MACKEREL TABLES.

Table B1. Commercial and Recreational landings (mt) of Atlantic mackerel for the USA, Canada, and other countries from NAFO SA 2-6 during 1960-2004

1 Landings by Canadian vessels (Commercial) or foreign countries (Foreign) in Canadian waters (SA 2-4)

2 Landings by USA vessels (Commercial), recreational sources (Recreational), or foreign countries (Foreign) in USA waters (SA5-6).

	Canada		USA			
Year	Commercial[1]	Foreign[1]	Commercial[2]	Recreational[2]	Foreign[2]	Total
1960	5888	0	1396	2478	0	9762
1961	5458	11	1361	-	11	6841
1962	6901	64	938	-	175	8078
1963	6363	99	1320	-	1299	9081
1964	10786	174	1644	-	801	13405
1965	11185	405	1998	4292	2945	20825
1966	11577	1244	2724	-	7951	23496
1967	11181	62	3891	-	19047	34181
1968	11134	9720	3929	-	65747	90530
1969	13257	5379	4364	-	114189	137189
1970	15710	5296	4049	16039	210864	251958
1971	14942	9554	2406	-	355892	382794
1972	16254	6107	2006	-	391464	415831
1973	21619	16984	1336	-	396759	436698
1974	16701	27954	1042	-	321837	367534
1975	13544	22718	1974	5190	271719	315145
1976	15746	17319	2712	-	223275	259052
1977	20362	2913	1377	-	56067	80719
1978	25429	470	1605	-	841	28345
1979	30244	368	1990	3588	440	36630
1980	22136	161	2683	2364	566	27910
1981	19294	61	2941	3233	5361	30890
1982	16380	3	3330	666	6647	27026
1983	19797	9	3805	3022	5955	32588
1984	17320	913	5954	2457	15045	41689
1985	29855	1051	6632	2986	32409	72933
1986	30325	772	9637	3856	26507	71097
1987	27488	71	12310	4025	36564	80458
1988	24060	956	12309	3251	42858	83434
1989	20795	347	14556	1862	36823	74383
1990	19190	3854	31261	1908	30678	86891
1991	24914	1281	26961	2439	15714	71309
1992	24307	2417	11775	344	0	38843
1993	26158	591	4666	540	0	31955
1994	20564	49	8877	1705	0	31195
1995	17650	0	8479	1249	0	27378
1996	20364	0	16137	1416	0	37917
1997	21309	0	15400	1735	0	38444
1998	19334	0	14415	670	0	34419
1999	16561	0	12026	1335	0	29922
2000	13383	0	5646	1448	0	20477
2001	23868	0	12336	1538	0	37742
2002	34402	0	26452	1286	0	62140
2003	44475	0	34292	724	0	79491
2004	51444	0	53724	467	0	105635
2005	0	0	41234	0	0	41234

Table B2. USA sampling of Atlantic mackerel commercial and recreational landings during 1998-2004.

	Commercial Lengths		Ages-All Sources		Recreational
					Lengths
Year	Jan-June	July-Dec	Jan-June	July-Dec	
1998	1956		1901		615
1999	4297		920		979
2000	907		625		723
2001	2910	116	1333	91	778
2002	2264	197	1207	118	483
2003	2465	322	1061	121	606
2004	938	163	719	71	1347

Table B3. Atlantic mackerel catch-at-age (millions) for NAFO SA 2-6 during 1962-2004

Year	1	2	3	4	5	6	7	8	9	10+	Total
1962	16.1	2.8	15.2	3.8	1.2	1.6	1.4	0.8	0.4	0.4	43.7
1963	1.1	4.2	1.3	26.3	6.0	0.3	0.2	0.2	0.2	0.2	40.0
1964	12.9	7.0	4.1	4.0	19.4	4.1	3.9	0.7	0.8	0.2	57.1
1965	9.0	3.6	2.9	4.0	5.2	19.5	4.2	4.0	0.7	0.0	53.1
1966	24.0	11.5	5.3	2.6	4.7	7.9	21.8	0.5	0.2	0.0	78.5
1967	0.8	26.7	19.8	3.5	3.3	5.1	6.1	32.3	0.3	0.0	97.9
1968	141.4	61.5	59.3	38.1	14.3	6.6	0.7	1.0	6.1	0.1	329.1
1969	7.1	262.1	160.7	65.8	5.7	3.0	2.0	3.1	2.2	8.3	520.0
1970	193.5	54.5	522.1	162.9	27.6	7.0	5.3	9.9	10.0	6.6	999.4
1971	74.6	294.2	127.4	558.9	203.5	34.6	8.9	3.6	4.3	15.3	1325.3
1972	22.1	85.7	256.2	182.6	390.4	87.3	24.0	4.2	8.2	9.4	1070.1
1973	161.8	283.2	285.1	233.6	192.4	197.2	31.2	11.0	4.1	5.4	1405.0
1974	95.9	242.2	264.4	101.5	114.3	111.8	108.3	25.7	6.4	3.3	1073.8
1975	373.7	431.4	113.7	100.8	58.6	67.8	51.9	50.5	12.5	3.3	1264.2
1976	12.5	353.5	272.5	85.7	52.4	27.3	40.5	34.6	22.6	14.8	916.4
1977	2.0	27.0	101.0	54.0	12.0	9.9	5.6	6.3	3.8	4.2	225.8
1978	0.1	0.2	4.7	17.4	13.3	8.4	4.7	2.2	4.5	7.3	62.8
1979	0.4	0.6	1.3	7.1	18.6	13.1	6.2	2.6	2.2	6.5	58.6
1980	1.2	10.9	1.0	1.0	6.9	13.8	4.7	2.0	1.0	5.2	47.7
1981	16.1	7.1	9.2	1.4	2.0	6.1	11.7	4.9	2.5	3.5	64.5
1982	3.7	11.8	2.7	9.1	1.2	1.9	3.4	8.4	2.9	5.1	50.2
1983	2.2	15.3	6.5	1.9	7.0	0.7	1.2	5.5	10.2	6.5	57.0
1984	0.5	40.4	27.2	3.2	1.2	4.6	0.6	0.7	3.4	14.0	95.8
1985	3.4	1.9	135.7	33.4	2.7	0.8	3.2	0.3	0.5	11.4	193.3
1986	1.1	10.4	6.5	91.7	22.1	1.7	0.5	3.1	0.2	5.6	142.9
1987	9.7	14.2	13.3	7.5	106.9	17.5	2.6	0.4	2.1	3.8	178.0
1988	1.5	13.0	10.3	10.1	11.5	107.4	22.5	2.6	1.2	5.7	185.8
1989	1.9	14.0	11.0	7.4	6.8	2.3	85.7	4.3	0.8	1.7	135.9
1990	1.7	19.9	30.4	7.9	6.4	4.3	0.8	54.1	2.6	1.2	129.4
1991	1.4	12.6	55.2	23.9	6.1	3.9	3.3	1.0	27.3	1.2	136.0
1992	0.7	6.5	5.0	24.9	14.9	2.0	1.4	1.2	1.3	16.1	74.0
1993	1.1	8.8	10.9	6.1	16.4	8.9	1.9	0.8	1.1	8.4	64.5
1994	1.9	1.6	12.0	13.8	5.3	19.4	6.7	1.1	0.3	4.0	66.1
1995	11.9	20.7	2.7	9.5	8.2	3.2	10.3	3.2	0.3	0.9	71.0
1996	3.0	26.5	24.1	1.9	12.6	9.8	2.5	10.2	2.3	1.5	94.5
1997	6.9	22.0	23.4	11.1	1.1	8.5	6.8	2.8	7.2	1.9	91.6
1998	2.2	29.8	19.1	16.6	8.7	1.2	5.9	4.1	1.0	2.4	91.0
1999	1.7	6.5	23.3	14.1	9.2	4.8	1.4	2.9	2.0	1.3	67.2
2000	26.0	9.3	6.0	10.3	4.4	3.3	0.7	0.1	0.2	0.4	60.6
2001	8.6	74.9	23.3	7.3	9.6	2.3	2.1	0.7	0.2	0.3	129.4
2002	9.9	12.4	120.0	14.2	5.3	9.7	3.1	0.8	0.2	0.1	175.7
2003	9.6	23.5	26.4	121.8	14.0	5.0	4.9	0.3	0.0	0.0	205.5
2004	35.1	74.0	22.0	24.9	120.1	9.0	2.8	0.9	0.2	0.0	288.8

Table B4. Mean weight-at-age (USA and Canada, kg) for Atlantic mackerel during 1962-2004.

Year	1	2	3	4	5	6	7	8	9	10+
1962	0.130	0.208	0.289	0.365	0.433	0.491	0.541	0.581	0.614	0.657
1963	0.120	0.192	0.264	0.334	0.395	0.448	0.492	0.529	0.559	0.593
1964	0.116	0.188	0.262	0.332	0.395	0.450	0.495	0.533	0.564	0.588
1965	0.123	0.200	0.278	0.352	0.419	0.477	0.525	0.565	0.598	0.595
1966	0.128	0.209	0.294	0.374	0.447	0.509	0.562	0.605	0.641	0.595
1967	0.123	0.202	0.283	0.360	0.428	0.489	0.540	0.581	0.615	0.595
1968	0.148	0.241	0.335	0.425	0.506	0.576	0.634	0.683	0.722	0.753
1969	0.131	0.214	0.300	0.382	0.456	0.520	0.574	0.618	0.654	0.683
1970	0.107	0.179	0.253	0.324	0.389	0.444	0.491	0.530	0.562	0.596
1971	0.110	0.181	0.256	0.327	0.391	0.446	0.494	0.532	0.564	0.599
1972	0.123	0.210	0.300	0.386	0.464	0.533	0.590	0.638	0.677	0.723
1973	0.113	0.189	0.269	0.345	0.414	0.473	0.524	0.565	0.600	0.635
1974	0.111	0.190	0.273	0.352	0.425	0.487	0.541	0.585	0.621	0.655
1975	0.104	0.176	0.252	0.326	0.393	0.451	0.500	0.540	0.573	0.606
1976	0.097	0.168	0.244	0.316	0.382	0.440	0.489	0.530	0.563	0.592
1977	0.114	0.198	0.288	0.375	0.454	0.524	0.582	0.631	0.671	0.707
1978	0.192	0.285	0.425	0.463	0.509	0.582	0.625	0.659	0.673	0.713
1979	0.190	0.272	0.531	0.567	0.579	0.603	0.652	0.714	0.752	0.803
1980	0.146	0.376	0.548	0.609	0.617	0.635	0.672	0.705	0.781	0.777
1981	0.114	0.315	0.523	0.577	0.643	0.660	0.674	0.707	0.723	0.768
1982	0.152	0.340	0.541	0.606	0.666	0.743	0.737	0.722	0.719	0.775
1983	0.098	0.257	0.479	0.593	0.628	0.659	0.712	0.709	0.705	0.730
1984	0.098	0.162	0.338	0.525	0.625	0.657	0.696	0.715	0.705	0.716
1985	0.111	0.260	0.277	0.416	0.558	0.644	0.677	0.665	0.737	0.715
1986	0.079	0.234	0.349	0.366	0.452	0.581	0.640	0.729	0.777	0.740
1987	0.107	0.210	0.316	0.404	0.411	0.505	0.502	0.706	0.747	0.744
1988	0.100	0.222	0.343	0.408	0.453	0.484	0.584	0.694	0.755	0.770
1989	0.100	0.231	0.375	0.414	0.474	0.509	0.529	0.631	0.753	0.813
1990	0.138	0.224	0.336	0.449	0.487	0.527	0.609	0.570	0.644	0.742
1991	0.187	0.293	0.399	0.462	0.543	0.596	0.616	0.688	0.686	0.768
1992	0.163	0.270	0.378	0.420	0.477	0.522	0.579	0.639	0.642	0.655
1993	0.185	0.270	0.351	0.435	0.477	0.534	0.595	0.644	0.682	0.693
1994	0.158	0.232	0.318	0.399	0.492	0.520	0.587	0.629	0.705	0.665
1995	0.187	0.261	0.343	0.417	0.469	0.544	0.554	0.617	0.704	0.768
1996	0.218	0.254	0.354	0.481	0.482	0.552	0.596	0.644	0.692	0.684
1997	0.199	0.301	0.382	0.451	0.547	0.532	0.571	0.609	0.658	0.685
1998	0.149	0.250	0.373	0.482	0.535	0.560	0.592	0.604	0.656	0.682
1999	0.167	0.266	0.393	0.459	0.529	0.581	0.611	0.618	0.681	0.685
2000	0.200	0.231	0.322	0.443	0.530	0.585	0.614	0.674	0.693	0.678
2001	0.137	0.263	0.359	0.402	0.507	0.580	0.649	0.628	0.663	0.677
2002	0.138	0.220	0.344	0.430	0.471	0.563	0.599	0.645	0.707	0.677
2003	0.129	0.229	0.308	0.435	0.517	0.573	0.635	0.641	0.839	0.677
2004	0.179	0.226	0.342	0.387	0.480	0.501	0.607	0.698	0.572	0.677

Table B5. Stratified mean weight and number per tow (standard) of Atlantic Mackerel from the NEFSC spring bottom trawl survey during 1968-2005.

Year	Kg	Number
1968	5.609	70.869
1969	0.055	0.484
1970	2.2	9.356
1971	3.145	12.668
1972	1.542	8.49
1973	6.746	20.973
1974	0.656	2.241
1975	0.242	3.54
1976	0.254	1.8
1977	0.081	0.287
1978	0.345	0.97
1979	0.089	0.172
1980	0.202	0.559
1981	2.47	5.872
1982	0.854	5.167
1983	0.135	0.884
1984	2.611	16.228
1985	2.232	8.242
1986	1.264	4.178
1987	7.492	35.231
1988	4.133	16.792
1989	1.1	12.273
1990	1.548	10.748
1991	5.604	23.265
1992	4.705	24.275
1993	5.583	26.089
1994	5.987	38.638
1995	5.1	24.387
1996	11.101	40.887
1997	2.494	22.054
1998	3.378	25.11
1999	7.109	50.617
2000	6.934	70.357
2001	15.726	116.454
2002	7.65	35.201
2003	11.082	60.488
2004	8.088	110.683
2005	4.276	32.322

Table B6. Atlantic mackerel number per tow (ln retransformed) at age from the NEFSC Spring bottom trawl survey during 1968-2005

Year	1	2	3	4	5	6	7	8	9	10+
1968	12.9400	0.4150	0.1894	0.0523	0.0164	0.0000	0.0000	0.0000	0.0000	0.0000
1969	0.0297	0.1418	0.0167	0.0058	0.0003	0.0007	0.0005	0.0009	0.0004	0.0004
1970	0.2795	0.1845	1.3910	0.6115	0.1812	0.0617	0.0549	0.0877	0.0827	0.0473
1971	0.3282	0.9409	0.4383	1.1250	0.3929	0.0621	0.0141	0.0073	0.0062	0.0083
1972	0.8719	0.3077	0.5929	0.2261	0.3254	0.0583	0.0112	0.0011	0.0018	0.0004
1973	0.3514	0.3398	0.1758	0.2338	0.1262	0.2846	0.1821	0.1524	0.0460	0.1022
1974	0.3478	0.1796	0.2358	0.0478	0.0985	0.0599	0.2084	0.0912	0.0590	0.0232
1975	0.6544	0.2298	0.0409	0.0226	0.0064	0.0073	0.0043	0.0039	0.0034	0.0000
1976	0.0959	0.3871	0.0710	0.0135	0.0024	0.0006	0.0028	0.0004	0.0019	0.0006
1977	0.0095	0.0472	0.0850	0.0453	0.0154	0.0052	0.0028	0.0070	0.0038	0.0139
1978	0.0502	0.1097	0.1032	0.1943	0.0958	0.0284	0.0110	0.0027	0.0148	0.0177
1979	0.0105	0.0037	0.0072	0.0126	0.0495	0.0144	0.0103	0.0057	0.0057	0.0482
1980	0.0234	0.1877	0.0066	0.0048	0.0233	0.0489	0.0110	0.0107	0.0070	0.0284
1981	0.3355	0.1371	0.4294	0.0476	0.0463	0.1613	0.4041	0.2302	0.1385	0.4021
1982	0.4323	0.1950	0.0215	0.0979	0.0182	0.0102	0.0245	0.0965	0.0440	0.0836
1983	0.2357	0.2873	0.0222	0.0016	0.0036	0.0006	0.0002	0.0014	0.0022	0.0020
1984	0.2598	1.8014	0.6055	0.0415	0.0050	0.0432	0.0036	0.0025	0.0161	0.0837
1985	0.3382	0.0846	1.8513	0.2348	0.0277	0.0107	0.0469	0.0032	0.0097	0.1864
1986	0.1301	0.4497	0.0778	0.5908	0.1177	0.0080	0.0014	0.0196	0.0004	0.0474
1987	1.4842	1.7945	0.8742	0.3719	2.9450	0.4967	0.1427	0.0156	0.1383	0.2560
1988	0.6336	0.4577	0.3666	0.3357	0.3748	1.7688	0.4428	0.0513	0.0478	0.2232
1989	1.5826	1.6407	0.0707	0.2841	0.0087	0.0108	0.0666	0.0086	0.0050	0.0182
1990	1.3003	1.3849	0.5010	0.0157	0.0129	0.0059	0.0004	0.0762	0.0094	0.0157
1991	1.6697	0.8891	1.4843	0.5374	0.2400	0.1144	0.0578	0.0000	0.2685	0.0027
1992	2.6984	2.3787	0.5585	1.0531	0.6272	0.1155	0.1321	0.0312	0.0449	0.2983
1993	0.9331	2.2477	0.9019	0.6031	0.9864	0.4515	0.1389	0.0915	0.2184	0.6286
1994	4.1386	1.7436	2.1139	0.8699	0.2534	0.5039	0.1133	0.0512	0.0105	0.2267
1995	3.1701	3.4871	0.5893	1.1824	0.7122	0.2848	0.7191	0.2258	0.0451	0.1351
1996	4.0058	3.2257	1.3258	0.1481	0.6175	0.4196	0.1927	0.2800	0.1456	0.1220
1997	3.0378	1.1619	0.4485	0.2247	0.0254	0.1244	0.1149	0.0452	0.0702	0.0159
1998	5.6955	3.1199	0.6787	0.2863	0.1211	0.0171	0.0867	0.0633	0.0179	0.0240
1999	5.0097	4.1347	2.9205	0.9221	0.4061	0.1784	0.0498	0.0819	0.0389	0.0191
2000	14.8080	2.4561	1.1156	0.7272	0.2514	0.1189	0.0500	0.0000	0.0194	0.0239
2001	12.4610	26.5960	1.7581	0.3622	0.2115	0.0375	0.0114	0.0093	0.0042	0.0012
2002	1.2662	2.9770	5.7418	0.4438	0.1229	0.0493	0.0192	0.0014	0.0000	0.0000
2003	9.1159	8.3906	2.9148	3.2997	0.4028	0.1207	0.0555	0.0000	0.0000	0.0000
2004	21.9190	3.0060	0.3165	0.1166	0.1516	0.0121	0.0010	0.0000	0.0000	0.0000
2005	1.7745	3.7293	0.9319	0.1697	0.1354	0.3667	0.0258	0.0050	0.0000	0.0000

Table B7. Weight and number per tow (standard) number per tow from the NEFSC winter bottom trawl survey during 1992-2005.

Year	Kg	Number
1992	14.813	47.694
1993	4.265	17.263
1994	0.254	1.161
1995	27.125	74.658
1996	6.828	40.034
1997	3.139	20.792
1998	4.123	18.332
1999	1.675	13.254
2000	1.342	4.676
2001	4.238	25.285
2002	5.528	25.609
2003	24.262	103.576
2004	5.042	59.469
2005	32.047	245.577

Table B8. Number of Atlantic mackerel per tow at age (retransformed) from the NEFSC Winter bottom trawls survey during 1992-2005.

Year	1	2	3	4	5	6	7	8	9	10+
1992	3.0523	1.4908	0.5367	1.6471	1.2904	0.3196	0.4615	0.1702	0.3949	2.1468
1993	0.7766	3.4136	0.9937	0.3717	0.9014	0.6192	0.1061	0.1033	0.249	0.3242
1994	0.3244	0.1053	0.2362	0.1387	0.0284	0.066	0.0116	0.0043	0	0.0043
1995	1.6475	4.0829	0.12502	2.0966	1.693	0.9592	2.0291	0.9036	0.2251	0.5583
1996	3.6854	2.4076	0.9712	0.1034	0.5132	0.3334	0.1294	0.2284	0.0864	0.0235
1997	2.1225	2.0327	1.5196	0.6153	0.0429	0.2684	0.2356	0.1026	0.1556	0.0283
1998	1.7823	2.8163	0.8565	0.6274	0.3459	0.076	0.1595	0.2664	0.0381	0.1187
1999	1.2908	0.6953	0.8	0.2662	0.1451	0.0802	0.0253	0.0498	0.0147	0.0164
2000	0.3437	0.8842	0.5921	0.4236	0.1798	0.0954	0.0365	0	0.01	0.0377
2001	2.0193	2.9817	0.5373	0.2485	0.3259	0.0922	0.0507	0.0282	0.011	0.0012
2002	1.871	0.7383	0.0269	0.412	0.1711	0.169	0.0633	0.009	0	0.0005
2003	15.955	4.4698	2.0118	2.4065	0.5303	0.3372	0.2546	0.0452	0	0
2004	11.334	2.1515	0.2461	0.2624	0.6209	0.0871	0.0102	0.001	0.001	0
2005	34.691	38.056	3.822	0.5594	0.4275	1.0818	0.0235	0.0122	0	0

Table B9. Likelihood components and emphasis coefficients in ASAP base case model run

Likelihood Component	Lambda
Landings	1000
SR relationship	1
Spring survey	6.74
Recruitment CV	0.5
CAA	50

Table B10. Likelihood components and emphasis coefficients in ASAP model run to address retrospective patterning

Likelihood Component	Lambda
Landings	1000
SR relationship	10
Fishery Selectivity	10
Spring survey	6.74
Recruitment CV	0.5, and 0.01 in 2000&2004
CAA	50

Table B11. Likelihood results for various model components for preliminary, base case, and sensitivity runs of the ASAP model.

ASAP model runs					Sensitivity model runs		
	spring only	spring split	spring split	Base	winter &	retro	est selectivity
			SR on	Case	spring	fix 95-04	62-94, 95-04
obj_fun	4327.18	3943.78	2499.00	1580.08	3241.43	1692.53	1540.11
Catch_Fleet_Total	3.17	2.57	1.03	0.50	6.78	0.60	0.99
CAA_proportions	1048.16	998.27	317.64	254.81	310.93	350.87	211.44
Index_Fit_Total	3275.85	2942.94	2075.09	1221.98	2777.30	1253.53	1219.76
Winter					597.87		
Spring no split	3275.85						
Spring1 split		1657.48	1150.56	653.71	1199.72	685.56	655.31
Spring2 split		1285.46	924.53	568.27	979.71	567.97	564.46

Table B12. Parameter file from ASAP base case model run with parameter name, parameter estimate (value), and standard deviation (std)

index	name	value	std
1	log_Fmult_year1	-3.15E+00	1.41E-01
2	log_Fmult_devs	1.20E-01	3.91E-02
3	log_Fmult_devs	2.65E-01	3.82E-02
4	log_Fmult_devs	8.42E-02	3.65E-02
5	log_Fmult_devs	1.59E-01	4.05E-02
6	log_Fmult_devs	1.67E-01	4.96E-02
7	log_Fmult_devs	1.59E-01	5.49E-02
8	log_Fmult_devs	8.20E-02	4.64E-02
9	log_Fmult_devs	4.10E-01	3.68E-02
10	log_Fmult_devs	4.85E-01	3.43E-02
11	log_Fmult_devs	6.78E-02	3.40E-02
12	log_Fmult_devs	4.07E-01	3.50E-02
13	log_Fmult_devs	5.72E-02	3.61E-02
14	log_Fmult_devs	6.77E-02	3.88E-02
15	log_Fmult_devs	-8.90E-02	4.21E-02
16	log_Fmult_devs	-1.29E+00	3.86E-02
17	log_Fmult_devs	-1.00E+00	3.45E-02
18	log_Fmult_devs	2.05E-02	3.33E-02
19	log_Fmult_devs	-2.58E-01	3.48E-02
20	log_Fmult_devs	1.34E-01	3.57E-02
21	log_Fmult_devs	-1.11E-01	3.60E-02
22	log_Fmult_devs	-6.07E-02	4.09E-02
23	log_Fmult_devs	-5.93E-02	4.00E-02
24	log_Fmult_devs	4.25E-01	3.90E-02
25	log_Fmult_devs	-1.07E-01	3.33E-02
26	log_Fmult_devs	3.52E-01	3.35E-02
27	log_Fmult_devs	3.09E-01	3.46E-02
28	log_Fmult_devs	-2.14E-01	3.61E-02
29	log_Fmult_devs	-1.89E-01	3.68E-02
30	log_Fmult_devs	-7.82E-02	3.65E-02
31	log_Fmult_devs	-6.40E-01	3.39E-02
32	log_Fmult_devs	-6.99E-02	3.56E-02
33	log_Fmult_devs	7.39E-02	3.38E-02
34	log_Fmult_devs	-1.02E-01	3.42E-02
35	log_Fmult_devs	3.07E-01	3.45E-02
36	log_Fmult_devs	-3.79E-02	3.51E-02
37	log_Fmult_devs	-6.95E-02	3.43E-02
38	log_Fmult_devs	-2.51E-01	3.53E-02
39	log_Fmult_devs	-5.82E-01	3.76E-02
40	log_Fmult_devs	4.95E-01	4.11E-02
41	log_Fmult_devs	2.29E-01	3.75E-02
42	log_Fmult_devs	2.29E-01	3.37E-02
43	log_Fmult_devs	2.60E-01	3.74E-02
44	log_recruit_devs	-9.64E-01	1.80E-01
45	log_recruit_devs	-8.62E-01	2.50E-01
46	log_recruit_devs	-7.25E-01	2.20E-01

47	log_recruit_devs	-1.94E-01	2.02E-01
48	log_recruit_devs	7.81E-01	1.84E-01
49	log_recruit_devs	1.33E+00	1.67E-01
50	log_recruit_devs	2.40E+00	1.38E-01
51	log_recruit_devs	7.20E-01	1.23E-01
52	log_recruit_devs	1.00E+00	1.33E-01
53	log_recruit_devs	-3.52E-02	1.56E-01
54	log_recruit_devs	2.89E-01	1.55E-01
55	log_recruit_devs	2.63E-01	1.58E-01
56	log_recruit_devs	8.22E-01	1.25E-01
57	log_recruit_devs	1.07E+00	9.80E-02
58	log_recruit_devs	-2.53E-01	1.19E-01
59	log_recruit_devs	-1.37E+00	1.39E-01
60	log_recruit_devs	-1.79E+00	1.45E-01
61	log_recruit_devs	-3.42E-01	1.17E-01
62	log_recruit_devs	-1.58E+00	1.37E-01
63	log_recruit_devs	-5.04E-01	1.25E-01
64	log_recruit_devs	5.84E-01	1.07E-01
65	log_recruit_devs	1.59E+00	8.67E-02
66	log_recruit_devs	-9.97E-01	1.37E-01
67	log_recruit_devs	-1.29E+00	1.38E-01
68	log_recruit_devs	-1.05E+00	1.38E-01
69	log_recruit_devs	-1.06E+00	1.36E-01
70	log_recruit_devs	4.07E-02	1.11E-01
71	log_recruit_devs	5.02E-01	9.94E-02
72	log_recruit_devs	-3.56E-01	1.17E-01
73	log_recruit_devs	5.24E-03	1.07E-01
74	log_recruit_devs	-6.88E-02	1.12E-01
75	log_recruit_devs	-1.26E+00	1.33E-01
76	log_recruit_devs	-1.44E-01	1.11E-01
77	log_recruit_devs	-1.80E-02	1.08E-01
78	log_recruit_devs	-1.72E-01	1.13E-01
79	log_recruit_devs	1.68E-01	1.11E-01
80	log_recruit_devs	-2.11E-01	1.22E-01
81	log_recruit_devs	3.51E-03	1.27E-01
82	log_recruit_devs	1.82E+00	1.12E-01
83	log_recruit_devs	2.72E-01	1.49E-01
84	log_recruit_devs	-1.13E-01	1.82E-01
85	log_recruit_devs	6.28E-01	2.03E-01
86	log_recruit_devs	1.08E+00	2.47E-01
87	log_N_year1_devs	-7.55E-01	2.74E-01
88	log_N_year1_devs	9.70E-01	1.78E-01
89	log_N_year1_devs	-2.89E-01	2.77E-01
90	log_N_year1_devs	-1.79E+00	7.31E-01
91	log_N_year1_devs	-1.39E+00	6.93E-01
92	log_N_year1_devs	-2.28E+00	4.77E-01
93	log_q_year1	-8.40E+00	1.06E-01
94	log_q_year1	-7.12E+00	1.05E-01
95	log_q_year1	-7.12E+00	1.06E-01
96	log_q_year1	-6.90E+00	1.11E-01

97	log_q_year1	-6.40E+00	1.17E-01
98	log_q_year1	-5.99E+00	1.26E-01
99	log_q_year1	-6.96E+00	1.46E-01
100	log_q_year1	-7.28E+00	1.66E-01
101	log_q_year1	-6.92E+00	1.65E-01
102	log_q_year1	-6.59E+00	1.65E-01
103	log_q_year1	-6.34E+00	1.67E-01
104	log_q_year1	-6.42E+00	1.69E-01
105	log_q_year1	-6.25E+00	1.70E-01
106	log_q_year1	-7.33E+00	1.73E-01
107	log_SRR_virgin	7.38E+00	1.43E-01
108	SRR_steepness	5.07E-01	1.09E-01
109	SSB	2.98E+02	4.09E+01
110	SSB	3.02E+02	4.11E+01
111	SSB	3.16E+02	4.26E+01
112	SSB	3.36E+02	4.46E+01
113	SSB	3.70E+02	4.55E+01
114	SSB	4.45E+02	4.55E+01
115	SSB	8.31E+02	6.16E+01
116	SSB	1.36E+03	6.49E+01
117	SSB	1.60E+03	6.67E+01
118	SSB	1.65E+03	6.52E+01
119	SSB	1.70E+03	7.37E+01
120	SSB	1.23E+03	5.92E+01
121	SSB	9.38E+02	5.33E+01
122	SSB	7.23E+02	4.37E+01
123	SSB	6.63E+02	4.49E+01
124	SSB	6.77E+02	6.12E+01
125	SSB	7.82E+02	7.51E+01
126	SSB	8.03E+02	7.80E+01
127	SSB	7.98E+02	7.70E+01
128	SSB	7.74E+02	7.46E+01
129	SSB	7.79E+02	7.46E+01
130	SSB	8.59E+02	8.11E+01
131	SSB	1.09E+03	1.05E+02
132	SSB	1.36E+03	1.37E+02
133	SSB	1.30E+03	1.39E+02
134	SSB	1.15E+03	1.29E+02
135	SSB	1.07E+03	1.29E+02
136	SSB	9.62E+02	1.26E+02
137	SSB	1.03E+03	1.42E+02
138	SSB	1.25E+03	1.79E+02
139	SSB	1.27E+03	1.91E+02
140	SSB	1.16E+03	1.77E+02
141	SSB	1.08E+03	1.68E+02
142	SSB	1.06E+03	1.66E+02
143	SSB	1.14E+03	1.82E+02
144	SSB	1.17E+03	1.90E+02
145	SSB	1.19E+03	1.97E+02
146	SSB	1.26E+03	2.11E+02

147	SSB	1.33E+03	2.22E+02
148	SSB	1.85E+03	3.10E+02
149	SSB	2.27E+03	3.89E+02
150	SSB	2.35E+03	4.12E+02
151	SSB	2.32E+03	4.13E+02
152	recruits	3.32E+02	5.86E+01
153	recruits	1.78E+02	3.74E+01
154	recruits	2.06E+02	3.68E+01
155	recruits	3.60E+02	5.47E+01
156	recruits	9.91E+02	1.21E+02
157	recruits	1.81E+03	1.91E+02
158	recruits	5.85E+03	3.47E+02
159	recruits	1.46E+03	1.61E+02
160	recruits	2.27E+03	2.14E+02
161	recruits	8.40E+02	1.04E+02
162	recruits	1.17E+03	1.33E+02
163	recruits	1.15E+03	1.28E+02
164	recruits	1.85E+03	1.68E+02
165	recruits	2.16E+03	1.88E+02
166	recruits	5.22E+02	6.44E+01
167	recruits	1.65E+02	2.35E+01
168	recruits	1.09E+02	1.63E+01
169	recruits	4.93E+02	6.42E+01
170	recruits	1.44E+02	2.18E+01
171	recruits	4.23E+02	6.15E+01
172	recruits	1.24E+03	1.65E+02
173	recruits	3.41E+03	4.01E+02
174	recruits	2.65E+02	4.54E+01
175	recruits	2.16E+02	3.89E+01
176	recruits	2.91E+02	5.12E+01
177	recruits	2.85E+02	5.02E+01
178	recruits	8.28E+02	1.31E+02
179	recruits	1.28E+03	1.99E+02
180	recruits	5.25E+02	9.06E+01
181	recruits	7.71E+02	1.31E+02
182	recruits	7.60E+02	1.31E+02
183	recruits	2.31E+02	4.30E+01
184	recruits	6.91E+02	1.21E+02
185	recruits	7.66E+02	1.35E+02
186	recruits	6.52E+02	1.18E+02
187	recruits	9.38E+02	1.69E+02
188	recruits	6.48E+02	1.21E+02
189	recruits	8.07E+02	1.52E+02
190	recruits	5.04E+03	9.36E+02
191	recruits	1.09E+03	2.22E+02
192	recruits	8.04E+02	1.79E+02
193	recruits	1.76E+03	4.21E+02
194	recruits	2.79E+03	7.92E+02
195	plus_group	5.63E+01	2.63E+01
196	plus_group	6.81E+01	2.34E+01

197	plus_group	6.84E+01	1.99E+01
198	plus_group	1.17E+02	2.47E+01
199	plus_group	3.01E+02	5.05E+01
200	plus_group	2.63E+02	4.57E+01
201	plus_group	2.67E+02	4.63E+01
202	plus_group	2.31E+02	3.96E+01
203	plus_group	2.07E+02	3.27E+01
204	plus_group	2.03E+02	2.85E+01
205	plus_group	2.61E+02	3.23E+01
206	plus_group	3.57E+02	3.94E+01
207	plus_group	6.35E+02	6.48E+01
208	plus_group	3.94E+02	4.97E+01
209	plus_group	2.78E+02	4.15E+01
210	plus_group	1.66E+02	2.93E+01
211	plus_group	1.66E+02	2.88E+01
212	plus_group	1.99E+02	3.13E+01
213	plus_group	3.31E+02	4.38E+01
214	plus_group	5.92E+02	6.80E+01
215	plus_group	5.73E+02	6.48E+01
216	plus_group	4.90E+02	5.57E+01
217	plus_group	4.13E+02	4.72E+01
218	plus_group	4.49E+02	5.01E+01
219	plus_group	3.84E+02	4.33E+01
220	plus_group	4.02E+02	4.59E+01
221	plus_group	6.02E+02	7.45E+01
222	plus_group	1.21E+03	1.65E+02
223	plus_group	9.78E+02	1.42E+02
224	plus_group	7.98E+02	1.23E+02
225	plus_group	6.79E+02	1.10E+02
226	plus_group	6.02E+02	9.93E+01
227	plus_group	6.74E+02	1.12E+02
228	plus_group	8.51E+02	1.42E+02
229	plus_group	8.12E+02	1.37E+02
230	plus_group	8.39E+02	1.45E+02
231	plus_group	8.58E+02	1.51E+02
232	plus_group	7.38E+02	1.33E+02
233	plus_group	7.66E+02	1.39E+02
234	plus_group	8.19E+02	1.49E+02
235	plus_group	8.27E+02	1.51E+02
236	plus_group	9.06E+02	1.67E+02
237	plus_group	8.85E+02	1.65E+02
238	MSY	8.95E+01	0.00E+00
239	SSB_ratio	7.79E+00	1.58E+00
240	proj_SSB_ratio	6.85E+00	0.00E+00
241	SSmsy_ratio	3.61E+00	6.42E-01
242	Fmsy_ratio	3.08E-01	0.00E+00
243	MSYp	8.95E+01	0.00E+00

Table B13. Projection for SSB (000 mt) and landings (000 mt) during 2006-2008 for the northwest Atlantic stock of mackerel.

Year	SSB	F	Land
2005	2450.68	0.04	95.00
2006	2640.21	0.12	273.29
2007	2304.02	0.12	238.79
2008	2043.44	0.12	211.99