1950

International Commission
for the
Northwest Atlantic Fisheries

1970

RESTRICTED

Serial No.2336
(B.g.14)

ICES/ICNAF Salmon Doc.70/10
(also ICNAF Res.Doc.70/32)

ANNUAL MEETING - JUNE 1970

Irish salmon. Homewater stocks and exploitation

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Home water stocks and fisheries

The export figures reflect the trend of the runs of salmon in Ireland and it can be seen from both the total export figures (Table 1) and the Billingsgate market returns (Table 2) that the amount of salmon taken in the period January/May for each of the years 1967/69 was low compared with the means for the periods 1950-59 and 1960/66. This is confirmed by the Dublin Market returns which probably give a somewhat more reliable index of the trend of the runs than Billingsgate market. In recent years there is a tendency for salmon to be sent to other British markets and to the Continent rather than to Billingsgate. A fairly accurate division into salmon (2 and older sea winter fish) and grilse (1+ sea winter fish) can be obtained by using the time of running of the salmon. Scale examination has shown for a number of Irish rivers that 95% and upwards of all fish from January to May are 2 sea winter fish and thereafter the majority - 80% and upwards - are 1+ sea winter fish. It can be seen from the data presented from export figures, the Dublin Market returns and the commercial catch (Table 4) that the catches of salmon have been at a fairly high level since 1962. This is due to the excellent grilse runs which have been in evidence in recent years. There is, however, a drastic decline in the early runs of fish. Whilst U.D.N. may have played a part in reducing rod catches of spring fish for various reasons, this does not account entirely for the low returns of salmon (2 sea winter fish).

Commercial catch figures expressed as a catch per unit effort are given in Tables 4 and 5. Commercial fishing for salmon in Ireland is now dependent on the grilse runs from June to August and monthly catch statistics for individual river systems are given in Tables 6 to 10.

From scale reading it has been established that very few grilse (1+ sea winter fish) are taken in Irish rivers until the beginning of June. In the case of the Rivers Moy and Shannon for which catch figures are given in Tables 8 and 9, it has been established that the percentage of grilse in the catch was 87% and 92.7% respectively in 1968. In the summer months of 1968, the 2 sea winter fish did not exceed 0.8% in the River Shannon and 5.3% in the River Moy. Some comparatively large fish (8 lbs and over) do, however, appear in the summer catches. From the 1968 River Foyle data presented by A.E.J.Went (ICES C.M. 2 1969) and confirmed for 1969, it can be seen that the majority of these fish are 1+ sea winter fish. The fact that there have been substantial increases in the weight of grilse during 1968 and 1969 is worth recording. Grilse now average 6.5 lb whereas in the "fifties" and early "sixties" the average weight was 5.5 lb.

For the purpose of assessing the effects of high seas fishing for salmon on Irish catches, a number of centres along the coast where reliable monthly data are available were selected. The centres extend from the River Blackwater in the south coast to the Sligo river on the northwest coast. The Sligo river (Table 6) is of particular interest as it is considered to be purely a "spring" river, the run being composed mainly of 2 sea winter fish. The commercial fishing starts in January and ends in April. Here a substantial reduction in spring fish has occurred in recent years. In the "fifties" it can be seen that in the River Blackwater (Table 7), there were far

more "spring" fish taken in the "fifties" than in the "sixties". From 1962 onwards, the catch was predominantly grilse and there is no apparent reduction other than seasonal fluctuations in the monthly catch of salmon (2 sea winter fish). Scale reading has confirmed that 97.0% and over of the fish up to the end of May are 2 sea winter fish and thereafter the percentage of 1+ sea winter fish is 82. The estimated runs of salmon into the River Shannon are given on a monthly basis in Table 9. There is some slight evidence that 2 sea winter fish were more plentiful in the early "fifties" than in the "sixties". The years 1966 to 1968 were poor for 2 sea winter fish but there was an improvement in 1969. Scale reading has again confirmed, in the case of the Shannon, that 99% of the fish running up to the end of May are 2 sea winter fish and thereafter the percentage of 1+ sea winter fish is 95%.

The Stake weir catches on the Shannon estuary (Table 11) is indicative of the fluctuations in runs that can occur in the normal course. The 1968 figure for spring fish (February/May) was very low but a substantial increase was evident in 1969. Similar fluctuations in summer fish runs (June/July) can be seen.

Rates of exploitation in home water fisheries

Counters have been installed in a number of river systems in Ireland but in some systems the counters are too far upstream to give a true indication of the total run. For the purpose of assessing the rate of exploitation of salmon in home waters, three river systems have been selected which given an indication of the number of fish entering the system and the rate of exploitation in the commercial fishery. These returns do not take into consideration the catches at sea.

River Erne - The counter in the River Erne is situated at the top of the tidal limits in the White submerged orifice type fish pass. The counter which is an electro-mechanical type is situated in the lower reaches of the pass. The counter gives a daily record of all salmon entering the Erne system and a daily record is kept of all fish taken in the commercial fishery in the estuary. The E.S.B. of Ireland have a catching pool or trap in the fish pass and are allowed to retain 28% of the escapement. For the purpose of these investigations the E.S.B.'s catch,since it is constant factor, is added to the escapement.

The exploitation rate by commercial engines is given in Table 11 for the River Erne for the years 1962-1969. The fishing effort is governed to a great extent by the flow of water and the wind direction. This is true for most rivers in Ireland where commercial fishing is carried out in the estuaries. The commercial fishing in the River Erne is mainly carried out in June and July. In the years 1962 to 1964, the escapement upstream was regulated by by-law that 3,000 fish having to pass upstream before commercial fishing was permitted. In 1965 and 1966, commercial fishing was restricted to 4 days per week instead of the normal five days. The years 1962 to 1966 give some indication of the exploitation rate during the main run of fish which are relatively high for this period. The years 1965 and 1966 can be regarded as exceptional. Due to the very short fishing week and the high water flows, net fishing was not very effective. This can be seen from the high escapement during the fishing period. In 1967 to 1969 fishing run permitted for 5 days each week and the catch and escapement gives a more normal indication of the exploitation rates.

River Corrib - An electronic counter is installed in a barrage on the River Corrib which gives a very accurate count of the fish entering the River Corrib at the tidal limits. The commercial catch in this river is made by a series of traps operated across the river. With a free passage for fish at the deepest part of the river measuring 1/10 of the total width. A seine is also operating spasmodically in this river. The commercial catch for this fishery together with escapements and total runs are given in Table 12. Exploitation varies from 20.8% to 45.0% of the total run from 1965 to 1969.

River Shannon - The data presented for this river (Table 13) gives some indication of the exploitation in a heavily fished estuary which extends for about 50 miles from the mouth of the river to the upper tidal limits where a visual count of fish is carried out at Thomond Weir. This weir spans the entire width of the river and it is presumed that the count is complete. One of the problems in presenting catch data for the Shannon is that there are three major tributaries entering the estuary and it is quite possible that some fish caught in the lower reaches of the River Shannon (30-40 miles from Thomond Weir) are destined for these rivers, but since the Shannon itself forms the major portion of the catchment the contribution may not be very high, catches made by the nets operating at the mouths of these rivers are not included in

Table 13. The commercial exploitation rate in the River Shannon varies from 61.0% in 1966 to 67.5% in 1969.

As can be seen from the data from these three Irish rivers, the exploitation of stocks in home water rivers presents a very varied picture. The numbers of commercial engines operating has been constant, but the problem is to get information on the catching effort. Gale force winds and high floods adversely affect fishing operations. The year 1968 and 1969 were particularly good for commercial engines as there were very long dry spells with favourable weather conditions which kept the fish in the estuaries.

Catch Statistics

Table 1. Export in Cwts. of Salmon

Year.	Total.	January/May		June onwards	
		No.	%	No.	%
Mean 1950-59	16,092	5,823	35.5	10,269	64.5
1960	10,920	3,280	30.0	7,640	70.0
1961	9,054	2,218	24.5	6,841	75.5
1962	18,834	2,571	13.6	16,263	86.4
1963	23,417	5,405	23.1	18,012	76.9
1964	22,642	5,050	22.3	17,592	77.7
1965	19,420	4,687	24.1	14,733	75.9
1966	17,159	4,285	24.9	12,874	75.1
1967	20,228	2,594	12.8	17,634	87.2
1968	19,846	1,914	9.6	17,932	91.4
1969	17,504*	2,577		14,927*	

* Up to October 31st.

Table 2. Division of arrivals of salmon at Billingsgate Market, London, expressed in packages of 100 lbs.

Year.	Total.	January/May		June onwards	
		No.	%	No.	%
Mean 1950-59	7,262	3,141	41.3	4,460	58.7
1960	7,851	2,773	34.0	5,078	66.0
1961	8,116	1,525	18.8	6,591	81.2
1962	11,953	1,483	12.4	10,450	87.6
1963	14,277	2,917	20.4	11,360	79.6
1964	14,519	3,233	22.3	11,286	77.7
1965	19,038	2,589	28,6	6,449	71.4
1966	11,212	2,502	22.5	8,710	77.7
1967	10,422	1,663	15.8	8,759	84.2
1968	7,155	965	13.4	6,190	86.6
1969	6,171	1,585	25.5	4,586	74.5

Table 3 Numbers of Salmon sold in the Dublin Wholesale Fish Market

	Year	Total	Jan/May	Percentage	June onwards No.	Percentage
Mean	1950-59	39,090	9,471	23.9	29,140	76.1
	1960	45,421	9,192	20.2	36,229	79.8
	1961	42,316	7,926	18.7	34,390	81.3
	1962	131,215	12,514	9.5	118,701	90.5
	1963	104,475	15,577	14.9	88,898	85.1
	1964	111,866	14,068	12.6	97,798	87.4
	1965	101,728	13,191	13.0	88,537	87.0
	1966	98,950	13,487	13.6	85,463	86.4
	1967	95,168	7,345	7.7	87,823	92.3
	1968	130,581	5,416	4.2	125,165	95.8
	1969	172,687	6,551	3.8	166,136	96.2

TABLE 4. Catch returns to the nearest 1,000 lb. for commercial engines together with number of licences issued, and average catch per licence.

	Year	Catch in 1,000 lbs.	No. of licences issued	* Mean catch per commercial licence
Mean	1950-59	1,436	1,319	1,179
	1960	1,134	1,195	950
	1961	1,153	1,121	1,030
	1962	2,606	1,180	2,210
	1963	2,495	1,289	1,940
	1964	2,623	1,523	1,720
	1965	2,453	1,273	1,700
	1966	2,406	1,842	1,250 * to
	1967	2,453	1,486	1,650 near st
	1968	2,457	1,487	1,650 10 lbs.

TABLE 5. Captures of salmon at sea
Details of Landings from open sea drift nets (May to August).

	Year	No. of fish landed	Mean catch per engine
Mean	1950-59	24,004	246
	1960	28,620	325
	1961	22,588	224
	1962	58,547	563
	1963	60,197	456
	1964	68,423	430
	1965	98,397	520
	1966	94,555	516
	1967	129,885	733
	1968	104,018	534
	1969	123,760	442

Table 6 Returns from a fixed draft net - Sligo
Catch/net/month.

	January	February	March	April	Total
1961	76	45	68	6	195
1962	69	44	61	-	184
1963	81	111	240	76	508
1964	106	74	54	29	263
1965	163	110	146	60	479
1966	198	70	57	25	350
1967	144	31	28	20	223
1968	44	47	79	37	207
1969	44	23	33	39	139

Table 7 Monthly catches of salmon in the River Blackwater by all methods (rods, nets and weirs).

Year	February	March	April	May	Total Spring Fish	June	July	Total Summer Fish	Combined Total
1953	1,818	1,253	1,841	2,369	7,281	5,265	10,050	15,315	22,596
1954	4,532	6,279	6,253	3,388	20,452	5,004	6,239	11,243	31,695
1955	2,118	2,667	3,534	4,113	12,432	2,993	2,741	5,734	18,166
1956	1,582	1,828	1,874	2,546	7,830	2,955	5,282	8,237	16,067
1957	2,258	1,565	1,826	2,048	7,697	4,242	6,785	11,025	18,724
1958	1,280	1,389	2,168	2,123	9,241	3,812	10,547	14,359	21,319
1959	2,038	3,150	2,672	2,139	9,999	3,339	9,958	13,317	23,289
1960	1,645	1,445	1,779	2,039	6,908	3,403	5,429	8,832	15,740
1961	753	1,261	896	1,191	4,101	3,321	5,764	9,085	13,186
1962	904	1,028	929	1,915	6,738	10,478	21,659	32,137	36,913
1963	1,913	3,512	3,365	4,040	12,830	7,912	20,008	27,920	40,750
1964	2,823	1,835	2,346	4,619	11,623	8,136	20,927	29,063	40,686
1965	1,431	3,248	2,714	3,955	11,348	8,426	15,761	24,187	35,535
1966	1,567	2,808	1,857	3,462	9,694	6,608	13,781	20,389	30,083
1967	631	1,002	1,112	2,685	5,430	8,274	16,796	25,070	30,500
1968	481	357	460	1,417	3,009	6,367	19,351	25,718	28,727
1969	622	749	1,343	2,896	5,610	13,162	20,214	33,376	38,986

TABLE 8, Monthly catches of salmon in the estuary of the River Moy on fixed draft net catch/month/net.

Year	February	March	April	May	Total Spring Fish	June	July	August	Total Summer Fish	Combined Total
1948	193	509	1,771	2,138	4,611	13,830	8,958	1,898	14,686	14,297
1949	164	536	1,820	2,072	4,592	5,252	13,215	229	18,695	23,288
1950	162	217	995	1,216	2,590	6,085	6,555	538	13,172	15,762
1951	29	299	567	1,155	2,050	7,971	11,755	831	20,557	22,607
1952	234	270	822	1,348	2,674	8,640	5,830	751	15,221	17,895
1953	94	194	471	1,731	2,490	10,116	13,419	815	24,350	26,840
1954	113	369	1,014	1,361	2,877	3,604	9,449	150	13,203	16,084
1955	40	142	451	1,397	2,030	6,641	7,533	1,356	15,530	17,560
1956	41	272	705	1,173	2,191	10,588	14,593	1,579	26,760	28,951
1957	43	236	451	2,284	3,014	19,113	17,047	469	36,629	39,643
1958	121	241	624	1,700	2,686	6,942	17,372	681	24,995	27,681
1959	118	496	921	1,863	3,398	4,523	17,422	2,251	24,196	27,594
1960	83	285	664	1,110	2,142	10,595	10,098	684	21,377	23,519
1961	106	351	394	740	1,591	12,529	14,995	690	28,214	29,805
1962	-	391	528	1,505	2,424	13,530	19,723	*	33,253	35,677
1963	-	580	820	1,120	2,520	7,838	20,249	*	28,087	28,087
1964	158	340	894	1,447	2,839	13,382	21,939	*	35,321	38,150
1965	192	386	771	1,299	2,648	8,847	13,528	351	22,726	25,374
1966	140	297	1,033	1,860	3,330	2,611	10,771	1,136	14,518	17,848
1967	84	241	361	1,150	1,836	8,252	11,409	635	20,296	22,132
1968	63	212	328	377	980	9,367	8,457	3,116	20,940	[illegible]
1969	17	307	309	1,243	1,876	7,111	8,789	1,048	16,948	18,824

TABLE 9. Estimates runs of fish in the Shannon based on the returns to Thomond Weir.

Year	Jan/Feb	March	April	May	Total Spring Fish	June	July	Total Summer Fish	Combined Total
1950	245	763	1,760	485	3,253	7,724	3,457	11,181	14,934
1951	153	800	1,740	1,768	4,461	6,242	4,031	10,273	14,134
1952	223	958	1,287	760	3,228	6,004	1,310	7,314	10,542
1953	483	526	659	1,661	3,329	9,027	5,185	14,212	17,431
1954	139	730	1,412	1,272	3,553	5,253	5,187	10,440	13,993
1955	101	386	1,419	1,343	3,249	2,934	2,797	5,663	8,980
1956	194	863	1,037	1,437	3,531	4,989	4,476	9,465	12,999
1957	62	552	787	1,352	2,753	6,600	3,774	10,374	12,969
1958	70	572	924	785	2,351	4,943	4,687	9,630	11,749
1959	361	667	1,034	1,011	3,073	3,264	5,170	8,434	11,229
1960	81	283	356	653	1,373	3,424	3,169	6,593	7,610
1961	54	252	247	333	886	2,850	1,358	4,208	5,094
1962	206	233	427	1,186	2,052	7,301	9,875	17,176	18,328
1963	80	427	849	805	2,161	8,701	6,100	14,801	16,962
1964	163	390	772	1,306	2,631	4,339	5,872	10,211	12,842
1965	77	544	964	984	2,569	7,414	8,807	16,221	18,790
1966	26	136	81	532	775	3,298	5,821	9,119	9,894
1967	92	45	381	735	1,253	9,392	6,209	15,001	16,854
1968	84	139	270	732	1,225	10,108	5,940	16,048	17,273
1969	42	184	489	1,144	1,859	13,435	5,027	18,462	20,327

TABLE 10. Stake weir catch - River Shannon
Annual monthly catch, 1960 - 1967.

Year	February	March	April	May	Total Spring Fish	June	July	Total Summer Fish	Combined Total.
1960	97	112	183	320	712	691	377	1,068	1,780
1961	93	298	427	363	1,181	1,390	762	2,152	3,333
1962	44	149	123	382	698	2,052	2,681	4,733	5,431
1963	66	198	389	237	890	2,159	1,467	3,626	4,516
1964	56	152	346	293	847	903	1,062	1,965	2,812
1965	46	160	255	607	1,068	2,253	908	3,161	4,229
1966	25	270	177	544	1,016	1,028	823	1,857	2,867
1967	22	94	163	470	749	2,942	1,482	4,428	5,173
1968	66	81	85	241	483	2,055	1,175	3,230	3,713
1969	78	103	990	617	1,188	2,252	1,572	3,824	5,012

Exploitation Rate.

Table 11. River Erne.

	Year							
	1962	1963.	1964	1965	1966	1967	1968	1969.
Total catch	4,148	242	2,026	1,947	2,037	5,695	15,358	3,698
Escapement during fishing period	5,403	471	4,014	10,259	11,172	3,567	8,229	4,850
% catch during fishing period	43.5	34.9	33.5	15.9	16.6	61.4	65.1	43.3
Total run	13,594	5,058	11,076	13,756	15,522	10,813	24,945	9,031
% of total run exploited	30.5	4.7	18.2	14.0	13.1	52.5	61.9	40.8

Table 12. Galway Fishery

	Commercial Catch	Escapement	Total Stock	% of total Exploited.
1965	7,047	14,600	21,647	31.5
1966	7,499	9,115	16,614	45.0
1967	10,674	19,600	29,674	33.7
1968	8,357	31,800	40,157	20.8
1969	8,028	15,008	23,036	39.8

Table 13. River Shannon.

Year	Commercial Catch	Escapement	Total Stock	% of total exploited
1966	15,562	9,894	25,456	61.0
1967	32,952	16,854	49,806	66.0
1968	47,175	17,345	64,520	67.3
1969	42,407	20,327	62,734	67.5