

SUPPLEMENT

**REPORT OF THE
WORKING GROUP ON NORTH ATLANTIC SALMON**

**ICES Headquarters
14–23 April 1998**

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Table 4.2.3.1 Run reconstruction data inputs used to estimate pre-fishery abundance of maturing (MN1) and non-maturing (NN1) 1SW salmon of North American origin. (terms defined in table 4.2.3.2)

1SW Fishery Year (i)	SFA {1-7, 14b}		SFA {8-14a}		SFA {1-7, 14b}
	H _s (i)	H _l (i)	H _s (i)	H _l (i+1)	H _l (i+1)
1971	158896	199176	70936	42861	144496
1972	143232	144496	111141	43627	227779
1973	188725	227779	176907	85714	196726
1974	192195	196726	153278	72814	215025
1975	302348	215025	91935	95714	210858
1976	221766	210858	118779	63449	231393
1977	220093	231393	57472	37653	155546
1978	102403	155546	38180	29122	82174
1979	186558	82174	62622	54307	211896
1980	290127	211896	94291	38663	211006
1981	288902	211006	60668	35055	129319
1982	222894	129319	77017	28215	108430
1983	166033	108430	55683	15135	87742
1984	123774	87742	52813	24383	70970
1985	178719	70970	79275	22036	107561
1986	222671	107561	91912	19241	146242
1987	281762	146242	82401	14763	86047
1988	198484	86047	74620	15577	85319
1989	172861	85319	60884	11639	59334
1990	104788	59334	46053	10259	39257
1991	89099	39257	42721	0	32341
1992	24249	32341	0	0	17096
1993	17074	17096	0	0	15377
1994	8640	15377	0	0	11176
1995	7980	11176	0	0	7272
1996	7849	7272	0	0	6943
1997	9753	6943	0		

Table 4.2.3.2 Definitions of key variables used in continental run-reconstruction models for North American salmon.

Variable	Definition
i	Year of the fishery on 1SW salmon in Greenland and Canada
M	Natural mortality rate (0.01 per month)
t1	Time between the mid-point of the Canadian fishery and return to river = 2 months
S1	Survival of 1SW salmon between the homewater fishery and return to river ($\exp(-M t1)$)
H_s(i)	Number of "Small" salmon caught in Canada in year i; fish <2.7 kg
H_l(i)	Number of "Large" salmon caught in Canada in year i; fish \geq 2.7 kg
f_imm	Fraction of 1SW salmon that are immature, i.e. non-maturing; range = 0.1 to 0.2
q	Fraction of 1SW salmon present in the large size market category; range = 0.1 to 0.3
MN1	Pre-fishery abundance of maturing 1SW North American salmon
MC1(i)	Harvest of maturing 1SW salmon in Newfoundland and Labrador in year i
i+1	Year of fishery on 2SW salmon in Canada
MR1(i)	Return estimates of maturing 1SW salmon in Atlantic Canada in year i
NN1(i)	Pre-fishery abundance of non-maturing 1SW + maturing 2SW salmon in year i
NR(i)	Return estimates of non-maturing + maturing 2SW salmon in year i
NR2(i+1)	Return estimates of maturing 2SW salmon in Canada
NC1(i)	Harvest of non-maturing 1SW salmon in Nfld + Labrador in year i
NC2(i+1)	Harvest of maturing 2SW salmon in Canada
NG(i)	Catch of 1SW North American origin salmon at Greenland
S2	Survival of 2SW salmon between Greenland and homewater fisheries
GN(i)	Pre-fishery abundance of maturing 1SW salmon in year i

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Table 4.2.3.3 Run reconstruction data inputs and estimated pre-fishery abundance for non-maturing 1SW salmon (potential 2SW salmon) of North American origin (terms defined in Table 4.2.3.2).

1SW Fishery Year (i)	NG1	NC1		NC2		NR2		NN1		
	(i)	min (i)	max (i)	min (i+1)	max (i+1)	min (i+1)	max (i+1)	min (i)	max (i)	mid-point (i)
1971	287,672	17,881	43,730	144,008	172,907	102,346	182,933	578,954	726,699	652,826
1972	200,784	15,768	37,316	203,072	248,628	104,639	197,358	557,788	733,183	645,486
1973	241,493	21,150	51,412	223,422	262,767	146,109	254,802	672,661	867,737	770,199
1974	220,584	21,187	50,243	223,332	266,337	121,298	211,093	623,992	800,812	712,402
1975	278,839	32,385	73,371	243,315	285,486	116,561	212,148	710,243	904,537	807,390
1976	155,896	24,285	57,005	225,424	271,703	162,615	280,928	610,836	826,772	718,804
1977	189,709	24,323	57,902	146,535	177,644	117,314	200,469	506,933	667,717	587,325
1978	118,853	11,796	29,813	86,644	103,079	55,903	97,430	288,808	371,345	330,077
1979	200,061	19,478	42,242	202,634	245,013	167,183	285,107	630,107	831,343	730,725
1980	187,999	31,132	70,739	186,367	228,568	111,057	195,263	549,069	729,314	639,191
1981	227,727	31,000	70,441	125,578	151,442	116,343	196,140	527,384	684,484	605,934
1982	194,715	23,583	52,338	104,116	125,802	95,437	162,125	439,898	567,062	503,480
1983	33,240	17,688	39,712	76,554	94,103	90,378	143,712	236,420	337,375	286,897
1984	38,916	13,255	30,019	74,062	88,256	99,799	162,144	245,426	347,472	296,449
1985	139,233	18,582	40,002	97,329	118,841	119,708	204,217	399,007	538,538	468,772
1986	171,745	23,343	50,988	121,610	150,859	94,597	166,251	435,085	575,040	505,063
1987	173,687	29,639	65,127	74,996	92,205	100,284	167,550	398,154	527,749	462,952
1988	116,767	20,709	44,860	75,300	92,364	86,822	143,092	317,613	423,435	370,524
1989	60,693	18,139	39,691	53,173	65,040	93,095	155,596	241,518	345,953	293,735
1990	73,109	11,072	24,518	37,739	45,590	82,686	132,343	218,190	295,743	256,967
1991	110,680	9,302	20,175	22,639	29,107	93,783	166,130	249,690	348,471	299,080
1992	41,855	2,748	6,790	11,967	15,386	77,626	135,863	144,482	217,310	180,896
1993	-	1,878	4,441	10,764	13,839	73,277	143,415	95,572	179,827	137,699
1994	-	1,018	2,651	7,823	10,058	89,398	178,827	109,457	213,387	161,422
1995	20,828	910	2,267	5,090	6,545	80,973	148,991	117,752	196,643	157,197
1996	16,181	858	2,006	4,860	6,249	67,662	117,775	97,940	156,563	127,251
1997	12,577	1,045	2,367							

Year	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024																																																																																																										
Population	100	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320	325	330	335	340	345	350	355	360	365	370	375	380	385	390	395	400	405	410	415	420	425	430	435	440	445	450	455	460	465	470	475	480	485	490	495	500	505	510	515	520	525	530	535	540	545	550	555	560	565	570	575	580	585	590	595	600	605	610	615	620	625	630	635	640	645	650	655	660	665	670	675	680	685	690	695	700	705	710	715	720	725	730	735	740	745	750	755	760	765	770	775	780	785	790	795	800	805	810	815	820	825	830	835	840	845	850	855	860	865	870	875	880	885	890	895	900	905	910	915	920	925	930	935	940	945	950	955	960	965	970	975	980	985	990	995	1000

Source: U.S. Census Bureau, Statistical Abstract of the United States, 1950-2024. Data for 2020-2024 are preliminary estimates.

Table 4.2.3.4 Run reconstruction data inputs and estimated pre-fishery abundance for maturing 1SW salmon (grilse) of North american origin (terms defined in Table 4.2.3.2).

1SW Year (i)	MC1 min (i)	max (i)	MR1 min (i)	max (i)	GN1 min (i)	max (i)	mid- point (i)
1971	213987	267720	204866	440305	420912	712450	566681
1972	237286	279064	197395	412692	436665	695903	566284
1973	346109	408260	224183	433117	572545	845730	709138
1974	322772	379370	220943	447223	545936	831088	688512
1975	351015	422105	268214	576997	621925	1004901	813413
1976	313060	375300	299711	602745	615783	984102	799943
1977	252058	318032	223506	467691	477810	790423	634117
1978	132546	172340	168816	338221	303059	513960	408509
1979	218442	252711	232414	463721	453192	721093	587143
1980	343344	412617	296274	614655	642596	1033449	838023
1981	308670	377651	361994	757363	674302	1142626	908464
1982	265678	312538	305833	628404	574585	947257	760921
1983	197184	234389	192282	396404	391398	634776	513087
1984	158852	187900	229331	442786	390487	635136	512811
1985	227928	259284	257376	516104	487890	780575	634232
1986	278654	321357	338986	674658	621046	1002795	811921
1987	319510	375472	325307	665893	648087	1048058	848072
1988	240291	276488	373457	744826	617501	1028800	823151
1989	205998	239495	230634	452446	438950	696489	567719
1990	134630	156382	272941	525649	410314	687314	548814
1991	117141	133509	188143	358806	307174	495922	401548
1992	21986	30556	339931	611246	365334	647945	506640
1993	15027	19983	292975	557825	310947	583413	447180
1994	8142	11928	206965	416847	217187	432964	325075
1995	7278	10200	199541	449573	208824	464291	336558
1996	6861	9028	293476	611466	303287	626639	464963
1997	8358	10652	210731	398039	221206	412691	316949

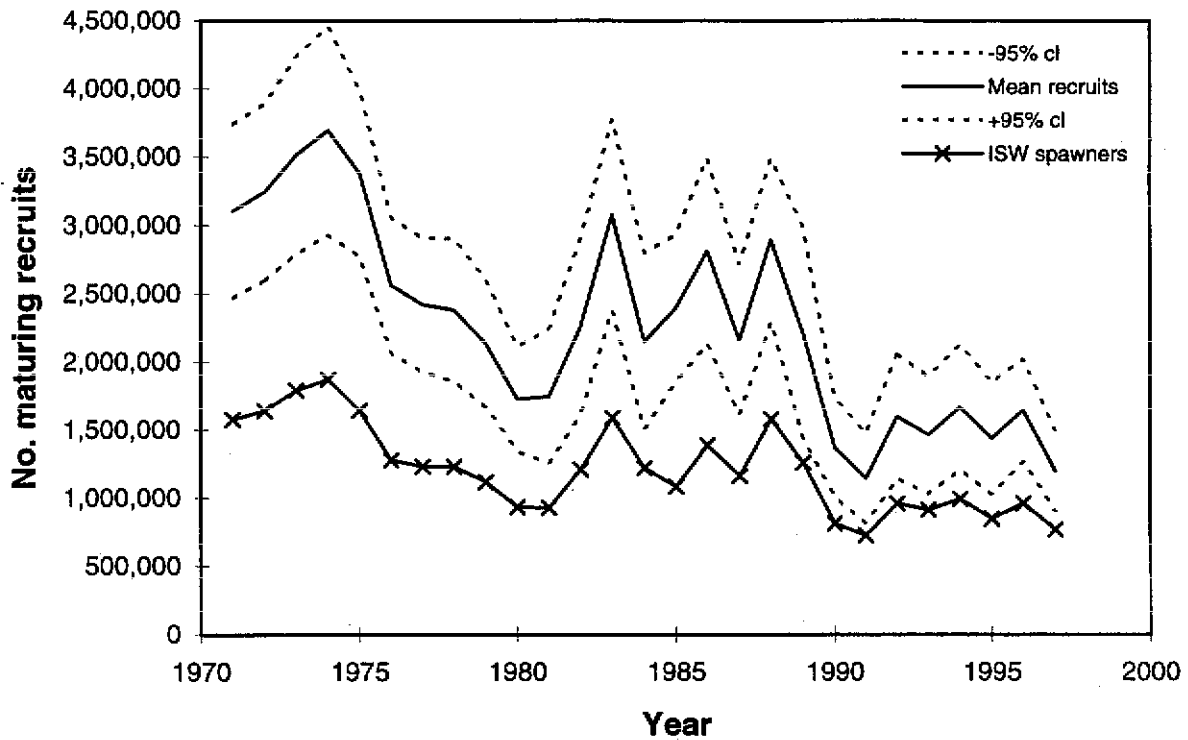
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Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1950	1	2	3	4	5	6	7	8	9	10	11	12
1951	13	14	15	16	17	18	19	20	21	22	23	24
1952	25	26	27	28	29	30	31	1	2	3	4	5
1953	6	7	8	9	10	11	12	13	14	15	16	17
1954	18	19	20	21	22	23	24	25	26	27	28	29
1955	30	31	1	2	3	4	5	6	7	8	9	10
1956	11	12	13	14	15	16	17	18	19	20	21	22
1957	23	24	25	26	27	28	29	30	31	1	2	3
1958	4	5	6	7	8	9	10	11	12	13	14	15
1959	16	17	18	19	20	21	22	23	24	25	26	27
1960	28	29	30	31	1	2	3	4	5	6	7	8
1961	9	10	11	12	13	14	15	16	17	18	19	20
1962	21	22	23	24	25	26	27	28	29	30	31	1
1963	2	3	4	5	6	7	8	9	10	11	12	13
1964	14	15	16	17	18	19	20	21	22	23	24	25
1965	26	27	28	29	30	31	1	2	3	4	5	6
1966	7	8	9	10	11	12	13	14	15	16	17	18
1967	19	20	21	22	23	24	25	26	27	28	29	30
1968	31	1	2	3	4	5	6	7	8	9	10	11
1969	12	13	14	15	16	17	18	19	20	21	22	23
1970	24	25	26	27	28	29	30	31	1	2	3	4
1971	5	6	7	8	9	10	11	12	13	14	15	16
1972	17	18	19	20	21	22	23	24	25	26	27	28
1973	29	30	31	1	2	3	4	5	6	7	8	9
1974	10	11	12	13	14	15	16	17	18	19	20	21
1975	22	23	24	25	26	27	28	29	30	31	1	2
1976	3	4	5	6	7	8	9	10	11	12	13	14
1977	15	16	17	18	19	20	21	22	23	24	25	26
1978	27	28	29	30	31	1	2	3	4	5	6	7
1979	8	9	10	11	12	13	14	15	16	17	18	19
1980	20	21	22	23	24	25	26	27	28	29	30	31
1981	1	2	3	4	5	6	7	8	9	10	11	12
1982	13	14	15	16	17	18	19	20	21	22	23	24
1983	25	26	27	28	29	30	31	1	2	3	4	5
1984	6	7	8	9	10	11	12	13	14	15	16	17
1985	18	19	20	21	22	23	24	25	26	27	28	29
1986	30	31	1	2	3	4	5	6	7	8	9	10
1987	11	12	13	14	15	16	17	18	19	20	21	22
1988	23	24	25	26	27	28	29	30	31	1	2	3
1989	4	5	6	7	8	9	10	11	12	13	14	15
1990	16	17	18	19	20	21	22	23	24	25	26	27
1991	28	29	30	31	1	2	3	4	5	6	7	8
1992	9	10	11	12	13	14	15	16	17	18	19	20
1993	21	22	23	24	25	26	27	28	29	30	31	1
1994	2	3	4	5	6	7	8	9	10	11	12	13
1995	14	15	16	17	18	19	20	21	22	23	24	25
1996	26	27	28	29	30	31	1	2	3	4	5	6
1997	7	8	9	10	11	12	13	14	15	16	17	18
1998	19	20	21	22	23	24	25	26	27	28	29	30
1999	31	1	2	3	4	5	6	7	8	9	10	11
2000	12	13	14	15	16	17	18	19	20	21	22	23
2001	24	25	26	27	28	29	30	31	1	2	3	4
2002	5	6	7	8	9	10	11	12	13	14	15	16
2003	17	18	19	20	21	22	23	24	25	26	27	28
2004	29	30	31	1	2	3	4	5	6	7	8	9
2005	10	11	12	13	14	15	16	17	18	19	20	21
2006	22	23	24	25	26	27	28	29	30	31	1	2
2007	3	4	5	6	7	8	9	10	11	12	13	14
2008	15	16	17	18	19	20	21	22	23	24	25	26
2009	27	28	29	30	31	1	2	3	4	5	6	7
2010	8	9	10	11	12	13	14	15	16	17	18	19
2011	20	21	22	23	24	25	26	27	28	29	30	31
2012	1	2	3	4	5	6	7	8	9	10	11	12
2013	13	14	15	16	17	18	19	20	21	22	23	24
2014	25	26	27	28	29	30	31	1	2	3	4	5
2015	6	7	8	9	10	11	12	13	14	15	16	17
2016	18	19	20	21	22	23	24	25	26	27	28	29
2017	30	31	1	2	3	4	5	6	7	8	9	10
2018	11	12	13	14	15	16	17	18	19	20	21	22
2019	23	24	25	26	27	28	29	30	31	1	2	3
2020	4	5	6	7	8	9	10	11	12	13	14	15
2021	16	17	18	19	20	21	22	23	24	25	26	27
2022	28	29	30	31	1	2	3	4	5	6	7	8
2023	9	10	11	12	13	14	15	16	17	18	19	20
2024	21	22	23	24	25	26	27	28	29	30	31	1
2025	2	3	4	5	6	7	8	9	10	11	12	13
2026	14	15	16	17	18	19	20	21	22	23	24	25
2027	26	27	28	29	30	31	1	2	3	4	5	6
2028	7	8	9	10	11	12	13	14	15	16	17	18
2029	19	20	21	22	23	24	25	26	27	28	29	30
2030	31	1	2	3	4	5	6	7	8	9	10	11
2031	12	13	14	15	16	17	18	19	20	21	22	23
2032	24	25	26	27	28	29	30	31	1	2	3	4
2033	5	6	7	8	9	10	11	12	13	14	15	16
2034	17	18	19	20	21	22	23	24	25	26	27	28
2035	29	30	31	1	2	3	4	5	6	7	8	9
2036	10	11	12	13	14	15	16	17	18	19	20	21
2037	22	23	24	25	26	27	28	29	30	31	1	2
2038	3	4	5	6	7	8	9	10	11	12	13	14
2039	15	16	17	18	19	20	21	22	23	24	25	26
2040	27	28	29	30	31	1	2	3	4	5	6	7
2041	8	9	10	11	12	13	14	15	16	17	18	19
2042	20	21	22	23	24	25	26	27	28	29	30	31
2043	1	2	3	4	5	6	7	8	9	10	11	12
2044	13	14	15	16	17	18	19	20	21	22	23	24
2045	25	26	27	28	29	30	31	1	2	3	4	5
2046	6	7	8	9	10	11	12	13	14	15	16	17
2047	18	19	20	21	22	23	24	25	26	27	28	29
2048	30	31	1	2	3	4	5	6	7	8	9	10
2049	11	12	13	14	15	16	17	18	19	20	21	22
2050	23	24	25	26	27	28	29	30	31	1	2	3

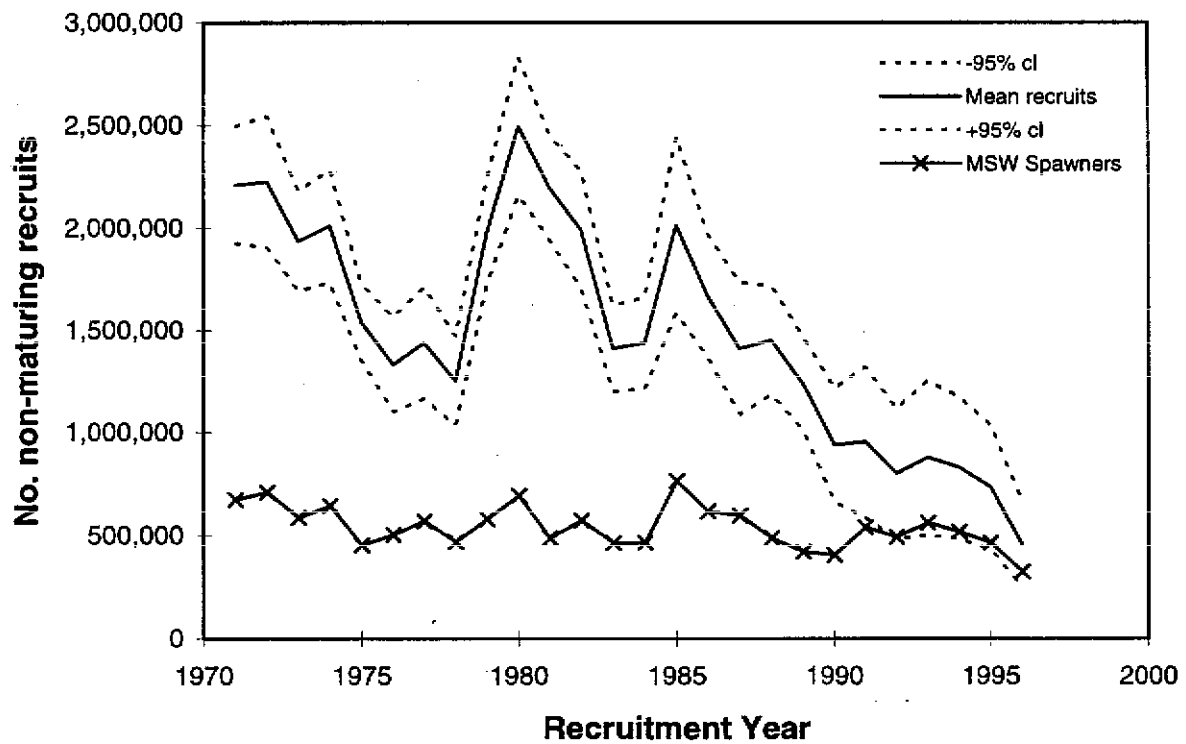
Replaces Figure 3.6.2 in the report

Figure 3.6.2 Estimates of pre-fishery abundance and numbers of spawners in Southern Europe, 1971-97

a) 1SW salmon (Southern)



b) MSW salmon (Southern)



1. The first part of the report discusses the general situation of the country and the progress of the work.

