

Table B1. Landings (mt) of scup from Maine through North Carolina. Landings include revised Massachusetts landings for 1986-1997.

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Year	Commercial	Recreational	Total
1979	8,585	1,198	9,783
1980	8,424	3,109	11,533
1981	9,856	2,636	12,492
1982	8,704	2,361	11,065
1983	7,794	2,836	10,630
1984	7,769	1,096	8,865
1985	6,727	2,764	9,491
1986	7,176	5,264	12,440
1987	6,276	2,806	9,082
1988	5,943	1,936	7,879
1989	3,984	2,521	6,505
1990	4,571	1,878	6,449
1991	7,081	3,668	10,749
1992	6,259	2,001	8,260
1993	4,726	1,450	6,176
1994	4,392	1,192	5,584
1995	3,073	596	3,669
1996	2,945	1,016	3,961
1997	2,188	543	2,731
1998	1,896	395	2,291
1999	1,505	855	2,360
2000	1,207	2,365	3,572
2001	1,729	1,933	3,662
mean	5,340	2,018	7,358

Table B2. Commercial landings (mt) of scup by state. One mt was landed in DE in 1995, included with MD 1995 total. Landings include revised Massachusetts landings for 1986-1997.

Year	ME	MA	RI	CT	NY	NJ	MD	VA	NC	Total
1979		782	3,123	92	1,422	2,159	21	397	589	8,585
1980	1	706	2,934	17	1,294	2,310	32	531	599	8,424
1981		523	2,959	44	1,595	2,990	9	1,054	682	9,856
1982		545	3,203	25	1,473	1,746	2	1,042	668	8,704
1983		672	2,583	49	1,103	2,536	13	536	302	7,794
1984		540	2,919	32	904	2,217	6	673	478	7,769
1985		387	3,583	41	861	1,493	17	74	271	6,727
1986		875	2,987	67	893	1,895	14	273	172	7,176
1987	5	735	2,162	301	911	1,817		232	113	6,276
1988	9	536	2,832	359	687	1,334	1	127	58	5,943
1989	32	579	1,401	89	603	1,219	1	45	15	3,984
1990	4	696	1,786	165	755	1,005	4	75	81	4,571
1991	16	553	2,902	287	1,223	1,960	15	56	69	7,081
1992		655	2,676	193	1,043	1,475	17	73	127	6,259
1993		556	1,332	148	729	1,822	10	76	53	4,726
1994		354	1,514	142	688	1,456	7	92	139	4,392
1995		310	1,045	90	511	1,084	2	20	11	3,073
1996		436	773	99	377	1,141	20	72	27	2,945
1997		676	486	50	376	596	1	2	1	2,188
1998		435	361	44	282	758	5	4	7	1,896
1999		300	581	44	206	361		13		1,505
2000		161	461	65	287	232		1		1,207
2001		149	734	45	297	479	1	24		1,729
mean	11	529	1,971	108	805	1,482	10	239	223	5,340

Table B3. Commercial landings (mt) of scup by major gear types. All North Carolina landings in 1990-2001 are assumed to be obtained by otter trawls. Mid-water paired trawl landings are combined with other gears during 1994 and later. Landings include revised Massachusetts landings for 1986-1997.

Year	Otter trawl	Paired trawl	Floating trap	Pound net	Pots and traps	Hand lines	Other gear	Total mt
1979	6,387	146	1,305	429	26	215	77	8,585
1980	6,192	160	1,559	194	8	303	8	8,424
1981	7,836	79	1,291	246	49	306	49	9,856
1982	6,563	104	1,514	244	9	226	44	8,704
1983	5,861	398	850	390	8	265	22	7,794
1984	5,617	272	1,266	295	8	287	24	7,769
1985	4,856	417	1,022	229	5	182	16	6,727
1986	5,163	540	629	332	9	493	10	7,176
1987	4,607	237	590	193	213	423	13	6,276
1988	4,142	166	1,052	53	44	396	90	5,943
1989	3,174	89	193	74	104	334	16	3,984
1990	3,205	200	505	60	239	340	22	4,571
1991	5,217	152	988	40	258	395	31	7,081
1992	4,371	94	934	67	303	450	40	6,259
1993	3,865	46	166	25	202	402	20	4,726
1994	3,416		331	79	76	340	150	4,392
1995	2,204		331	42	57	215	224	3,073
1996	2,196		229	8	120	374	18	2,945
1997	1,491		86	12	104	489	6	2,188
1998	1,379		11	4	98	390	14	1,896
1999	1,005		140	30	77	184	69	1,505
2000	773		56		78	205	95	1,207
2001	1,088		229	65	52	215	80	1,729
mean	3,939	207	664	141	93	323	49	5,340

Table B4. Summary of the sampling intensity for scup in the NER (ME-VA) commercial and coastal recreational fisheries.

Year	NER Commercial fishery				Coastal Recreational fishery		
	No. of samples	No. of lengths	NER Landings (mt)	Sampling intensity (mt/100 lengths)	No. of lengths	Estimated landings (A + B1) (mt)	Sampling intensity (mt/100 lengths)
1979	10	1,250	7,996	640	322	1,198	372
1980	26	3,478	7,825	225	1,263	3,109	246
1981	16	2,005	9,174	458	642	2,068	322
1982	81	9,896	8,036	81	1,057	3,100	293
1983	72	7,860	7,492	95	1,384	3,432	248
1984	60	6,303	7,291	116	943	1,434	152
1985	31	3,058	6,456	211	741	3,282	443
1986	54	5,467	7,004	128	2,580	5,908	229
1987	61	6,491	6,163	95	777	2,980	384
1988	85	8,691	5,885	68	2,156	2,414	112
1989	46	4,806	3,969	83	4,111	3,248	79
1990	46	4,736	4,490	95	2,698	2,007	74
1991	31	3,150	7,012	223	4,230	3,634	86
1992	33	3,260	6,163	189	4,419	2,110	48
1993	23	2,287	4,673	204	2,206	1,341	61
1994	22	2,163	4,253	197	1,374	1,188	86
1995	22	2,487	3,062	123	822	595	72
1996	61	6,544	2,918	45	526	1,016	193
1997	37	3,732	2,187	59	399	543	136
1998	41	4,022	1,889	47	286	395	138
1999	56	6,040	1,505	25	265	855	323
2000	22	2,245	1,207	54	524	2,365	451
2001	40	3,934	1,729	44	1,038	1,933	186

Table B5. Summary of sampling for scup in the Northeast Region sea sampling program.

OT= number of trips sampled in which otter trawl gear was used. H1 = first half year; H2 = second half year. SS discard reflects the estimate of discard based on applying ratios of discards to landings by trip, stratified by landings level (< 300 kg per trip, = > 300 kg per trip) to reported weighout landings. Estimates of tonnage reflecting potential discard in the entire fishery are from the method used in the SARC 27 assessment. (Eleven length measurements from scallop dredges were not used in 1995.)

Year	Trips		Lengths			SS Discard (mt)	Intensity (mt/100 lengths)
	All	OT	H1	H2	Total		
1989	63	61	4,449	2,910	7,359	2,173	30
1990	52	52	2,582	781	3,363	3,877	115
1991	104	91	1,237	1,780	3,017	3,535	117
1992	106	53	1,158	0	1,158	5,749	496
1993	64	29	275	154	429	1,434	334
1994	7	7	99	119	218	773	355
1995	20	18	162	383	556	2,046	368
1996	32	27	1,093	435	1,528	1,522	100
1997	58	45	750	1	751		
1998	41	33	618	64	682		
1999	40	35	586	89	675		
2000	72	62	3,981	762	4,743		
2001	67	67	1,473	401	1,874		

Table B6. GMDL . Summary NEFSC Domestic Sea Sampling program data for scup during 1997-2001. Geometric mean discards to landings ratios (retransformed, mean ln-transformed D/L per trip) are stratified by half-year period (HY1, HY2) and trip landings level (< 300 kg, => 300 kg). N is number of sea sample trips with both scup landings and discard, which are used to calculate the per trip discard to landings ratios. Corresponding dealer landings are from the NEFSC database.

1997		Trips <300 kg			Trips =>300 kg				
Period	GM D/L	N	Dealer Landings (mt)	Estimated Discard (mt)	GM D/L	N	Dealer Landings (mt)	Estimated Discard (mt)	
HY 1	0.8957	17	258	231	0.8221	4	1,244	1,023	
HY 2	0.8957	0	279	250	0.8221	0	413	340	
Total			537	481				1,657	1,362

  

1998		Trips <300 kg			Trips =>300 kg				
Period	GM D/L	N	Dealer Landings (mt)	Estimated Discard (mt)	GM D/L	N	Dealer Landings (mt)	Estimated Discard (mt)	
HY 1	2.401	7	196	471	121.71	1	920	111,973	
HY 2	3.126	10	281	878	121.71	0	496	60,368	
Total			477	1,349				1,416	172,341

  

1999		Trips <300 kg			Trips =>300 kg				
Period	GM D/L	N	Dealer Landings (mt)	Estimated Discard (mt)	GM D/L	N	Dealer Landings (mt)	Estimated Discard (mt)	
HY 1	1.742	6	245	427	3.766	2	785	2,956	
HY 2	1.742	0	178	310	3.766	0	299	1,126	
Total			423	737				1,084	4,082

Table B6. GMDL continued .

2000		Trips <300 kg			Trips =>300 kg			
Period	GM D/L	N	Dealer Landings (mt)	Estimated Discard (mt)	GM D/L	N	Dealer Landings (mt)	Estimated Discard (mt)
HY 1	4.5818	13	196	898	0.6018	2	655	394
HY 2	3.5001	1	292	1,022	0.6018	0	63	38
Total		14	488	1,920		2	718	432

  

2001		Trips <300 kg			Trips =>300 kg			
Period	GM D/L	N	Dealer Landings (mt)	Estimated Discard (mt)	GM D/L	N	Dealer Landings (mt)	Estimated Discard (mt)
HY 1	0.8916	10	180	160	0.9185	4	1,013	930
HY 2	0.4606	2	307	141	0.9185	0	290	266
Total		14	487	302		4	1,303	1,197

Table B7. AGDL . Summary NEFSC Domestic Sea Sampling program data for scup during 1997-2001. Aggregate discards to landings ratios (summed D/summed L for all trips in stratum) are stratified by half-year period (HY1, HY2) and trip landings level (< 300 kg, => 300 kg). N is number of sea sample trips in the stratum which are used to calculate the aggregate ratio. Corresponding dealer landings are from the NEFSC database.

1997		Trips <300 kg			Trips =>300 kg				
Period	AG D/L	N	Dealer Landings (mt)	Estimated Discard (mt)	AG D/L	N	Dealer Landings (mt)	Estimated Discard (mt)	
HY 1	6.45	29	258	1,664	0.92	4	1,244	1,144	
HY 2	6.45	0	279	1,800	0.92	0	413	380	
Total			537	3,464			1,657	1,524	

  

1998		Trips <300 kg			Trips =>300 kg				
Period	AG D/L	N	Dealer Landings (mt)	Estimated Discard (mt)	AG D/L	N	Dealer Landings (mt)	Estimated Discard (mt)	
HY 1	9.77	16	196	1,915	121.71	1	920	111,973	
HY 2	5.80	16	281	1,630	121.71	0	496	60,368	
Total			477	3,545			1,416	172,341	

  

1999		Trips <300 kg			Trips =>300 kg				
Period	AG D/L	N	Dealer Landings (mt)	Estimated Discard (mt)	AG D/L	N	Dealer Landings (mt)	Estimated Discard (mt)	
HY 1	20.59	14	245	5,045	3.77	2	785	2,959	
HY 2	20.59	0	178	3,665	3.77	0	299	1,127	
Total			423	8,710			1,084	4,087	



Table B7. AGDL continued .

2000		Trips <300 kg			Trips =>300 kg			
Period	AG D/L	N	Dealer Landings (mt)	Estimated Discard (mt)	AG D/L	N	Dealer Landings (mt)	Estimated Discard (mt)
HY 1	12.36	31	196	2,423	0.69	2	655	452
HY 2	26.13	29	292	7,630	0.69	0	63	43
Total			488	10,053			718	495

  

2001		Trips <300 kg			Trips =>300 kg			
Period	AG D/L	N	Dealer Landings (mt)	Estimated Discard (mt)	AG D/L	N	Dealer Landings (mt)	Estimated Discard (mt)
HY 1	4.79	37	180	862	1.44	4	1,013	1,459
HY 2	10.82	22	307	3,322	0.00	4	290	0
Total			487	4,184			1,303	1,459

Table B8. DELTA. Summary NEFSC Domestic Sea Sampling program data for scup during 1997-2001. Mean differences (kg) between landings and discard (D = landings - discard, per trip) are stratified by half-year period (HY1, HY2) and trip landings level (< 300 kg, => 300 kg). N is number of sea sample trips in the stratum which are used to calculate the mean difference in stratum, which is then applied to the landings of every trip in the NEFSC dealer database to calculate a discard for each trip (discard = landings - (D)).

1997		Trips <300 kg			Trips =>300 kg			
Period	D	N	Dealer Landings (mt)	Estimated Discard (mt)	D	N	Dealer Landings (mt)	Estimated Discard (mt)
HY 1	-49.4	29	258	624	167.7	4	1,244	1,118
HY 2	-18.6	6	279	477	167.7	0	413	355
Total			537	1,101			1,657	1,473

  

1998		Trips <300 kg			Trips =>300 kg			
Period	D	N	Dealer Landings (mt)	Estimated Discard (mt)	D	N	Dealer Landings (mt)	Estimated Discard (mt)
HY 1	-53.2	16	196	544	-72707	1	920	45,857
HY 2	-46.1	16	281	846	-72707	0	496	37,140
Total			477	1,390			1,416	82,997

  

1999		Trips <300 kg			Trips =>300 kg			
Period	D	N	Dealer Landings (mt)	Estimated Discard (mt)	D	N	Dealer Landings (mt)	Estimated Discard (mt)
HY 1	-97.1	14	245	978	-3271	2	785	2,660
HY 2	-11.9	19	178	242	-3271	0	299	1,494
Total			423	1,220			1,084	4,154

Table B8. DELTA continued .

2000								
		Trips <300 kg			Trips =>300 kg			
Period	D	N	Dealer Landings (mt)	Estimated Discard (mt)	D	N	Dealer Landings (mt)	Estimated Discard (mt)
HY 1	-194.6	31	196	1,143	1062	2	655	148
HY 2	-39.3	29	292	804	1062	0	63	44
Total			488	1,947			718	192

  

2001								
		Trips <300 kg			Trips =>300 kg			
Period	D	N	Dealer Landings (mt)	Estimated Discard (mt)	D	N	Dealer Landings (mt)	Estimated Discard (mt)
HY 1	-34.5	37	180	161	-1868.5	4	1,013	931
HY 2	-10.7	22	307	142	998	4	290	0
Total			487	303			1,303	931

Table B9. SUMMARY. A summary of landings, discards, and aggregate discards to landings ratio (D:L) from the three alternative methods of discard calculation.

Year	Landings (mt)	GMDL Discards (mt)	GMDL D:L ratio	AGDL Discards (mt)	AGDL D:L ratio	Delta Discards (mt)	Delta D:L ratio
1997	2,194	1,843	0.84	4,988	2.27	2,574	1.17
1998	1,893	173,690	91.75	175,886	92.91	84,387	44.58
1999	1,507	4,819	3.20	12,797	8.49	5,374	3.57
2000	1,206	2,352	1.95	10,548	8.75	2,139	1.77
2001	1,790	1,499	0.84	5,643	3.15	1,234	0.69

Table B10. Comp. Comparison of Sea Sampled (SS) and Vessel Trip Report (VTR) trawl gear geometric mean discard ratios for scup (Re-transformed mean of the natural log of discard to landed ratio on trips catching scup. In VTR, data was subset to include only trawl trips that reported some discard of any species). Values in bold were substituted for inadequate data in discard calculation (i.e., missing or unrepresentative SS trips; see report text).

Year	Reporting System	Trip Landings < 300 kg		Trip Landings => 300 kg	
		Half-year 1	Half-year 2	Half-year 1	Half-year 2
1994	SS	0.81	0.74	0.11	0.18
	VTR	0.11	0.10	0.05	0.03
1995	SS	1.62	1.77	<b>0.48</b>	<b>0.48</b>
	VTR	0.14	0.23	0.05	0.04
1996	SS	0.74	0.91	<b>0.48</b>	<b>0.48</b>
	VTR	0.44	0.23	0.89	0.05
1997	SS	0.90	<b>0.90</b>	0.82	<b>0.82</b>
	VTR	0.14	0.37	0.04	0.05
1998	SS	0.88	1.14	4.81	n/a
	VTR	0.28	0.64	0.11	0.05
1999	SS	0.55	n/a	1.33	n/a
	VTR	0.25	0.43	0.04	0.05
2000	SS	4.58	3.50	0.60	n/a
	VTR	1.19	0.86	0.04	n/a
2001	SS	0.89	0.46	0.92	n/a
	VTR	0.64	0.27	0.06	0.08

Table B11. Total catch (mt) of scup from Maine through North Carolina, 1960 – 2001.

Year	Commercial		DWF	Recreational		Total Catch
	Landings	Discards	Landings	Landings	Discards	
1960	22236	11198	0	3689	75	37199
1961	20944	10548	0	3642	74	35208
1962	20831	10491	0	3593	73	34988
1963	18884	9510	5863	3457	71	37785
1964	17204	8664	459	3274	67	29668
1965	15785	7950	2089	3200	65	29089
1966	11960	6023	823	2425	49	21280
1967	8748	4406	896	1841	38	15928
1968	6630	3339	2251	1443	29	13692
1969	5149	2593	485	1085	22	9334
1970	4493	2263	288	982	20	8046
1971	3974	2001	889	836	17	7717
1972	4203	2117	1647	780	16	8763
1973	5024	2530	1783	1095	22	10455
1974	7106	3579	958	1360	28	13031
1975	7623	3839	685	1375	28	13550
1976	7302	3677	87	1159	24	12249
1977	8330	4195	28	1370	28	13951
1978	8936	4500	3	1230	25	14695
1979	8585	4324	0	1198	24	14130
1980	8424	4242	16	3109	62	15854
1981	9856	4964	1	2636	53	17510
1982	8704	4383	0	2361	47	15496
1983	7794	3925	0	2836	57	14612
1984	7769	2158	0	1096	30	11053
1985	6727	4184	0	2764	54	13729
1986	7176	2005	0	5264	87	14532
1987	6276	2537	0	2806	38	11657
1988	5943	1657	0	1936	31	9567
1989	3984	2173	0	2521	39	8717
1990	4571	3877	0	1878	38	10364
1991	7081	3535	0	3668	78	14362
1992	6259	5749	0	2001	47	14056
1993	4726	1434	0	1450	28	7638
1994	4392	773	0	1192	37	6394
1995	3073	2046	0	596	33	5748
1996	2945	1522	0	1016	47	5530
1997	2188	1843	0	543	25	4599
1998	1896	3830	0	395	8	6129
1999	1505	4819	0	855	17	7196
2000	1207	2352	0	2365	50	5974
2001	1729	1499	0	1933	85	5246

Table B12. NEFSC spring and autumn trawl survey indices for scup. Strata set includes only offshore Strata 1-12, 23, 25, and 61-76 for consistency over entire time series. Strata set excludes inshore strata 1-61 that are included in the 1984 and later indices at age in later tables. **Note that Spring 2002 indices are preliminary.**

Year	Spring No./tow	Spring Kg/tow	Spring SSB kg/tow	Spring SSB 3-yr avg	Autumn No./tow	Autumn Kg/tow
1963					2.12	1.21
1964					118.70	2.23
1965					3.84	0.62
1966					2.00	0.41
1967					29.38	1.46
1968	59.21	2.25	0.94		14.35	0.54
1969	2.26	0.40	0.39	0.88	99.41	4.48
1970	78.50	3.01	1.30	1.09	10.34	0.22
1971	70.91	2.41	1.57	1.28	7.730	0.25
1972	49.80	2.30	0.98	1.21	40.56	2.34
1973	3.62	1.19	1.09	1.38	22.82	0.93
1974	30.28	3.24	2.06	1.92	9.94	1.01
1975	14.01	3.12	2.61	1.73	52.21	3.40
1976	4.09	0.63	0.53	2.50	161.14	7.35
1977	42.46	4.48	4.35	2.49	32.64	1.71
1978	39.85	3.49	2.59	2.77	12.17	1.32
1979	22.42	1.95	1.38	1.69	15.77	0.61
1980	9.31	1.31	1.09	1.12	11.05	0.92
1981	14.72	1.16	0.90	1.00	67.14	3.01
1982	7.88	1.16	1.02	0.65	25.47	1.17
1983	0.80	0.29	0.03	0.46	4.59	0.34
1984	8.52	0.51	0.33	0.24	24.03	1.22
1985	14.67	0.80	0.37	0.68	68.30	3.56
1986	11.74	1.30	1.33	0.98	46.19	1.66
1987	10.82	1.21	1.24	1.10	5.76	0.15
1988	25.41	1.26	0.73	0.66	5.75	0.09
1989	1.63	0.12	0.00	0.35	5.70	0.30
1990	1.17	0.39	0.31	0.26	16.53	0.83
1991	12.61	0.75	0.45	0.32	9.52	0.43
1992	6.79	0.40	0.21	0.32	16.19	1.12
1993	2.93	0.33	0.31	0.18	0.43	0.04
1994	1.54	0.09	0.03	0.15	3.59	0.11
1995	2.90	0.22	0.12	0.06	24.72	0.91
1996	0.53	0.03	0.02	0.08	4.46	0.23
1997	0.91	0.11	0.11	0.06	16.92	0.88
1998	40.04	0.87	0.05	0.08	25.35	0.69
1999	1.70	0.12	0.09	0.08	85.23	2.07
2000	6.71	0.33	0.11	0.25	99.33	4.79
2001	13.03	0.80	0.54	3.20	20.28	1.11
2002	167.93	13.46	8.94			

Table B13. NEFSC spring trawl survey stratified mean number of scup per tow at age. Strata set includes offshore strata 1-12, 23, 25, 61-76, and inshore strata 1-61. **Note that Spring 2002 indices are preliminary.**

Spring Year	0	1	2	3	4	5	6	7	8	9	10	11	Total	age 2+	age 3+
1984	4.95	1.55	0.18	0.10	0.02								6.88	1.85	0.30
1985	9.84	1.65	0.17	0.01									11.98	1.83	0.18
1986	0.84	8.06	0.19										9.47	8.25	0.19
1987	3.76	2.96	1.49	0.61	0.03	0.02	0.02	0.02	0.01			0.01	8.90	5.15	2.19
1988	13.66	6.90	0.14	0.02			0.02	0.05					20.98	7.13	0.23
1989	0.66	0.42	0.08	0.01									1.36	0.51	0.09
1990	0.14	0.24	0.25	0.15	0.08	0.11	0.03						1.01	0.86	0.62
1991	8.26	0.42	0.89	0.16									10.17	1.47	1.05
1992	4.60	0.71	0.06	0.04	0.05	0.10							5.46	0.96	0.25
1993	0.50	1.62	0.14	0.09	0.02								2.37	1.87	0.25
1994	1.07	0.08	0.03										1.24	0.11	0.03
1995	1.84	0.36	0.08	0.04									2.35	0.48	0.12
1996	0.35	0.04	0.02	0.01									0.42	0.07	0.03
1997	0.27	0.52	0.08										0.87	0.60	0.08
1998	32.15	0.08	0.01										32.24	0.09	0.01
1999	0.82	0.54	0.01										1.37	0.55	0.01
2000	4.78	0.58	0.06										5.42	0.64	0.06
2001	6.38	4.07	0.06		0.02								10.53	4.15	0.08
2002	97.91	12.78	21.47	2.64	0.25								135.05	37.14	24.36



Table B14. NEFSC autumn trawl survey stratified mean number of scup per tow at age. Strata set includes offshore strata 1-12, 23, 25, 61-76, and inshore strata 1-61.

Autumn Year	0	1	2	3	4	5	6	7	8	9	10	11	Total	age 2+	age 3+
1984	47.64	9.20	0.34	0.03	0.01		0.01						59.96	0.39	0.05
1985	61.22	11.53	1.10	0.26	0.06	0.05							74.71	1.47	0.37
1986	70.19	6.58	0.57		0.01								77.36	0.58	0.01
1987	49.93	29.85	0.46	0.01									80.45	0.47	0.01
1988	47.44	15.95	0.67	0.10									64.22	0.77	0.10
1989	176.37	25.92	0.66	0.03									202.99	0.69	0.03
1990	77.45	9.21	0.75	0.04									87.46	0.79	0.04
1991	151.62	12.51	0.07	0.02									164.24	0.09	0.02
1992	25.92	14.51	1.66	0.04	0.02								42.15	1.72	0.06
1993	46.78	9.76	0.32										56.86	0.32	0.00
1994	39.54	3.92	0.04	0.01									43.52	0.05	0.01
1995	33.04	2.61	0.08	0.01									35.74	0.09	0.01
1996	24.42	2.86	0.43	0.01									27.73	0.44	0.01
1997	46.91	0.61	0.02		0.01								47.66	0.03	0.01
1998	57.73	9.64	0.09	0.03	0.01								67.50	0.13	0.04
1999	96.06	9.77	1.37	0.07	0.01								107.28	1.45	0.08
2000	98.72	20.60	3.14	0.48	0.11	0.07							123.12	3.80	0.66
2001	91.84	10.32	1.82	0.12	0.04	0.01							104.15	1.99	0.17

Table B15. NEFSC Winter trawl survey indices of abundance for scup, offshore survey strata 1-12 and 61-76. The 1992, 1993, and 1996 lengths are aged with the corresponding annual spring survey age-length key. **Note that Winter 2002 indices are preliminary.**

Year	Mean number per tow	Mean kg per tow
1992	63.18	2.76
1993	25.71	2.73
1994	17.09	0.66
1995	67.01	2.18
1996	18.29	1.19
1997	13.90	0.32
1998	46.92	1.20
1999	15.04	0.71
2000	24.21	1.33
2001	55.49	1.58
2002	259.51	7.49

Winter Year	Age										Total	age 2+	age 3+
	0	1	2	3	4	5	6	7	8				
1992		57.61	4.75	0.19	0.09	0.10	0.45				63.18	5.57	0.82
1993		2.51	22.05	0.56	0.57	0.02					25.71	23.19	1.15
1994		16.31	0.73	0.02	0.02	0.01					17.09	0.78	0.05
1995		64.94	1.87	0.15	0.01	0.01	0.02	0.01			67.01	2.07	0.20
1996		12.95	5.31	0.03	0.01						18.29	5.34	0.04
1997		13.27	0.52	0.11							13.90	0.64	0.11
1998		45.62	0.75	0.22	0.21	0.08	0.03	0.01			46.92	1.30	0.55
1999		12.48	2.41	0.12	0.02	0.01					15.04	2.56	0.15
2000		20.28	3.21	0.68	0.03			0.01			24.21	3.93	0.72
2001		48.54	6.48	0.36	0.09	0.02					55.49	6.95	0.47
2002		248.54	7.66	2.96	0.33	0.01	0.01				259.51	10.97	3.31

Table B16. MADMF trawl surveys' mean number of scup per tow and total mean weight(kg) per tow for spring (survey regions 1-3) and fall (all survey regions).

Year	Spring		Fall	
	No./Tow	Kg/Tow	No./Tow	Kg/Tow
1978	88.20	31.11	1765.90	14.01
1979	74.48	17.64	1088.60	11.38
1980	191.91	42.05	1112.20	11.77
1981	292.37	17.40	911.20	13.51
1982	10.37	0.97	2012.70	8.61
1983	24.42	3.40	1536.60	12.22
1984	17.80	6.50	907.20	11.54
1985	65.85	3.33	605.70	11.41
1986	43.76	7.28	727.60	8.57
1987	6.01	1.36	530.40	7.29
1988	13.98	2.08	1325.90	13.37
1989	13.05	1.97	555.00	7.34
1990	141.74	21.21	1054.40	6.76
1991	28.62	6.04	1088.90	9.67
1992	14.26	2.47	2307.80	10.90
1993	18.41	4.08	957.40	9.94
1994	9.60	2.82	781.10	9.35
1995	48.30	2.72	481.70	3.88
1996	5.04	0.66	965.00	8.65
1997	3.21	0.71	874.10	6.88
1998	1.26	0.19	670.90	6.55
1999	11.26	1.87	1152.20	17.11
2000	266.94	15.49	821.56	10.97
2001	7.20	2.34	1143.78	9.39

Table B17. RIDFW spring and fall trawl survey mean number of scup per tow and mean weight (kg) of scup per tow.

Year	Spring		Fall	
	No./Tow	Kg/Tow	No./Tow	Kg/Tow
1981	12.49	0.40	196.22	2.54
1982	0.43	0.04	63.87	0.70
1983	3.59	0.32	173.63	2.75
1984	13.24	0.88	589.68	10.57
1985	8.30	0.41	74.27	1.51
1986	1.78	0.33	340.06	4.20
1987	0.04	0.01	314.20	4.73
1988	0.23	0.04	804.00	7.10
1989	0.17	0.04	326.86	6.62
1990	0.64	0.15	527.31	5.66
1991	2.93	0.57	655.69	16.62
1992	1.88	0.61	1105.51	9.10
1993	1.12	0.06	1246.35	8.90
1994	2.08	0.53	236.12	3.66
1995	4.33	0.53	423.02	5.03
1996	0.52	0.07	184.73	3.83
1997	1.93	0.15	597.90	6.04
1998	0.15	0.03	150.38	1.89
1999	0.38	0.07	832.22	12.39
2000	84.05	3.54	588.73	9.11
2001	29.68	5.08	1139.17	11.07

Table B18. CTDEP spring trawl survey mean number of scup per tow at age, total mean number per tow, and total mean weight (kg) per tow.

Year	Age														Total	Total	Age
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	No./Tow	Kg/Tow	2+
1984	0.49	1.31	0.59	0.30	0.08	0.00	0.00	0.00	0.00	0.03	0.02	0.00	0.00	0.00	2.80	0.64	2.31
1985	2.94	2.00	0.33	0.24	0.05	0.02	0.05	0.00	0.00	0.01	0.00	0.00	0.00	0.00	5.61	1.22	2.71
1986	4.44	1.65	0.99	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.40	0.78	2.79
1987	0.43	1.65	0.07	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.17	0.37	1.76
1988	1.18	0.30	0.51	0.05	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.11	0.32	0.88
1989	5.63	0.56	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.77	0.63	0.62
1990	2.56	2.06	0.21	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.25	0.61	2.30
1991	4.25	1.44	1.26	0.09	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.09	0.94	2.80
1992	0.39	1.21	0.09	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.75	0.48	1.36
1993	0.04	2.29	0.19	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.32	0.49	2.49
1994	0.81	2.03	0.93	0.10	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.88	0.58	3.09
1995	12.94	0.39	0.20	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.24	0.65	0.64
1996	5.20	2.48	0.07	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.73	2.56
1997	3.16	2.61	1.68	0.06	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.23	0.75	4.39
1998	10.07	0.58	0.12	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.25	0.75	0.76
1999	2.71	1.75	0.16	0.07	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.22	0.56	2.02
2000	124.51	17.18	4.24	0.20	0.06	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.46	4.56	21.71
2001	1.65	18.99	1.57	0.25	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.20	2.85	20.84

Table B19. CTDEP fall trawl survey mean number of scup per tow at age, total mean number per tow, and total mean weight (kg) per tow.

Year	Age											Total	Total	Age
	0	1	2	3	4	5	6	7	8	9	10	No./Tow	Kg/Tow	2+
1984	7.99	1.04	0.78	0.52	0.28	0.09	0.02	0.00	0.00	0.00	0.00	10.72	1.36	1.69
1985	25.01	4.71	0.40	0.59	0.19	0.04	0.03	0.00	0.00	0.00	0.00	30.97	2.50	1.26
1986	13.06	9.98	2.50	0.19	0.01	0.01	0.01	0.00	0.00	0.00	0.00	25.76	2.95	2.71
1987	12.47	4.17	1.25	0.58	0.06	0.01	0.01	0.00	0.00	0.00	0.00	18.54	1.79	1.91
1988	31.89	5.71	1.82	0.24	0.03	0.00	0.00	0.00	0.00	0.00	0.00	39.70	2.27	2.10
1989	40.88	22.60	1.51	0.08	0.01	0.00	0.00	0.00	0.00	0.00	0.00	65.09	3.65	1.61
1990	54.34	7.74	6.95	0.40	0.03	0.01	0.01	0.00	0.00	0.01	0.00	69.48	5.00	7.40
1991	291.58	17.03	1.76	1.04	0.15	0.01	0.00	0.00	0.00	0.00	0.00	311.57	8.30	2.95
1992	50.91	26.58	5.54	0.40	0.29	0.01	0.01	0.00	0.00	0.00	0.00	83.73	4.96	6.24
1993	74.06	1.83	1.02	0.12	0.01	0.01	0.00	0.00	0.00	0.00	0.00	77.06	3.72	1.16
1994	90.76	1.12	0.46	0.18	0.01	0.00	0.00	0.00	0.00	0.00	0.00	92.54	3.33	0.66
1995	32.46	26.52	0.14	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	59.14	4.63	0.15
1996	51.50	8.56	1.37	0.03	0.00	0.01	0.00	0.00	0.00	0.00	0.00	61.46	3.68	1.40
1997	31.79	8.68	0.63	0.17	0.01	0.00	0.00	0.00	0.00	0.00	0.00	41.28	2.49	0.81
1998	90.40	12.24	0.54	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	103.27	4.50	0.63
1999	498.18	30.93	8.35	0.19	0.02	0.01	0.00	0.00	0.00	0.00	0.00	537.68	22.72	8.57
2000	250.39	261.45	8.32	0.79	0.14	0.01	0.00	0.00	0.00	0.00	0.00	521.10	30.76	9.27
2001	140.51	16.90	18.42	1.61	0.19	0.03	0.00	0.00	0.00	0.00	0.00	177.64	11.28	20.24

Table B20. NJBMF trawl survey mean number of scup per tow and mean weight (kg) per tow.

Year	No./Tow	Kg/Tow
1988	475.82	14.62
1989	67.90	3.11
1990	67.39	4.12
1991	196.13	6.91
1992	224.11	7.56
1993	216.50	6.60
1994	80.15	3.18
1995	39.79	2.53
1996	30.33	0.95
1997	62.78	4.65
1998	209.50	5.72
1999	279.43	11.33
2000	206.94	6.78
2001	155.58	5.44

Table B21. VIMS age-0 scup index of abundance for Chesapeake Bay (geometric mean catch per tow, June-September).

Year	No./Tow	Lower CL	Upper CL	n
1988	2.07	1.24	3.21	92
1989	3.07	2.05	4.41	112
1990	4.92	3.14	7.45	112
1991	1.90	1.11	2.99	103
1992	0.65	0.41	0.93	104
1993	3.36	2.16	5.01	104
1994	0.90	0.53	1.35	104
1995	0.39	0.21	0.59	104
1996	0.54	0.29	0.83	104
1997	0.21	0.09	0.35	104
1998	0.50	0.28	0.76	79
1999	0.27	0.06	0.52	88
2000	0.13	0.02	0.25	107
2001	1.34	0.88	1.90	111



Table B22. NYDEC yearling (June-August) and young-of-the-year (August-September) \ scup indices (geometric mean catch per station).

Year	No./Tow	
	Yearling	YOY
1987	1.58	0.22
1988	0.80	0.50
1989	3.06	0.40
1990	0.37	1.97
1991	1.02	4.39
1992	0.66	3.76
1993	0.30	0.19
1994	0.18	1.77
1995	2.95	0.38
1996	0.41	0.26
1997	0.34	4.65
1998	0.37	10.42
1999	0.72	5.81
2000	5.58	61.66
2001	1.04	36.04

Table B23. Relative exploitation index for scup for 1981-2001. Landings are 1,000's of lbs. and SSB index values are kg/tow.

Year	Landings	Spring SSB (3-year average)	Relative Exploitation Index
1981	27,540	1.00	27.5
1982	24,394	0.65	37.5
1983	23,435	0.46	50.9
1984	19,544	0.24	81.4
1985	20,924	0.68	30.8
1986	27,425	0.98	28.0
1987	20,022	1.10	18.2
1988	17,370	0.66	26.3
1989	14,341	0.35	41.0
1990	14,218	0.26	54.7
1991	23,697	0.32	74.1
1992	18,210	0.32	56.9
1993	13,616	0.18	75.6
1994	12,311	0.15	82.1
1995	8,089	0.06	134.8
1996	8,732	0.08	109.2
1997	6,021	0.06	100.3
1998	5,051	0.08	63.1
1999	5,203	0.08	65.0
2000	7,875	0.25	31.5
2001	8,073	3.2	2.5

Table B24. NEFSC spring trawl survey stratified mean number of scup per tow at age. Strata set includes offshore strata 1-12, 23, 25, 61-76. **Note that Spring 2002 indices are preliminary.**

Year	Age											Total	
	1	2	3	4	5	6	7	8	9	10	11		
1977	6.62	32.08	3.54	0.16	0.04	0.01	0.01						42.46
1978	26.90	4.67	6.50	1.31	0.32	0.12	0.03						39.85
1979	15.63	4.04	0.88	1.28	0.37	0.06	0.13	0.02	0.01				22.42
1980	2.39	5.61	0.57	0.17	0.25	0.15	0.08	0.08	0.01				9.31
1981	10.78	2.16	1.15	0.17	0.14	0.05	0.15	0.12					14.72
1982	3.80	1.77	1.39	0.38	0.17	0.13	0.07	0.07	0.10				7.88
1983	0.70	0.03	0.06				0.01						0.80
1984	6.14	1.97	0.22	0.12	0.07								8.52
1985	12.11	2.32	0.20	0.04									14.67
1986	1.05	10.26	0.43										11.74
1987	4.57	3.60	1.81	0.74	0.04	0.02	0.03	0.01					10.82
1988	16.74	8.36	0.17	0.03	0.01	0.03	0.07						25.41
1989	0.79	0.74	0.09	0.01									1.63
1990	0.12	0.30	0.30	0.18	0.09	0.13	0.05						1.17
1991	10.61	0.70	1.11	0.19									12.61
1992	5.72	0.88	0.07	0.05	0.06	0.01							6.79
1993	0.61	2.02	0.17	0.11	0.02								2.93
1994	1.34	0.16	0.04										1.54
1995	2.29	0.44	0.11	0.05	0.01								2.90
1996	0.44	0.05	0.03	0.01									0.53
1997	0.17	0.64	0.10										0.91
1998	39.90	0.12	0.02										40.04
1999	1.03	0.67											1.70
2000	5.93	0.71	0.07										6.71
2001	7.90	5.03	0.08		0.02								13.03
2002	121.75	15.89	26.70	3.28	0.31								167.93