catch weight and value by species in Kgs 2023.

	Weight (Kgs)	Value Kshs
Barbus	6,168	1,212,323
Clarias	103,191	33,334,191
Labeo	18,855	2,956,714
Oreochromis niloticus	339,996	115,435,118
Tilapia others	2,250	793,867
Trout	7,848	4,468,708
Carps	5,355	1,192,565
Eels	2670	986,512
<b>TOTAL</b>	<b>486,333</b>	<b>160,379,998</b>

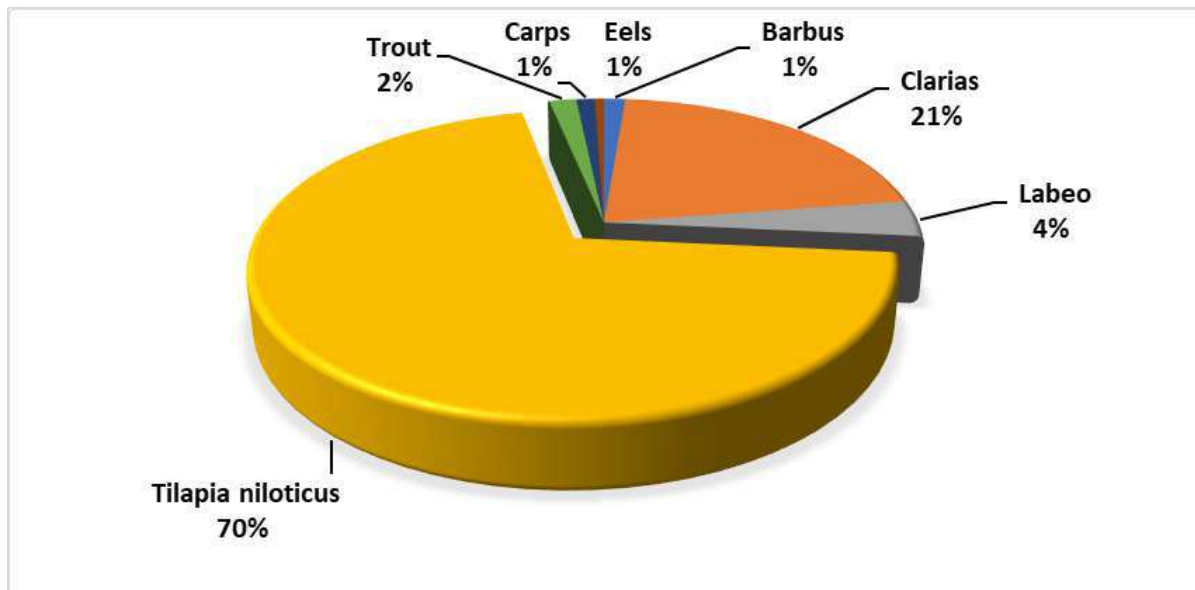


Figure 18: Percentages composition of species catch in Riverine fishery 2023.

## 1.8 Tana River Delta

Fresh water fish landings from Tana River delta in Tana River County during the year under review amounted to 133 MT with an ex-vessel value of Kshs 12.5 million (table 15 & 16). This was a 3.1% increase in quantity and a 0.7 % increase in ex-vessel value compared to 129 MT with an ex-vessel value of Kshs. 11.6 million landed in 2022.

Table 15. Tana River Delta catch weight and value by species in Kgs 2023

Species	JAN	FEB	MAR	APR	MAY	JUNE	JUL	AUG	SEPT	OCT	NOV	DEC	TOTAL
<b>Alestes</b>	1,294	1,135	1,267	1,980	1,901	2,086	1,901	1,478	1,531	1,399	1,267	1,373	18,612
<b>Clarias</b>	1,478	1,452	1,426	1,584	1,769	2,112	2,508	2,112	2,059	2,112	1,769	1,822	22,203
<b>Labeo</b>	871	739	660	792	924	1,003	1,056	1,030	845	766	832	858	10,376
<b>Protopterus</b>	1,188	1,320	1,452	1,584	1,663	2,191	1,980	1,954	1,848	1,716	1,399	1,452	19,747
<b>Synodontis</b>	1,214	1,056	1,399	1,505	1,584	1,716	1,663	1,531	1,320	1,399	1,294	1,346	17,027
<b>Tilapia Niloticus</b>	845	818	660	1,003	1,109	1,452	1,399	1,478	1,637	1,188	1,056	1,003	13,648
<b>Tilapia Others</b>	1,003	1,109	1,096	1,162	1,478	1,346	1,135	1,030	1,188	1,056	1,082	1,056	13,741
<b>Unspecified</b>	1,320	1,386	1,357	1,399	1,452	1,531	1,610	1,637	1,716	1,584	1,452	1,399	17,843
<b>Total</b>	9,213	9,015	9,317	11,009	11,880	13,437	13,252	12,250	12,144	11,220	10,151	10,309	133,197

Table 16. Tana River Delta catch weight and value by species in Kgs 2023

	JAN	FEB	MAR	APR	MAY	JUNE	JUL	AUG	SEPT	OCT	NOV	DEC	TOTAL
<b>Alestes</b>	94,883	83,264	92,946	145,229	139,420	152,974	139,420	83,541	112,310	102,628	92,946	100,692	1,340,253
<b>Clarias</b>	154,911	152,144	149,378	165,976	185,340	221,301	262,795	221,301	215,768	221,301	185,340	190,872	2,326,427
<b>Labeo</b>	63,901	54,219	48,410	58,092	67,773	73,583	77,455	75,519	61,964	56,155	60,996	62,932	760,999
<b>Protopterus</b>	110,650	110,650	121,716	132,781	139,420	183,680	165,976	163,763	154,911	143,846	117,290	121,716	1,666,399
<b>Synodontis</b>	101,798	88,520	117,290	126,142	132,781	143,846	139,420	128,355	110,650	117,290	108,437	112,864	1,427,393
<b>Tilapia Niloticus</b>	106,224	102,905	82,988	126,142	139,420	182,573	175,934	185,893	205,810	149,378	132,781	126,142	1,716,190
<b>Tilapia Others</b>	105,118	116,183	114,800	121,716	154,911	141,079	118,949	107,884	124,482	110,650	113,417	110,650	1,439,839
<b>Unspecified</b>	138,313	145,229	142,186	146,612	152,144	160,443	168,742	171,508	179,807	165,976	152,144	146,612	1,869,716
<b>Total</b>	875,798	853,114	869,714	1,022,690	1,111,209	1,259,479	1,248,691	1,137,764	1,165,702	1,067,224	963,351	972,480	12,547,216

*Clarias* was the most common species with 17%, while *Protopterus* had 15%, *Alestes* 14%, *Synodontis* 13%, *Tilapia* 10%, *Labeo* 8%, *Tilapia* others 10% and other unspecified species contributed 13% to the total catch as shown in Figure 19.



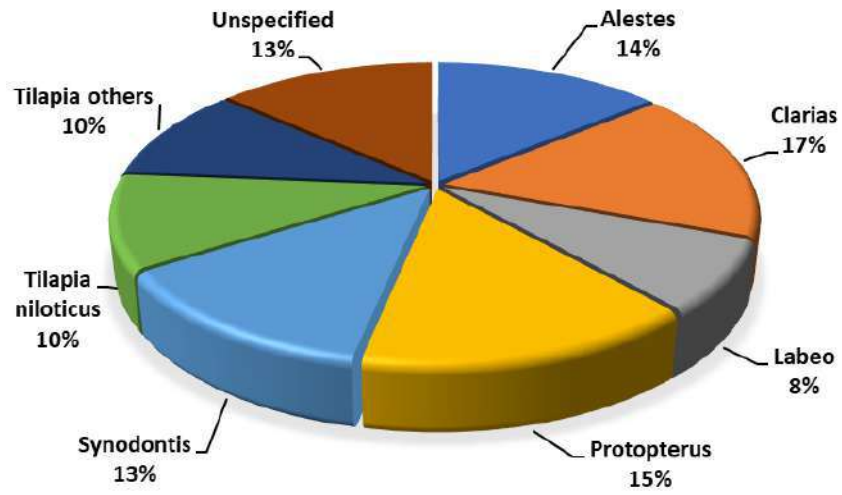


Figure 19: Tana River Delta species composition 2023

## 1.9 Lake Kenyatta Fishery

During the year under review a total of 192 tons of fish with an ex-vessel value of Kshs. 19.2 million were landed from Lake Kenyatta in Lamu County. This was a 28 % increase in quantity of the fish landed compared with 2022 figures of 150 tons with an ex-vessel value of Kshs 14.2 million. Figure 20 shows the Lake Kenyatta fish landing trends from 2016 to 2023 and the monthly trend is shown in table 17 & 18.

Table 17. Lake Kenyatta Monthly fish landings by Species 2023

Species	January	Feb	March	April	May	June	July	August	Sept	October	November	December	Totals
Tilapia	8,954	8,345	7,376	7,495	7,304	7,981	7,608	7,775	7,538	7,126	7,683	7,434	92,619
Clarias	6,499	6,516	5,032	4,169	6,667	6,837	7,138	6,952	6,279	6,395	7,745	6,252	76,481
Protopterus	2,640	2,202	2,038	1,774	1,516	1,738	1,788	2,011	1,859	1,513	1,043	598	20,720
Unspecified	643	622	241	106	103	145	261	221	188	74	-	-	2,604
<b>Total</b>	<b>18,736</b>	<b>17,685</b>	<b>14,687</b>	<b>13,544</b>	<b>15,590</b>	<b>16,701</b>	<b>16,795</b>	<b>16,959</b>	<b>15,864</b>	<b>15,108</b>	<b>16,471</b>	<b>14,284</b>	<b>192,424</b>

Table 18. Lake Kenyatta Monthly fish landings by Species 2023

	January	Feb	March	April	May	June	July	August	Sept	October	November	December	Totals
Tilapia	895,400	834,500	737,600	749,500	730,400	798,100	760,800	777,500	753,800	712,600	768,300	743,400	9,261,900
Clarias	649,900	651,600	503,200	416,900	666,700	683,700	713,800	695,200	627,900	639,500	774,500	625,200	7,648,100
Protopterus	264,000	220,200	203,800	177,400	151,600	173,800	178,800	201,100	185,900	151,300	104,300	59,800	2,072,000
Unspecified	64,300	62,200	24,100	10,600	10,300	14,500	26,100	22,100	18,800	7,400	-	-	260,400
<b>Total</b>	<b>1,873,600</b>	<b>1,768,500</b>	<b>1,468,700</b>	<b>1,354,400</b>	<b>1,559,000</b>	<b>1,670,100</b>	<b>1,679,500</b>	<b>1,695,900</b>	<b>1,586,400</b>	<b>1,510,800</b>	<b>1,647,100</b>	<b>1,428,400</b>	<b>19,242,400</b>

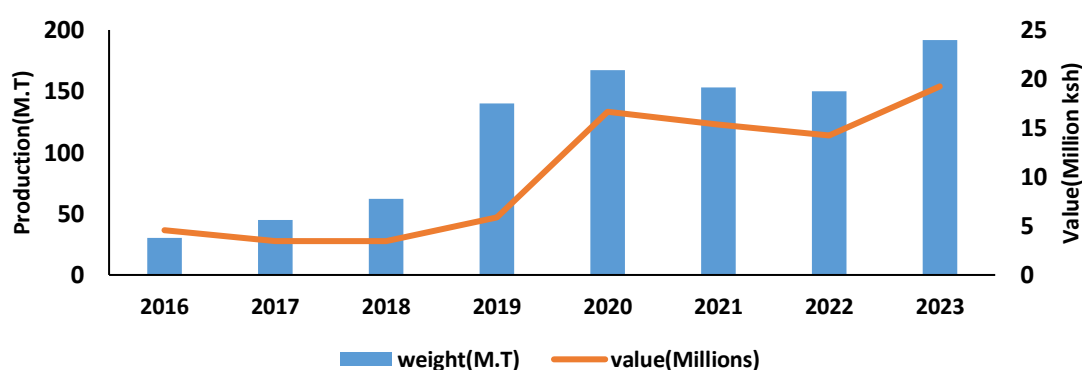


Figure 20: Lake Kenyatta fish catch trends in MT 2016 – 2023

Tilapia landings contributed 48% (92 MT) while *Clarias* contributed 40% (76 MT), *unspecified* contributed 1% (2 MT) and *Protopterus* contributed 11% (20 MT) to the total catch during the review period as shown in Figure 21. The monthly catches for Tilapia,

Clarias and Protopterus are as shown in figure 22 below;

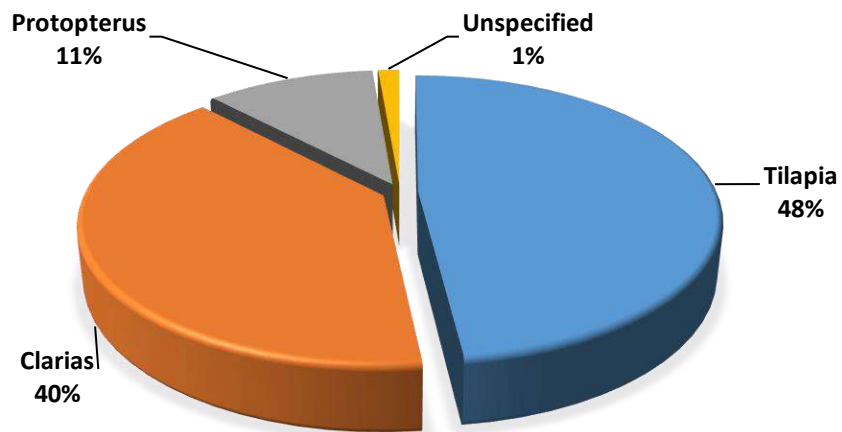


Figure 21: Lake Kenyatta Species composition 2023

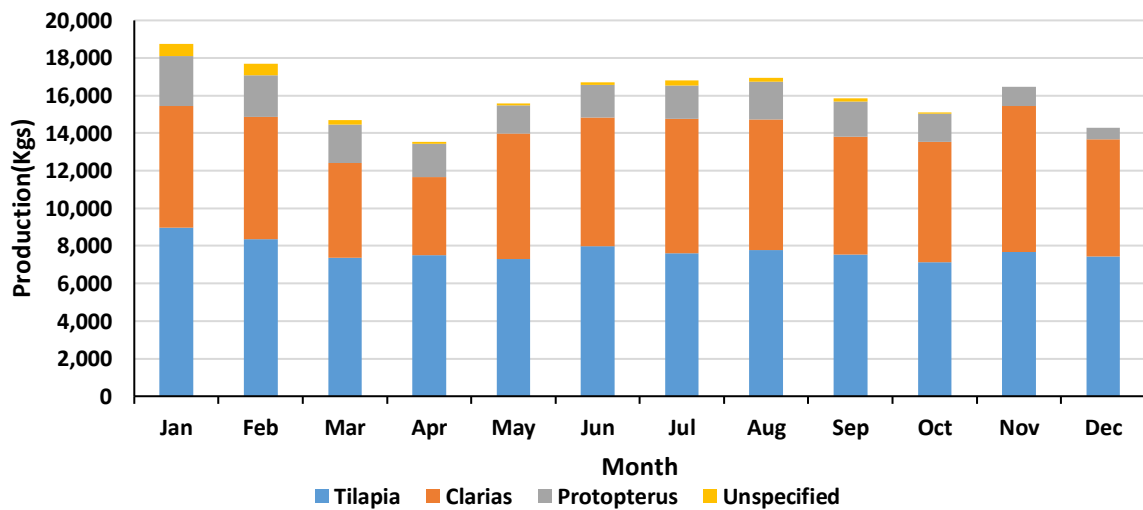


Figure 22: Monthly Tilapia Landings of Lake Kenyatta for the year 2023

## 1.10 Tana River Dams Fishery

In 2023, a total of 226 MT of fish with an ex-vessel value of Kshs 33.9 million were landed from the main fishery water bodies of the Tana River dams of Masinga, Kamburu, and Kiambere. This was 7.6% increase in quantity compared to 2022 landings of 210 MT valued at Kshs 30.3 million. The monthly catches for 2023 are shown in table 19 & 20. The month of December recorded highest landings while November had the lowest landings.

Table 19. Tana River Dams Monthly fish landings by Species 2023

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
<b>Clarias</b>	8,821	9,337	9,707	7,491	6,361	7,272	9,044	10,528	7,032	6,642	6,756	12,873	101,864
<b>Tilapia</b>													
<b>Niloticus</b>	5,776	4,695	7,138	6,109	4,252	5,699	7,536	4,646	5,410	10,219	3,658	5,735	70,873
<b>Carps</b>	2,032	2,439	3,939	2,955	6,715	4,634	3,036	1,626	3,479	2,549	4,878	3,805	42,087
<b>Mixed</b>	772	1,041	988	821	732	939	1,415	1,041	829	715	728	809	10,830
<b>Total</b>	17,401	17,512	21,772	17,376	18,060	18,544	21,031	17,841	16,750	20,125	16,020	23,222	225,654

Table 20. Tana River Dams Monthly fish landings by Species 2023

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Clarias	1,200,073	1,247,637	962,796	817,549	934,662	1,162,427	1,353,128	903,791	853,670	868,343	1,654,526	3,220,881	15,179,483
Tilapia													
Niloticus	603,424	917,431	785,197	546,483	732,473	968,584	597,143	695,320	1,313,417	470,158	737,095	2,240,990	10,607,715
Carps	313,468	506,279	379,788	863,048	595,617	390,198	208,964	447,139	327,603	626,937	489,048	1,330,783	6,478,872
Mixed	133,805	126,985	105,536	94,094	120,703	181,862	133,805	106,568	91,896	93,556	103,966	342,410	1,635,186
Total	2,250,770	2,798,332	2,233,317	2,321,174	2,383,455	2,703,071	2,293,040	2,152,818	2,586,586	2,058,994	2,984,635	7,135,064	33,901,256

The fisheries of the dam are comprised of four species: Tilapia (*Oreochromis niloticus*), Carps, *Clarias spp* and *mixed species*. Clarias landings contributed 45% (101 MT) while Tilapia contributed 31% (70 MT). Carps contributed 19% (42MT) while mixed species had the lowest landings with a contribution of 5% (10MT) of the total catch during the review period Figure 23. The monthly landing trends for the Carps, Clarias, and Tilapia are shown in Figure 24 for the three species in the year of 2023.

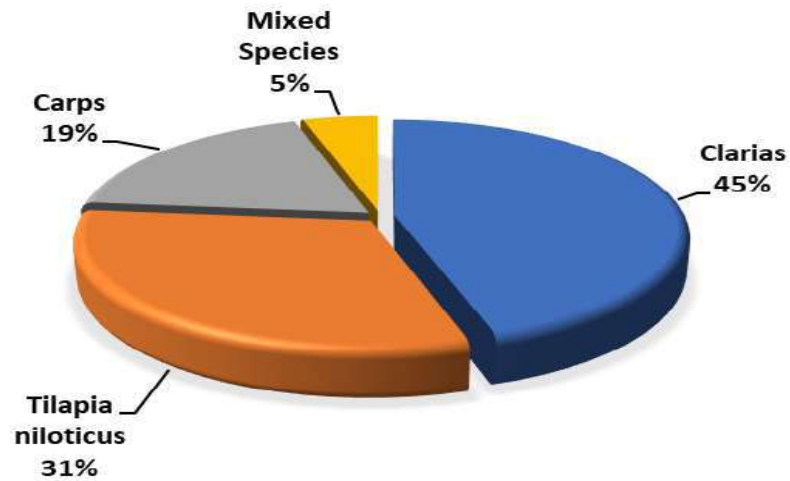


Figure 23: Tana river dams Species composition 2023

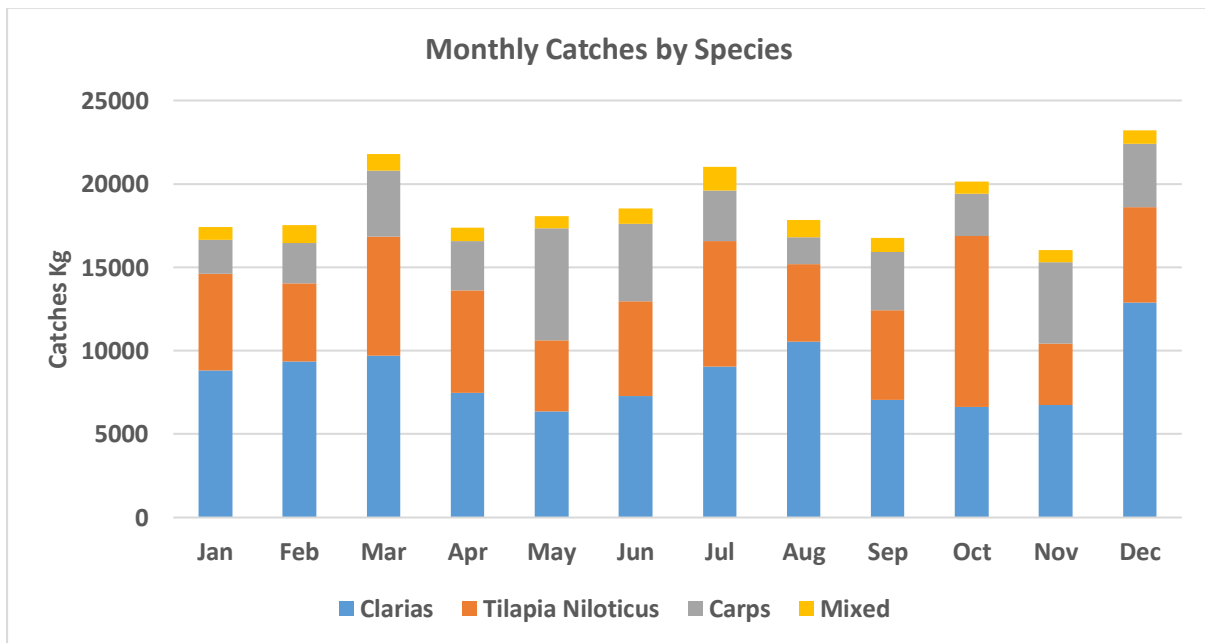


Figure 24: Tana River Dams Monthly Landings in the Year 2023

### 1.11 Lake Kanyaboli Fishery

Lake Kanyaboli is one of the satellite lakes of Lake Victoria and it is located in Siaya County. The fisheries of the lake are comprised of the following fish species: *Oreochromis niloticus*, *Protopterus aethiopicus*, *Haplochromis* and *Clarias spp.* During the year under review, a total of 84 MT was landed from the lake. This was a massive 79% decrease in quantity of the fish landed compared with 2022 figures of 387 MT. This was due to the breaking of the lake's dykes in May 2023 leading to a decline in production as noted in table 21 & 22. The catches from 2015 to 2023, monthly catches for 2023 and species composition in 2023 are shown in Figures 25, 26 and 27 respectively.

Table 21. Lake Kanyaboli Monthly fish landings by Species 2023

Species	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Clarias	2,300	2,230	3,205	4,723	1,002	601	679	710	907	1,126	1,021	910	19,414
Haplochromis	310	511	280	390	311	405	628	501	510	340	450	320	4,956
Momyrus	6	10	15	11	4	10	13	11	14	10	8	5	117
Protopterus	1,200	969	1,120	1,400	996	1,500	1,275	696	1,030	1,335	1,224	1,030	13,775
Tilapia Others	1,300	2,415	3,125	1,365	1,030	2,110	1,360	25,000	1,521	1,368	2,625	2,900	46,119
<b>Total</b>	<b>5,116</b>	<b>6,135</b>	<b>7,745</b>	<b>7,889</b>	<b>3,343</b>	<b>4,626</b>	<b>3,955</b>	<b>26,918</b>	<b>3,982</b>	<b>4,179</b>	<b>5,328</b>	<b>5,165</b>	<b>84,381</b>

Table 22. Lake Kanyaboli Monthly fish landings by Species 2023

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Clarias	790,000	66,900	961,500	1,416,900	300,600	180,300	203,700	213,000	272,100	337,800	306,300	270,000	5,319,100
Haplochromis	31,000	51,100	28,000	3,900	3,100	40,500	62,800	50,100	51,000	34,000	45,000	32,000	432,500
Momyrus	1,200	2,000	3,000	2,200	4,800	800	2,600	2,200	2,800	2,000	1,600	1,000	26,200
Protopterus	12,000	96,900	112,000	140,000	99,600	150,000	127,500	69,600	103,000	133,500	122,400	103,000	1,269,500
Tilapia Others	325,000	603,750	781,250	341,250	257,600	527,500	340,000	62,500,000	380,250	342,000	656,250	675,000	67,729,850
<b>Total</b>	<b>1,159,200</b>	<b>820,650</b>	<b>1,885,750</b>	<b>1,904,250</b>	<b>665,700</b>	<b>899,100</b>	<b>736,600</b>	<b>62,834,900</b>	<b>809,150</b>	<b>849,300</b>	<b>1,131,550</b>	<b>1,081,000</b>	<b>74,777,150</b>

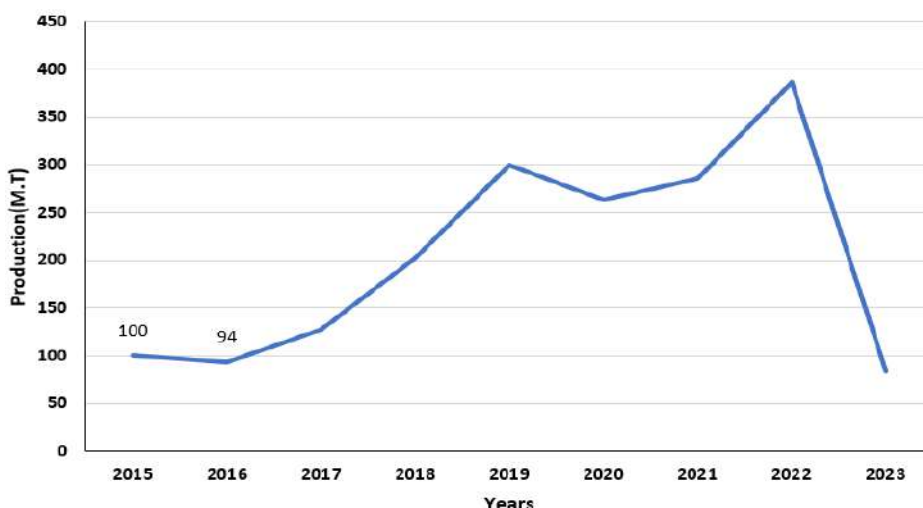


Figure 25: Lake Kanyaboli fish catch trends in MT 2015-2023

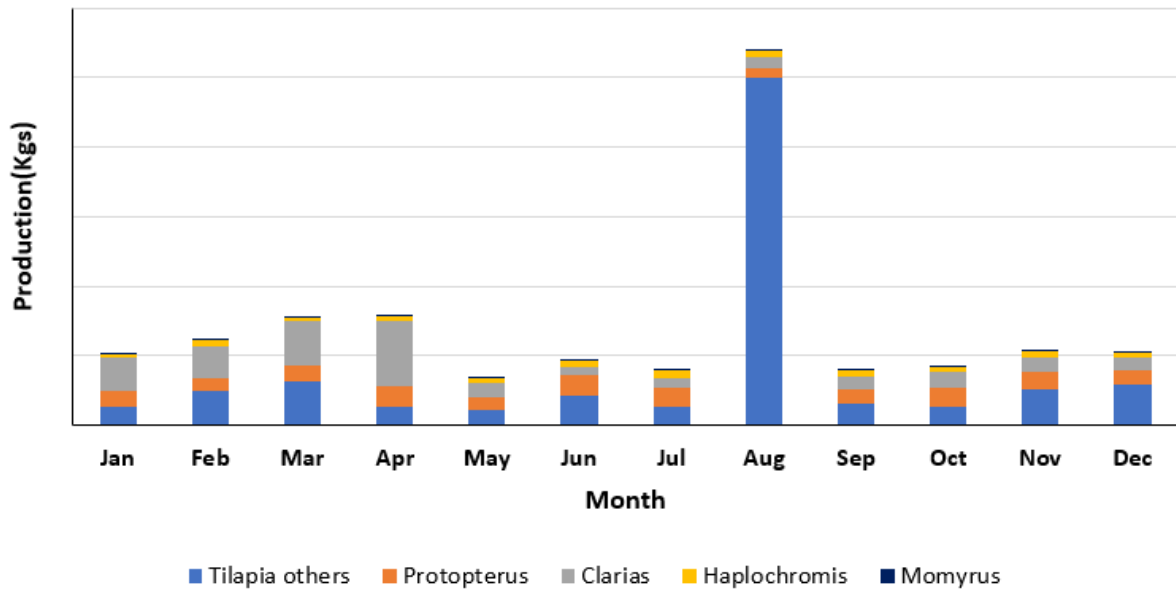


Figure 26: Lake Kanyaboli Monthly Landings by Weight for the Year 2023

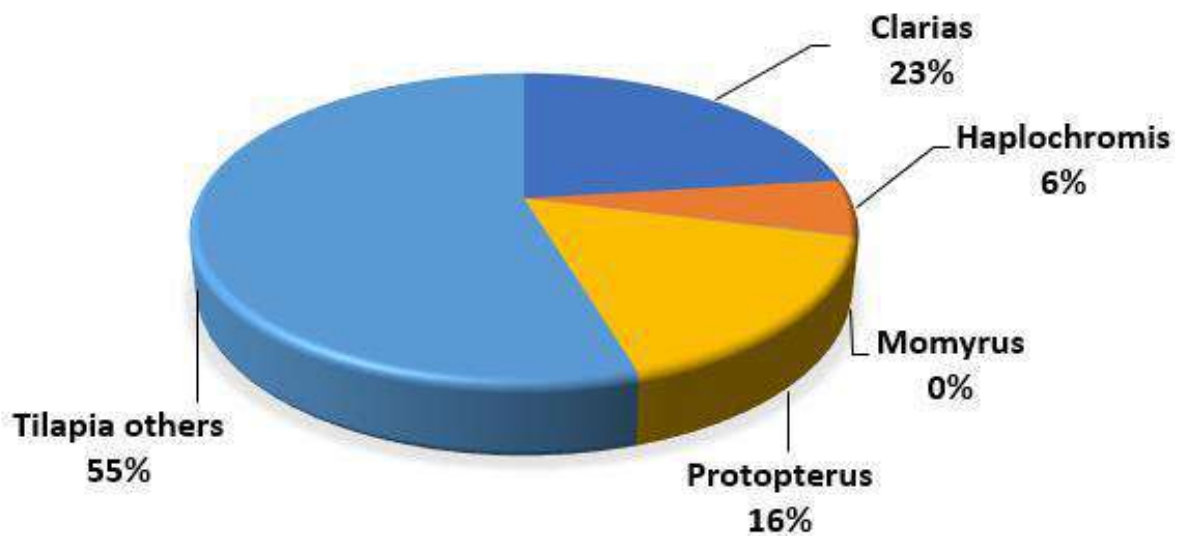


Figure 27: Lake Kanyaboli species composition by weight (kgs)

## 1.12 Small Dams

Dams are standing waters that have been created as a result of erected barriers to stop or restrict flow of water or underground streams. In terms of size, dams are usually greater than 1.0 ha, but less than 100 ha. Kenya has numerous dams, which have great potential for significant fish production and aquaculture. The catches from these dams have contributed in availing food security for the rural population. Stocking of these dams plays an important role in protein provision and alleviation of poverty.

Nile Tilapia (*Oreochromis niloticus*) and Clarias were the most dominant species contributing 60% and 34% of the total catch respectively. Others species each accounted 6% of the total landings (Fig 29). The catch landings from the small Dams per species in Kenya are as shown in table 23 below. Monthly catches per species in 2023 are shown in Figures 28.

Table 23: Small Dams fish landings by county and Species 2023

SPECIES	Baringo	Bomet	Elgeyo- Marakwet	Isiolo	Kajiado	Kitui	Laikipia	Machakos	Makueni	Nakuru	Nyamira	Nyandarua	Nyeri	Samburu	Siaya	Taita Taveta	Tharaka- Nithi	Uasin Gishu	West Pokot	TOTAL
Black bass	-	-	-	-	-	-	-	-	-	-	-	-	130	-	-	-	-	-	-	130
Clarias	21,605	18,545	-	35,770	20,637	3,402	1,858	13,244	3,922	-	807	13,877	773	296	-	200	-	3,011	8,305	146,252
Lates niloticus	-	-	-	-	-	-	3,648	-	-	-	-	5,240	-	-	-	-	-	-	-	8,888
Tilapia niloticus	54,280	35,050	4,000	-	20,766	11,356	-	10,640	3,722	3,718	766	-	5,897	6,194	363	4,800	891	13,273	85,120	260,836
Tilapia others	-	-	1,100	-	-	-	-	-	-	-	1,179	-	-	-	-	-	-	-	-	2,279
Trout	-	-	1,200	-	-	-	-	-	-	-	-	546	-	-	-	-	-	-	-	1,746
Carp	-	-	-	-	-	-	-	10,354	-	-	-	2,339	-	-	-	-	-	-	-	12,693
Eels	-	-	-	-	-	110	-	-	-	-	-	-	-	-	-	-	-	-	-	110
Schilbe mystes	-	-	2,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,000
<b>TOTAL</b>	<b>75,885</b>	<b>53,595</b>	<b>8,300</b>	<b>35,770</b>	<b>41,403</b>	<b>14,868</b>	<b>5,506</b>	<b>34,238</b>	<b>7,644</b>	<b>3,718</b>	<b>2,752</b>	<b>22,002</b>	<b>6,800</b>	<b>6,490</b>	<b>363</b>	<b>5,000</b>	<b>891</b>	<b>16,284</b>	<b>93,425</b>	<b>434,934</b>



	Baringo	Bomet	Elgeyo- Marakwet	Isiolo	Kajiado	Kitui	Laikipia	Machakos	Makueni	Nakuru	Nyamira	Nyandarua	Nyeri	Samburu	Siaya	Taita Taveta	Tharaka- Nithi	Uasin Gishu	West Pokot	TOTAL
<b>Black bass</b>	-	-	-	-	-	-	-	-	-	-	-	-	45,000	-	-	-	-	-	-	45,000
<b>Clarias</b>	10,802,500	3,709,000	-	5,365,500	3,390,050	1,360,800	724,000	2,603,200	1,678,750	-	239,100	3,356,950	184,900	59,200	-	60,000	-	1,270,650	2,580,669	37,385,269
<b>Lates niloticus</b>	-	-	-	-	-	-	1,404,000	-	-	-	-	1,948,000	-	-	-	-	-	-	-	3,352,000
<b>Tilapia niloticus</b>	16,284,000	7,010,000	3,000,000	-	2,838,250	4,542,400	-	2,128,000	1,300,550	841,012	229,800	-	1,434,300	1,548,500	108,900	1,440,000	445,500	4,258,430	25,535,912	72,945,554
<b>Tilapia others</b>	-	-	750,000	-	-	-	-	-	-	-	353,700	-	-	-	-	-	-	-	-	1,103,700
<b>Trout</b>	-	-	960,000	-	-	-	-	-	-	-	-	546,000	-	-	-	-	-	-	-	1,506,000
<b>Carps</b>	-	-	-	-	-	-	-	2,070,800	-	-	-	599,650	-	-	-	-	-	-	-	2,670,450
<b>Eels</b>	-	-	-	-	-	44,000	-	-	-	-	-	-	-	-	-	-	-	-	-	44,000
<b>Schilbe mystes</b>	-	-	1,400,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,400,000
<b>TOTAL</b>	27,086,500	10,719,000	6,110,000	5,365,500	6,228,300	5,947,200	2,128,000	6,802,000	2,979,300	841,012	822,600	6,450,600	1,664,200	1,607,700	108,900	1,500,000	445,500	5,529,080	28,116,581	120,451,973

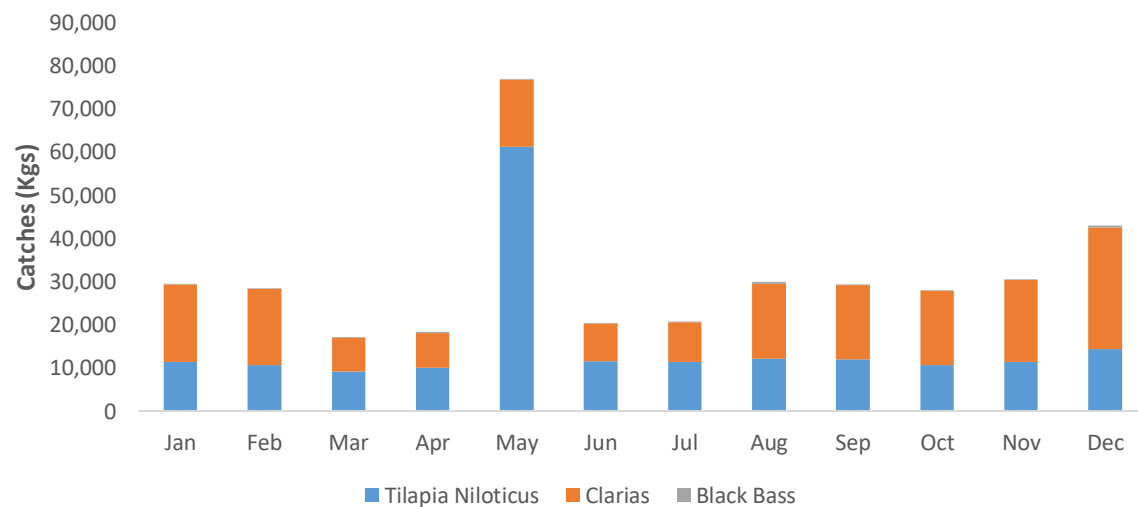


Figure 28: Small Dams Monthly Landings by Weight for the Year 2022

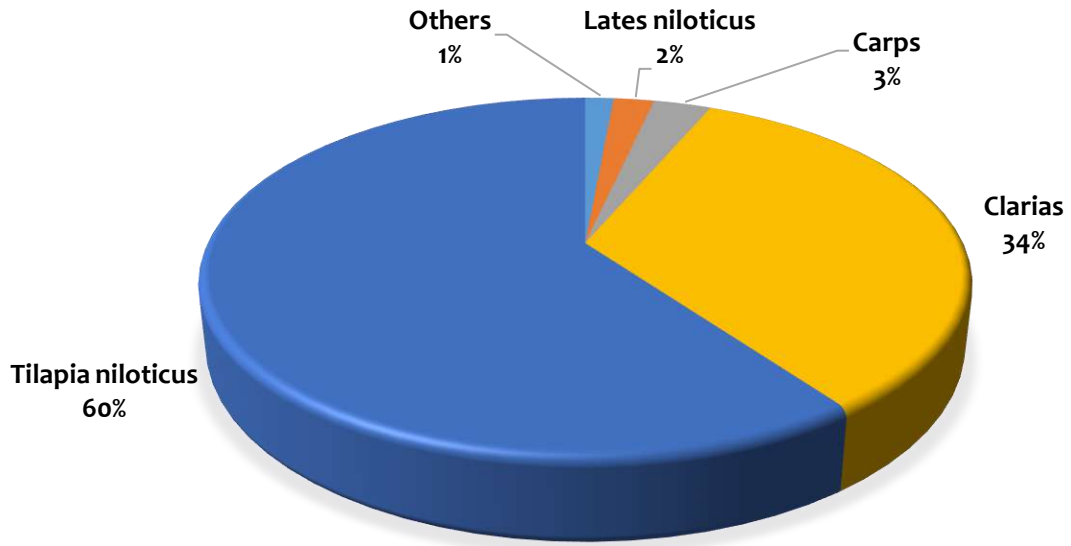


Figure 29: Small dam's species composition by weight (kgs)

## 2.0 AQUACULTURE (FISH FARMING)

Kenya aquaculture sector is gaining momentum to meet the growing demand for fish due to population growth. It's worth noting that there is a substantial gap between the projected demand for fish and its current production. There is need to invest in fish farming in order to achieve the African average per capita consumption of 10 kgs. Considering the estimated population of over 51 million people by 2023, the expected consumption is 510,000 MT. This means that the current overall fish production standing at 161,000 MT has a huge deficit which can be bridged by fish farming, from both fresh water and marine fish farming.

Aquaculture fish production has been on the rise since 2017, indicating a positive trend and greater potential in fish farming. The increase is mainly due to the cage farming in Lake Victoria and the uptake of fish farming in several counties (Fig 34). The production from Lake Victoria cages accounts for 74% of aquaculture production in the country. During the year, 91,638 ponds were operational but only 20% of the ponds were restocked with fingerlings (Table 24).

*Table 24: Status of fish farmers with ponds*

Parameters	Numbers
Number of farmers	60,375
Number of operating ponds	91,638
Area of operating ponds (M <sup>2</sup> )	25,683,692
Number of inactive ponds	15,341
Area of inactive ponds (M <sup>2</sup> )	4,959,701
Number of new ponds	3,611
Area of new ponds (M <sup>2</sup> )	952,789
Number of ponds stocked	18,677
Area of ponds stocked (M <sup>2</sup> )	5,085,892

In 2023, aquaculture recorded 31,767 MT valued at 10.0 billion as compared to 27,939 MT valued at 9.7 billion in 2022. This increase can be attributed to expanding cage culture enterprise in Lake Victoria. On other hand the land-based aquaculture production continues to stagnant mainly due to low level of pond stocking and considerable number of inactive ponds.

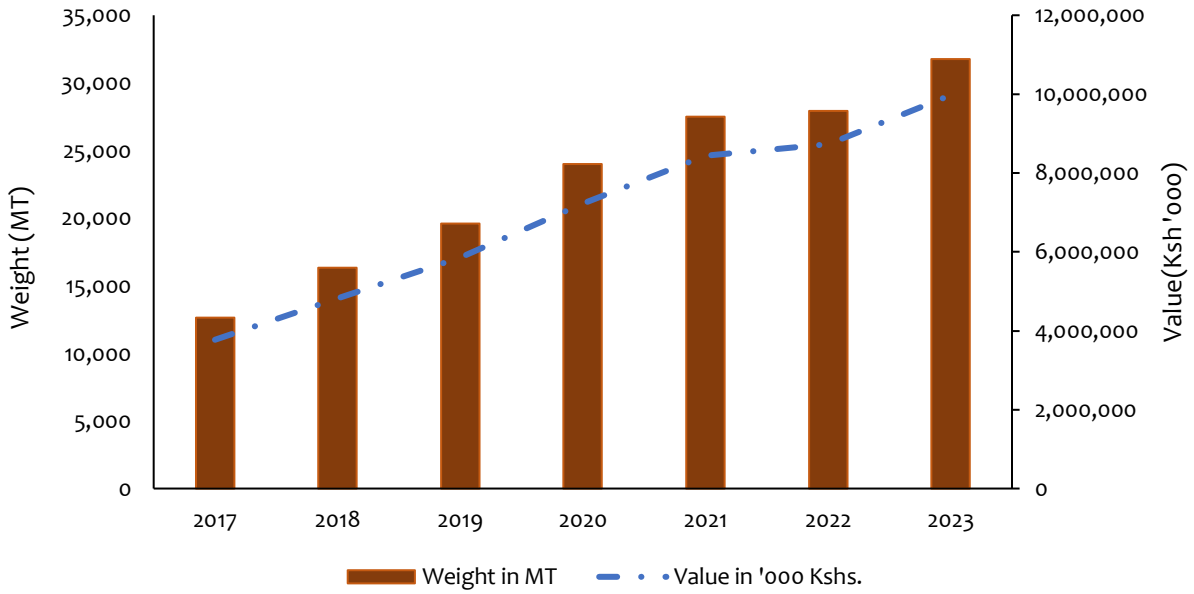


Figure 30: Aquaculture fish production over time

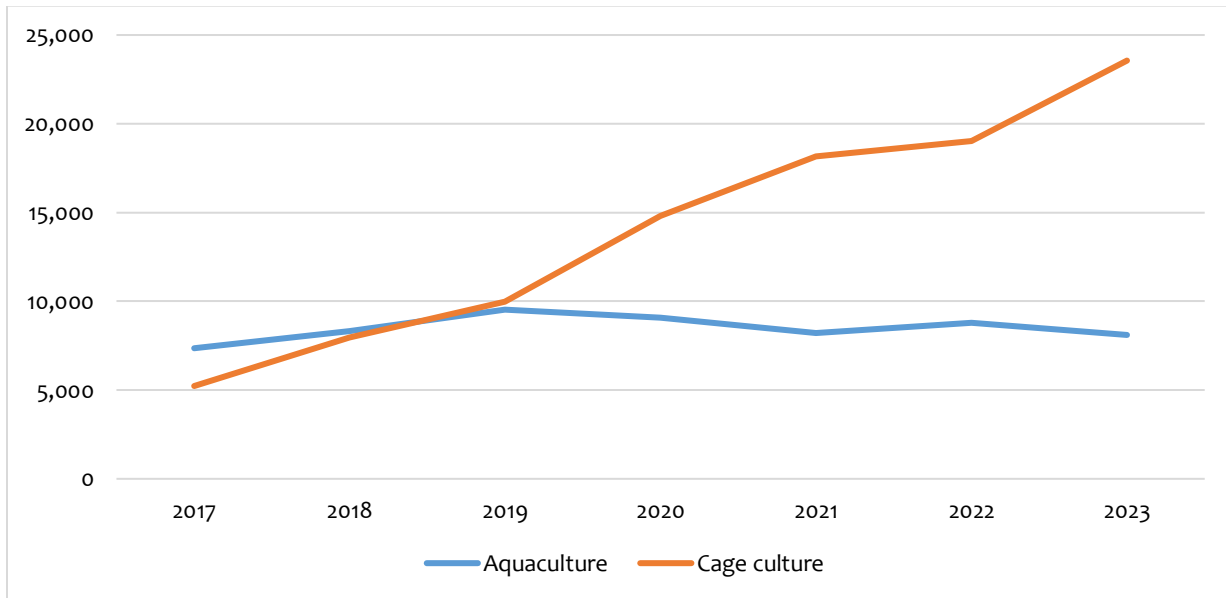


Figure 31: Trends of land based ponds and cage culture 2019-2023

In various fresh aquaculture establishments, the species composition of harvested fish was follows: *Oreochromis niloticus* accounted for 75% of the total quantity harvested, *Clarius gariepinus* comprised 17%, and *Onchorynchus mykiss* represented 5% of the total quantity harvested Figure 32.

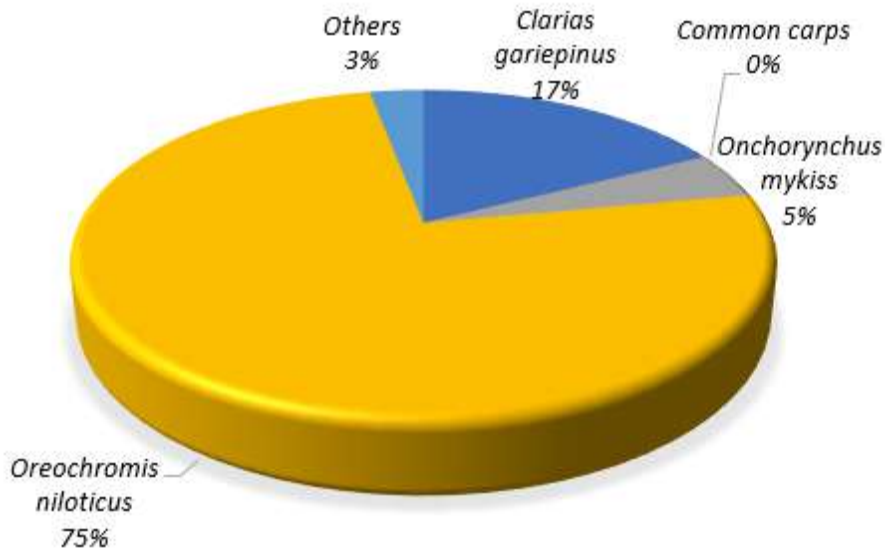


Figure 32: Aquaculture production by Species 2023

The total production from Mariculture in 2023 was 112 MT, with a corresponding value of 2.38 million Kenyan Shillings. This production represents an increase of 5.7% compared to the previous year's (2022) production, which amounted to 106 MT and was valued at Ksh 2.61 million (Fig 33). The main commercial mariculture production of seaweeds is practiced particularly in Gazi, Kibuyuni, Mwazaro, and Mkwiro, located in Kwale county. The main species cultivated were *Kyphosus cottonii* and *Eucheuma spinosum*.

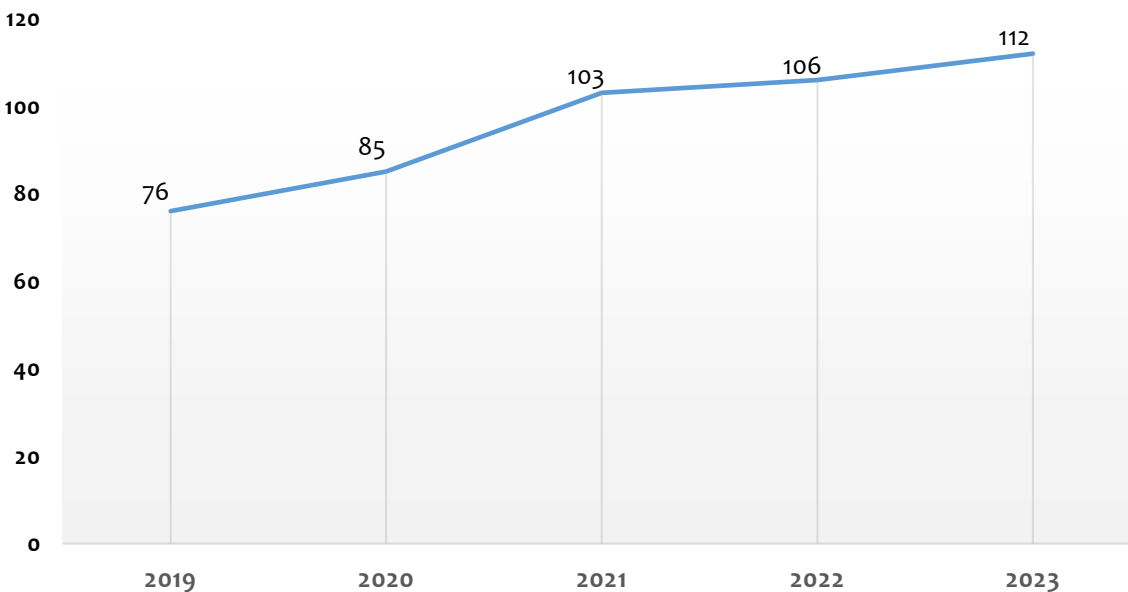


Figure 33: Mariculture production over time

Table 25: Fish production by Weight (MT) from Aquaculture, mariculture and cage culture 2017-2023

	2017	2018	2019	2020	2021	2022	2023
Aquaculture	7,356	8,320	9,530	9,090	8,221	8,804	8,095
Mariculture	51	64	76	85	103	106	112
Cage culture	5,228	7,963	9,975	14,818	19,174	19,029	23,560
<b>Total</b>	<b>12,635</b>	<b>16,347</b>	<b>19,581</b>	<b>23,993</b>	<b>27,498</b>	<b>27,939</b>	<b>31,767</b>

Table 26: Fish production Value (Ksh,000) from Aquaculture, mariculture and cage culture 2017-2023

	2017	2018	2019	2020	2021	2022	2023
Aquaculture	2,197,421	2,512,640	2,954,300	2,863,350	2,671,825	2,922,928	2,549,925
Mariculture	1,530	1,920	1,895	2,119	2,568	2,605	2,830
Cage culture	1,573,281	2,310,010	2,901,050	4,363,312	5,770,460	5,812,584	7,421,400
<b>Total</b>	<b>3,772,232</b>	<b>4,824,570</b>	<b>5,857,245</b>	<b>7,228,781</b>	<b>8,444,853</b>	<b>8,738,117</b>	<b>9,974,155</b>

## 2.1 Aquaculture Per County

Data collected on aquaculture farmers and fish production captured the distribution and productivity of aquaculture farmers across Kenya's counties for the year 2023. It highlighted both the number of aquaculture farmers and the projected production in metric tonnes (MT) for each county (Table 27). Overall, Kenya had 50,810 aquaculture farmers, producing an estimated total of 8,095 MT of aquaculture products in 2023.

Table 27 Aquaculture Farmers and Fish Production per County in Kenya in 2023

County	2023 County Aquaculture farmers	Aquaculture production (Metric Tonnes)
KAKAMEGA	8,454	1,347
BUNGOMA	3,146	501
MERU	2,478	395
NYERI	2,278	363
KIRINYAGA	2,182	348
HOMA BAY	2,054	327
KISUMU	2,028	323
KISII	1,984	316
BUSIA	1,961	312
THARAKA - NITHI	1,958	312
TRANS NZOIA	1,713	273
EMBU	1,693	270
UASIN GISHU	1,652	263

NYANDARUA	1,631	260
MIGORI	1,326	211
SIAYA	1,291	206
NANDI	1,202	192
BOMET	1,162	185
BARINGO	1,021	163
NAKURU	933	149
KIAMBU	855	136
LAIKIPIA	768	122
MACHAKOS	760	121
KERICHO	623	99
TANA RIVER	572	91
TURKANA	500	80
NAROK	488	78
KAJIADO	480	76
WAJIR	450	72
NYAMIRA	388	62
MURANG'A	343	55
GARISSA	320	51
TAITA/TAVETA	272	43
ISIOLO	240	38
ELGEYO/MARAKWET	227	36
KWALE	200	32
KITUI	175	28
MAKUENI	153	24
MANDERA	150	24
LAMU	140	22
MOMBASA	120	19
WEST POKOT	92	15
VIHIGA	82	13
MARSABIT	70	11
KILIFI	68	11
NAIROBI	67	11
SAMBURU	60	10

A closer examination of the data reveals significant disparities in productivity among the counties. Kakamega stands out as the most productive county with 8,454 farmers contributing to 1,347 MT of production. This accounts for approximately 16.6% of the total aquaculture production in Kenya, making Kakamega a central hub for aquaculture activities. Bungoma follows with 3,146 farmers producing 501 MT, representing about 6.2% of the national output.

Meru and Nyeri also demonstrate high productivity, with Meru producing 395 MT from 2,478 farmers and Nyeri generating 363 MT from 2,278 farmers. Meru and Nyeri contribute 4.9% and 4.5% to the total production, respectively. Homa Bay and Kirinyaga are notable for their substantial contributions of 327 MT and 348 MT, respectively, from around 2,000 farmers each.

Counties such as Samburu, Kilifi, Marsabit, and Nairobi show lower production levels. Samburu, for instance, has only 60 farmers producing 10 MT, Kilifi has 68 farmers with an output of 11 MT, Marsabit has 70 farmers with 11 MT, and Nairobi has 67 farmers with 11 MT. Each of these counties contributes less than 0.2% to the total production. West Pokot, Vihiga, and Lamu also exhibit low production levels, with West Pokot producing 15 MT from 92 farmers, Vihiga 13 MT from 82 farmers, and Lamu 22 MT from 140 farmers.

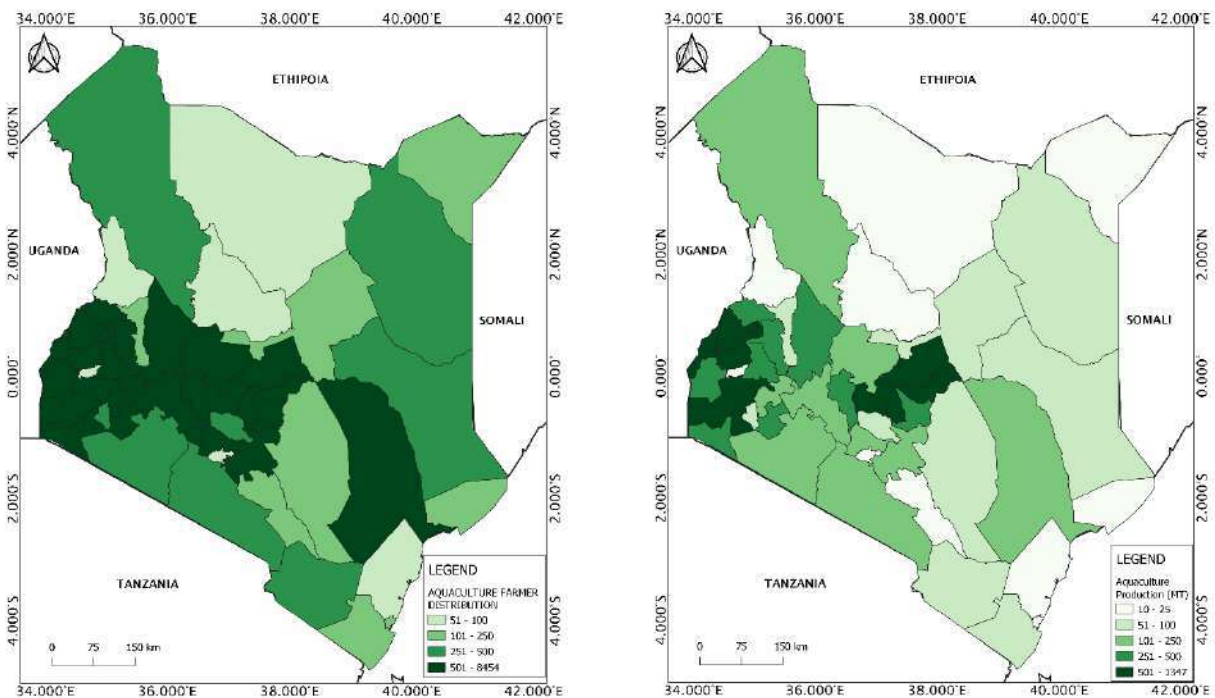


Figure 34. Maps showing the distribution of Fish farmers and Aquaculture Production in Kenyan Counties in 2023

Kakamega's leading position suggests that it has the most established aquaculture infrastructure and possibly the most favorable conditions for aquaculture farming. The high productivity in Bungoma, Meru, and Nyeri indicates robust aquaculture practices and effective farmer engagement in these regions. Homa Bay and Kirinyaga show strong aquaculture outputs, likely



due to supportive local policies and good farming practices. Despite having relatively fewer farmers, counties like Busia and Kisumu maintain high productivity, highlighting efficient aquaculture methods.

The total aquaculture production is concentrated in a few highly productive counties, while many others lag behind, indicating a need for targeted interventions in less productive areas. Investment in training, infrastructure, and resources could help boost production in counties with low outputs. Analyzing the practices of the most productive counties could provide insights into best practices that could be replicated in other regions to enhance overall productivity. The significant variance in productivity among counties underscores the importance of tailored aquaculture development programs that consider the unique challenges and potentials of each region. This comprehensive analysis provides a clear picture of the current state of aquaculture in Kenya, highlighting areas of strength and opportunities for growth. By focusing on these insights, stakeholders can develop strategic plans to improve aquaculture productivity across the country, ensuring sustainable development and food security.

### 3.0 MARINE FISHERY

#### Introduction

During the year 2023 total production of marine landings was 39,950 MT with an ex-vessel value of 9.9 billion Kenya shillings compared 37,600 MT with an ex-vessel value of 10.3 billion Kenya shillings in 2022. Artisanal fishery contributed 36,984 MT while industrial fishery contributed 2,854 MT. Marine production increased by 12% in terms of quantity and declined by 6.3% in value compared to 2022 (Fig 34). Data collection has lately been complemented through the Catch Assessment Survey data collection system alongside the routine data reporting from the BMUs. This has resulted in improved data collection by manning more fish landing due to deployment of more fisheries staff.

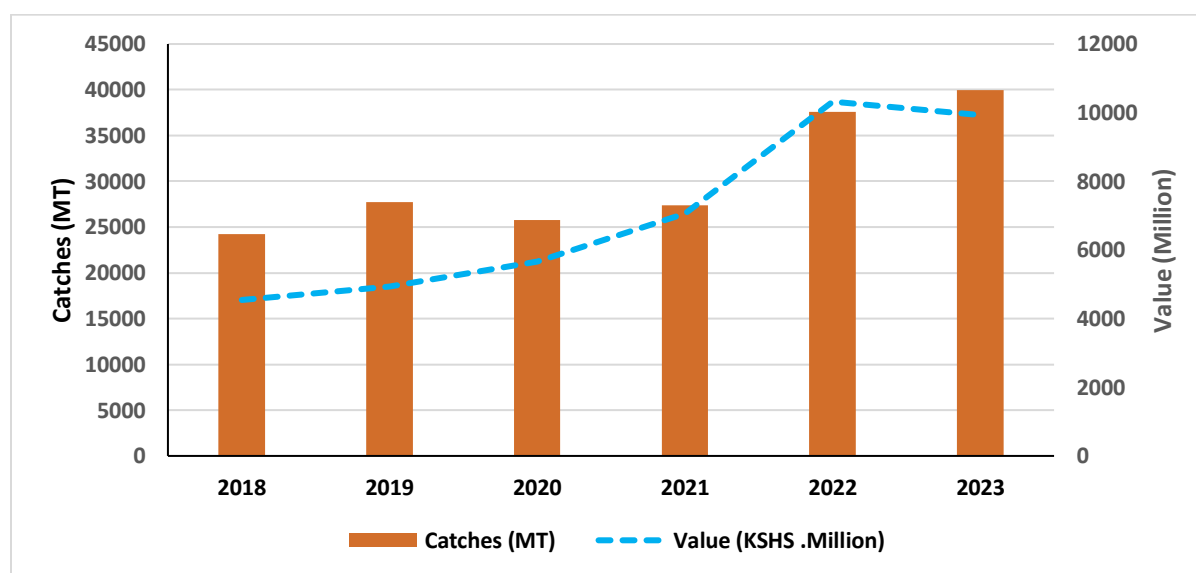


Figure 35 Value and Production of Marine Fishery from 2018-2023

#### 3.1 Marine Artisanal Landings

In 2023 Marine small- scale fishery catches were 36,983 MT with demersal fishes accounting for 44% (16,266 MT) of the total artisanal landings. Pelagics contributed 26% (9,550 MT), Sardines 9% (3,286 MT), Crustaceans contributed 9% (3,245 MT) and molluscs and sea cucumbers accounted for 7% (2,696 MT) while Shark % Rays 5% (1,941 MT) (Fig 35).

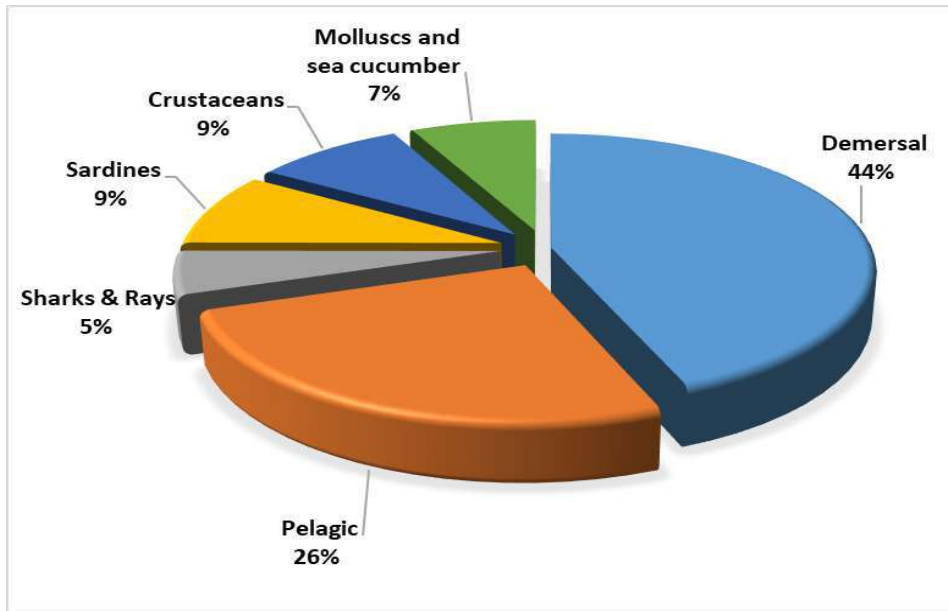


Figure 36 Percentage contribution of marine fish species groups 2023

During the reporting period, Kwale County accounted for the highest quantity of marine artisanal landings, with a total of 12,516 MT (34% of the total landings). The corresponding ex-vessel value for Kwale County was Ksh. 2.7 billion. Kilifi County contributed 9,706 MT (26%) with an ex-vessel value of Ksh. 2.4 billion. Lamu County followed with 8,486 MT (23%) and an ex-vessel value of Ksh. 1.7 billion. Mombasa contributed 4,722 MT (13%) with an ex-vessel value of Ksh. 1.2 billion. Tana River County had the lowest contribution, with 1,553 MT (5%) and an ex-vessel value of Ksh. 254 million (Figure 36). The marine fish production for the past five years by family is shown in table 27 while the catches by County in 2023 are shown in table 28.

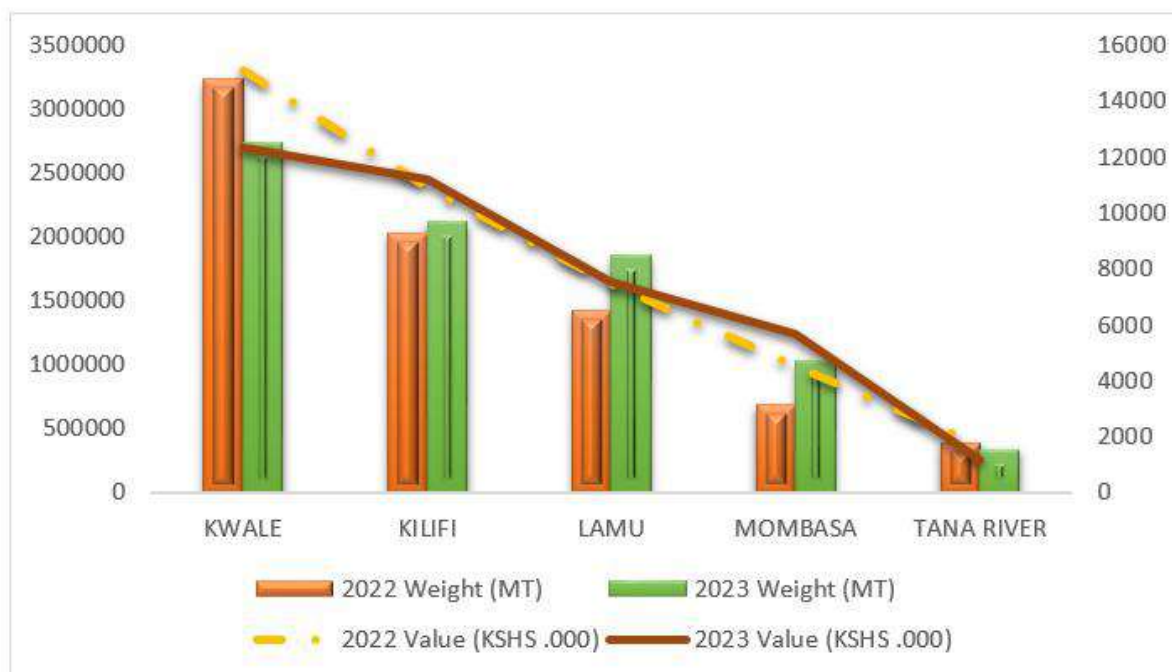


Figure 37 Marine fish production by Quantity, Value and Counties 2023

Table 28: Marine fish landing by species, weight and value 2019-2023

		2019		2020		2021		2022		2023	
Demersals	Common Name	Catch (Mt)	000 Kshs	Catch (Mt)	000 Kshs	Catch (Mt)	000 Kshs	Catch (Mt)	000 Kshs	Catch (Mt)	000 Kshs
Siganidae	Rabbit fish	1,859	288,036	2,479	395,660	2,354	453,487	3,455	694,766	2,817	613,328
Lutjanidae	Snapper	726	113,280	1,984	276,776	2,030	360,966	2,528	503,655	2,497	481,820
Lethrinidae	Scavenger	1,849	258,568	1,196	152,614	1,324	203,633	1,658	323,542	1,654	262,964
Scaridae	Parrot fish	1,483	162,695	1,937	222,499	1,839	258,214	2,079	329,854	3,007	434,367
Serranidae	Rock cod	479	86,805	708	85,533	557	109,795	907	194,980	800	164,463
Haemulidae	Black skin/grunters	1,013	167,094	1,009	158,546	1,012	180,877	1,226	233,181	1,420	255,117
Mugilidae	Mulletts	698	88,565	683	155,638	342	49,145	333	58,438	585	91,507
Acanthuridae	Surgeon fish/Unicorn	649	108,047	790	72,909	695	109,189	919	161,741	911	169,198
Mullidae	Goat fish	280	49,300	393	60,650	322	62,534	577	120,078	474	92,440
Mixed demersal	Mixed demersal	2,126	230,845	1,041	190,531	1,346	297,458	1,633	300,606	1,829	351,215
Gerreidae	Pouter	380	73,941	570	70,294	300	62,574	571	99,371	318	63,904
Scatophagidae	Streaker	258	72,505	89	7,888	236	40,373	124	25,234	282	41,603
Ariidae	Cat fish	194	22,898	347	45,326	250	32,087	453	72,339	257	35,063
<b>TOTAL</b>		<b>11,994</b>	<b>1,722,579</b>	<b>13,228</b>	<b>1,894,864</b>	<b>12,605</b>	<b>2,220,331</b>	<b>16,129</b>	<b>3,059,347</b>	<b>16,851</b>	<b>3,056,989</b>
<b>PELAGICS</b>											
Scombridae	Little Mackerels/Kingfish/tuna	2,737	363,699	1,953	444,091	1,613	270,112	6,160	1,361,382	4,959	1,081,092
Carangidae	Jacks/queenfish	1,553	170,879	820	174,894	1,011	183,079	1,412	331,997	1,539	328,541
Sphyraenidae	Barracudas	1,187	98,456	487	104,054	722	146,644	875	179,912	867	185,546
Clupeidae	Sardines	2,015	148,480	1,152	81,556	1,895	90,026	2,049	277,517	3,286	201,448

Istiophoridae	Sail fish	201	25,858	123	31,236	263	53,250	388	85,524	293	58,442
Xiphiidae	Swordfishes	-	-	137	23,153	-	-	-	-	-	-
Others	Mixed Pelagic	756	154,276	959	189,502	904	189,170	1,253	210,990	922	183,234
Chanidae	Milk fish	292	31,932	154	34,188	140	31,745	212	40,153	263	37,327
Coryphaenidae	Dolphin fish	191	20,991	83	14,932	64	10,201	139	30,540	122	26,307
TOTAL		8,932	1,014,571	5,866	1,097,607	6,612	974,226	12,489	2,518,014	12,250	2,101,936
SHARKS & RAYS		564	103,399	758	156,170	1,260	185,739	1,080	218,530	1,652	205,282
Mixed species		179	24,770	278	60,920	393	68,880	350	46,891	289	27,078
TOTAL		743	128,169	1,037	217,090	1,652	254,619	1,430	265,420	1,941	232,359
CRUSTACEANS											
Palinuridae	Lobsters	347	426,966	449	391,072	582	492,843	567	1,120,284	443	675,709
Penaidae	Prawns	641	287,424	667	289,377	800	353,602	1,012	438,382	2,174	897,012
Portunidae	Crabs	946	412,343	475	238,317	563	259,306	614	369,088	627	416,785
TOTAL		1,934	1,126,733	1,591	918,766	1,945	1,105,751	2,194	1,927,755	3,245	1,989,506
MOLLUSCS AND OTHERS											
Octopodidae	Octopus	939	224,547	962	186,794	1,358	263,977	2,220	591,477	1,404	542,019
Loliginidae	Squids	614	147,290	441	107,907	576	130,540	921	230,340	617	238,482
Sepiidae	Cuttlefish	-	-	-	-	-	-	-	-	-	-
Holothuridae	Beche-de-mer	356	96,212	217	230,472	347	310,196	135	90,050	566	119,339
Bivalvia	Oysters	155	17,474	189	40,165	122	22,430	78	27,177	109	29,123
	Marine shells	-	-	117	142,046	162	209,729	0	0	0	0
TOTAL		2,064	485,523	1,925	707,384	2,565	936,873	3,354	939,044	2,696	928,962
TOTAL MARINE		25,667	4,477,575	23,647	4,835,711	25,380	5,491,800	35,596	8,709,580	36,984	8,309,753

Table 29: Marine fish landing by County in 2023

	Kilifi		Kwale		Lamu		Mombasa		Tana River		Totals	
	Catch (Mt)	000 Kshs	Catch (Mt)	000 Kshs	Catch (Mt)	000 Kshs	Catch (Mt)	000 Kshs	Catch (Mt)	000 Kshs	Catch (Mt)	000 Kshs
<b>Demersal</b>												
Rabbit Fish	530	157,912	915	240,672	1,060	121,777	261	86,932	51	6,034	2,817	613,328
Scavenger	308	85,937	598	149,753	1,189	137,612	329	101,585	73	6,932	2,497	481,820
Snapper	215	59,006	297	57,825	887	102,803	125	27,114	129	16,216	1,654	262,964
Parrot Fish	486	100,493	486	87,237	1,839	200,157	170	44,188	26	2,293	3,007	434,367
Surgeon Fish	122	22,619	132	18,779	12	1,264	122	42,264	10	709	397	85,635
Unicorn Fish	82	15,051	166	26,079	176	20,113	87	22,115	3	206	514	83,563
Grunter	27	6,190	88	18,421	246	27,898	130	20,470	20	2,448	511	75,427
Pouter	54	12,659	192	39,211	17	1,830	55	10,204	-	-	318	63,904
Black Skin	123	30,702	167	28,576	307	37,214	289	80,299	23	2,900	909	179,690
Goat Fish	70	17,010	205	48,849	133	14,142	50	10,540	16	1,899	474	92,440
Streaker	6	1,382	60	13,675	202	24,536	-	-	13	2,010	282	41,603
Rock Cod	192	52,405	238	49,537	173	20,814	133	35,108	64	6,599	800	164,463
Cat Fish	73	14,708	65	9,521	7	741	12	641	100	9,451	257	35,063
Mixed Demersal	1,064	218,863	231	36,885	357	42,613	150	49,781	27	3,072	1,829	351,215
<b>Total</b>	<b>3,352</b>	<b>794,937</b>	<b>3,840</b>	<b>825,018</b>	<b>6,606</b>	<b>753,515</b>	<b>1,912</b>	<b>531,243</b>	<b>556</b>	<b>60,769</b>	<b>16,266</b>	<b>2,965,483</b>
<b>Pelagics</b>												
Cavalla Jacks	247	73,844	537	137,378	227	27,271	139	30,541	50	7,065	1,201	276,098
Mullets	51	12,024	183	38,119	260	30,619	53	6,837	39	3,908	585	91,507
Little Mackerels	1,680	341,097	395	47,908	-	-	156	39,565	228	8,251	2,459	436,821
Barracudas	381	99,542	207	41,227	116	13,487	99	23,865	65	7,424	867	185,546
Milk Fish	37	9,220	126	17,977	57	6,846	43	3,284	-	-	263	37,327
King Fish	345	110,636	177	47,267	42	5,235	89	4,538	45	6,665	698	174,341
Queen Fish	120	21,285	85	15,802	59	6,941	51	5,172	23	3,243	338	52,443
Sail Fish	107	25,479	79	17,752	25	3,485	16	4,497	66	7,229	293	58,442
Bonitos/Tunas	1,388	363,505	193	65,261	102	16,603	36	13,053	83	11,507	1,803	469,929
Dolphins	58	12,989	64	13,318	-	-	-	-	-	-	122	26,307
Mixed Pelagics	616	132,164	184	31,179	75	9,268	32	9,074	14	1,550	922	183,234
<b>Total</b>	<b>5,030</b>	<b>1,201,785</b>	<b>2,232</b>	<b>473,188</b>	<b>962</b>	<b>119,755</b>	<b>713</b>	<b>140,426</b>	<b>612</b>	<b>56,841</b>	<b>9,550</b>	<b>1,991,995</b>
Sharks & Rays	252	46,338	915	84,538	162	17,812	204	45,012	119	11,582	1,652	205,282
Sardines	185	29,131	2,467	119,087	-	-	609	50,040	25	3,191	3,286	201,448
Mixed Fish/Others	-	-	132	6,043	24	1,820	114	17,349	18	1,865	289	27,078
<b>Total</b>	<b>437</b>	<b>75,468</b>	<b>3,514</b>	<b>209,668</b>	<b>186</b>	<b>19,632</b>	<b>928</b>	<b>112,401</b>	<b>161</b>	<b>16,637</b>	<b>5,226</b>	<b>433,807</b>
<b>Crustaceans</b>												
Lobsters	72	96,098	167	125,194	167	388,442	12	9,551	25	56,425	443	675,709
Prawns	77	30,907	1,061	411,440	69	34,558	866	367,905	101	52,202	2,174	897,012
Crabs	71	23,787	237	147,757	245	224,881	55	18,006	19	2,354	627	416,785
<b>Total</b>	<b>220</b>	<b>150,792</b>	<b>1,465</b>	<b>684,390</b>	<b>481</b>	<b>647,881</b>	<b>934</b>	<b>395,462</b>	<b>146</b>	<b>110,980</b>	<b>3,245</b>	<b>1,989,506</b>
<b>Miscellaneous</b>												
Oysters	1	107	92	26,137	-	-	16	2,879	-	-	109	29,123
Beche-de-mer	14	5,157	499	27,058	43	86,507	-	-	10	617	566	119,339
Octopus	527	174,528	548	307,305	168	25,179	100	28,118	61	6,889	1,404	542,019
Squids & Cuttlefish	125	46,155	327	151,039	39	5,787	119	34,380	7	1,121	617	238,482
<b>Total</b>	<b>667</b>	<b>225,948</b>	<b>1,466</b>	<b>511,539</b>	<b>251</b>	<b>117,472</b>	<b>235</b>	<b>65,377</b>	<b>78</b>	<b>8,627</b>	<b>2,696</b>	<b>928,962</b>
<b>Total Marine</b>	<b>9,706</b>	<b>2,448,931</b>	<b>12,516</b>	<b>2,703,804</b>	<b>8,486</b>	<b>1,658,256</b>	<b>4,722</b>	<b>1,244,908</b>	<b>1,553</b>	<b>253,854</b>	<b>36,984</b>	<b>8,309,753</b>

### 3.1 Seasonal variation

Most fishing crafts mark the North East Monsoon (NEM) period as the one with the highest CPUE for crew, with Mtumbwi showing the highest CPUE (9.3) followed by Dau (9.2). This implies that there is greater catch rate during the NEM season than the South East Monsoon season (SEM) season. Nevertheless, Hori's CPUE levels are higher in the SEM (8.9) than NEM (7.9) period an indication that it is effective during the SEM season (Fig 37).

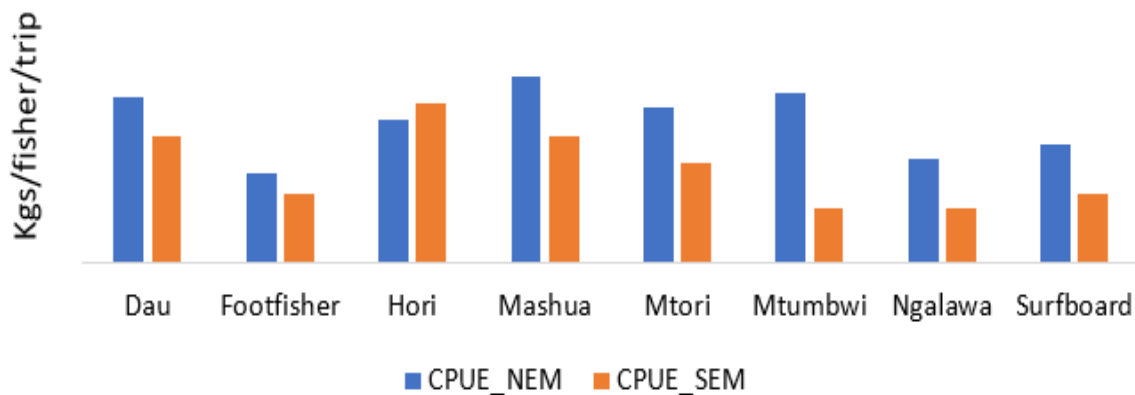


Figure 38 Seasonal Catch rate by Craft

NEM season dominates in terms of CPUE for most fishing gear types including Basket Trap, Beach Seine, Castanets, Dropline, Gillnet, Handline, Harpoon, Hooked Stick, Monofilament, Pointed Stick, Prawn Seine, Reef Seine, Ring Net and Speargun indicating that fishing is generally more productive during the NEM season compared to SEM for these gears. Fence Trap, Hand Gatherer, Longlines, Prawn Seine and Small Seine show higher CPUE during SEM indicating their effectiveness during this season. For NEM, Handline has the highest catch rate (13.1kgs/trip) while longline has the highest catch rate (14.9kgs/trip) during SEM (Fig 38).

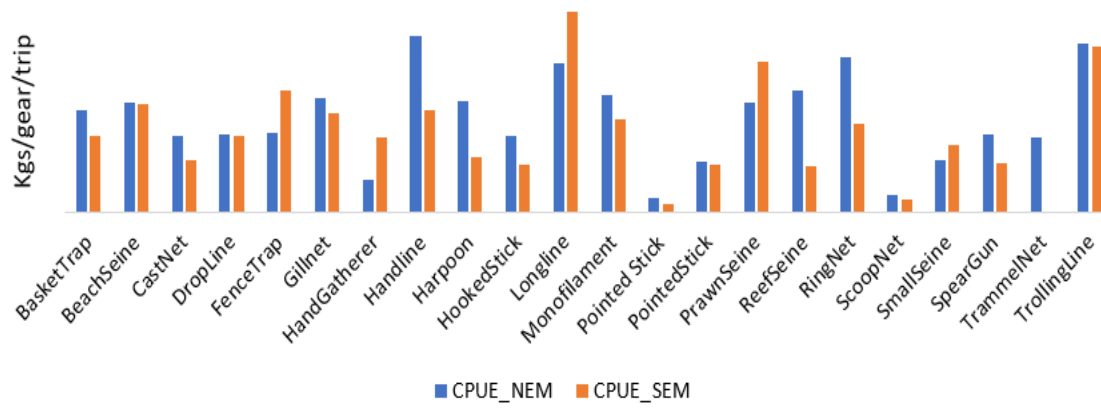


Figure 39: Seasonal Catch rate by Gear type.



### 3.2. Marine Industrial Landings



The total landings from marine industrial fishery in the year 2023 was 2,854 MT. Data showed that from the total catch, 78% came from the trawlers while long liners and crabbers contributed 16% and 7% of the total catches respectively.

#### 3.3.1 Trawl Fishery

During the year under review, the industrial fleet had eight (8) licensed and active trawlers. A total of 2,219 M. tons of catch were landed by the industrial trawlers (Table 29). The catch by the trawlers was composed of Finfish, Prawns and Others

Table 30: Type of fish landed trawlers

Fish Species	Weight (Kg)	% Weight
Fin fish	1,938,826	87%
Prawns	156,230	7%
Others	124,582	6%
<b>Grand Total</b>	<b>2,219,638</b>	<b>100%</b>

#### 3.3.2 Deepwater Crab Pot Fishery

Two (2) deep water crab pot vessels were licensed and active to fish beyond 12 nm in Kenyan waters. These vessels included the Diamond Ace 1 and Wasan 550. Both of the vessels targeted a crab fishery of the species *Chaceon fenneri*. During the year 2023, a total of 184 MT of crab was caught.

### 3.3.3 Industrial Longline Fishery

The Kenyan longline fishery primarily operates in offshore waters, beyond the 12 nautical mile territorial sea limit and within the Kenyan Exclusive Economic Zone (EEZ) extending to 200 nautical miles. Some activity might occur on the high seas outside the EEZ.

Five industrial longline vessels were authorized to fish within the Kenyan EEZ in 2023: Miss Jane, Newfoundland Alert, Ocean Eagle, Ocean Sniper, and Shang Jyi. Fishing effort is assessed using factors like the number of days fished, hooks deployed, average setline length, and hours fished per set.

Table 31: Quantity of fish landed by industrial longlining (2023)

Species	Weight	% Weight
Sword Fish	217,317	48.02%
Yellow Fin Tuna	129,086	28.52%
Blue Shark	38,005	8.40%
Big Eye Tuna	35,260	7.79%
Macko shark	9,838	2.17%
Other Species	7,767	1.72%
Silky Shark	4,491	0.99%
Black Marlin	3,363	0.74%
Sail Fish	1,593	0.35%
Dorada	1,556	0.34%
Marlin	1,496	0.33%
King Fish	1,146	0.25%
Others	1,651	0.36%
	452,569	

The 2023 catch composition reveals swordfish (*Xiphias gladius*) as the dominant catch (48.02%), followed by yellowfin tuna (*Thunnus albacares*, 28.52%). Blue shark, (8.40%), bigeye tuna (*Thunnus obesus*, 7.79%), and Mako shark (2.17%). Other species including silky shark (*Carcharhinus falciformis*), marlin (*Istiophoridae* family), kingfish (*Scombridae* family), and Dorado (*Coryphaena hippurus*) make up a smaller portion of the catch. The dominance of swordfish, a nocturnal feeder, suggests a potential preference for nighttime fishing, but further analysis is needed for confirmation.

The target catches for some longliners was swordfish while others targeted the tuna. These targets are mainly due to the intended market for their products. The presence of sharks (blue shark, mako shark, and silky shark) in the catches highlights potential bycatch concerns. Exploring mitigation strategies is crucial for sustainable fishery management.

## 4.0 FISH TRADE

During the year 2023, first half of the year had more imports than exports. From July to December 2023, the exports improved and surpassed the import quantities. In term of value, country exported High-value fish and fish products as compared to the imported products cut across all the months of the year (Fig 39).

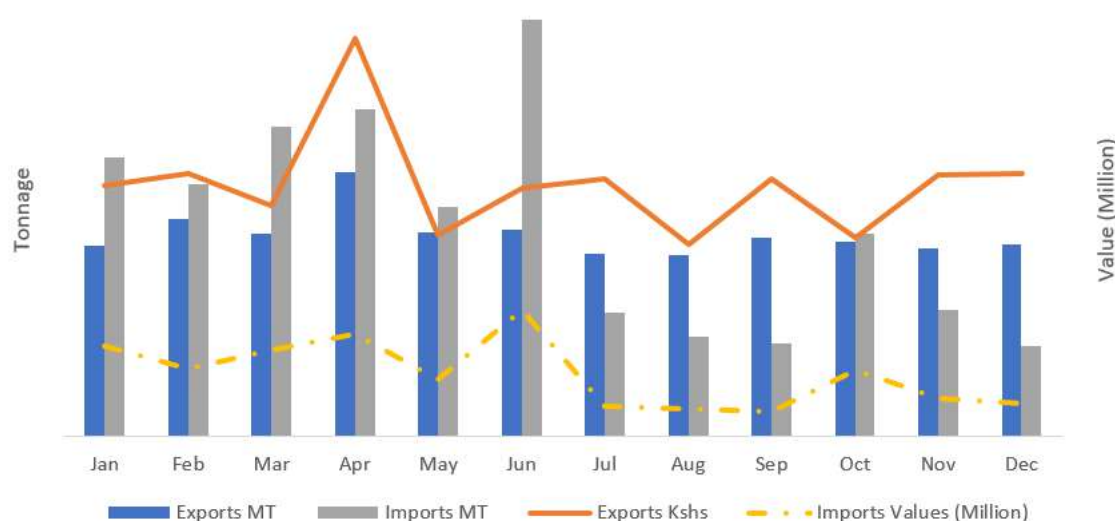


Figure 40: Monthly trends of exports and imports in year 2023

### 4.1 Fish and Fishery Products Export

During the period under review, a total of 10,707 MT of fish and fishery products were exported earning the country Ksh. 6.68 billion in foreign exchange. This represents 21% decline in volume of fish and fishery products exported in comparison to 13,557 MT in 2022 (Table 31). The most exported fish and fish products were Herrings, tilapia, Octopus Lobsters, crabs and Marine live ornamental fish. The main destination markets were in China, EU, DR Congo USA, and Japan (Table 32).

Table 32: Fish and fish products export by weight and value in 2023

Products	Quantity (Kg)	Value (Kshs)
Herrings	4,928,205.55	2,949,173,536.22
Tilapia, catfish, Clarias and carps	1,999,508.20	1,446,469,201.35
Octopus	1,709,961.35	1,000,180,472.74
Lobsters	284,697.50	309,968,081.78
Crabs	500,867.00	260,576,495.99
Skipjack	238,333.40	154,916,429.52

Swordfish	195,690.00	136,200,710.34
Other fish	154,729.10	132,804,058.12
Marine Live ornamental fish.	420,688.70	117,055,328.84
Fish fillets and other fish meat	7,953.10	72,897,952.48
Sea cucumbers	31,232.00	23,424,032.87
Shrimp and Prawns	11,918.00	14,640,765.27
Sea Urchins	33,842.70	12,228,596.28
Cuttle fish and squid	29,287.00	11,419,583.13
Dogfish and sharks	43,971.00	7,350,415.87
Tuna, Skipjack, bonito	6,369.57	5,728,963.82
Atlantic salmon	10,308.20	5,064,433.23
Flat fish	7,205.00	5,054,377.00
Dogfish	3,442.00	3,637,420.58
Seabream	26,014.00	2,641,384.10
Clams, Corkles and ark shells	35,115.00	2,081,518.58
Other Molluscs	5,231.00	1,649,133.23
Oysters	8,259.00	1,545,051.90
Fish caviar	12,571.84	973,987.12
Scallops	1,245.00	916,098.42
Cods	272.00	205,990.00
Trout	111.60	45,874.40
Herrings, Sardines, mackerel	4.00	17,872.27
Anchovies	120.00	12,998.24
Sardines	15.50	5,514.25
Grand Total	10,707,168.31	6,678,886,277.93

Table 33: Fish and Fish Products destination Country in 2023

Destination	Export Value (Kshs)
China	2,521,982,032
Italy	883,152,542
Netherlands	461,411,747
DR Congo	416,082,200
Portugal	331,574,023
Spain	286,301,713
Uganda	284,432,173
Israel	213,694,008
Romania	207,074,276
Hong Kong	192,820,987
Greece	155,756,802
Korea Republic (South Korea)	145,934,834
UAE	73,461,160
USA	55,814,063
France	52,435,101
Reunion	52,305,042
South Africa	40,917,685
Malaysia	40,739,339
Other Countries N.E.S	34,760,325
Japan	32,085,773
Germany	22,897,352

Rwanda	19,407,288
Belgium	18,771,955
Aircraft & Shipstores	16,426,093
Thailand	14,875,543
Malta	14,829,127
Peru	13,567,322
Singapore	8,900,479
Cyprus	8,088,886
Uruguay	8,036,426
United Kingdom	6,643,747
South Sudan	5,400,611
Poland	4,948,152
Russian Federation	4,301,278
Qatar	3,824,258
Brazil	3,030,890
Canada	2,671,114
Taiwan	2,047,615
Denmark	1,715,129
India	1,682,908
Australia	1,352,582
Switzerland	1,207,912
Kuwait	1,051,092
Czech Republic	1,036,281
Iran	1,016,989
Saudi Arabia	953,934
Zambia	788,262
Bahrain	778,040
Philippines	723,653
Sweden	649,469
Indonesia	554,922
Iceland	465,947
Norway	394,107
Croatia	370,217
Turkey	356,862
Mauritius	310,485
Pakistan	302,282
Austria	246,476
Jamaica	227,835
Iraq	168,661
Oman	160,746
Luxembourg	151,899
Nigeria	135,056
Hungary	122,597
Madagascar	104,463
Sri Lanka	93,894
Cameroon	83,472
Lao Pdr	83,089
Ethiopia	53,815
Vietnam	48,953
Cape Verde Islands	33,120
Morocco	32,185
Egypt	24,984
<b>Total</b>	<b>6,678,886,279</b>

## 4.2 Aquarium fish exports

In 2023, 380,461 aquarium fish valued at Ksh. 123,350,255 were exported compared with an average of 414,924 aquarium fish valued at Ksh. 565,873,015 exported in 2022. The top 5 species in terms of value were *Zebrasoma spp*, *Chromis spp*, *Paracanthurus hepatus* and *Acanthurus spp* as shown in the table 33 below.

Table 34: The composition of the top 30 most exported marine aquarium fish species in 2023

Species	Pieces	Value(Ksh)
<i>Zebrasoma spp.</i>	18,043	16,572,024
<i>Chromis spp.</i>	47,393	8,720,507
<i>Paracanthurus spp.</i>	18,110	7,093,874
<i>Acanthurus spp.</i>	14,731	5,414,185
<i>Pseudanthias spp.</i>	19,902	5,085,758
<i>Paracheilinus spp.</i>	8,686	4,775,321
<i>Centropyge spp.</i>	15,466	4,475,523
<i>Halichoeres spp.</i>	11,918	4,427,184
<i>Anthias spp.</i>	21,449	3,771,207
<i>Valenciana spp.</i>	12,923	3,480,186
<i>Pomacanthus spp.</i>	4,312	3,155,475
<i>cheilinus spp.</i>	9,398	2,962,144
<i>Rhinoptera spp.</i>	70	2,758,000
<i>Ecenius spp.</i>	6,352	2,688,540
<i>Chaetodon spp.</i>	7,487	2,478,458
<i>Nemateleotris spp.</i>	9,698	2,445,065
<i>Macropharyngodon spp.</i>	8,683	2,343,408
<i>Labroides spp.</i>	14,551	2,143,652
<i>Stegastoma spp.</i>	18	1,925,133
<i>Anampses spp.</i>	7,105	1,884,631
<i>Gnathanodon spp.</i>	4,301	1,831,057
<i>Ctenochaetus spp.</i>	6,886	1,713,452
<i>Lutjanus spp.</i>	2,369	1,644,353
<i>Ecsenius spp.</i>	4,686	1,565,070
<i>Cirrhilabrus spp.</i>	5,974	1,530,709
<i>Caesio spp.</i>	1,846	1,525,681
<i>Microlabrichthys spp.</i>	6,380	1,440,523
<i>Salarias spp.</i>	8,819	1,287,731
<i>Doryrhamphus spp.</i>	6,727	1,196,517
<i>Amphipirion spp.</i>	7,046	1,153,071
<i>Amblygibius spp.</i>	2,784	979,557
<i>Rhynchobatus spp.</i>	14	917,000
<i>Nemanthias spp.</i>	5,153	903,224
<i>Naso spp.</i>	2,548	847,558
<i>Ostacion spp.</i>	3,660	805,647

Others	54,973	15,408,830
<b>Grand Total</b>	<b>380,461</b>	<b>123,350,255</b>

The top 5 countries in terms of export value were U.S.A, U.A.E, Germany, Netherlands and Italy as shown in the table 34 below.

*Table 35: Export destination and respective value of aquarium fish*

Destination	Pieces	Value (Ksh)
U.S.A	126,518	45,857,627.41
U.A.E	14,817	15,514,564.35
Germany	55,367	11,395,086.46
Netherlands	21,864	5,146,528.37
Italy	19,299	4,736,636.24
United Kingdom	18,516	3,720,138.52
Russia	5,710	3,690,116.25
South Africa	12,486	3,156,391.77
Brazil	10,550	2,471,988.97
Canada	8,653	2,387,313.52
Taiwan	2,333	2,284,176.43
Israel	5,583	1,843,452.90
Belgium	7,491	1,739,119.06
France	3,202	1,658,253.83
Denmark	3,697	1,523,529.06
Poland	4,379	1,475,144.45
Iran	3,110	1,434,466.38
Japan	8,249	1,324,447.42
Spain	11,606	1,301,094.12
Kuwait	6,236	1,208,513.94
Saudi Arabia	2,405	978,971.00
Singapore	2,876	883,769.61
Czech Republic	1,909	864,583.66
Greece	1,546	720,406.23
Bahrain	885	692,986.71
Sweden	2,532	596,853.32
Qatar	3,435	583,473.80
Norway	1,466	447,084.33
Croatia	221	374,624.60
Thailand	709	350,812.14
Mauritius	4	350,000.00
Turkey	1,700	344,628.87
Portugal	2,957	320,705.00
Pakistan	831	255,500.00

Romania	342	236,417.61
Iceland	1,048	235,912.60
Austria	820	215,611.37
Oman	228	171,753.18
Switzerland	927	167,521.12
Peru	901	162,950.20
Indonesia	909	102,974.20
Hungary	747	99,642.20
Benin	130	71,153.60
Ethiopia	77	56,890.40
Nigeria	208	54,549.60
Others	245	42,013.44
Argentina	130	28,819.84
Morocco	170	19,850.88
Iraq	160	19,250.00
Vietnam	119	16,076.93
Egypt	158	15,879.02
<b>Grand Total</b>	<b>380,461</b>	<b>123,350,254.89</b>

### 4.3 Aquarium Invertebrate

The number of marine invertebrates' pieces exported in the year 2023, was 290,489 valued at Ksh. 27,496,530 as compared to 372,996 valued at Ksh. 21,988,220 in 2022. This represents a 25% increase volume during 2022. The top 5 species being *Lysmata grabhanii*, *Nerita Polita*, *cerithium caeruleum*, *Hippolysmata grabhanii*, and *calibanus africanus*, (Table 35)

Table 36: The annual composition of the top 30 most exported marine invertebrate species in 2023

Species	Pieces	Total Value (USD)
Lysmata spp.	13,899	19,622.28
Nerita spp.	37,611	17,662.43
Cerithium spp.	37,268	17,383.01
Hippolysmata spp.	15,610	13,375.64
Calibanarius spp.	18,662	8,048.01
Heteractis spp.	2,544	7,666.71
Tectus spp.	11,522	7,031.23
Calcinus spp.	17,170	6,928.02
Hymenocera spp.	6,450	6,391.04
Lunella spp.	13,839	6,302.67
Dolabella spp.	6,302	4,859.00



Sarcophyton spp.	1,316	4,636.40
Lybia spp.	6,717	4,062.86
Hippolysmata-grabhami spp.	5,397	3,684.99
Cypraea spp.	4,984	3,626.63
Clibinarius spp.	21,944	3,424.46
Trochus spp.	7,712	3,182.91
Cespitularia spp.	661	2,815.58
Diadema spp.	3,732	2,680.77
Protula spp.	1,429	2,347.29
Sinularia spp.	506	2,270.91
Thor spp.	3,724	1,869.74
Zoohantus spp.	701	1,816.20
Radianthus spp.	1,234	1,785.27
Litophyton spp.	152	1,756.85
Stenopus spp.	1,296	1,591.45
Cladiella spp.	360	1,537.32
Neopetrolistes spp.	2,592	1,528.26
Linkia spp.	944	1,399.16
Lobophytum spp.	379	1,350.62
Lemnalia spp.	678	1,341.22
Protogaster spp.	1,218	1,244.08
Stichodactyla spp.	648	1,225.94
Panulirus spp.	535	1,166.01
Sabellastarte spp.	656	1,117.55
RUMPELLA spp.	148	1,090.69
Clypeaster spp.	1,414	1,002.49
Others	38,535	25,578.10
Grand Total	290,489	196,403.79

Most of the aquarium invertebrates were exported to USA (26%), Germany (23%), Sweden (6%), UAE (6%), Great Britain (5%) and Italy (4%) of total export value (Table 36).

*Table 37: Destination countries for the exported marine invertebrate species in 2023*

Destination	Pieces	Total Value (USD)
USA	73,024	50,737.72
Germany	101,536	45,902.56
Sweden	5,885	12,652.56
UAE	3,272	12,033.83
Great Britain	15,203	9,074.88
Italy	9,124	7,685.44

Canada	12,419	6,893.73
South Africa	9,335	6,569.72
Netherlands	11,412	5,313.30
Spain	14,680	4,597.41
Russia	2,696	4,432.71
Switzerland	2,934	3,247.68
Turkey	448	2,518.96
Malaysia	228	2,429.22
Belgium	3,294	2,303.14
Denmark	2,024	2,273.45
Poland	2,359	2,173.66
Norway	2,306	1,744.03
Qatar	1,621	1,484.30
France	1,630	1,364.18
Portugal	4,413	1,344.03
Israel	689	1,340.83
Czech Republic	492	1,199.02
Iceland	1,933	1,148.24
Kuwait	1,645	970.66
Singapore	608	924.78
Hungary	747	739.94
Greece	309	606.53
Brazil	1,539	513.02
Peru	577	342.7
Iran	127	263.82
Romania	79	248.25
Austria	450	241.42
Saudi Arabia	251	214.57
Hong Kong	242	156.83
Pakistan	74	151.8
Benin	118	128.79
Greece-Athens	263	119.51
Bahrain	112	106.65
Nigeria	123	80.63
Oman	39	72.81
Japan	4	24.26
Iraq	26	22.92
Morocco	196	8.99
Taiwan	3	0.31
<b>Total</b>	<b>290,489</b>	<b>196,404</b>

## 5.0 IMPORTS OF FISH AND FISHERY PRODUCTS

In 2023, there was a drastic decline in importing all types of fish and products. Kenya imported 11,253 MT of fish and fishery products worth Ksh 1.65 billion, a 11.4% reduction in quantities imported compared with 12,694 MT of fish and fishery products worth Ksh 1.82 billion in 2022 (Table 37). This is attributed to the increased production from marine fishery and cage Culture The imports were mainly composed of Mackerel, tilapia, trout, tuna and tuna like and pacific salmon.

Table 38: Fish Imports by weight and value

Products	Quantity (Kg)	Value (Kshs)
Mackerel	3,908,164	563,697,729
Tilapia, catfish, Clarius and carps	3,106,351	442,202,598
Trout	175,334	171,505,437
Tuna, Skipjack, bonito	467,202	155,262,950
Pacific Salmon	45,982	65,467,619
Shrimp and Prawns	50,012	58,940,291
Cods	329,036	48,954,337
Herrings, Sardines, mackerel	2,847,801	40,958,286
Other fish meat	235,159	39,130,299
Marine Live ornamental fish.	24,861	25,328,669
Scallops	10,614	8,521,203
Fish caviar	10,678	4,704,740
Mussels	8,329	4,535,048
Cuttle fish and squid	2,214	3,905,685
Seabream	10,007	3,871,617
Crabs	3,842	2,922,512
Lobsters	4,337	2,721,956
Hakes	3,152	2,360,930
Clams, Corkles and ark shells	3,732	1,765,358
Live Freshwater Ornamental fish	995	1,394,971
Sardines	1,530	1,290,270
Salmon	384	760,426
Flat fish	794	603,840
Anchovies	655	557,288
Abalone	1,202	189,776
sea snails	186	167,571
Octopus	607	87,904
Seabass	5	1,888
<b>Grand Total</b>	<b>11,253,164</b>	<b>1,651,811,198</b>

The imports originated mainly from China (56%), Norway (14%), Thailand (9%) Tanzania (4%), Oman (4%), and South Korea (3%), with most of the *Oreochromis niloticus* being

imported from China, Tanzania, and Uganda (Table 38).

Table 39: Origin of Fish imports by weight and value

Origin	Import Value (Kshs)
China	919,189,861
Norway	238,840,038
Thailand	148,590,464
Tanzania	71,846,174
Oman	61,044,484
Korea Republic (South Korea)	49,506,772
Uganda	24,677,306
Ecuador	20,400,906
Vietnam	19,491,066
Somalia	17,732,589
France	16,361,823
Denmark	11,453,711
Chile	6,070,887
Seychelles	5,551,619
Madagascar	5,400,241
USA	4,664,667
Italy	4,616,512
United Kingdom	4,101,925
Namibia	3,983,837
Germany	3,792,041
United Arab Emirates	2,763,454
Sudan	2,635,211
Japan	2,616,683
South Africa	2,551,417
Other Countries N.E.S	812,790
Philippines	594,478
Singapore	460,548
New Zealand	445,956
Estonia	443,274
Sri Lanka	440,879
Morocco	335,425
Ghana	333,460
Nigeria	23,880
India	21,120
Spain	15,702
Grand Total	1,651,811,198

## ANNEXES

### Annex 1: Fish species caught by gear type

<b>BasketTrap</b>	<b>Composition</b>	<b>BeachSeine</b>	<b>Composition</b>	<b>Gillnet</b>	<b>Composition</b>	<b>Handline</b>	<b>Composition</b>
Siganidae	40%	Siganidae	24%	Scombridae	13%	Scombridae	34%
Lethrinidae	16%	Lethrinidae	24%	Lethrinidae	10%	Lutjanidae	15%
Scaridae	8%	Labridae	15%	Siganidae	7%	Lethrinidae	11%
Mullidae	6%	Scaridae	9%	Palinuridae	7%	Serranidae	10%
Lutjanidae	6%	Haemulidae	7%	Haemulidae	7%	Sphyraenidae	7%
Haemulidae	4%	Mullidae	5%	Mugilidae	5%	Carangidae	6%
Acanthuridae	4%	Sphyraenidae	2%	Dasyatidae	4%	Rachycentrdae	1%
Serranidae	3%	Gerreidae	2%	Istiophoridae	4%	Istiophoridae	1%
Scombridae	3%	Lutjanidae	1%	Other	4%	Nemipteridae	1%
Loliginidae	2%	Hemiramphidae	1%	Carcharhinidae	3%	Coryphaenidae	1%
Labridae	2%	Serranidae	1%	Coryphaenidae	3%	Siganidae	1%
Nemipteridae	1%	Nemipteridae	1%	Gerreidae	3%	Alopiidae	1%
Anguillidae	1%	Leiognathidae	1%	Lutjanidae	3%	Carcharhinidae	1%
Octopodidae	1%	Other	1%	Myliobatidae	3%	Haemulidae	1%
<b>Longline</b>	<b>Composition</b>	<b>Monofilament</b>	<b>Composition</b>	<b>ReefSeine</b>	<b>Composition</b>	<b>RingNet</b>	<b>Composition</b>
Scombridae	21%	Scombridae	23%	Scombridae	18%	Scombridae	31%
Ariidae	12%	Belonidae	12%	Carangidae	13%	Carangidae	17%
Carcharhinidae	9%	Chirocentridae	8%	Sphyraenidae	9%	Sphyraenidae	15%
Carangidae	8%	Siganidae	6%	Acanthuridae	8%	Caesionidae	6%
Serranidae	8%	Lethrinidae	5%	Lethrinidae	8%	Engraulidae	6%
Myliobatidae	6%	Carangidae	5%	Lutjanidae	5%	Scaridae	4%
Rachycentrdae	6%	Gerreidae	5%	Hemiramphidae	5%	Hemiramphidae	3%
Dasyatidae	6%	Sphyraenidae	4%	Scaridae	5%	Siganidae	2%
Lutjanidae	5%	Trichiuridae	4%	Caesionidae	5%	Clupeidae	2%
Haemulidae	4%	Sciaenidae	3%	Siganidae	4%	Belonidae	2%
Lobotidae	3%	Mugilidae	3%	Loliginidae	4%	Gerreidae	2%
Alopiidae	3%	Lutjanidae	2%	Labridae	3%	Labridae	2%
Istiophoridae	2%	Scaridae	2%	Belonidae	3%	Chaunacidae	1%
Lethrinidae	1%	Haemulidae	2%	Onychoteuthidae	3%	Lethrinidae	1%
<b>TrollingLine</b>	<b>Composition</b>	<b>CastNet</b>	<b>Composition</b>	<b>DropLine</b>	<b>Composition</b>	<b>Harpoon</b>	<b>Composition</b>
Scombridae	17%	Penaeidae	62%	Scombridae	100%	Octopodidae	49%
Istiophoridae	13%	Haemulidae	11%	<b>FenceTrap</b>		Scombridae	10%
Coryphaenidae	1%	Lethrinidae	10%	Lethrinidae	10%	Siganidae	10%
Sphyraenidae	1%	Clupeidae	7%	Serranidae	9%	Haemulidae	9%
Carangidae	1%	Torpedinidae	2%	Haemulidae	8%	Palinuridae	8%
Alopiidae	0%	Octopodidae	2%	Sparidae	7%	Coryphaenidae	3%
Acanthuridae	0%	Engraulidae	2%	Belonidae	5%	Lethrinidae	2%
Rhincodontidae	0%	Dasyatidae	1%	Dasyatidae	4%	Labridae	2%
Lethrinidae	0%	Portunidae	1%	Gerreidae	3%	Anguillidae	1%
Onychoteuthidae	0%	Scaridae	1%	Siganidae	3%	Congridae	1%
Dasyatidae	0%	Carangidae	1%	Loliginidae	3%	Carcharhinidae	1%
Other	0%	Acanthuridae	0%	Portunidae	2%	Onychoteuthidae	1%
Siganidae	0%	Siganidae	0%	Lutjanidae	2%	Scaridae	1%
<b>HookedStick</b>	<b>Composition</b>	<b>PointedStick</b>	<b>Composition</b>	<b>PrawnSeine</b>	<b>Composition</b>	<b>SpearGun</b>	<b>Composition</b>
Octopodidae	65%	Octopodidae	54%	Penaeidae	56%	Octopodidae	67%
Palinuridae	11%	Loliginidae	8%	Centriscidae	7%	Labridae	4%
Portunidae	6%	Sepiidae	5%	Scaridae	5%	Dasyatidae	4%
Lethrinidae	4%	Haemulidae	4%	Gerreidae	4%	Haemulidae	4%

<i>Dasyatidae</i>	4%	<i>Dasyatidae</i>	4%	<i>Sphyrnidae</i>	4%	<i>Scaridae</i>	3%
<i>Scaridae</i>	1%	<i>Congridae</i>	4%	<i>Carangidae</i>	3%	<i>Siganidae</i>	3%
<i>Haemulidae</i>	1%	<i>Anguillidae</i>	3%	<i>Plotosidae</i>	3%	<i>Serranidae</i>	3%
<i>Serranidae</i>	1%	<i>Acanthuridae</i>	3%	<i>Haemulidae</i>	3%	<i>Sepiidae</i>	2%
<i>Sepiidae</i>	1%	<i>Labridae</i>	2%	<i>Portunidae</i>	2%	<i>Palinuridae</i>	2%
<i>Anguillidae</i>	1%	<i>Lutjanidae</i>	2%	<i>Belonidae</i>	2%	<i>Acanthuridae</i>	1%
<i>Acanthuridae</i>	1%	<i>Serranidae</i>	2%	<i>Dactylopteridae</i>	2%	<i>Anguillidae</i>	1%
<i>Siganidae</i>	1%	<i>Siganidae</i>	2%	<i>Meneidae</i>	2%	<i>Carangidae</i>	1%
<i>Pomacanthidae</i>	1%	<i>Palinuridae</i>	2%	<i>Palinuridae</i>	1%	<i>Loliginidae</i>	1%