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Scottish Salmon Catch Statistics

Catch statistics for Scotland for the years 1952-1965 were submitted to the Working Party last year in ICES/ICNAF Salmon Doc. 66-4. In this report these have been brought up-to-date in Tables 1-7 by the inclusion of the corresponding values for 1966 and by the re-calculation of the averages. In Fig. 1 Scottish total catches and those of salmon and of grilse during this period are compared graphically with the appropriate averages for 1952-1966. Apart from these additions to the catch statistics, the new material in this report consists of catch/unit effort statistics for Scottish commercial fisheries for the years 1952-1965 (the 1966 catches have been received only recently and have not yet been analysed fully).

Together with the numbers and weight of fish caught monthly, commercial netsmen in Scotland make returns of (a) the maximum and minimum numbers of netting crews employed (for the net and coble fisheries) and (b) the maximum and minimum number of nets operated (for the fixed engine fisheries). Catch/unit effort values have therefore been calculated on the basis of catch/crew/month for net and coble fisheries and catch/net/month for fixed engine fisheries.

For the net and coble fishery, for each month, catch/crew/month has been obtained by adding the mean number of crews employed in each fishery district to give the total number of crews fishing during the month and dividing this value into the sum of their catches for the month. In addition, an overall value for catch/crew/month for the complete season has been obtained by summing the mean numbers of crews fishing each month to give the total number of crew months fished during the season and dividing this figure into the season's catch by net and coble. These calculations have been made for the combined catch of salmon and grilse and for salmon and grilse separately and the results are given in Tables 8, 9 and 10.

The statistics for the fixed engine fishery have been similarly treated, substituting mean number of nets for mean number of crews. However, in the returns received from the fishermen it is not always possible to distinguish between the catches made by the various types of fixed engine used and it has therefore been found necessary in calculating catch/unit effort, to use only fishery districts in which the catch is taken by bag nets, fly nets, jumper nets or stake nets or a combination of these four types, which have been assumed to be of equivalent size and efficiency. This has meant the exclusion of a small number of districts in which less common types of fixed engine are used and which, on average, account for about 15% of the total fixed engine catch. Details of the catch/unit effort for the fixed engine fishery, calculated on this basis, are given in Tables 11, 12 and 13.

As an indication of the variation in the amount of effort expended annually, the total numbers of crew/months and net/months recorded for each year are given in Table 14. There has been no particular trend in the figures for the net and coble fishery but the total amount of effort expended in the fixed engine fishery has decreased quite markedly over the last six years. This trend can be related to the recent closure of many of the less profitable netting stations because of rising operating costs.

Despite the limitation imposed by the use of mean values for the numbers of crews and numbers of nets operating during each month, which may not give a true indication of the average number in operation, these catch/unit effort statistics do show very similar trends to the straight catch figures and confirm that the above average or near average catches recorded in the last five years (Fig. 1) are due to a real increase in the stock, particularly of grilse, and not to an increase in effort.

It is not easy to make this comparison directly from the tables provided since they are in different units and therefore, to facilitate this comparison, the annual percentage differences from the 1952-1965 average have been prepared for the numerical catch and for the catch/unit effort by net and coble and by fixed engines. These are compared graphically for the combined catches of salmon and grilse and for salmon and grilse separately, in Figs. 2, 3 and 4.

Table 1 Annual Scottish Catches 1952-1966

<u>Year</u>	<u>No.</u>	<u>Salmon</u>		<u>Grilse</u>		<u>Total</u>	<u>Av Wt (lb)</u>	
		<u>Wt (tons)</u>	<u>Av Wt (lb)</u>	<u>No.</u>	<u>Wt (tons)</u>	<u>Av Wt (lb)</u>	<u>No.</u>	<u>Wt (tons)</u>
1952	236,285	1163.0	11.0	151,157	325.3	4.8	387,442	1488.3
1953	211,935	980.4	10.4	141,782	339.1	5.3	353,717	1319.5
1954	256,401	1184.4	10.3	117,916	286.9	5.4	374,317	1471.3
1955	252,109	1100.6	9.8	136,015	302.7	5.0	388,124	1403.4
1956	200,425	928.9	10.4	117,275	261.7	5.0	317,700	1190.2
1957	217,572	939.0	9.7	196,974	452.2	5.1	414,546	1391.3
1958	224,820	1033.7	10.3	202,703	462.0	5.1	427,523	1495.7
1959	270,006	1224.5	10.2	115,962	270.0	5.2	385,968	1494.5
1960	201,753	945.1	10.5	184,631	468.3	5.7	386,384	1413.4
1961	179,926	807.0	10.1	156,257	369.6	5.3	336,183	1176.6
1962	213,436	999.2	10.5	280,826	712.9	5.7	494,262	1712.1
1963	267,280	1265.7	10.6	166,922	405.9	5.4	434,202	1671.5
1964	269,566	1196.7	9.9	286,462	686.5	5.4	556,028	1883.1
1965	219,999	1048.4	10.7	213,826	541.6	5.7	433,825	1590.1
Average 1952-65	230,108	1058.3	10.3	176,336	420.3	5.3	406,444	1478.6
1966	227,707	1048.7	10.3	220,920	545.8	5.5	448,627	1594.5
Average 1952-66	229,948	1057.7	10.3	179,308	428.7	5.4	409,257	1486.4

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1966    227,707    1048.7    10.3    220,920    545.8    5.5    448,627    1594.5    8.0

Table 2 Monthly Commercial Salmon Catches 1952-1966

<u>Year</u>	<u>Feb.</u>	<u>Mar.</u>	<u>Apr.</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Total</u>
1952	26,850	24,971	34,392	41,506	36,139	25,953	9,603	983	203,902
1953	20,644	21,971	23,455	35,997	25,060	29,200	10,670	695	167,692
1954	17,729	33,602	43,406	37,401	29,490	30,742	9,836	637	202,593
1955	6,438	24,679	34,961	33,088	44,762	41,631	18,539	1,517	205,415
1956	5,714	21,521	19,904	27,570	34,818	31,442	9,354	728	151,051
1957	6,497	20,642	20,935	31,525	33,557	31,105	10,019	544	154,324
1958	6,528	16,623	21,053	33,782	31,103	37,114	15,836	758	162,797
1959	34,218	27,140	27,083	30,686	40,356	39,056	21,608	2,308	222,455
1960	5,892	18,017	15,277	28,403	26,532	34,397	17,626	2,338	118,482
1961	6,048	15,789	16,674	22,482	25,934	26,833	14,880	2,232	130,872
1962	5,370	10,931	9,946	22,058	31,247	43,750	25,057	2,919	151,278
1963	11,023	34,363	22,774	32,100	33,675	33,363	26,527	3,461	157,286
1964	9,934	13,171	13,233	23,744	35,804	57,678	43,213	5,453	202,230
1965	7,884	15,823	14,911	18,167	30,517	43,407	22,285	2,549	155,543

Average

1952-65	12,200	21,380	22,790	29,950	32,780	36,150	18,220	1,940	175,266
1966	1,931	13,479	15,620	18,905	24,952	45,469	36,245	4,554	164,155

Average

1952-66	11,713	20,848	22,275	29,161	32,263	36,743	19,410	2,112	174,525
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Table 3 Monthly Commercial Grilse Catches 1952-1966

<u>Year</u>	<u>Feb.</u>	<u>Mar.</u>	<u>Apr.</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Total</u>
1952		1	32	1,060	39,458	94,502	9,846	192	145,091
1953		5	14	583	18,098	96,622	19,728	459	135,509
1954	1	-	2	246	9,580	83,633	19,243	358	113,063
1955		1	3	134	15,556	89,467	26,228	581	131,970
1956		-	7	372	13,954	75,370	19,315	282	109,300
1957	33	-	13	677	32,339	116,231	37,378	307	186,978
1958		3	11	411	14,346	129,797	47,374	646	192,588
1959		-	6	311	5,841	67,847	37,623	890	112,518
1960		1	22	701	12,116	111,737	47,038	1,766	173,431
1961	13	3	83	344	11,538	96,198	40,476	1,372	150,027
1962	11	2	9	583	20,413	177,165	70,269	1,883	270,335
1963		26	55	207	5,471	91,218	58,908	1,790	157,675
1964	913	914	922	1,255	13,548	140,377	109,222	5,084	272,235
1965	9	-	7	309	12,475	142,857	47,623	1,835	205,115

Average

1952-65	70?	68	85	514	16,080	108,150	42,200	1,250	168,275
1966	135	-	3	169	4,650	115,253	89,312	3,024	212,546

Average

1952-66	74	64	79	491	15,292	108,552	45,309	1,365	171,225
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Table 4    Annual Catches 1952-1966

East Coast (Berwick-Kinnaird Head)

<u>Year</u>	<u>Salmon</u>	<u>Grilse</u>	<u>Total</u>
1952	147,069	66,470	213,539
1953	127,456	61,933	189,389
1954	157,580	51,056	208,636
1955	139,752	46,864	186,616
1956	114,612	47,059	161,671
1957	126,143	74,151	200,294
1958	121,645	81,164	202,809
1959	182,943	54,539	237,482
1960	119,297	82,083	201,380
1961	107,143	76,759	183,902
1962	118,170	147,764	265,934
1963	168,108	73,298	241,406
1964	151,655	134,471	286,126
1965	126,507	97,720	224,227
Average 1952-65	136,291	78,238	214,529
1966	140,176	109,525	249,701
Average 1952-66	136,550	80,324	216,874

Table 5    Annual Catches 1952-1966

Moray Firth and North Coasts (Kinnaird Head-Kyle of Tongue)

<u>Year</u>	<u>Salmon</u>	<u>Grilse</u>	<u>Total</u>
1952	64,742	66,877	131,619
1953	60,378	55,889	116,267
1954	70,737	42,834	113,571
1955	80,459	64,874	145,333
1956	59,493	48,729	108,222
1957	57,860	77,404	135,264
1958	66,313	66,948	133,261
1959	55,826	39,196	95,022
1960	54,565	64,098	118,663
1961	47,584	55,049	102,633
1962	56,333	73,690	130,023
1963	62,138	47,142	109,280
1964	73,914	88,707	162,621
1965	57,765	66,222	123,987
Average 1952-65	62,008	61,261	123,269
1966	51,446	64,047	115,493
Average 1952-66	61,304	61,447	122,751

Table 6 Annual Catches 1952-66

West Coast and Islands (Kyle of Tongue-Loch Fyne)

<u>Year</u>	<u>Salmon</u>	<u>Grilse</u>	<u>Total</u>
1952	8,289	8,472	16,761
1953	10,405	16,033	26,438
1954	10,939	16,635	27,574
1955	11,002	15,930	26,932
1956	9,940	12,599	22,539
1957	12,632	29,325	41,957
1958	14,516	27,205	41,721
1959	8,352	9,334	17,686
1960	7,482	18,294	25,776
1961	7,468	12,762	20,230
1962	13,796	24,104	37,800
1963	11,179	22,791	33,970
1964	17,354	31,237	48,591
1965	13,300	24,003	37,303
Average 1952-65	11,190	19,194	30,384
1966	10,540	19,589	30,129
Average 1952-66	11,146	19,221	30,367

Table 7 Annual Catches 1952-1966

Southwest and Solway Coasts (Loch Fyne-Solway)

<u>Year</u>	<u>Salmon</u>	<u>Grilse</u>	<u>Total</u>
1952	12,072	5,356	17,428
1953	10,765	4,740	15,505
1954	13,274	6,386	19,660
1955	15,192	8,272	23,464
1956	13,515	8,482	21,997
1957	16,032	15,999	32,031
1958	17,962	18,826	36,788
1959	20,731	11,045	31,776
1960	16,529	17,149	33,678
1961	15,316	10,435	25,751
1962	20,532	29,739	50,271
1963	22,234	20,188	42,422
1964	21,253	27,521	48,774
1965	19,202	23,480	42,682
Average 1952-65	16,758	14,830	31,588
1966	22,578	24,488	47,066
Average 1952-66	17,146	15,473	32,620

Table 8      Net and Coble - Catch/Unit/Effort - Salmon + Grilse

Year	<u>Catch/Crew/Month</u>									
	<u>Feb.</u>	<u>Mar.</u>	<u>Apr.</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Overall</u>	
1952	170.0	162.5	121.0	108.3	177.4	286.0	60.1	17.8	152.4	
1953	171.6	101.1	88.7	84.0	57.6	234.3	82.8	12.5	118.5	
1954	194.7	271.5	194.7	107.5	95.7	236.9	99.7	12.8	156.8	
1955	72.4	177.8	180.6	103.7	149.5	266.2	130.6	30.5	159.6	
1956	52.3	182.0	93.0	66.4	96.7	214.4	77.6	17.8	114.7	
1957	76.5	220.8	133.5	109.8	147.1	328.4	122.7	11.8	169.2	
1958	84.0	158.8	135.0	104.5	104.9	312.4	136.9	20.7	156.2	
1959	286.2	218.8	130.3	85.2	105.5	219.0	180.0	44.7	158.6	
1960	64.9	157.5	77.9	87.8	90.0	340.2	197.0	60.5	161.5	
1961	65.6	123.0	82.1	61.4	67.0	257.5	139.0	48.7	122.3	
1962	64.2	76.6	59.3	75.5	126.8	509.6	270.9	65.0	218.5	
1963	60.6	319.0	116.6	115.0	100.0	246.4	229.8	65.2	171.6	
1964	89.9	102.0	59.4	63.5	96.3	420.0	397.5	116.1	212.4	
1965	81.3	136.0	80.0	70.4	95.4	425.0	197.8	65.2	183.0	
Average										
1952-65	109.6	172.0	110.9	88.8	107.8	306.9	166.0	42.1	161.1	

Table 9      Net and Coble - Catch/Unit/Effort - Salmon

Year	<u>Catch/Crew/Month</u>									
	<u>Feb.</u>	<u>Mar.</u>	<u>Apr.</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Overall</u>	
1952	170.0	162.5	120.8	105.9	93.3	73.9	33.6	15.2	92.1	
1953	171.6	101.1	88.7	83.5	54.8	65.1	29.5	7.8	69.6	
1954	194.7	271.5	194.7	106.9	78.1	74.7	38.5	8.7	111.0	
1955	72.4	177.8	180.6	103.6	120.2	107.0	65.5	23.9	108.0	
1956	52.3	182.0	93.0	65.6	70.4	71.3	28.2	12.8	70.0	
1957	76.0	220.8	133.5	108.5	82.1	84.0	34.1	8.8	89.0	
1958	84.0	158.8	135.0	103.7	81.8	83.1	40.1	11.2	84.4	
1959	286.2	218.8	130.3	84.8	96.9	88.5	68.0	33.8	111.8	
1960	64.9	157.5	77.8	87.2	67.1	104.1	65.3	38.0	84.1	
1961	65.6	123.0	81.7	60.8	53.5	61.7	40.9	32.5	60.9	
1962	64.2	76.6	59.3	72.5	80.4	118.8	82.9	43.3	83.6	
1963	60.6	319.0	116.6	114.9	93.8	88.6	89.8	49.7	109.3	
1964	89.9	102.0	59.4	62.8	77.1	144.0	127.5	66.5	98.6	
1965	81.3	136.0	80.0	70.0	75.0	108.0	72.8	38.4	84.0	
Average										
1952-65	109.6	172.0	110.8	87.9	80.3	90.9	58.3	27.9	89.7	

Table 10 Net and Coble - Catch/Unit/Effort - Grilse

<u>Catch/Crew/Month</u>										
<u>Year</u>	<u>Feb.</u>	<u>Mar.</u>	<u>Apr.</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Overall</u>	
1952	-	-	0.2	2.4	84.1	212.1	26.5	2.6	60.3	
1953	-	-	-	0.5	2.8	169.2	53.3	4.7	48.9	
1954	-	-	-	0.6	17.6	162.2	60.7	4.1	45.8	
1955	-	-	-	0.1	29.3	159.2	65.1	6.6	51.6	
1956	-	-	-	0.8	26.3	143.1	49.4	5.0	44.7	
1957	0.5	-	-	1.3	65.0	244.4	88.6	3.0	80.2	
1958	-	-	-	0.8	23.1	229.3	96.8	9.5	71.8	
1959	-	-	-	0.4	8.6	130.5	112.0	10.9	46.8	
1960	-	-	0.1	0.6	22.9	236.1	132.6	22.5	77.4	
1961	-	-	0.4	0.6	13.5	195.8	98.1	16.2	61.4	
1962	-	-	-	3.0	46.4	390.8	188.0	21.7	134.9	
1963	-	-	-	0.1	6.2	157.8	140.0	15.5	62.3	
1964	-	-	-	0.7	19.2	276.0	270.0	49.6	113.8	
1965	-	-	-	0.4	20.4	317.0	125.0	26.8	99.0	
Average 1952-65	-	-	-	0.9	27.5	216.0	107.6	14.2	71.4	

Table 11 Fixed Engines - Catch/Unit/Effort - Salmon + Grilse

<u>Catch/Net/Month</u>										
<u>Year</u>	<u>Feb.</u>	<u>Mar.</u>	<u>Apr.</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Overall</u>	
1952	10.0	12.2	23.4	26.0	38.4	61.7	10.8	2.7	29.9	
1953	11.6	20.2	16.4	24.9	25.1	72.5	17.8	8.2	28.5	
1954	4.4	12.5	29.2	21.8	21.4	63.5	15.4	4.3	27.8	
1955	1.4	14.4	20.2	20.2	33.8	74.0	25.5	4.2	32.6	
1956	6.1	12.8	13.4	18.9	29.3	54.5	17.1	2.5	25.4	
1957	2.0	7.7	10.8	15.7	34.7	77.7	33.5	2.2	31.5	
1958	2.8	10.2	12.1	22.7	25.6	95.0	39.7	1.8	36.1	
1959	40.9	19.6	18.1	20.8	29.0	66.1	30.7	8.2	33.2	
1960	4.4	10.0	12.7	21.9	24.3	81.2	34.4	8.2	33.1	
1961	6.7	14.3	12.8	15.3	25.5	68.8	32.5	5.9	29.5	
1962	6.5	13.9	7.3	16.9	35.7	119.7	51.7	10.6	43.6	
1963	39.7	30.9	23.2	25.5	25.1	84.0	47.5	13.7	41.7	
1964	16.6	14.0	13.3	22.7	39.3	130.7	99.5	17.7	58.8	
1965	11.1	18.4	16.6	16.0	34.1	115.4	46.0	6.6	44.4	
Average 1952-65	11.7	15.1	16.4	20.6	30.1	83.2	35.9	6.9	35.4	

Table 12      Fixed Engines - Catch/Unit/Effort - Salmon

<u>Year</u>	<u>Catch/Net/Month</u>									
	<u>Feb.</u>	<u>Mar.</u>	<u>Apr.</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Overall</u>	
1952	10.0	12.2	23.4	25.4	17.2	10.6	4.2	2.2	15.2	
1953	11.6	20.2	16.4	24.6	13.3	14.6	5.8	4.5	14.0	
1954	4.4	12.5	29.2	21.6	15.1	14.6	4.0	3.1	15.2	
1955	1.4	14.4	20.2	20.1	23.4	18.6	7.2	3.7	16.9	
1956	6.1	12.8	13.4	18.6	20.5	13.7	4.7	2.2	13.9	
1957	2.0	7.7	10.8	15.4	16.6	13.1	4.6	1.2	11.2	
1958	2.8	10.2	12.1	21.8	15.4	17.8	8.3	1.0	14.0	
1959	40.9	19.6	18.1	20.6	24.0	21.1	9.9	4.9	20.4	
1960	4.4	10.0	12.7	21.0	15.1	12.9	6.2	3.8	12.8	
1961	6.7	14.3	12.8	15.0	15.8	12.4	6.9	1.8	12.3	
1962	6.4	13.9	7.3	16.7	20.0	17.5	9.6	5.1	14.0	
1963	39.7	30.8	23.1	25.2	19.3	15.6	9.1	7.0	19.9	
1964	16.6	14.0	13.3	22.4	27.6	32.2	23.8	7.4	23.2	
1965	11.1	18.4	16.6	15.6	22.0	24.2	11.2	3.7	17.8	
Average 1952-65	11.7	15.1	16.4	19.6	19.0	17.1	8.2	3.8	15.8	

Table 13      Fixed Engines - Catch/Unit/Effort - Grilse

<u>Year</u>	<u>Catch/Net/Month</u>									
	<u>Feb.</u>	<u>Mar.</u>	<u>Apr.</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Overall</u>	
1952	-	-	-	0.6	21.2	51.1	6.6	0.5	14.7	
1953	-	-	-	0.3	11.8	57.9	12.0	3.7	14.5	
1954	-	-	-	0.2	6.3	48.9	11.4	1.2	12.6	
1955	-	-	-	0.1	10.4	55.4	18.3	0.5	15.7	
1956	-	-	-	0.3	8.8	40.8	12.4	0.3	11.5	
1957	-	-	-	0.3	18.1	64.6	28.9	1.0	20.4	
1958	-	-	-	0.3	10.2	77.2	31.4	0.8	22.1	
1959	-	-	-	0.2	5.0	45.0	20.8	3.3	12.8	
1960	-	-	-	0.9	9.2	68.3	28.2	4.4	20.3	
1961	-	-	-	0.3	9.7	56.4	25.6	4.1	17.2	
1962	0.1	-	-	0.2	15.7	102.2	42.1	5.5	29.6	
1963	-	0.1	0.1	0.3	5.8	68.4	38.4	6.7	21.8	
1964	-	-	-	0.3	11.7	98.5	75.7	10.3	35.6	
1965	-	-	-	0.4	12.1	91.2	34.8	2.9	26.6	
Average 1952-65	-	-	-	0.3	11.1	66.1	27.6	3.2	19.6	

# FIG.I ANNUAL SCOTTISH CATCHES 1952-1966

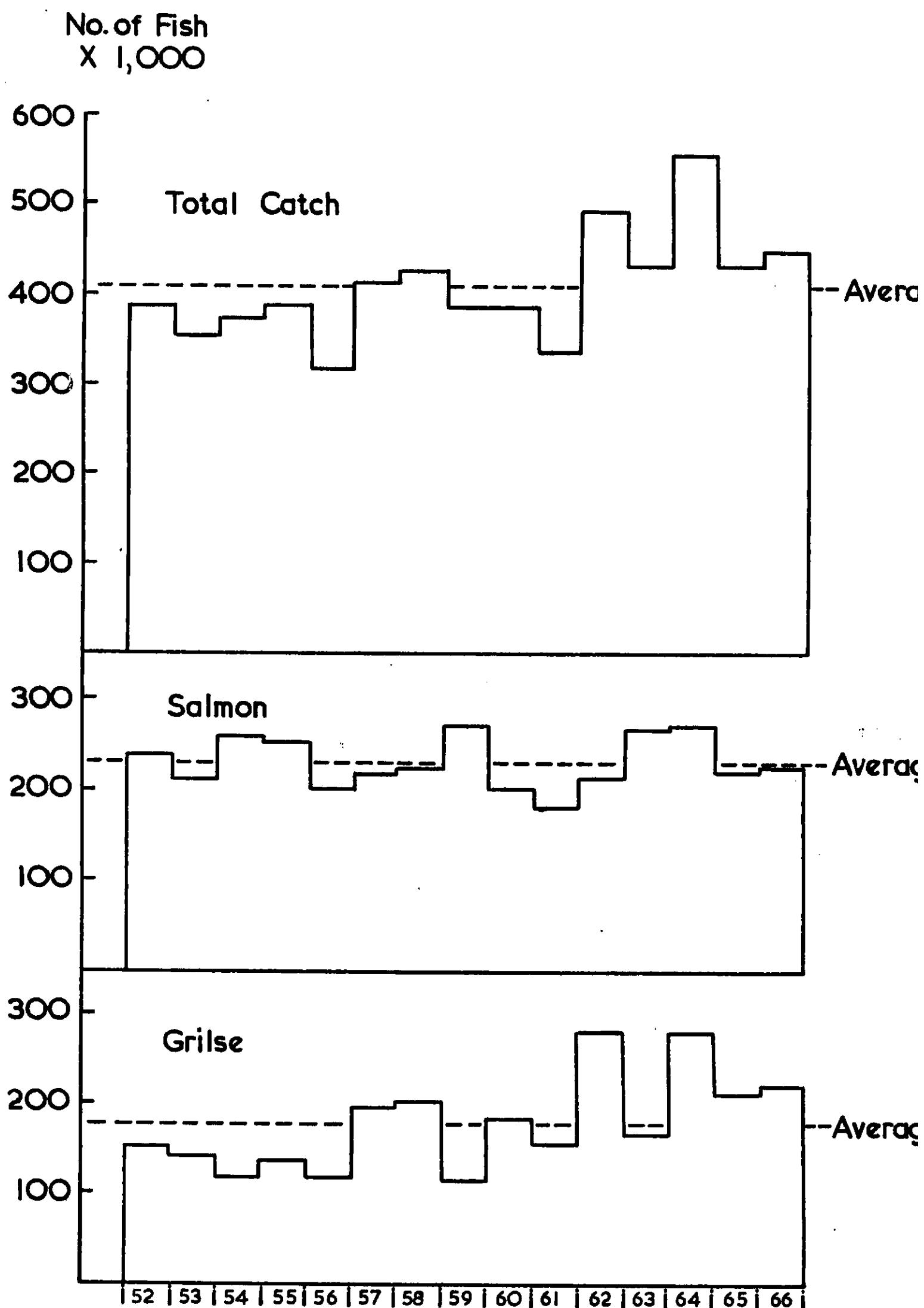


Table 14. Total Annual Effort

<u>Year</u>	<u>Net and Coble Total No. of Crew/months</u>	<u>Fixed Engines Total No. of Net/months</u>
1952	1015	4958
1953	1055	4919
1954	1022	4532
1955	1001	4384
1956	1031	5188
1957	958	4577
1958	1028	4907
1959	1107	4354
1960	1034	4147
1961	1189	4163
1962	1086	3688
1963	989	3800
1964	1017	3969
1965	998	3593

FIG.3 ANNUAL PERCENTAGE DIFFERENCE FROM 1952-1965 AVERAGE—SALMON

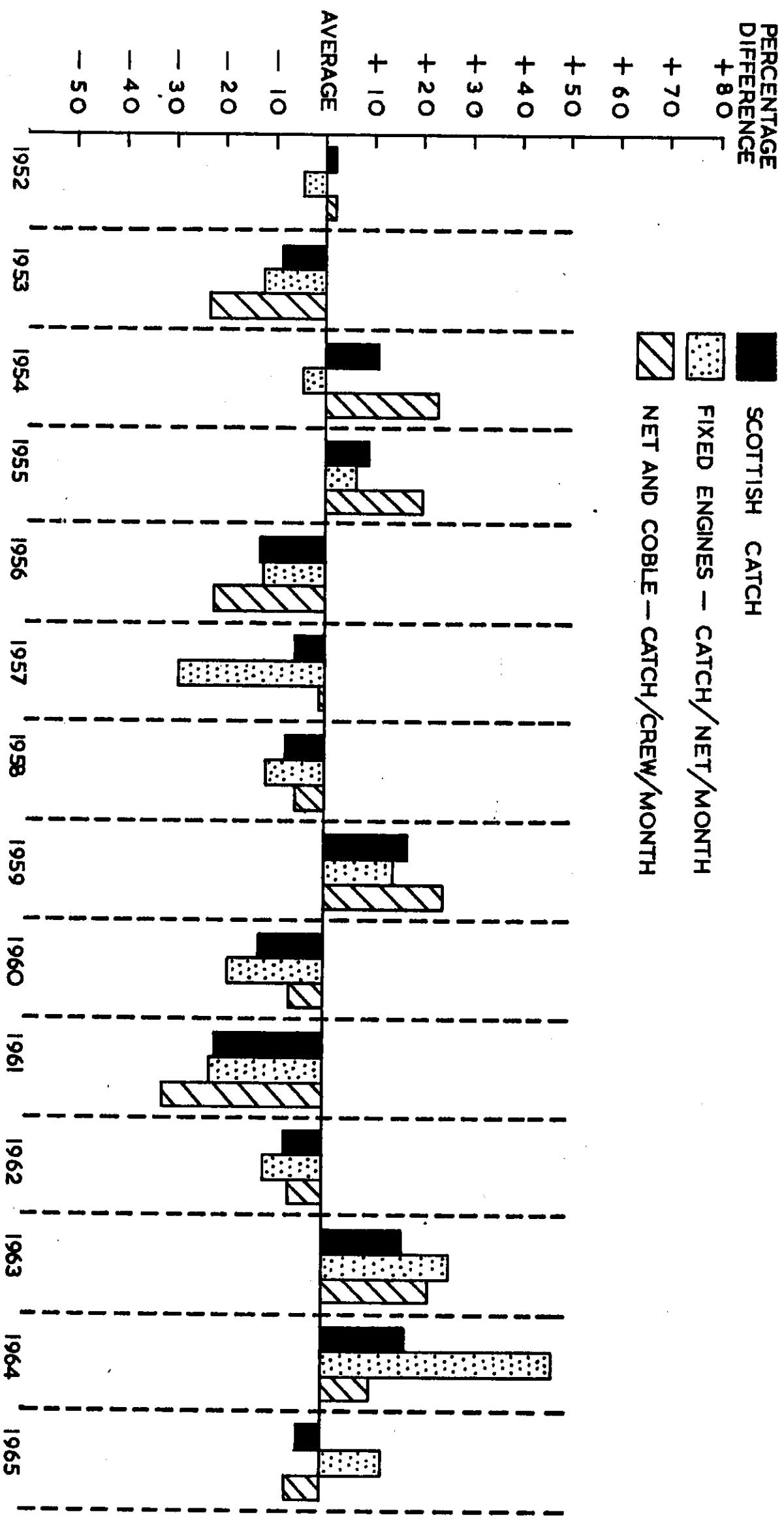


FIG. 2 ANNUAL PERCENTAGE DIFFERENCE FROM 1952-1965

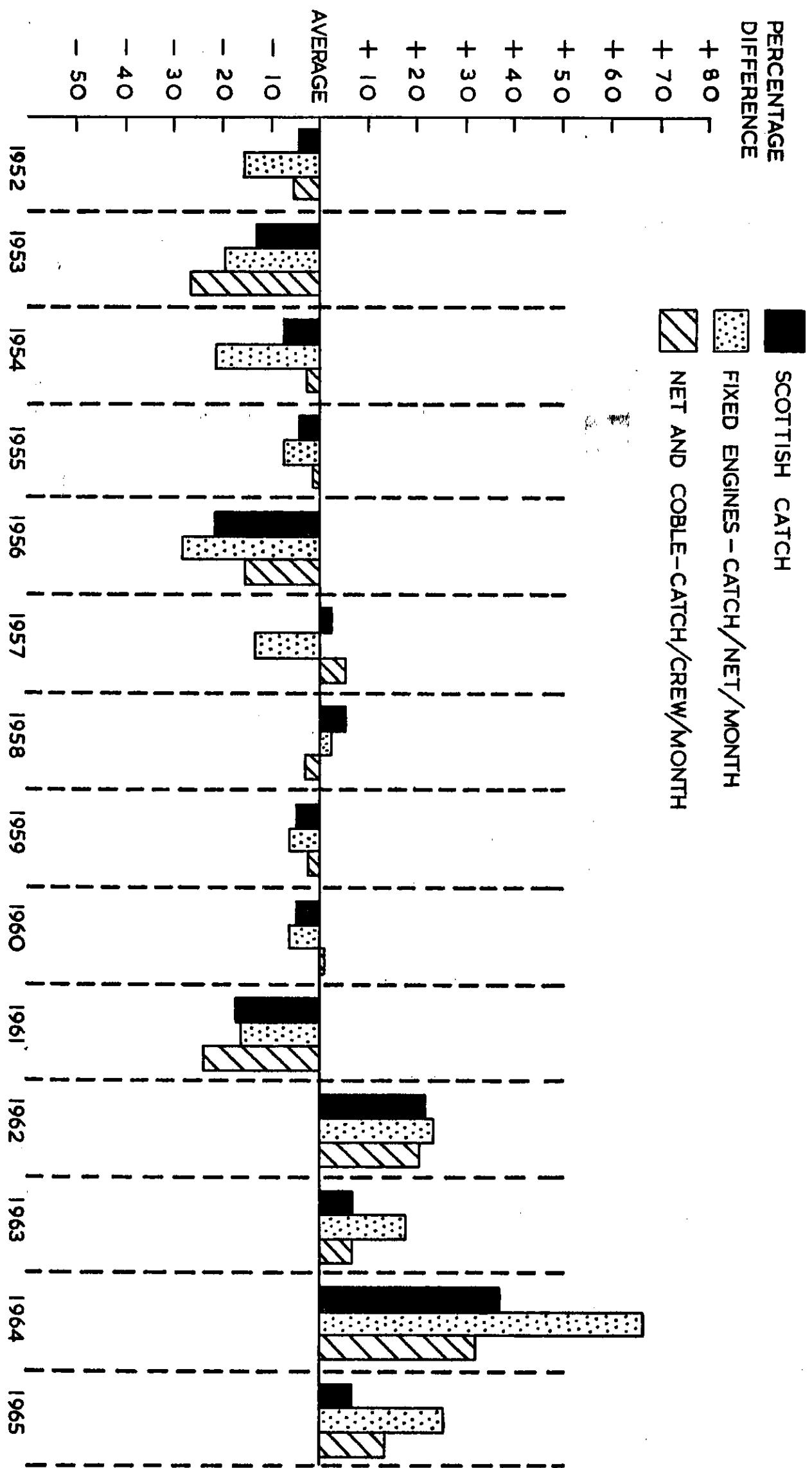


FIG. 4 ANNUAL PERCENTAGE DIFFERENCE FROM 1952-1965 AVERAGE—GRILSE

