Table B1.1. Winter flounder commercial landings (metric tons) for Southern New England/Mid-Atlantic stock complex area (U.S. statistical reporting areas 521, 526, divisions 53, 61-63) as reported by NEFSC weighout, state bulletin and general canvas data.

Year	Metric Tons
1964	7,474
1965	8,678
1966	11,977
1967	9,478
1968	7,070
1969	8,107
1970	8,603
1971	7,367
1972	5,190
1973	5,573
1974	4,259
1975	3,982
1976	3,265
1977	4,413
1978	6,327
1979	6,543
1980	10,627
1981	11,176
1982	9,438
1983	8,659
1984	8,882
1985	7,052
1986	4,929
1987	5,172
1988	4,312
1989	3,670
1990	4,232
1991	4,823
1992	3,816
1993	3,010
1994	2,159
1995	2,634
1996	2,781
1997	3,441
1998	3,208
1999	3,444
2000	3,783
2001	4,448

Table B1.2. Distribution of commercial landings (percentage of annual total) of winter flounder from Southern New England/Mid-Atlantic stock complex area by U.S. statistical reporting area.

	Area								
Year	521	526	537	538	539	611	612	613	614-622
1989	33.2	10.8	18.9	7.0	12.1	7.1	5.5	4.2	1.2
1990	45.2	16.8	6.1	4.9	9.5	11.1	4.1	2.0	0.1
1991	46.4	14.7	10.8	1.7	13.7	5.7	3.6	2.9	0.4
1992	37.0	12.5	17.4	2.4	9.4	10.1	4.5	3.4	3.4
1993	46.6	10.0	10.8	2.4	8.2	7.7	4.2	8.0	2.1
1994	41.8	13.3	3.3	0.1	17.6	10.3	6.5	3.1	3.3
1995	43.3	9.1	6.7	1.6	15.7	10.8	9.3	2.1	1.4
1996	47.3	12.0	10.8	1.4	12.3	11.0	2.5	2.4	0.3
1997	62.8	3.1	7.5	1.5	12.3	8.5	2.0	2.1	0.2
1998	49.5	12.4	7.6	0.6	15.2	9.9	1.8	2.4	0.6
1999	48.7	12.3	6.9	0.4	13.2	8.2	6.4	2.4	1.5
2000	44.1	7.4	10.7	0.8	15.1	8.5	7.2	4.8	1.4
2001	55.8	7.2	7.4	0.1	9.7	7.7	7.4	3.1	1.6

Table B1.3. Estimated number (N, 000's) and weight (mt) of winter flounder caught, landed, and discarded in the recreational fishery, Southern New England/Mid-Atlantic stock complex.

Year	Catch N (A+B1+B2)	Landed N (A+B1)	Released N (B2)	15% Release Mortality	Landings (A+B1; mt)
1981	11,006	8,089	2,916	437	3,050
1982	10,665	8,392	2,273	341	2,457
1983	11,010	8,365	2,645	397	2,524
1984	17,723	12,756	4,967	745	5,772
1985	18,056	13,297	4,759	714	5,198
1986	9,368	6,995	2,374	356	2,940
1987	9,213	6,900	2,313	347	3,141
1988	10,134	7,358	2,775	416	3,423
1989	5,919	3,682	2,236	335	1,802
1990	3,827	2,486	1,340	201	1,063
1991	4,325	2,795	1,530	230	1,214
1992	1,360	806	555	83	393
1993	2,211	1,180	1,031	155	543
1994	1,829	1,209	620	93	598
1995	1,850	1,390	461	69	661
1996	2,679	1,554	1,125	169	689
1997	1,901	1,207	694	104	621
1998	1,008	584	425	64	290
1999	1,071	658	412	62	320
2000	2,043	1,346	697	105	831
2001	1,441	901	540	81	552

Table B1.4. Winter flounder commercial fishery landed sample lengths (number of fish measured) used for Southern New England/Mid-Atlantic stock complex, 1981-1997. Landings are in metric tons.

Year	Landings	Lengths measured	Metric tons per 100 lengths
1981	11,176	4,230	264
1982	9,438	5,796	163
1983	8,659	5,601	155
1984	8,882	3,697	240
1985	7,052	6,407	110
1986	4,929	5,120	96
1987	5,172	5,271	98
1988	4,312	4,208	102
1989	3,670	3,525	104
1990	4,232	4,088	104
1991	4,823	3,058	158
1992	3,816	4,163	92
1993	3,010	2,354	128
1994	2,159	2,593	83
1995	2,634	4,153	63
1996	2,781	2,019	138
1997	3,441	4,005	86

Table B1.5. Winter flounder commercial fishery landed sample lengths (number of fish measured) used for Southern New England/Mid-Atlantic stock complex, 1998-2001. Landings are in metric tons.

1998		Market Category				
Sample Type	Season	Unclass.	Small	Medium	Large	Total
Port	Jan-Jun	162	105	767	205	1239
Port	Jul-Dec	780	794	558	210	2342
Total lengths used		942	899	1325	415	3581
Landings		644	1453	438	673	3208
Metric tons per 100 lengths		68	162	33	162	90

1999		Market Category				
Sample Type	Season	Unclass.	Small	Medium	Large	Total
Port	Jan-Jun	978	334	502	522	2336
Port	Jul-Dec	1403	464	105	299	2271
Total lengths used		2381	798	607	821	4607
Landings		838	1566	290	750	3444
Metric tons per 100 lengths		35	196	48	91	75

2000		Market Category				
Sample Type	Season	Unclass.	Small	Medium	Large	Total
Port	Jan-Jun	808	377	1868	126	3179
Port	Jul-Dec	845	565	1025	839	3274
Total lengths used		1653	942	2893	965	6453
Landings		848	451	1670	815	3784
Metric tons per 100 lengths		51	48	58	84	59

Table B1.5 continued.

2001		Market Category				
Sample Type	Season	Unclass.	Small	Medium	Large	Total
Port	Jan-Jun	557	510	1067	636	2770
Port	Jul-Dec	203	387	1234	1661	3485
Total lengths used		760	897	2301	2297	6255
Landings		908	1101	1475	962	4446
Metric tons per 100 lengths		119	123	64	42	71

Table B1.6. Winter flounder recreational fishery landed sample lengths (number of fish measured) used for Southern New England/Mid-Atlantic stock complex, 1981-1997. Landings are in metric tons.

Year	Landings	Lengths measured	Metric tons per 100 lengths
1981	3,050	1,725	177
1982	2,457	1,971	125
1983	2,524	2,587	98
1984	5,772	3,123	185
1985	5,198	2,357	221
1986	2,940	2,237	131
1987	3,141	1,360	231
1988	3,423	1,944	176
1989	1,802	2,810	64
1990	1,063	2,548	42
1991	1,214	1,755	69
1992	393	1,083	36
1993	543	1,288	42
1994	598	948	63
1995	661	767	86
1996	689	936	74
1997	621	752	83

Table B1.7. Winter flounder recreational fishery sample lengths (number of fish measured) used for Southern New England/Mid-Atlantic stock complex, 1998-2001. SNE = MA & RI; MA = CT and states south. Landings are in metric tons.

Season/area	1998	1999	2000	2001
Jan-Jun/SNE	105	77	7	80
Jan-Jun/MA	405	256	105	387
Jul-Dec/SNE	85	48	0	3
Jul-Dec/MA	21	14	48	38
Total lengths	616	395	160	508
Landings (A+B1.)	290	320	831	552
Metric tons per 100 Lengths	47	81	519	109

Table B1.8. Winter flounder NEFSC Domestic Fishery Observer Program (OB) and NER Vessel Trip Report (VTR) data: number of OB trips with landed winter flounder (to estimate discards to landings ratio), OB discards to landings ratio, number of VTR trips with winter flounder landings that discarded any species, and VTR discards to landings ratio. VTR data available for 1994 and subsequent years.

Year	Half-year	OB trips	OB ratio	VTR Trips	VTR ratio
1989	Jan-Jun	22	0.235		
	Jul-Dec	28	0.299		
1990	Jan-Jun	21	0.069		
	Jul-Dec	18	0.227		
1991	Jan-Jun	46	0.579		
	Jul-Dec	42	0.283		
1992	Jan-Jun	17	0.021		
	Jul-Dec	21	0.076		
1993	Jan-Jun	11	0.299		
	Jul-Dec	22	0.32		
1994	Jan-Jun	13	0.304	1519	0.241
	Jul-Dec	12	2.84	1488	0.091
1995	Jan-Jun	20	0.044	1484	0.072
	Jul-Dec	36	0.289	764	0.028
1996	Jan-Jun	18	0.358	1002	0.088
	Jul-Dec	38	0.115	576	0.05
1997	Jan-Jun	27	0.175	2138	0.145
	Jul-Dec	18	0.021	1766	0.16

Table B1.8 continued.

Year	Half-year	OB trips	OB ratio	VTR Trips	VTR ratio
1998	Jan-Jun	6	0.306	2114	0.265
	Jul-Dec	18	0.437	1424	0.292
1999	Jan-Jun	13	11.842	2570	0.102
	Jul-Dec	7	0.005	1554	0.238
2000	Jan-Jun	20	0.095	2104	0.16
	Jul-Dec	21	0.042	1586	0.043
2001	Jan-Jun	27	0.04	2508	0.061
	Jul-Dec	22	0.069	2016	0.025

Table B1.9. Winter flounder commercial fishery discard sample lengths (number of fish measured) used for Southern New England/Mid-Atlantic stock complex, 1994-2001. Discard estimates (before impact of 50% mortality rate) are in metric tons.

Season	1994	1995	1996	1997
Jan-Jun	111	73	358	412
Jul-Dec	196	646	245	556
Total lengths	307	719	603	968
Discard Estimate (before mortality)	608	242	346	534
Metric tons per 100 Lengths	198	34	57	55

Season	1998	1999	2000	2001
Jan-Jun	170	354	353	135
Jul-Dec	604	13	128	0
Total lengths	774	367	481	135
Discard Estimate (before mortality)	911	659	296	167
Metric tons per 100 Lengths	118	180	62	124

Table B1.10. Winter flounder catch at age (number in 000s) for the Southern New England/Mid-Atlantic stock complex.

Commercial Landings	Age												
Year	1	2	3	4	5	6	7	8	9	10	11	12	13
1981	194	7154	9740	2750	606	178	42	32	0	0	9	0	0
1982	54	6897	8496	2715	488	187	78	59	21	17	7	7	0
1983	6	2795	7114	3957	1322	584	269	91	34	70	6	29	35
1984	0	4518	6367	3197	1503	768	355	158	67	86	27	33	37
1985	27	3936	5688	3052	1014	326	104	32	17	7	5	2	0
1986	0	2122	4187	2206	551	271	84	27	6	3	1	2	0
1987	0	2488	5465	1895	465	122	40	20	14	12	2	0	0
1988	0	2241	3929	1607	412	122	37	24	3	2	1	0	0
1989	0	1542	4057	1747	431	58	34	13	5	1	0	0	0
1990	0	1003	3977	1757	315	95	37	16	0	3	0	0	0
1991	0	1406	4756	2239	447	143	48	16	5	1	1	0	0
1992	0	484	3416	2127	574	111	32	11	3	0	0	0	0
1993	13	885	2516	1377	361	102	71	7	0	0	2	0	1
1994	0	629	804	401	90	14	10	0	0	0	0	0	0
1995	0	73	1537	587	95	24	5	0	0	0	0	0	0
1996	0	606	1146	470	122	17	11	0	0	0	0	0	0
1997	0	1418	2574	1370	356	70	28	12	5	1	0	0	0
1998	0	1021	3057	1483	450	83	60	63	7	0	0	0	0
1999	0	2009	3347	1538	386	59	11	6	0	0	0	0	0
2000	0	1073	2801	1942	592	135	35	12	0	0	0	0	0
2001	0	1727	3263	1851	620	148	53	23	2	3	0	0	0

Table B1.10 continued

Commercial Discards

Year	Age 1	2	3	4	5	6	7	8	9	10	11	12	13
1981	322	2514	2186	101	0	0	0	0	0	0	0	0	0
1982	43	2817	1219	192	0	0	0	0	0	0	0	0	0
1983	260	2479	2000	467	45	0	0	0	0	0	0	0	0
1984	159	2102	1502	166	6	1	0	0	0	0	0	0	0
1985	22	1504	2516	442	43	4	0	0	0	0	0	0	0
1986	78	2220	2389	205	10	0	0	0	0	0	0	0	0
1987	11	1600	1755	170	9	0	0	0	0	0	0	0	0
1988	6	887	2540	276	20	0	0	0	0	0	0	0	0
1989	315	2724	2131	555	33	2	1	0	0	0	0	0	0
1990	16	781	1433	322	14	0	1	0	0	0	0	0	0
1991	17	1238	1205	227	12	1	0	0	0	0	0	0	0
1992	15	845	787	150	14	1	0	0	0	0	0	0	0
1993	201	849	467	57	6	0	0	0	0	0	0	0	0
1994	44	204	88	8	0	0	0	0	0	0	0	0	0
1995	15	47	41	4	0	0	0	0	0	0	0	0	0
1996	11	64	66	7	1	0	0	0	0	0	0	0	0
1997	373	580	210	31	6	0	0	0	0	0	0	0	0
1998	43	972	407	78	3	0	0	0	0	0	0	0	0
1999	63	583	314	54	23	22	15	0	0	0	0	0	0
2000	68	218	199	34	8	1	6	0	0	0	0	0	0
2001	11	127	111	33	3	0	0	0	0	0	0	0	0

Table B1.10 continued.

Recreational Landings	Age												
Year	1	2	3	4	5	6	7	8	9	10	11	12	13
1981	776	4054	2426	742	59	4	28	0	0	0	0	0	0
1982	457	4235	2716	823	122	26	13	0	0	0	0	0	0
1983	289	1630	4194	1702	427	112	11	0	0	0	0	0	0
1984	294	4258	6224	1565	267	107	41	0	0	0	0	0	0
1985	219	1585	4270	2558	1895	1513	878	0	335	44	0	0	0
1986	106	1765	2432	1797	491	171	81	77	51	8	17	0	0
1987	16	926	1736	1023	2229	633	82	115	64	77	0	0	0
1988	21	534	2858	2078	775	857	128	51	37	20	0	0	0
1989	99	739	944	1200	385	161	91	36	16	8	3	1	0
1990	7	189	814	851	439	101	52	20	3	3	0	2	5
1991	13	232	1122	879	399	107	38	0	1	0	3	0	0
1992	3	123	235	303	85	50	7	0	0	0	0	0	0
1993	31	233	321	289	218	54	20	10	4	2	0	0	0
1994	5	203	240	303	220	149	89	0	0	0	0	0	0
1995	0	30	268	298	321	267	206	0	0	0	0	0	0
1996	0	106	200	630	220	240	157	0	0	0	0	0	0
1997	1	82	497	410	178	36	0	0	0	0	0	0	0
1998	2	89	191	235	58	7	1	0	0	0	0	0	0
1999	1	101	340	151	49	16	0	0	0	0	0	0	0
2000	0	113	440	472	262	44	14	0	0	0	0	0	0
2001	1	84	267	303	168	62	16	0	0	0	0	0	0

Table B1.10 continued.

Recreational Discards	Age												
Year	1	2	3	4	5	6	7	8	9	10	11	12	13
1981	70	367	0	0	0	0	0	0	0	0	0	0	0
1982	33	308	0	0	0	0	0	0	0	0	0	0	0
1983	62	337	0	0	0	0	0	0	0	0	0	0	0
1984	48	697	0	0	0	0	0	0	0	0	0	0	0
1985	9	340	363	2	0	0	0	0	0	0	0	0	0
1986	32	222	93	9	0	0	0	0	0	0	0	0	0
1987	47	254	43	3	1	0	0	0	0	0	0	0	0
1988	57	279	76	3	0	0	0	0	0	0	0	0	0
1989	49	240	45	1	0	0	0	0	0	0	0	0	0
1990	12	136	51	2	0	0	0	0	0	0	0	0	0
1991	22	151	56	0	0	0	0	0	0	0	0	0	0
1992	7	51	19	1	0	0	0	0	0	0	0	0	0
1993	29	95	26	4	0	0	0	0	0	0	0	0	0
1994	12	60	21	0	0	0	0	0	0	0	0	0	0
1995	9	45	15	0	0	0	0	0	0	0	0	0	0
1996	21	110	37	0	0	0	0	0	0	0	0	0	0
1997	11	55	19	0	0	0	0	0	0	0	0	0	0
1998	5	49	8	1	0	0	0	0	0	0	0	0	0
1999	2	53	6	1	0	0	0	0	0	0	0	0	0
2000	0	38	60	7	0	0	0	0	0	0	0	0	0
2001	1	49	27	5	0	0	0	0	0	0	0	0	0

Table B1.10 continued.

Total Catch Year	Age 1	2	3	4	5	6	7	8	9	10	11	12	13	Total
1981	1362	14089	14352	3593	665	182	70	32	0	0	9	0	0	34354
1982	587	14257	12421	3730	610	213	91	59	21	17	7	7	0	32020
1983	617	7241	13308	6126	1794	696	280	91	34	70	6	29	35	30327
1984	501	11575	14093	4928	1776	876	396	158	67	86	27	33	37	34553
1985	277	7366	12836	6054	2953	1843	982	32	352	52	5	2	0	32753
1986	215	6327	9102	4216	1053	442	165	104	57	10	19	2	0	21712
1987	73	5268	8999	3091	2703	755	122	135	78	89	2	0	0	21315
1988	84	3941	9402	3964	1207	979	165	75	39	22	1	0	0	19880
1989	463	5246	7176	3503	849	222	126	49	21	9	3	1	0	17668
1990	36	2109	6275	2931	767	196	89	36	4	5	0	2	5	12455
1991	53	3027	7140	3344	858	251	87	16	6	1	4	0	0	14788
1992	25	1503	4457	2581	674	162	38	11	3	0	0	0	0	9455
1993	274	2062	3329	1728	585	157	91	17	4	2	2	0	1	8251
1994	61	1097	1152	713	311	162	99	0	0	0	0	0	0	3595
1995	24	195	1862	889	415	291	211	0	0	0	0	0	0	3887
1996	32	886	1450	1107	343	258	168	0	0	0	0	0	0	4244
1997	385	2135	3300	1811	540	106	28	12	5	1	0	0	0	8323
1998	50	2132	3663	1797	511	90	61	63	7	0	0	0	0	8374
1999	66	2746	4008	1744	458	97	26	6	0	0	0	0	0	9150
2000	69	1442	3500	2455	862	180	55	12	0	0	0	0	0	8575
2001	13	1987	3668	2191	790	211	69	23	2	3	0	0	0	8957

Table B1.11. Total winter flounder recreational and commercial catch for the Southern New England/Mid-Atlantic stock complex in weight (mt) and numbers (000s).

Year	Commercial Landings		Commercial Discards		Recreational Landings		Recreational Discards		Total Catch		% Discards/Total	
	mt	000s	mt	000s	mt	000s	mt	000s	mt	000s	mt	000s
1981	11,176	20,705	1,343	5,123	3,050	8,089	88	437	15,657	34,354	9.1	16.2
1982	9,438	19,016	1,149	4,271	2,457	8,392	66	341	13,110	32,020	9.3	14.4
1983	8,659	16,312	1,311	5,251	2,524	8,365	125	399	12,619	30,327	11.4	18.6
1984	8,882	17,116	986	3,936	5,772	12,756	148	745	15,788	34,553	7.2	13.5
1985	7,052	14,211	1,534	4,531	5,198	13,297	230	714	14,014	32,753	12.6	16.0
1986	4,929	9,460	1,273	4,902	2,940	6,994	66	356	9,208	21,712	14.5	24.2
1987	5,172	10,524	950	3,545	3,141	6,899	61	347	9,324	21,315	10.8	18.3
1988	4,312	8,377	904	3,728	3,423	7,359	69	416	8,708	19,880	11.2	20.8
1989	3,670	7,888	1,404	5,761	1,802	3,684	49	335	6,925	17,668	21.0	34.5
1990	4,232	7,202	673	2,567	1,063	2,485	31	201	5,999	12,455	11.7	22.2
1991	4,823	9,063	784	2,701	1,214	2,794	51	230	6,872	14,788	12.2	19.8
1992	3,816	6,759	511	1,811	393	802	15	83	4,735	9,455	11.1	20.0
1993	3,010	5,336	457	1,580	543	1,180	31	155	4,041	8,251	12.1	21.0
1994	2,159	1,948	304	344	598	1,210	34	93	3,095	3,595	10.9	12.2
1995	2,634	2,321	121	107	661	1,390	23	69	3,439	3,887	4.2	4.5
1996	2,781	2,372	173	149	689	1,555	64	168	3,707	4,244	6.4	7.5
1997	3,441	5,834	267	1,200	618	1,204	26	85	4,352	8,323	6.7	15.4

Table B1.11 continued.

Year	Commercial Landings		Commercial Discards		Recreational Landings		Recreational Discards		Total Catch		% Discards/Total	
	mt	000s	mt	000s	mt	000s	mt	000s	mt	000s	mt	000s
1998	3,208	6,224	456	1,503	290	584	13	64	3,967	8,375	11.8	18.7
1999	3,444	7,356	329	1,074	320	658	14	62	4,107	9,150	8.4	12.4
2000	3,783	6,590	148	534	831	1,346	30	105	4,792	8,575	3.7	7.5
2001	4,448	7,690	83	285	552	901	19	81	5,102	8,957	2.0	4.1

Table B1.12. Total fishery catch at age used as input to Virtual Population Analysis (VPA) for the Southern New England/Mid-Atlantic winter flounder stock complex.

Year	Age						
	1	2	3	4	5	6	7+
1981	1362	14089	14352	3593	665	182	111
1982	587	14257	12421	3730	610	213	202
1983	617	7241	13308	6126	1794	696	545
1984	501	11575	14093	4928	1776	876	804
1985	277	7366	12836	6054	2953	1843	1424
1986	215	6327	9102	4216	1053	442	357
1987	73	5268	8999	3091	2703	755	426
1988	84	3941	9402	3964	1207	979	303
1989	463	5246	7176	3503	849	222	209
1990	36	2109	6275	2931	767	196	141
1991	53	3027	7140	3344	858	251	115
1992	25	1503	4457	2581	674	162	53
1993	274	2062	3329	1728	585	157	116
1994	61	1097	1152	713	311	162	99
1995	24	195	1862	889	415	291	211
1996	32	886	1450	1107	343	258	168
1997	385	2135	3300	1811	540	106	46
1998	50	2132	3663	1797	511	90	131
1999	66	2746	4008	1744	458	97	32
2000	69	1442	3500	2455	862	180	67
2001	13	1987	3668	2191	790	211	97

Table B1.13. Total fishery mean weights at age used as input to Virtual Population Analysis (VPA) for the Southern New England/Mid-Atlantic winter flounder stock complex.

Year	Age						
	1	2	3	4	5	6	7+
1981	0.130	0.276	0.478	0.802	1.065	1.243	1.202
1982	0.090	0.261	0.438	0.694	1.048	1.253	1.837
1983	0.195	0.237	0.353	0.516	0.774	1.046	1.552
1984	0.146	0.258	0.366	0.542	0.693	0.913	1.282
1985	0.111	0.282	0.364	0.482	0.522	0.467	0.613
1986	0.129	0.292	0.398	0.480	0.685	0.879	0.961
1987	0.046	0.287	0.384	0.551	0.475	0.564	0.853
1988	0.039	0.279	0.351	0.508	0.634	0.517	0.827
1989	0.118	0.258	0.378	0.508	0.660	0.716	1.073
1990	0.082	0.295	0.394	0.525	0.672	0.808	0.990
1991	0.093	0.317	0.420	0.534	0.603	0.823	1.168
1992	0.079	0.287	0.427	0.599	0.802	0.945	1.395
1993	0.169	0.334	0.460	0.592	0.689	0.878	1.167
1994	0.156	0.347	0.448	0.597	0.741	0.692	0.818
1995	0.167	0.323	0.449	0.578	0.714	0.763	0.780
1996	0.193	0.407	0.507	0.569	0.705	0.826	0.853
1997	0.093	0.369	0.510	0.659	0.806	1.071	1.511
1998	0.202	0.332	0.438	0.580	0.665	0.892	1.241
1999	0.079	0.314	0.435	0.562	0.782	0.951	1.317
2000	0.100	0.396	0.484	0.613	0.738	0.915	1.144
2001	0.102	0.419	0.506	0.636	0.796	1.053	1.259

Table B1.14. Winter flounder NEFSC survey index stratified mean number and mean weight (kg) per tow for the Southern New England- Mid-Atlantic stock complex. Spring and fall strata set (offshore 1-12, 25, 69-76 ; inshore 1-29, 45-56); winter strata set (offshore 1-2, 5-6,9-10,69,73).

	Spring				Fall			
Year	Number	N(CV)	Weight	W(CV)	Number	N(CV)	Weight	W(CV)
1963					8.554	33.2	3.284	41.4
1964					13.673	22.1	4.894	19.4
1965					15.537	32.5	4.435	28.7
1966					9.843	31.5	3.275	27.3
1967					9.109	20.6	2.745	18.7
1968	2.444	26.7	0.734	37.2	8.105	21	2.19	18.7
1969	5.64	34.3	3.414	53.7	6.841	34.9	1.939	29.7
1970	2.729	30.9	1.326	35.6	5.11	36.1	2.375	47.8
1971	2.035	32.9	0.756	36.2	3.861	17.5	1.231	19.1
1972	1.865	28.1	0.656	32.1	7.687	39.4	3.053	44.6
1973	7.458	19.9	2.013	20.6	2.691	26.9	0.775	25.8
1974	3.362	21.9	1.043	19.3	2.032	31.1	0.822	29.4
1975	1.135	22.6	0.354	20.8	2.196	20.3	0.688	22.1
1976	3.085	16.3	0.804	17.2	2.376	32.2	1.251	42.9
1977	4.209	17.2	1.189	18.6	4.722	22.5	1.735	25.2
1978	6.695	11.1	1.758	13.3	3.743	17.6	1.43	22.6
1979	2.966	16.8	1.069	25	10.058	18.4	2.606	15.4
1980	15.25	17.5	3.551	13.6	9.964	31	3.216	29.5
1981	18.234	20.9	4.762	16.9	10.206	20.3	3.11	19.9
1982	6.986	20.1	1.918	15.8	4.927	22.8	1.683	25.9
1983	6.262	18.4	2.469	28	8.757	37.6	2.69	31.7
1984	5.524	19	2.072	28.4	2.681	21.1	0.887	21
1985	5.36	17.4	1.983	16.5	2.727	21.5	0.991	21.5
1986	2.266	23.9	0.766	23.4	1.538	21.9	0.487	19.1
1987	1.763	21.3	0.568	17.9	1.167	28.9	0.419	37.8
1988	2.126	19.6	0.73	19.3	1.246	22.4	0.53	27.5
1989	2.485	33.5	0.582	29.6	1.435	40.7	0.341	30.4
1990	1.992	36.8	0.472	33.1	1.979	29.6	0.546	25.8
1991	2.473	15.6	0.692	14.7	1.95	23.6	0.708	25.6

Table B1.14 continued.

	Spring				Fall				Winter			
Year	Number	N(CV)	Weight	W(CV)	Number	N(CV)	Weight	W(CV)	Number	N(CV)	Weight	W(CV)
1992	1.579	23.4	0.435	22.1	2.963	32.4	0.829	31.8	3.68	27.3	0.928	26
1993	0.961	19.1	0.219	14.8	1.382	25	0.392	25.9	2.59	29.4	0.456	21.5
1994	1.51	26.4	0.329	21.9	4.134	24.8	1.482	27.3	3.797	30.8	1.183	35.5
1995	2.097	23.4	0.592	19.1	2.253	20.7	0.626	17.3	2.221	26.1	0.697	29.1
1996	1.517	14.3	0.428	15.2	3.186	39.8	1.063	45.3	3.778	28.4	0.734	25.2
1997	1.436	22.1	0.399	20	7.893	32.6	2.583	26.7	3.906	19.7	1.043	21.6
1998	2.774	20.6	0.845	22.1	6.597	13.6	2.232	9.9	7.169	21.6	1.83	24.1
1999	4.171	16.2	1.245	16.4	3.596	17	1.549	16.5	10.328	31.8	3.1	32.3
2000	3.172	26.6	1.123	31.9	6.168	25.5	2.143	26.2	5.571	32.9	1.525	29.5
2001	1.568	14.3	0.581	13.3	4.877	28.1	2.03	28.5	3.096	31.6	0.873	29
2002	2.043	15.7	0.782	16.3					2.901	27.7	1.188	38.3

NOTE: 1968-1972 spring index does not include inshore strata ; 1963-1971 fall index does not include inshore strata. All indices calculated with trawl door conversion factors where appropriate. Winter trawl survey began in 1992.

Table B1.15. SNE/MA winter flounder mean weight per tow for annual state surveys.

Year	MADMF Spring	RIDFW Spring	RIDFW Fall	CTDEP	NJDFW Ocean (April)
1978	18.12				
1979	18.17	7.72	7.24		
1980	15.18	13.57	4.88		
1981	15.77	12.13	2.12		
1982	14.82	5.23	1.30		
1983	19.67	9.52	2.28		
1984	14.68	8.43	3.38	15.68	
1985	11.60	5.93	3.01	13.82	
1986	10.36	6.47	3.12	10.33	
1987	9.57	8.14	2.25	11.76	
1988	6.64	6.02	1.45	18.29	
1989	8.46	3.09	0.79	22.62	5.86
1990	5.38	3.07	0.71	29.02	4.78
1991	2.91	7.38	0.18	24.59	5.32
1992	7.99	0.95	0.42	12.29	2.48
1993	8.16	0.22	0.50	10.26	3.87
1994	12.59	1.67	0.33	12.20	3.25
1995	7.98	6.04	0.89	7.72	8.06
1996	9.78	4.45	0.91	20.41	3.73
1997	10.02	4.57	0.64	15.53	6.52
1998	7.99	5.00	0.32	14.66	4.17
1999	4.44	3.66	0.57	10.29	6.83
2000	6.52	4.52	0.56	12.63	5.24
2001	3.73	3.56	0.28	14.02	6.36
2002				10.90	8.80
Mean	10.44	5.71	1.66	15.11	5.38

Table B1.16. Winter flounder mean number per tow for annual state surveys.

Year	MADMF Spring	RIDFW Spring	RIDFW Fall	CTDEP	NYDEC (Age-1)	NJDFW Ocean (April)	NJDFW Rivers (March-May)
1978	51.62						
1979	53.78	83.76					
1980	38.94	63.10					
1981	46.12	87.97	25.21				
1982	40.23	31.39	18.55				
1983	56.84	58.97	17.29				
1984	37.36	41.64	19.02	111.96			
1985	38.38	34.97	21.44	83.05	1.96		
1986	36.27	41.02	31.28	63.64			
1987	37.85	56.21	20.90	79.92	1.64		
1988	27.91	34.44	10.64	153.08	1.32		
1989	24.41	20.88	7.17	150.08	3.01	25.60	
1990	25.86	20.33	8.83	226.17	1.79	17.47	
1991	10.66	41.95	1.77	156.06	3.38	22.17	
1992	28.83	4.40	10.60	75.09	1.11	9.88	
1993	46.96	2.92	6.65	69.60	5.42	20.13	
1994	48.55	10.25	2.21	101.60	3.16	14.16	
1995	37.84	32.19	7.00	62.62	1.72	30.04	3.00
1996	30.18	20.67	7.79	129.82	1.32	9.60	3.30
1997	39.31	22.28	5.48	78.79	3.15	36.24	3.60
1998	34.63	19.22	2.02	82.21	3.80	18.05	4.90
1999	25.11	13.45	2.80	50.05	3.25	17.84	3.20
2000	26.23	16.32	2.58	49.74	1.56	10.13	2.60
2001	16.00	12.49	2.10	55.80	5.52	13.83	2.90
2002				43.74		22.72	
Mean	35.83	33.51	11.02	95.95	2.69	19.13	3.36

Table B1.17. State survey indices (stratified mean number per tow or haul) for young-of-year winter flounder in Southern New England/Mid-Atlantic stock complex.

Year	MADMF Seine	RIDFW Seine	CTDEP	NYDEC	DEDFG
1975	0.30				
1976	0.32				
1977	0.60				
1978	0.34				
1979	0.49				
1980	0.40				
1981	0.32				
1982	0.37				
1983	0.23				
1984	0.32				
1985	0.34			0.75	
1986	0.32	29.00			0.17
1987	0.27	11.60		0.97	0.09
1988	0.18	8.90	15.50	0.69	0.02
1989	0.42	18.90	1.90	1.67	0.29
1990	0.33	22.10	3.10	2.71	0.63
1991	0.27	12.00	5.80	2.57	0.03
1992	0.29	33.20	13.70	11.49	0.27
1993	0.07	5.50	6.00	4.73	0.04
1994	0.15	2.60	16.60	2.44	0.31
1995	0.16	5.30	12.50	0.91	0.10
1996	0.22	2.80	19.20	3.80	0.04
1997	0.39	4.40	7.47	4.42	
1998	0.16	2.50	9.38	3.11	
1999	0.19	14.60	8.70	7.49	
2000	0.33	52.90	4.30	0.90	
2001	0.21	12.90	1.30	2.31	
2002	0.10				
Mean	0.27	14.95	8.96	3.19	0.18

Table B1.18. NEFSC Spring survey: stratified mean number per tow at age for winter flounder in the Southern New England/Mid-Atlantic stock complex (strata set: offshore 1-12, 5, 69-76; inshore 1-29, 45-56).

	Age									
Year	1	2	3	4	5	6	7	8	9+	Total
1980	2.19	8.21	4.15	0.51	0.15	0.04				15.25
1981	2.00	8.08	6.89	0.95	0.26	0.02	0.03			18.23
1982	1.16	3.20	1.56	0.74	0.21	0.09	0.02	0.01		6.99
1983	0.58	0.97	2.14	1.23	0.81	0.37	0.08	0.08		6.26
1984	0.22	1.36	2.18	0.85	0.46	0.29	0.07	0.06	0.03	5.52
1985	0.41	1.21	2.16	0.72	0.51	0.20	0.14	0.01		5.36
1986	0.10	0.49	1.16	0.31	0.15	0.05	0.01			2.27
1987	0.14	0.54	0.70	0.28	0.06	0.02		0.01	0.01	1.76
1988	0.09	0.48	0.99	0.37	0.16	0.02	0.02			2.13
1989	0.14	0.95	0.90	0.34	0.11	0.02	0.02	0.01		2.49
1990	0.23	0.49	0.89	0.28	0.05	0.04	0.01			1.99
1991	0.14	0.60	1.22	0.41	0.05	0.02	0.02	0.01		2.47
1992	0.14	0.39	0.62	0.36	0.05	0.02				1.58
1993	0.14	0.35	0.26	0.12	0.07	0.01	0.01			0.96
1994	0.16	0.74	0.43	0.11	0.04	0.02	0.01			1.51
1995	0.22	0.75	0.87	0.22	0.03		0.01			2.10
1996	0.07	0.54	0.66	0.17	0.06	0.01	0.01			1.52
1997	0.13	0.50	0.56	0.18	0.06	0.01				1.44
1998	0.33	1.21	0.72	0.37	0.13	0.01				2.77
1999	0.41	1.89	1.35	0.36	0.11	0.04	0.01			4.17
2000	0.28	0.70	1.19	0.65	0.27	0.07	0.01			3.17
2001	0.17	0.26	0.47	0.44	0.20	0.02	0.01			1.57
2002	0.11	0.60	0.56	0.38	0.23	0.11	0.04		0.01	2.04
Mean	0.42	1.50	1.42	0.45	0.18	0.07	0.03	0.03	0.02	4.07

Table B1.19. NEFSC Fall survey: stratified mean number per tow at age for winter flounder in the Southern New England/Mid-Atlantic stock complex (strata set: offshore 1-12, 5, 69-76; inshore 1-29, 45-56).

	Age									
Year	0	1	2	3	4	5	6	7	8+	Total
1980	0.40	1.76	4.62	2.74	0.44	0.01	0.01			9.98
1981	0.01	2.06	5.05	2.30	0.31	0.06	0.08	0.03		9.90
1982	0.01	0.76	2.21	1.34	0.47	0.12	0.02			4.93
1983		1.63	3.82	2.06	0.62	0.35	0.11	0.07	0.10	8.76
1984		0.17	1.04	1.17	0.26	0.03	0.01			2.68
1985		0.16	1.18	0.99	0.30	0.09	0.01			2.73
1986		0.23	0.90	0.36	0.03	0.01		0.01		1.54
1987		0.03	0.64	0.36	0.12	0.02				1.17
1988		0.03	0.30	0.64	0.22	0.04	0.01	0.01		1.25
1989		0.28	0.83	0.26	0.05	0.01	0.01			1.44
1990		0.08	0.89	0.85	0.15	0.01				1.98
1991		0.07	1.02	0.73	0.12	0.01				1.95
1992		0.13	1.74	0.79	0.26	0.03	0.01			2.96
1993		0.43	0.52	0.35	0.08					1.38
1994		0.45	2.23	1.08	0.30	0.04	0.03			4.13
1995		0.58	0.93	0.63	0.09	0.01	0.01			2.25
1996		0.61	1.40	0.80	0.31	0.06	0.01			3.19
1997		1.48	3.58	2.20	0.55	0.08				7.89
1998		1.39	2.83	1.91	0.41	0.05	0.01			6.60
1999		0.43	0.95	1.46	0.54	0.18	0.04			3.60
2000		0.90	2.30	2.02	0.71	0.22	0.01	0.01		6.17
2001		0.49	1.79	1.61	0.63	0.30	0.02	0.04		4.88
2002										
Mean		0.64	1.85	1.21	0.32	0.08	0.03	0.03	0.10	4.26

Table B1.20. NEFSC Winter survey: stratified mean number per tow at age for winter flounder in the Southern New England/Mid-Atlantic stock complex (strata set: offshore 1-2, 5-6, 9-10,69, 73).

	Age								
Year	1	2	3	4	5	6	7	8+	Total
1992	0.73	0.86	1.09	0.73	0.24	0.02	0.02		3.68
1993	0.56	1.16	0.54	0.18	0.12	0.02	0.01		2.59
1994	0.36	1.16	1.76	0.25	0.28				3.80
1995	0.04	0.75	1.26	0.17					2.22
1996	1.01	0.87	1.55	0.32	0.02				3.78
1997	0.43	1.49	1.32	0.54	0.13				3.91
1998	0.42	3.52	1.95	0.96	0.32				7.17
1999	0.84	5.94	2.23	0.96	0.20	0.16			10.33
2000	0.23	2.82	2.12	0.24	0.16				5.57
2001	1.04	0.55	0.70	0.54	0.22	0.05			3.10
2002	0.08	1.34	0.74	0.15	0.21	0.06	0.21	0.11	2.90
Mean	0.52	1.86	1.39	0.46	0.19	0.06	0.08	0.11	4.46

Table B1.21. MADMF spring trawl survey mean number per tow at age for winter flounder in the Southern New England/Mid-Atlantic stock complex.

	Age									
Year	1	2	3	4	5	6	7	8	9+	Total
1978	9.93	9.73	15.74	9.33	3.15	1.09	1.33	0.51	0.81	51.62
1979	4.63	12.92	21.14	8.90	2.93	1.00	0.95	0.46	0.85	53.78
1980	1.63	8.21	14.50	9.13	3.01	0.96	0.79	0.28	0.43	38.94
1981	8.35	8.75	13.17	9.38	3.68	1.16	0.75	0.32	0.56	46.12
1982	3.22	11.13	12.36	8.62	2.61	1.05	0.67	0.15	0.42	40.23
1983	1.68	14.84	17.42	13.87	4.08	2.31	1.18	0.56	0.90	56.84
1984	1.17	9.34	11.62	10.06	3.32	1.22	0.48	0.01	0.14	37.36
1985	2.96	9.53	16.09	6.30	2.44	0.73	0.24	0.02	0.07	38.38
1986	3.23	6.81	19.13	5.64	0.82	0.12	0.18	0.16	0.18	36.27
1987	9.29	7.44	11.68	6.46	2.02	0.43	0.35	0.08	0.10	37.85
1988	3.21	7.22	14.45	2.41	0.34	0.08	0.17	0.00	0.03	27.91
1989	2.09	5.41	11.39	4.52	0.96	0.28	0.27	0.12	0.37	25.41
1990	4.22	10.66	7.60	2.90	0.32	0.05	0.10		0.01	25.86
1991	1.64	2.79	4.68	1.15	0.23	0.12	0.02		0.03	10.66
1992	7.93	7.55	6.68	4.16	1.64	0.59	0.07	0.08	0.13	28.83
1993	14.17	17.56	11.70	2.71	0.62	0.14	0.02	0.04		46.96
1994	11.48	16.12	14.65	4.66	0.61	0.58	0.37	0.05	0.03	48.55
1995	13.82	12.05	8.17	1.92	0.60	0.80	0.28	0.14	0.06	37.84
1996	4.81	9.73	7.61	2.84	1.99	1.45	0.84	0.29	0.62	30.18
1997	10.34	10.06	10.38	4.26	1.32	1.01	0.49	0.75	0.70	39.31
1998	8.17	12.59	6.92	3.51	1.46	1.22	0.41	0.31	0.04	34.63
1999	9.23	7.91	5.59	1.79	0.20	0.23	0.13	0.03		25.11
2000	6.62	8.94	6.95	1.69	1.05	0.48	0.22	0.25	0.03	26.23
2001	5.21	5.17	2.46	2.03	0.63	0.19	0.14	0.13	0.04	16.00
Mean	6.21	9.69	11.34	5.34	1.67	0.72	0.44	0.22	0.30	35.87

Table B1.22. CTDEP spring survey for winter flounder in the Southern New England/Mid Atlantic stock complex.

	Age													
Year	0	1	2	3	4	5	6	7	8	9	10	11	12	Total
1984	-	8.21	44.50	31.47	20.83	4.23	1.23	0.67	0.74	0.04	0.01	0.03	0.00	111.96
1985	-	4.10	28.28	32.57	14.13	2.33	0.83	0.45	0.19	0.11	0.04	0.02	0.00	83.05
1986	-	6.69	25.91	15.62	12.27	2.04	0.50	0.25	0.24	0.09	0.01	0.02	0.00	63.64
1987	-	7.32	44.69	14.56	5.05	6.55	1.29	0.11	0.24	0.11	0.00	0.00	0.00	79.92
1988	15.50	14.49	71.87	39.10	8.60	1.82	1.45	0.17	0.04	0.02	0.02	0.00	0.00	153.08
1989	1.90	13.57	78.42	41.23	10.85	2.84	0.98	0.13	0.09	0.06	0.01	0.00	0.00	150.08
1990	3.10	11.31	131.52	64.97	8.97	4.08	1.96	0.19	0.05	0.00	0.02	0.00	0.00	226.17
1991	5.80	8.66	66.88	60.41	9.31	4.05	0.80	0.13	0.01	0.00	0.00	0.01	0.00	156.06
1992	13.70	6.80	31.32	12.78	8.98	1.10	0.36	0.05	0.00	0.00	0.00	0.00	0.00	75.09
1993	6.00	19.11	19.87	15.46	4.81	3.24	0.79	0.15	0.12	0.04	0.01	0.00	0.00	69.60
1994	16.60	9.54	64.06	5.90	3.06	1.15	0.50	0.17	0.06	0.01	0.01	0.00	0.00	101.06
1995	12.50	14.35	23.69	9.77	1.36	0.63	0.20	0.08	0.02	0.02	0.00	0.00	0.00	62.62
1996	19.20	11.46	59.07	24.17	14.41	0.98	0.29	0.13	0.06	0.04	0.01	0.00	0.00	129.82
1997	7.47	12.53	25.53	19.41	9.45	3.76	0.51	0.07	0.03	0.01	0.01	0.01	0.00	78.79
1998	9.28	11.30	32.48	12.18	12.60	3.09	1.05	0.15	0.01	0.07	0.00	0.00	0.00	82.21
1999	8.70	6.53	12.42	11.29	6.09	3.21	1.13	0.61	0.04	0.01	0.02	0.00	0.00	50.05
2000	4.30	7.11	16.66	8.40	7.70	3.44	1.53	0.31	0.26	0.01	0.01	0.00	0.01	49.74
2001	1.30	8.37	19.65	10.87	8.06	5.46	1.26	0.70	0.04	0.09	0.00	0.00	0.00	55.80
2002														0.00
Mean	8.95	10.08	44.27	23.90	9.25	3.00	0.93	0.25	0.12	0.04	0.01	0.01	0.00	100.81

Table B1.23. RIDFW spring survey for winter flounder in the Southern New England-Mid Atlantic stock complex.

	Age							
Year	1	2	3	4	5	6	7+	Total
1981	13.55	32.2	32.99	6.07	1.85	0.79	0.48	87.93
1982	10.59	10.28	6.24	3.21	0.74	0.12	0.14	31.32
1983	16.75	18.51	11.63	7.61	1.9	0.84	0.25	57.49
1984	3.31	21.97	10.46	4.17	1.19	0.3	0.08	41.48
1985	3.77	13.42	14.19	2.44	0.81	0.07	0.04	34.74
1986	9.65	14.16	12.5	3.79	0.57	0.04	0.08	40.79
1987	12.44	20.56	17.09	4.24	0.91	0.14	0.09	55.47
1988	7.33	12.05	10.97	2.94	0.36	0	0.02	33.67
1989	6.67	6.32	5.55	1.58	0.32	0.1	0.03	20.57
1990	5.73	7.63	4.51	2.09	0.19	0.03	0.05	20.23
1991	12.48	14.67	11.29	2.14	0.48	0.22	0.02	41.30
1992	1.19	1.36	1.13	0.51	0.18	0.03	0	4.40
1993	2.35	0.26	0.18	0.05	0.01	0	0	2.85
1994	2.87	4.74	1.9	0.59	0.08	0.02	0.01	10.21
1995	8.33	9.53	11.22	2.03	0.43	0.45	0.2	32.19
1996	2.11	6.45	4.07	1.42	0.53	0.25	0.11	14.94
1997	4.47	7.79	7.42	1.69	0.45	0.25	0.18	22.25
1998	1.5	4.16	8.43	3.87	0.7	0.46	0.11	19.23
1999	1.61	4.07	5.45	1.84	0.16	0.16	0.13	13.42
2000	2.99	4.91	6.09	1.32	0.65	0.20	0.12	16.28
2001	2.11	4.23	2.89	2.53	0.57	0.04	0.08	12.45
Mean	6.28	10.44	8.87	2.67	0.62	0.21	0.11	29.20

Table B1.24. NJDFW Ocean survey (April) for winter flounder in the Southern New England/Mid-Atlantic stock complex. Lengths for 2002 aged with the 2001 age-length key.

	Age							
Year	1	2	3	4	5	6	7+	Total
1993	5.1	6.5	2.5	2.4	1.7	0.4	0.57	19.17
1994	3.7	4.2	3.9	1.4	0.4	0.3	0.16	14.06
1995	8	10.1	8.6	2.4	0.9	0.3	0.11	30.41
1996	0.6	2.9	2.6	1.9	0.9	0.3	0.2	9.40
1997	16.6	5.4	6.1	6	1.5	0.3	0.12	36.02
1998	4.5	3.9	4.8	3.3	1.2	0.4	0.1	18.20
1999	2.40	2.20	5.90	3.10	2.90	0.70	0.59	17.79
2000	0.70	0.30	2.10	3.30	2.00	0.90	0.80	10.10
2001	3.90	0.60	1.30	2.70	3.80	0.70	0.83	13.83
2002	7.56	3.67	3.30	3.00	3.67	0.76	0.77	22.73
Mean	5.06	4.01	4.20	2.94	1.70	0.48	0.39	18.78

Table B1.25. NJDFW Rivers survey (March-May) for winter flounder in the Southern New England/Mid Atlantic stock complex.

	Age							
Year	1	2	3	4	5	6	7+	Total
1995	0.6	0.3	1.4	0.4	0.1	0.01	0.01	2.82
1996	0.3	0.9	0.7	0.7	0.2	0.1	0.15	3.05
1997	1.1	0.4	0.9	0.4	0.4	0.1	0.05	3.35
1998	1.9	0.9	0.4	0.7	0.2	0.1	0.05	4.25
1999	0.20	0.50	1.40	0.50	0.40	0.10	0.13	3.23
2000	0.40	0.20	0.40	0.80	0.20	0.10	0.01	2.11
2001	1.40	0.30	0.20	0.40	0.40	0.10	0.04	2.84
Mean	0.84	0.50	0.77	0.56	0.27	0.09	0.06	3.09

Table B1.26. Virtual Population Analysis for SNE/MA winter flounder, 1981-2001.

```
Fisheries Assessment Toolbox  SNE/MA Winter Flounder  Run Number W36_2  9/25/2002   1:11:40 PM
FACT Version 1.5.0
SNE/MA Winter Flounder  1981 - 2002
Input Parameters and Options Selected
--------------------------------------
Natural mortality is a matrix below
Oldest age (not in the plus group) is  6
For all years prior to the terminal year ( 21 ), backcalculated
stock sizes for the following ages used to estimate
total mortality (Z) for age  6 : 4 5 6
This method for estimating F on the oldest age is generally used when a
flat-topped partial recruitment curve is thought to be characteristic of the stock.
 Stock size of the  7 + group is then calculated using
the following method:  CATCH EQUATION
 Partial recruitment estimate for  2002
 1             0.01
 2             0.2
 3             0.6
 4             1
 5             1
 6             1

 The Indices that will be used in this run are:
 1            NEC_S1
 2            NEC_S2
 3            NEC_S3
 4            NEC_S4
 5            NEC_S5
 6            NEC_S6
 7            NEC_S7
 8            NEC_F2
 9            NEC_F3
 10           NEC_F4
 11           NEC_W1
 12           NEC_W2
 13           NEC_W3
 14           NEC_W4
 15           NEC_W5
 16           MA_S2
 17           MA_S3
 18           MA_S4
 19           MA_S5
 20           RI_S1
 21           RI_S2
 22           RI_S3
 23           RI_S4
 24           CT_S1
 25           CT_S2
 26           CT_S3
 27           CT_S4
 28           CT_S5
 29           CT_S6
 30           CT_S7
 31           MA_YOY1
 32           CT_YOY1
 33           NY_PB1.1
 34           NJ_O3
 35           NJ_O4
 36           NJ_O5
 37           NJ_O6
 38           NJ_O7
 39           NJ_R1
 40           NJ_R2
 41           NJ_R3
 42           NJ_R4
 43           NJ_R5
```

Table B1.26 continued.

STOCK NUMBERS (Jan 1) in thousands

	1981	1982	1983	1984	1985	1986	1987
1	62859	52020	56503	35617	34615	32795	25973
2	52566	50232	42060	45703	28708	28090	26656
3	27768	30289	28226	27884	26945	16839	17273
4	7146	9748	13560	11068	10077	10446	5551
5	1468	2600	4606	5559	4603	2773	4738
6	363	600	1577	2148	2944	1096	1317
7	218	564	1219	1949	2228	876	730
1+	152388	146054	147751	129927	110120	92914	82238

	1988	1989	1990	1991	1992	1993	1994
1	26726	23113	17366	11355	7808	8844	8315
2	21199	21806	18504	14185	9249	6370	6993
3	17057	13790	13106	13242	8875	6212	3350
4	6000	5458	4798	5053	4381	3233	2074
5	1748	1325	1299	1276	1111	1251	1084
6	1433	339	317	369	268	300	495
7	433	312	223	165	86	218	300
1+	74596	66142	55613	45645	31778	26429	22611

	1995	1996	1997	1998	1999	2000	2001
1	12647	17632	21154	18793	13372	12710	19011
2	6753	10333	14407	16971	15341	10889	10343
3	4733	5352	7658	9864	11966	10076	7610
4	1700	2190	3070	3284	4761	6170	5082
5	1053	588	791	875	1063	2320	2830
6	606	487	171	159	254	456	1120
7	433	312	73	228	83	168	512
1+	27925	36893	47324	50174	46840	42788	46509

	2002
1	5665
2	15553
3	6671
4	2912
5	2179
6	1602
7	1057
1+	35639

Table B1.26 continued.

FISHING MORTALITY

	1981	1982	1983	1984	1985	1986	1987
1	0.02	0.01	0.01	0.02	0.01	0.01	0.00
2	0.35	0.38	0.21	0.33	0.33	0.29	0.25
3	0.85	0.60	0.74	0.82	0.75	0.91	0.86
4	0.81	0.55	0.69	0.68	1.09	0.59	0.96
5	0.69	0.30	0.56	0.44	1.23	0.54	1.00
6	0.81	0.50	0.67	0.60	1.18	0.59	1.00
7	0.81	0.50	0.67	0.60	1.18	0.59	1.00

	1988	1989	1990	1991	1992	1993	1994
1	0.00	0.02	0.00	0.01	0.00	0.03	0.01
2	0.23	0.31	0.13	0.27	0.20	0.44	0.19
3	0.94	0.86	0.75	0.91	0.81	0.90	0.48
4	1.31	1.24	1.12	1.31	1.05	0.89	0.48
5	1.44	1.23	1.06	1.36	1.11	0.73	0.38
6	1.41	1.29	1.15	1.39	1.10	0.86	0.45
7	1.41	1.29	1.15	1.39	1.10	0.86	0.45

	1995	1996	1997	1998	1999	2000	2001
1	0.00	0.00	0.02	0.00	0.01	0.01	0.00
2	0.03	0.10	0.18	0.15	0.22	0.16	0.24
3	0.57	0.36	0.65	0.53	0.46	0.48	0.76
4	0.86	0.82	1.06	0.93	0.52	0.58	0.65
5	0.57	1.04	1.40	1.04	0.65	0.53	0.37
6	0.76	0.88	1.16	0.98	0.55	0.57	0.23
7	0.76	0.88	1.16	0.98	0.55	0.57	0.23

Average F for 4,5

	1981	1982	1983	1984	1985	1986	1987
4,5	0.75	0.42	0.63	0.56	1.16	0.57	0.98

	1988	1989	1990	1991	1992	1993	1994
4,5	1.38	1.23	1.09	1.34	1.08	0.81	0.43

	1995	1996	1997	1998	1999	2000	2001
4,5	0.72	0.93	1.23	0.98	0.58	0.55	0.51

Biomass Weighted F

1981	1982	1983	1984	1985	1986	1987
0.47	0.42	0.38	0.47	0.61	0.44	0.58

1988	1989	1990	1991	1992	1993	1994
0.67	0.56	0.48	0.68	0.64	0.60	0.28

1995	1996	1997	1998	1999	2000	2001
0.30	0.23	0.42	0.31	0.36	0.37	0.39

Table B1.26 continued.

BACK-CALCULATED PARTIAL RECRUITMENT

	1981	1982	1983	1984	1985	1986	1987
1	0.03	0.02	0.02	0.02	0.01	0.01	0.00
2	0.41	0.62	0.29	0.40	0.27	0.31	0.25
3	1.00	1.00	1.00	1.00	0.61	1.00	0.85
4	0.96	0.91	0.94	0.83	0.88	0.65	0.95
5	0.82	0.50	0.76	0.53	1.00	0.60	0.99
6	0.95	0.82	0.91	0.73	0.95	0.65	1.00
7	0.95	0.82	0.91	0.73	0.95	0.65	1.00

	1988	1989	1990	1991	1992	1993	1994
1	0.00	0.02	0.00	0.00	0.00	0.04	0.02
2	0.16	0.24	0.12	0.19	0.18	0.49	0.40
3	0.65	0.66	0.65	0.65	0.73	1.00	1.00
4	0.91	0.96	0.98	0.95	0.95	1.00	1.00
5	1.00	0.95	0.92	0.98	1.00	0.81	0.80
6	0.98	1.00	1.00	1.00	0.99	0.96	0.94
7	0.98	1.00	1.00	1.00	0.99	0.96	0.94

	1995	1996	1997	1998	1999	2000	2001
1	0.00	0.00	0.01	0.00	0.01	0.01	0.00
2	0.04	0.10	0.13	0.14	0.34	0.27	0.31
3	0.66	0.34	0.46	0.51	0.71	0.84	1.00
4	1.00	0.79	0.75	0.89	0.80	1.00	0.85
5	0.66	1.00	1.00	1.00	1.00	0.91	0.48
6	0.88	0.85	0.83	0.94	0.85	0.99	0.31
7	0.88	0.85	0.83	0.94	0.85	0.99	0.31

MEAN BIOMASS (using catch mean weights at age)

	1981	1982	1983	1984	1985	1986	1987
1	7320	4218	9928	4678	3468	3821	1081
2	11153	9965	8174	9159	6274	6496	6171
3	8228	9117	6470	6403	6338	4048	4094
4	3606	4760	4630	3994	2728	3465	1813
5	1033	2144	2494	2851	1276	1340	1313
6	284	541	1102	1350	747	666	432
7	165	745	1264	1720	742	582	362
1+	31790	31490	34061	30156	21572	20418	15266

	1988	1989	1990	1991	1992	1993	1994
1	943	2445	1289	955	558	1332	1171
2	4807	4409	4639	3590	2190	1570	2009
3	3573	3219	3329	3364	2386	1735	1090
4	1573	1472	1396	1390	1496	1164	899
5	544	465	497	390	497	562	609
6	369	126	140	152	142	162	252
7	178	174	121	97	67	157	180
1+	11987	12310	11412	9937	7335	6682	6210

	1995	1996	1997	1998	1999	2000	2001
1	1912	3081	1766	3436	955	1149	1757
2	1946	3634	4425	4755	3933	3624	3508
3	1482	2082	2635	3068	3806	3532	2475
4	605	782	1152	1142	1908	2627	2180
5	524	238	318	334	561	1216	1718
6	298	246	100	84	170	290	957
7	218	163	60	166	77	134	523
1+	6984	10225	10456	12985	11410	12571	13118

Table B1.26 continued.

SSB AT THE START OF THE SPAWNING SEASON -MALES AND FEMALES (MT) (using SSB mean weights)

	1981	1982	1983	1984	1985	1986	1987
1	00	00	00	00	00	00	00
2	00	00	00	00	00	00	00
3	4739	4757	3771	3557	3615	2395	2482
4	3893	4592	5119	3855	3106	3541	1958
5	1205	2157	2899	2927	1838	1374	1779
6	341	603	1387	1540	1272	634	644
7	214	900	1590	2129	1037	718	489
1+	10393	13009	14766	14008	10869	8662	7353

	1988	1989	1990	1991	1992	1993	1994
1	00	00	00	00	00	00	00
2	00	00	00	00	00	00	00
3	2282	1923	1831	1980	1414	960	600
4	1863	1642	1556	1627	1626	1242	902
5	744	576	590	526	559	667	639
6	516	169	177	200	156	203	300
7	260	248	169	140	93	206	215
1+	5663	4559	4323	4474	3848	3278	2656

	1995	1996	1997	1998	1999	2000	2001
1	00	00	00	00	00	00	00
2	00	00	00	00	00	00	00
3	849	1028	1563	1817	2128	1756	2579
4	665	857	1311	1354	1990	2548	2103
5	589	293	389	452	563	1251	1692
6	376	301	113	107	170	296	715
7	279	214	84	224	73	169	553
1+	2759	2693	3459	3954	4923	6021	7643

Table B1.26 continued.

Fishing Mortality
Terminal Year

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
1997	0.75	0.42	0.63	0.56	1.16	0.57	0.98	1.37	1.23	1.08	1.31	1.02	0.71	0.34	0.50	0.47	0.37				
1998	0.75	0.42	0.63	0.56	1.16	0.57	0.98	1.38	1.23	1.09	1.33	1.05	0.76	0.38	0.60	0.65	0.54	0.32			
1999	0.75	0.42	0.63	0.56	1.16	0.57	0.98	1.38	1.23	1.09	1.33	1.07	0.79	0.41	0.65	0.76	0.77	0.38	0.36		
2000	0.75	0.42	0.63	0.56	1.16	0.57	0.98	1.38	1.23	1.09	1.34	1.08	0.81	0.42	0.71	0.89	1.10	0.74	0.39	0.59	
2001	0.75	0.42	0.63	0.56	1.16	0.57	0.98	1.38	1.23	1.09	1.34	1.08	0.81	0.43	0.72	0.93	1.23	0.98	0.58	0.55	0.51

Spawning Stock Biomass
Terminal Year

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
1997	10393	13009	14767	14009	10869	8663	7354	5666	4566	4343	4548	4038	3670	3273	3849	4826	7444				
1998	10393	13009	14766	14008	10869	8662	7354	5664	4562	4331	4505	3929	3445	2919	3220	3833	6041	7845			
1999	10393	13009	14766	14008	10869	8662	7354	5664	4561	4327	4488	3887	3355	2783	2969	3357	5233	6245	7280		
2000	10393	13009	14766	14008	10869	8662	7354	5663	4560	4323	4477	3856	3295	2681	2807	2781	3971	4866	5537	6897	
2001	10393	13009	14766	14008	10869	8662	7353	5663	4559	4323	4474	3848	3278	2656	2759	2693	3459	3954	4923	6021	7643

Population Numbers Age: 1
Terminal Year

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
1997	62859	52021	56504	35618	34618	32804	26001	26802	23425	17857	12277	8527	11725	13557	19744	19471	31502	21889			
1998	62859	52021	56504	35617	34617	32799	25985	26759	23243	17580	11733	8140	9992	12293	17810	18933	27084	31936	31205		
1999	62859	52021	56504	35617	34616	32797	25979	26743	23169	17482	11501	8036	9204	11387	16304	17649	22197	21574	17992	15496	
2000	62859	52020	56503	35617	34616	32795	25975	26729	23127	17384	11400	7826	8998	8449	15177	17596	20214	19212	13851	13085	15615
2001	62859	52020	56503	35617	34615	32795	25973	26726	23113	17366	11355	7808	8844	8315	12647	17632	21154	18793	13372	12710	19011

Table B1.27. VPA Bootstrap results: precision of estimates.

The number of bootstraps: 500

Bootstrap Output Variable: N hat

	NLLS ESTIMATE	BOOTSTRAP MEAN	BOOTSTRAP StdError	C.V. FOR NLLS SOLN
N 1	5665	5960	1905	0.34
N 2	15553	15895	3191	0.21
N 3	6671	6691	1176	0.18
N 4	2912	2938	648	0.22
N 5	2179	2208	504	0.23
N 6	1602	1631	369	0.23
N 7	726	736	159	0.22

	BIAS ESTIMATE	BIAS STD ERROR	PERCENT BIAS	NLLS EST CORRECTED FOR BIAS	C.V. FOR CORRECTED ESTIMATE	LOWER 80%CI	UPPER 80%CI
N 1	294	85	5.20	5371	0.354683	3746	8342
N 2	342	143	2.20	15211	0.209761	11856	19828
N 3	21	53	0.31	6650	0.176795	5097	8050
N 4	26	29	0.90	2886	0.224561	2114	3811
N 5	29	23	1.35	2149	0.234726	1611	2910
N 6	28	16	1.78	1574	0.234188	1158	2114
N 7	10	07	1.42	715	0.221624	534	937

Bootstrap Output Variable: F t

	NLLS ESTIMATE	BOOTSTRAP MEAN	BOOTSTRAP StdError	C.V. FOR NLLS SOLN
Age 1	0.0008	0.0008	0.0002	0.21
Age 2	0.2386	0.2440	0.0395	0.17
Age 3	0.7607	0.7755	0.1236	0.16
Age 4	0.6471	0.6599	0.1136	0.18
Age 5	0.3689	0.3773	0.0754	0.20
Age 6	0.2336	0.2397	0.0491	0.21
Age 7	0.2336	0.2397	0.0491	0.21

	BIAS ESTIMATE	BIAS STD ERROR	PERCENT BIAS	NLLS EST CORRECTED FOR BIAS	C.V. FOR CORRECTED ESTIMATE	LOWER 80%CI	UPPER 80%CI
Age 1	0.0000137	0.0000070	1.815	0.0007423	0.21	0.0006	0.0010
Age 2	0.0053697	0.0017644	2.250	0.2332777	0.17	0.2014	0.3004
Age 3	0.0147454	0.0055258	1.938	0.7459918	0.17	0.6241	0.9413
Age 4	0.0128214	0.0050816	1.981	0.6342562	0.18	0.5193	0.8015
Age 5	0.0084273	0.0033716	2.285	0.3604493	0.21	0.2905	0.4802
Age 6	0.0061558	0.0021967	2.635	0.2274158	0.22	0.1853	0.3045
Age 7	0.0061558	0.0021967	2.635	0.2274158	0.22	0.1853	0.3045

Bootstrap Output Variable: SSB spawn t

NLLS ESTIMATE	BOOTSTRAP MEAN	BOOTSTRAP StdError	C.V. FOR NLLS SOLN
7642.6469	7705.3234	658.0444	0.09

BIAS ESTIMATE	BIAS STD ERROR	PERCENT BIAS	NLLS EST CORRECTED FOR BIAS	C.V. FOR CORRECTED ESTIMATE	LOWER 80%CI	UPPER 80%CI
62.68	29.43	0.82	7579.97	0.09	6777.3392	8444.6451

Table B1.28. Input parameters and stochastic projection results for winter flounder in the Southern New England/Mid-Atlantic stock complex. Starting stock sizes for ages 1 and older on January 1, 2002 are as estimated by SARC 36 VPA, and are not adjusted for the retrospective pattern. Age-1 recruitment levels in 2003 and later years are estimated from a parametric stock-recruitment relationship estimated in NEFSC (2002). Fishing mortality was apportioned among landings and discard based on the proportion landed at age during 1998-2000. Mean weights at age (kg; spawning stock, mean stock biomass, landings, and discards) are weighted (by fishery) geometric means of 1998-2000 values. Proportion of F, M before spawning = 0.20 (spawning peak on 1 March).

Age	Stock Size on 1 Jan 2002 (000s)	Fishing Mortality Pattern	Proportion Landed	Proportion Mature	Mean Weights Spawning Stock	Mean Weights Landings	Mean Weights Discards
1	5688	0.02	0.02	0	0.07	0.325	0.116
2	15592	0.27	0.7	0	0.196	0.383	0.242
3	6712	0.75	0.91	0.53	0.387	0.465	0.317
4	2908	1	0.97	0.95	0.52	0.59	0.417
5	2170	1	0.97	1	0.637	0.725	0.868
6	1612	1	0.97	1	0.793	0.916	0.853
7+	1064	1	0.97	1	1.144	1.125	1.402

F2002 is assumed 0.85*F2001 (15% decrease in F from 2001 to 2002); F during 2003-2013 as indicated; Forecast Medians (50% probability level)

2002				2003 '000 Metric tons				2013				
F	Land	Disc	SSB	F	Land	Disc	SSB	F	Land	Disc	SSB	P (%) SSB > 30.1 kmt
0.43	3.0	0.2	5.9	Fsq=0.43	3.3	0.1	7.0	Fsq=0.43	8.0	0.5	16.4	0%
				Fmsy=0.32	2.6	0.2	7.2	Fmsy=0.32	8.3	0.5	23.3	6%
				Freb=0.24	2.0	0.1	7.3	Freb=0.24	8.1	0.4	30.1	50%