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Status of the Sea Scallop Resources off the Northeastern United States, 1986

by

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Introduction

The Atlantic sea scallop fishery off the northeastern coast of the United States (NAFO Subarea 5 and Statistical Area 6) is of major importance to both the United States and Canada. Total landings (USA and Canada) peaked at 26,700 mt (meats) in 1978 and declined to a 10-year low of 9,800 mt in 1984 (Table 1; Figure 1). Provisional landings in 1985 were 10,600 mt, an 8% increase from 1984, but still the second lowest catch level since 1975. Management of the USA and Canadian offshore fisheries (e.g. Georges Bank: Division 5Z) was initially attempted under ICNAF in 1972 via a minimum shell height (95 mm) and average meat count measure (40 meats per pound) but these were not implemented until 1976 when a 10%-tolerance for both measures was accepted by both countries. Subsequently, formalized fishery regulation has differed between the two nations. Canada has implemented management measures that include limited entry, vessel trip catch limits, average meat count controls, and, most recently (1986) an annual catch quota (4,300 mt for the Georges Bank and Scotian Shelf offshore scallop fisheries). Since May 1982, the USA fishery has been regulated by the Fishery Management Plan for Atlantic Sea Scallops developed by the New England Fishery Management Council. This Plan enacted average meat count/shell height controls. Although an amendment to the Plan was approved in October 1985 which replaced the average meat count measure with a minimum meat size standard, implementation of the amendment has been delayed. As such, the USA fishery continues to be regulated by a 35 count average meat count measure. The USA/Canada maritime boundary announced by the International Court of Justice in October 1984 resulted in a partitioning of the Georges Bank scallop resource between the two nations. At present, fishing activity by each country on Georges Bank is restricted to its own waters.

Landings

Georges Bank - Total international (USA and Canada) 1985 landings from Georges Bank were 6,800 mt, 35% higher than 1984, but less than half of the 1976-1982 average annual catch of 14,400 mt (Table 2). The 1985 USA catch (2,950 mt) was the lowest since 1976. Canadian landings in 1985 were 3,800 mt, nearly double the 1984 catch. As a result, Canadian landings comprised more than 50% of the Georges Bank total for the first time in six years. About 71% of the total 1985 Georges Bank catch was from the Northern Edge and Peak region of the Bank, although most of the USA landings (53%) were from the South Channel fishery (Tables 3 and 4). Declines in the 1985 landings occurred in two of the three principal fishery regions on the Bank: the South Channel (-5%) and the Southeast Part (-42%). As in 1978-1984, all of the 1985 Canadian landings on Georges Bank were taken from the Northern Edge and Peak.

Mid-Atlantic - Total 1985 landings (exclusively USA) from the Mid-Atlantic region (Statistical Area 6) were 3,300 mt, 14% less than in 1984 (Table 5). For the second consecutive year, more catch was taken by the USA fleet from the Mid-Atlantic region than from Georges Bank. Most (84%) of the

1985 Mid-Atlantic catch was taken from the New York Bight region (Statistical Region 6A; off Long Island and New Jersey) where landings were about the same in 1985 as in 1984 (Table 6). In the more southerly scallop regions (Statistical Regions 6B and 6C; Delmarva and Virginia-North Carolina), landings in 1985 markedly declined from 1984 (-44% for Delmarva; -90% for Virginia-North Carolina).

Gulf of Maine - Total 1985 Gulf of Maine (Division 5Y) scallop landings were 460 mt (USA: 421 mt; Canada: 39 mt), 41% less than in 1984. USA landings in 1985 were the lowest since 1978 (Table 7). As in 1984, most (78%) of the 1985 USA catch was from inshore territorial waters (≤3 miles) along the coast of Maine. Offshore landings in 1985 were 42% less than in 1984 (92 vs 159 mt) indicating a continued dependence on the inshore beds and a return to historical patterns of fishing. During 1970-1979, landings from territorial waters accounted for 84% of the total Gulf of Maine sea scallop catch.

USA Landings Patterns by Gear, Vessel Class Category and Month

USA fishing patterns in 1985 were similar to those observed in recent years. Landings by vessels using scallop dredges accounted for more than 98% of the total catch (Table 8). In the Georges Bank and Mid-Atlantic fisheries, large vessels (Class 4: 151-500 GRT) accounted for the bulk of the 1985 landings (72% and 62%, respectively). As in previous years, the 1985 Gulf of Maine fishery was dominated by small vessels (Class 2: 5-50 GRT) which accounted for 77% of the 1985 catch (Table 9). Seasonal catch patterns during 1985 in the Georges Bank and Gulf of Maine fisheries were nearly identical to those observed in 1984 (Table 10). Most (67%) of the Georges Bank catch was taken during April-September while, in the Gulf of Maine, most of the 1985 catch occurred during autumn and winter (Oct-Mar: 87%). In the Mid-Atlantic fishery, the bulk of the 1985 landings (73%) was harvested during April-September. The large percentage increase in spring-summer Mid-Atlantic landings between 1985 and 1984 (73% vs 60%) was due to a marked shift in fleet activity from Georges Bank to the Mid-Atlantic in April and May 1985.

Effort and Catch Per Effort

Total USA effort (days fished) in the Georges Bank and Mid-Atlantic fisheries during 1985 was only slightly less (-3%) than the record high level attained in 1984 (Table 11). Since 1982, effort on Georges Bank has been redirected in part to the Mid-Atlantic grounds. In both fisheries, however, Class 4 vessel effort increased during 1985; Mid-Atlantic Class 4 effort in 1985 reached an historical high. Effort in the Gulf of Maine fishery significantly declined in 1985, largely due to a sharp reduction in Class 2 fishing activity.

Commercial USA CPUE indices declined to record low levels in 1985 in both the Georges Bank and Mid-Atlantic fisheries (Table 12; Figure 2). Decreased catch rates were observed for all vessel classes in all fishery regions relative to 1984 (Tables 13 and 14). In almost all cases, the 1985 values were the lowest in the time series. This was also true for the Gulf of Maine fishery (Table 12).

Commercial Catch Composition

Meat count distributions derived from size frequency analyses of USA commercial shell samples (Tables 15-17) indicate that sample meat counts seldom exceeded 35 count from any fishery region during 1985. At face value, these results suggest that the USA fishery focused on harvesting large scallops. However, it is probable that the samples were biased to the extent that fishermen saved only the larger shells to avoid the appearance of fishing on small scallops. Also, it is possible to harvest considerable quantities of small scallops and still attain meat counts of 35 and lower, provided a few large scallops are "mixed" in the sample (Table 18). Examination of the number of shells in the 1985 samples which corresponded to 40 count and higher scallops revealed that between 15-20% (depending upon fishing region) of the scallops in the samples exceeded 40 count. In some samples, the percentage of small scallops (≥40 count) was higher than 50%. Assuming just a modest bias in the shell samples toward larger scallops implies that small scallops constituted a significant fraction of the 1985 USA landings.

Research Vessel Survey Data

Catch per tow indices from the 1985 NEFC Georges Bank - Mid-Atlantic sea scallop survey indicated a marked improvement in scallop abundance in the USA portion of Georges Bank and throughout the Mid-Atlantic region due to strong recruitment of the 1982 year class (Tables 19-20; Figures 3-4). On Georges Bank, the 1985 pre-recruit abundance indices (number per tow of scallops <70 mm shell height) for the South Channel and Southeast Part regions were among the highest in the survey time series, and were triple and double, respectively, the 1984 pre-recruit indices (Table 19). In half of the 12 sampling strata comprising the South Channel area, the 1985 pre-recruit abundance values were the highest in the 10-year survey series (Strata 46-48, 53, 55-56: Table 21). Survey results from the Northern Edge and Peak region show a significant increase in recruit-size scallops (≥70mm) over 1984 due to the exceptionally strong 1981 year class localized in this region (173 per tow in 1985 vs 49 per tow in 1984: Table 19). The highest densities of this cohort, however, are concentrated in Canadian waters (Strata 64 and 652: Table 21). Sea scallop size frequency distributions from the 1985 survey are depicted, by fishery area, in Figures 5-7.

In the Mid-Atlantic region, the 1985 survey indices for all areas were much higher than those obtained in 1984 (Table 20). Excellent recruitment of the 1982 year class is indicated by the extremely high pre-recruit values in the New York Bight and Delmarva regions (Table 20; Figure 4) and the 1985 survey size frequency distributions (Figures 8-9). In both regions, the 1982 cohort is widespread in distribution as shown by the number of strata in which record-high pre-recruit indices were observed (Table 21). Improved abundance of scallops was also noted in the 1985 survey results from Virginia-North Carolina (Table 20; Figure 10).

Resource Outlook

The prospects for recovery of the sea scallop resources on both Georges Bank and in the Mid-Atlantic are excellent due to the outstanding abundance of the 1982 year class. Scallops from this cohort, however, will not attain a 40 count size until late 1986 or early 1987. If this year class is not subjected to "mixing" or high fishing mortality in 1986, it will be capable of sustaining elevated fishery yields for at least 2-3 years (i.e., through 1989). Failure to protect and husband this cohort before moderate gains in yield per recruit and spawning potential can be achieved (i.e., during 1986 and 1987) will result in a significant loss in yield and a likely return to the depressed resource conditions characteristic of recent years.

Effort in the scallop fishery remains high and there is strong economic incentive to harvest the 1982 cohort due to its prevalence and abundance. Despite the fishing strike in New Bedford that curtailed scalloping activity during January 1986, the average catch rate by New Bedford vessels during January-April 1986 was about double that observed during January-April 1985. Compared with 1985, New Bedford scallop landings during the first four months of 1986 were up 20% even though 100 fewer vessel trips had been made. These observations, as well as informal reports from fishermen, suggest that the 1982 year class is already receiving considerable exploitation. Should this trend continue unabated, long-term yield from the growth potential of the 1982 cohort will be sacrificed.

Table 1. United States and Canadian sea scallop landings (metric tons, meats) from the Northwest Atlantic (Northwest Atlantic Fisheries Organization Subarea 5 and Statistical Area 6), 1887-1985.

Year	USA[1]	Year	USA	Canada[2]	Total
1887	112	1946	5,236		5,236
*1888	91	1947	6,647		6,647
1889	141	1948	7,546		7,546
1892	53	1949	8,299		8,299
1897	435	1950	9,063		9,063
1898	156	1951	8,503	91	8,594
*1899	24	1952	8,451	91	8,542
*1900	79	1953	10,713	136	10,849
1901	286	1954	7,997	91	8,088
1902	61	1955	10,036	136	10,172
*1903	62	1956	9,102	317	9,419
1904	216	1957	9,523	771	10,294
1905	200	1958	8,608	1,179	9,787
*1906	255	1959	11,178	2,378	13,556
*1907	236	1960	12,065	3,470	15,535
1908	834	1961	12,456	4,565	17,021
*1909	843	1962	11,174	5,715	16,889
*1910	919	1963	9,038	5,898	14,936
*1911	663	1964	7,704	5,922	13,626
*1912	842	1965	9,105	7,052	16,157
*1913	353	1966	7,237	7,669	14,906
*1914	386	1967	4,646	5,025	9,671
*1916	266	1968	5,473	5,243	10,716
1919	89	1969	3,362	4,320	7,682
1921	38	1970	2,613	4,097	6,710
1924	154	1971	2,593	3,908	6,501
1926	506	1972	2,655	4,177	6,832
1928	216	1973	2,401	4,223	6,624
1929	1,130	1974	2,721	6,137	8,858
1930	1,111	1975	4,421	7,414	11,835
1931	1,058	1976	8,721	9,780	18,501
1932	1,517	1977	11,104	13,091	24,195
1933	2,009	1978	14,483	12,189	26,672
1934	54	1979	14,256	9,207	23,463
1935	1,955	1980	12,566	5,239	17,805
1937	3,989	1981	11,742	8,018	19,760
1938	4,041	1982	9,044	4,330	13,374
1939	4,440	1983[3]	8,707	2,895	11,602
1940	3,467	1984[3]	7,739	2,042	9,781
#1941	3,622	1985[3]	6,742	3,851	10,593
1942	3,258				
1943	2,508				
1944	2,209				
1945	2,590				

[1]USA landings from 1887-1960 taken from Lyles (1969); USA landings from 1961-1975 taken from Fishery Statistics of the United States and from 1963-1982 from ICNAF and NAFO Statistical Bulletins; for 1964-1984, USA landings statistics were validated against New England Detailed Weighout Data, Northeast Fisheries Center, Woods Hole, Massachusetts.

[2]Canadian landings from 1951-1958 taken from ICNAF Statistical Bulletins and Caddy (1975); Canadian landings from 1953-1983 taken from Mohn et al. (1984, 1985) for Georges Bank and from ICNAF/NAFO Statistical Bulletins for Gulf of Maine and Mid-Atlantic landings; 1983 data from NAFO SCS Doc. 84/VI/22; 1984 data from NAFO SCS Doc. 85/25; 1985 data from DFO, Statistics Branch, Halifax.

[3]Provisional.

*Maine landings only - from Baird (1956).
#Total USA landings for 1941 taken from O'Brien (1961).

Table 2. Historical trends in USA and Canadian sea scallop landings (metric tons, meats) from Georges Bank (NAFO Subdivision 5Ze), 1944-1985[1,2].

Year	USA	% of Total	Canada	% of Total	Total
1944	1,814	100	-	0	1,814
1945	1,769	100	-	0	1,769
1946	4,036	100	-	0	4,036
1947	4,853	100	-	0	4,853
1948	4,580	100	-	0	4,580
1949	5,306	100	-	0	5,306
1950	5,442	100	-	0	5,442
1951	5,714	98	91	2	5,805
1952	5,488	98	91	2	5,579
1953	7,392	98	136	2	7,528
1954	7,029	99	91	1	7,120
1955	8,299	98	136	2	8,435
1956	7,937	96	317	4	8,254
1957	7,846	91	771	9	8,617
1958	6,531	85	1,179	15	7,710
1959	8,481	78	2,378	22	10,859
1960	9,932	74	3,470	26	13,402
1961	10,660	70	4,565	30	15,225
1962	9,690	63	5,715	37	15,405
1963	7,910	57	5,898	43	13,808
1964	6,241	51	5,922	49	12,163
1965	1,483	25	4,434	75	5,917
1966	884	15	4,878	85	5,762
1967	1,221	20	5,019	80	6,240
1968	1,025	18	4,820	82	5,845
1969	1,325	23	4,318	77	5,643
1970	1,415	26	4,097	74	5,512
1971	1,329	25	3,908	75	5,237
1972	821	16	4,161	84	4,982
1973	1,080	20	4,223	80	5,303
1974	925	13	6,137	87	7,062
1975	857	10	7,414	90	8,271
1976	1,770	15	9,761	85	11,531
1977	4,805	27	13,089	73	17,894
1978	5,569	31	12,189	69	17,758
1979	6,573	42	9,207	58	15,780
1980	5,620	52	5,221	48	10,841
1981	8,421	51	8,013	49	16,434
1982	6,509	60	4,306	40	10,815
1983	4,328	61	2,748	39	7,076
1984[3]	3,071	61	1,945	39	5,016
1985[3]	2,949	44	3,812	56	6,761

[1]Source of Data: 1944-1957, Caddy (1975); 1958-1981, ICNAF and NAFO Statistical Bulletin; 1953-1983 Canadian landings, Mohn et al. (1984); 1984-85 Canadian landings from DFO, Statistics Branch, Halifax. See Table 1 for source for USA landings.

[2]Landings during 1944-1963 represent landings from NAFO Division 5Z (Subdivisions 5Ze and 5Zw).

[3]Provisional.

Table 3. Distribution of USA and Canadian sea scallop landings (mt, meat) in the three principal sea scallop fishing regions on Georges Bank, 1957-1985[1].

	USA				Canada				Total			
Year	South Channel	Southeast Part	No. Edge & Peak	Total	South Channel	Southeast Part	No. Edge & Peak	Total	South Channel	Southeast Part	No. Edge & Peak	Total
1957	1,491	628	5,727	7,846	8	--	763	771	1,499	628	6,490	8,617
1958	1,241	457	4,833	6,531	--	--	1,470	1,470	1,241	457	6,303	8,001
1959	1,951	2,799	3,731	8,481	--	--	2,378	2,378	1,951	2,799	6,109	10,859
1960	1,788	4,469	3,675	9,932	--	--	3,470	3,470	1,788	4,469	7,145	13,402
1961	2,132	1,812	6,716	10,660	--	--	4,565	4,565	2,132	1,812	11,281	15,225
1962	1,744	1,841	6,105	9,690	--	--	5,715	5,715	1,744	1,841	11,820	15,405
1963	2,057	2,215	3,638	7,910	--	472	5,426	5,898	2,057	2,687	9,064	13,808
1964	2,569	1,909	1,763	6,241	--	118	5,804	5,922	2,569	2,027	7,567	12,163
1965	677	390	416	1,483	--	178	4,256	4,434	677	568	4,672	5,917
1966	716	24	144	884	--	--	4,878	4,878	716	24	5,022	5,762
1967	641	311	269	1,221	--	--	5,019	5,019	641	311	5,288	6,240
1968	713	149	163	1,025	--	--	4,820	4,820	713	149	4,983	5,845
1969	576	227	522	1,325	--	--	4,318	4,318	576	227	4,840	5,643
1970	1,069	159	187	1,415	41	--	4,056	4,097	1,110	159	4,243	5,512
1971	1,091	214	24	1,329	547	--	3,361	3,908	1,638	214	3,385	5,237
1972	623	64	134	821	417	--	3,744	4,161	1,040	64	3,878	4,982
1973	890	173	17	1,080	1,140	--	3,083	4,223	2,030	173	3,100	5,303
1974	783	121	21	925	552	307	5,278	6,137	1,335	428	5,299	7,062
1975	566	175	116	857	593	74	6,747	7,414	1,159	249	6,863	8,271
1976	1,583	142	45	1,770	781	--	8,980	9,761	2,364	142	9,025	11,531
1977	4,121	277	407	4,805	262	--	12,827	13,089	4,383	277	13,234	17,894
1978	3,918	366	1,285	5,569	--	--	12,189	12,189	3,918	366	13,474	17,758
1979	3,996	758	1,819	6,573	--	--	9,207	9,207	3,996	758	11,026	15,780
1980	2,994	685	1,941	5,620	--	--	5,221	5,221	2,994	685	7,162	10,841
1981	2,940	515	4,966	8,421	--	--	8,013	8,013	2,940	515	12,979	16,434
1982	3,391	575	2,543	6,509	--	--	4,307	4,307	3,391	575	6,850	10,816
1983	2,439	432	1,457	4,328	--	--	2,748	2,748	2,439	432	4,205	7,076
1984	1,633	691	747	3,071	--	--	1,945	1,945	1,633	691	2,692	5,016
1985	1,554	403	992	2,949	--	--	3,812	3,812	1,554	403	4,804	6,761

[1]South Channel: Statistical Areas 521, 522, and 526.
Southeast Part: Statistical Area 525.
Northern Edge and Peak: Statistical Areas 523 and 524.

Table 4. Percentage distribution of USA and Canadian sea scallop landings (mt, meat) in three principal sea scallop fishing regions on Georges Bank, 1957-1985.[1]

	USA				Canada				Total			
Year	South Channel	Southeast Part	No. Edge & Peak	Total	South Channel	Southeast Part	No. Edge & Peak	Total	South Channel	Southeast Part	No. Edge & Peak	Total
1957	19.0	8.0	73.0	100.0	1.0	--	99.0	100.0	17.4	7.3	75.3	100.0
1958	19.0	7.0	74.0	100.0	--	--	100.0	100.0	15.5	5.7	78.8	100.0
1959	23.0	33.0	44.0	100.0	--	--	100.0	100.0	18.0	25.8	56.2	100.0
1960	18.0	45.0	37.0	100.0	--	--	100.0	100.0	13.3	33.4	53.3	100.0
1961	20.0	17.0	63.0	100.0	--	--	100.0	100.0	14.0	11.9	74.1	100.0
1962	18.0	19.0	63.0	100.0	--	--	100.0	100.0	11.3	12.0	76.7	100.0
1963	26.0	28.0	46.0	100.0	--	8.0	92.0	100.0	14.9	19.5	65.6	100.0
1964	41.2	30.6	28.2	100.0	--	2.0	98.0	100.0	21.1	16.7	62.2	100.0
1965	45.6	26.3	28.1	100.0	--	4.0	96.0	100.0	11.4	9.6	79.0	100.0
1966	81.0	2.7	16.3	100.0	--	--	100.0	100.0	12.4	0.4	87.2	100.0
1967	52.5	25.5	22.0	100.0	--	--	100.0	100.0	10.3	5.0	84.7	100.0
1968	69.6	14.5	15.9	100.0	--	--	100.0	100.0	12.2	2.5	85.3	100.0
1969	43.5	17.1	39.4	100.0	--	--	100.0	100.0	10.2	4.0	85.8	100.0
1970	75.6	11.2	13.2	100.0	1.0	--	99.0	100.0	20.1	2.9	77.0	100.0
1971	82.1	16.1	1.8	100.0	14.0	--	86.0	100.0	31.3	4.1	64.6	100.0
1972	75.9	7.8	16.3	100.0	10.0	--	90.0	100.0	20.9	1.3	77.8	100.0
1973	82.4	16.0	1.6	100.0	27.0	--	73.0	100.0	38.3	3.3	58.4	100.0
1974	84.6	13.1	2.3	100.0	9.0	5.0	86.0	100.0	18.9	6.1	75.0	100.0
1975	66.1	20.4	13.5	100.0	8.0	1.0	91.0	100.0	14.0	3.0	83.0	100.0
1976	89.4	8.0	2.6	100.0	8.0	--	92.0	100.0	20.5	1.2	78.3	100.0
1977	85.7	5.8	8.5	100.0	2.0	--	98.0	100.0	24.5	1.5	74.0	100.0
1978	70.3	6.6	23.1	100.0	--	--	100.0	100.0	22.1	2.0	75.9	100.0
1979	60.8	11.5	27.7	100.0	--	--	100.0	100.0	25.3	4.8	69.9	100.0
1980	53.3	12.2	34.5	100.0	--	--	100.0	100.0	27.6	6.3	66.1	100.0
1981	34.9	6.1	59.0	100.0	--	--	100.0	100.0	17.9	3.1	79.0	100.0
1982	52.1	8.8	39.1	100.0	--	--	100.0	100.0	31.4	5.3	63.3	100.0
1983	56.3	10.0	33.7	100.0	--	--	100.0	100.0	34.5	6.1	59.4	100.0
1984	53.2	22.5	24.3	100.0	--	--	100.0	100.0	32.5	13.8	53.7	100.0
1985	52.7	13.7	33.6	100.0	--	--	100.0	100.0	23.0	6.0	71.0	100.0

[1]South Channel: Statistical Areas 521, 522, and 526.
Southeast Part: Statistical Area 525.
Northern Edge and Peak: Statistical Areas 523 and 524.

Table 5. Geographical distribution of USA commercial sea scallop landings (metric tons, meats) from the Northwest Atlantic (NAFO Subarea 5 and Statistical Area 6), 1961-1985.

	USA Landings (mt, meats)					Percent of USA Annual Landings				
Year	Georges Bank	Mid-Atlantic	Gulf of Maine	Other[1]	Total	Georges Bank	Mid-Atlantic	Gulf of Maine	Other[1]	Total
1961	10,660	1,676	120	0	12,456	85.6	13.4	1.0	-	100.0
1962	9,690	1,378	103	3	11,174	86.7	12.3	0.9	<0.1	100.0
1963	7,910	1,001	127	0	9,038	87.5	11.1	1.4	-	100.0
1964	6,241	1,216	192	55	7,704	81.0	15.8	2.5	0.7	100.0
1965	1,483	7,480	115	27	9,105	16.3	82.1	1.3	0.3	100.0
1966	884	6,252	93	8	7,237	12.2	86.4	1.3	0.1	100.0
1967	1,221	3,337	80	8	4,646	26.3	71.8	1.7	0.3	100.0
1968	1,025	4,311	113	24	5,474	18.7	78.8	2.1	0.4	100.0
1969	1,325	1,896	123	19	3,362	39.4	56.4	3.6	0.6	100.0
1970	1,415	1,060	132	6	2,613	54.1	40.6	5.1	0.2	100.0
1971	1,329	895	362	7	2,593	51.2	34.5	14.0	0.3	100.0
1972	821	1,307	525	2	2,655	30.9	49.2	19.8	0.1	100.0
1973	1,080	857	460	4	2,401	45.0	35.7	19.1	0.2	100.0
1974	925	1,569	223	5	2,722	34.0	57.6	8.2	0.2	100.0
1975	857	2,769	746	50	4,422	19.4	62.6	16.9	1.1	100.0
1976	1,770	6,576	366	9	8,721	20.3	75.4	4.2	0.1	100.0
1977	4,805	5,904	258	136	11,102	43.3	53.2	2.3	1.2	100.0
1978	5,569	8,641	243	29	14,482	38.4	59.7	1.7	0.2	100.0
1979	6,573	7,156	434	93	14,256	46.1	50.2	3.0	0.7	100.0
1980	5,620	5,090	1,637	219	12,566	44.7	40.5	13.0	1.8	100.0
1981	8,421	1,890	1,305	126	11,742	71.7	16.1	11.1	1.1	100.0
1982	6,509	1,702	670	163	9,044	72.0	18.8	7.4	1.8	100.0
1983	4,328	3,227	895	257	8,707	49.7	37.1	10.3	2.9	100.0
1984[2]	3,071	3,825	678	165	7,739	39.7	49.4	8.8	2.1	100.0
1985[2]	2,949	3,291	421	81	6,742	43.7	48.8	6.3	1.2	100.0

[1]Includes 5Zw (Southern New England) and 5NK (Area 5, specific subarea unknown) landings.

[2]Provisional.

Table 6. USA commercial sea scallop landings (metric tons, meats) from the Northwest Atlantic (NAFO Subarea 5 and Statistical Area 6), by NAFO Statistical Region, 1961-1985[1,2].

	NAFO Statistical Region											
Year	5Y	5Ze	5Zw	5Z	5NK[3]	Total 5	6A	6B	6C	6NK[3]	Total 6	Grand total
1961	120			10,660		10,780					1,676	12,456
1962	103			9,690	3	9,796					1,378	11,174
1963	127			7,910		8,037					1,001	9,038
1964	192	6,241	55	6,296		6,488					1,216	7,704
1965	115	1,483	27	1,510		1,625	3,098	2,123	2,259		7,480	9,105
1966	93	884	8	892		985	3,164	3,019	62		6,252	7,237
1967	80	1,221	8	1,229		1,309	1,548	1,776	8		3,337	4,646
1968	113	1,025	24	1,049		1,162	1,951	486		1,874	4,311	5,473
1969	123	1,325	19	1,344		1,467	553	307		1,045	1,895	3,362
1970	132	1,415	6	1,421		1,553	431	42		587	1,060	2,613
1971	362	1,329	7	1,336		1,698	274			621	895	2,593
1972	525	821	2	823		1,348	265	388	6	648	1,307	2,655
1973	460	1,080	3	1,083		1,543	143	95	11	609	858	2,401
1974	223	925	5	930		1,153	869	628	71		1,568	2,721
1975	746	857	50	907		1,653	1,641	899	228		2,768	4,421
1976	366	1,770	9	1,779		2,145	4,494	1,725	357		6,576	8,721
1977	258	4,805	11	4,816	125	5,199	3,537	2,233	135		5,905	11,104
1978	243	5,569	29	5,598		5,841	2,603	5,567	472		8,642	14,483
1979	434	6,573	93	6,666		7,100	4,656	2,268	232		7,156	14,256
1980	1,637	5,620	219	5,839		7,476	3,198	1,836	56		5,090	12,566
1981	1,305	8,421	126	8,547		9,852	1,507	293	90		1,890	11,742
1982	670	6,509	163	6,672		7,342	1,313	357	33		1,702	9,044
1983	895	4,328	257	4,585		5,480	2,913	298	16		3,227	8,707
1984[4]	678	3,071	165	3,236		3,914	2,792	945	88		3,825	7,739
1985[4]	421	2,949	81	3,030		3,451	2,753	529	9		3,291	6,742

[1]See Figure 1 for geographical location of NAFO Statistical Regions.

[2]Source of Data: 1961-1975, Fishery Statistics of the United States; 1963-198 , ICNAF and NAFO Statistical Bulletins; 1981, NAFO SCS Doc. 82/VI/7; 1982 - 1985, NMFS Detailed Weighout Files.

[3]NK: Specific area of landings not known.

[4]Provisional.

Table 7. USA commercial sea scallop landings (metric tons, meats) from the Gulf of Maine (NAFO Division 5Y), 1899-1985[1].

Year	Inshore	Offshore	Total	Year	Inshore	Offshore[2]	Total
1899	24	-	24	1950	232	6	238
1900	79	-	79	1951	171	136	307
1901	99	-	99	1952	142	536	678
1902	57	-	57	1953	110	660	770
1903	62	-	62	1954	65	256	321
1904	64	-	64	1955	99	406	505
1905	285	-	285	1956	148	292	440
1906	255	-	255	1957	111	227	338
1907	236	-	236	1958	49	130	179
1908	432	-	432	1959	49	465	514
1909	843	-	843	1960	33	817	850
1910	919	-	919	1961	63	57	120
1911	663	-	663	1962	70	33	103
1912	842	-	842	1963	80	47	127
1913	353	-	353	1964	106	86	192
1914	386	-	386	1965	N/A	N/A	115
1916	266	-	266	1966	N/A	N/A	93
1919	33	-	33	1967	N/A	N/A	80
1924	134	-	134	1968	N/A	N/A	113
1928	148	-	148	1969	N/A	N/A	123
1929	163	-	163	1970	N/A	N/A	132
1930	198	-	198	1971	234	128	362
1931	266	-	266	1972	436	89	525
1932	276	-	276	1973	368	92	460
1933	487	-	487	1974	198	25	223
1935	337	-	337	1975	728	18	746
1938	360	-	360	1976	334	32	366
1939	179	-	179	1977	206	52	258
1940	207	-	207	1978	228	15	243
1941	144	-	144	1979	299	135	434
1942	59	-	59	1980	492	1145	1637
1943	103	-	103	1981	591	714	1305
1944	46	-	46	1982	324	346	670
1945	48	-	48	1983	523	372	895
1946	62	-	62	1984	519	159	678
1947	230	-	230	1985	329	92	421
1948	206	-	206				
1949	231	-	231				

[1] Landings from 1899-1955 taken from Baird (1956); inshore landings from 1950-1964 taken from Dow (1969, 1977); total landings from 1956-1960 were taken from Lyles (1969) and represent landings in the State of Maine but not necessarily landings from the Gulf of Maine; total landings 1961-1983 taken from ICNAF and NAFO Statistical Bulletins; inshore landings 1971-1985 taken from NMFS Weighout Data; 1982 to 1985 total landings data from NMFS Weighout Files.

[2] Offshore landings 1950-1970 include all landings outside state territorial waters and may include offshore Georges Bank landings.

N/A = distribution of landings between inshore and offshore areas not available.

Table 8. Percent distribution of USA commercial landings (metric tons, meats) of sea scallops, by gear type, within the principal sea scallop areas off the Northeast Coast of the United States (NAFO Subarea 5 and Statistical Area 6), 1964-1985. For 1964-1973, data only reflect landings in New England states (Maine, Massachusetts, New Hampshire, and Rhode Island). For 1974-1985, data reflect landings in both New England and Mid-Atlantic states (Maine to North Carolina). Only landings identified by gear type were analyzed.

	Gulf of Maine		Georges Bank		So. New England		Mid-Atlantic		All Areas	
Year	Otter trawl	Scallop dredge	Otter trawl	Scallop dredge	Otter trawl	Scallop dredge	Otter trawl	Scallop dredge	Otter trawl	Scallop dredge
1964	<0.1	99.9	0.8	99.2	-	-	0.0	100.0	0.8	99.2
1965	0.0	100.0	0.3	99.7	-	-	0.0	100.0	0.1	99.9
1966	0.2	99.8	<0.1	99.9	-	-	0.0	100.0	<0.1	99.9
1967	0.4	99.6	0.3	99.7	-	-	0.0	100.0	0.1	99.9
1968	0.4	99.6	0.0	100.0	0.0	100.0	0.0	100.0	<0.1	99.9
1969	0.6	99.4	0.6	99.4	0.0	100.0	0.6	99.4	0.6	99.4
1970	0.2	99.8	0.4	99.6	<0.1	99.9	3.0	97.0	0.9	99.1
1971	1.1	98.9	1.3	98.7	3.0	97.0	<0.1	99.0	1.1	98.9
1972	0.1	99.9	0.6	99.4	4.3	95.7	0.8	99.2	0.6	99.4
1973	<0.1	99.9	1.4	98.6	3.3	96.7	1.4	98.6	1.1	98.9
1974	0.2	99.8	1.6	98.4	2.3	97.7	1.2	98.8	1.3	98.7
1975	0.8	99.2	1.6	98.4	15.9	84.1	20.9	79.1	13.7	86.3
1976	0.8	99.2	2.2	97.8	38.5	61.5	31.8	68.2	24.5	75.5
1977	1.5	98.5	0.6	99.4	7.5	92.5	12.8	87.2	7.1	92.9
1978	0.4	99.6	0.7	99.3	11.8	88.2	6.6	93.4	4.2	95.8
1979	1.1	98.9	0.4	99.6	5.6	94.4	7.2	92.8	3.8	96.2
1980	7.6	92.4	0.6	99.4	1.4	98.6	0.3	99.7	1.4	98.6
1981	5.6	94.4	0.7	99.3	2.2	97.8	0.7	99.3	1.2	98.8
1982	4.3	95.7	1.8	98.2	0.1	99.9	0.4	99.6	1.7	98.3
1983	8.1	91.9	0.7	99.3	0.3	99.7	1.4	98.6	1.7	98.3
1984	2.7	97.3	0.9	99.1	2.1	97.9	1.1	98.9	1.2	98.8
1985	0.7	99.3	1.2	98.8	5.3	94.7	1.7	98.3	1.4	98.6
1964-1985:										
NE landings[1]	3.4	96.6	0.9	99.1	3.2	96.8	1.6	98.4	1.3	98.7
MA landings[2]	-	-	0.0	100.0	1.4	98.6	11.7	88.3	11.0	89.0
Total	3.4	96.6	0.8	99.2	2.8	97.2	7.1	92.9	3.9	96.1

[1]NE landings: landings of scallops in New England states (Maine, New Hampshire, Massachusetts, Rhode Island, and Connecticut).

[2]MA landings: landings of scallops in Mid-Atlantic states (New York, New Jersey, Maryland, Virginia, and North Carolina).

Table 9 Percent distribution of USA commercial sea scallop landings (metric tons, meats), by vessel tonnage class[1], from Georges Bank (NAFO Subdivision 5Ze), the Mid-Atlantic (NAFO Statistical Area 6), and the Gulf of Maine (NAFO Division 5Y), 1965-1985. Data derived from vessels using scallop dredges.

	Georges Bank				Mid-Atlantic				Gulf of Maine			
Year	Class 2	Class 3	Class 4	Total	Class 2	Class 3	Class 4	Total	Class 2	Class 3	Class 4	Total
1965	-	86.9	13.1	100.0	0.5	90.8	8.7	100.0	86.8	13.2	-	100.0
1966	-	83.1	16.9	100.0	<0.1	86.9	13.1	100.0	100.0	-	-	100.0
1967	-	75.8	24.2	100.0	<0.1	82.7	17.3	100.0	97.4	2.6	-	100.0
1968	0.1	82.5	17.4	100.0	0.3	65.7	34.0	100.0	96.2	3.8	-	100.0
1969	-	69.7	30.3	100.0	0.2	56.9	42.9	100.0	88.4	11.6	-	100.0
1970	-	70.4	29.6	100.0	-	41.4	58.6	100.0	87.1	12.9	-	100.0
1971	-	58.4	41.6	100.0	-	26.4	73.6	100.0	62.3	30.3	7.4	100.0
1972	1.2	57.3	41.6	100.0	-	44.3	55.7	100.0	92.9	6.2	0.9	100.0
1973	<0.1	63.7	36.3	100.0	-	17.3	82.7	100.0	85.7	10.3	4.0	100.0
1974	<0.1	61.2	38.8	100.0	-	42.4	57.6	100.0	94.6	5.4	-	100.0
1975	0.3	58.2	41.5	100.0	0.1	43.8	56.1	100.0	99.1	0.9	-	100.0
1976	15.1	54.1	30.8	100.0	0.6	35.1	64.3	100.0	96.0	4.0	-	100.0
1977	18.9	54.1	27.0	100.0	1.3	36.3	62.4	100.0	98.2	1.8	-	100.0
1978	6.7	53.7	39.6	100.0	3.6	40.2	56.2	100.0	98.6	1.4	-	100.0
1979	3.0	41.7	55.3	100.0	3.6	54.3	42.1	100.0	78.1	8.6	13.3	100.0
1980	1.4	36.3	62.3	100.0	0.7	47.3	52.0	100.0	39.9	29.3	30.8	100.0
1981	1.0	29.3	69.7	100.0	0.2	45.6	54.2	100.0	61.0	19.3	19.7	100.0
1982	0.4	28.9	70.7	100.0	0.4	45.4	54.2	100.0	58.8	12.0	29.1	100.0
1983	1.2	29.3	69.5	100.0	0.6	43.5	55.9	100.0	66.7	16.7	16.6	100.0
1984	0.1	33.3	66.6	100.0	0.4	45.9	53.7	100.0	81.3	10.2	8.5	100.0
1985	0.1	28.3	71.6	100.0	0.3	37.9	61.8	100.0	77.4	12.5	10.1	100.0

[1]Class 2: 5- 50 GRT
Class 3: 50-150 GRT
Class 4: 151-500 GRT

Table 10 Percentage distribution of annual USA commercial sea scallop landings (metric tons) from Georges Bank (Area 5Ze), the Mid-Atlantic (Area 6) and the Gulf of Maine (Area 5Y), by month, 1978-1985.

Area / Year	Month														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Apr-Sep	Oct-Mar
Georges Bank															
1978	4.5	9.4	7.2	8.9	6.1	3.4	9.6	14.7	11.3	9.5	9.7	5.7	100.0	54.0	46.0
1979	3.8	2.9	8.1	6.5	11.7	11.9	12.9	11.6	9.5	9.2	7.2	4.7	100.0	64.1	35.9
1980	3.8	5.3	5.3	8.6	12.0	13.7	14.2	11.3	11.0	7.0	4.5	3.3	100.0	70.8	29.2
1981	1.6	3.6	4.5	7.2	13.6	17.6	18.1	11.5	8.1	6.4	3.8	4.0	100.0	76.1	23.9
1982	3.1	5.5	7.7	6.6	11.2	13.7	14.8	11.4	8.2	7.1	6.1	4.6	100.0	65.9	34.1
1983	7.3	5.7	4.5	5.8	11.6	14.6	13.3	13.1	9.6	5.9	4.6	4.0	100.0	68.0	32.0
1984	5.1	4.5	2.5	5.2	13.2	12.4	15.8	11.8	7.6	8.9	6.5	6.5	100.0	66.0	34.0
1985	2.8	5.0	3.2	2.1	3.1	12.5	24.7	14.6	10.2	8.0	6.5	7.3	100.0	67.2	32.8
1978-1985[1]	4.0	5.2	5.4	6.4	10.3	12.5	15.4	12.5	9.4	7.8	6.1	5.0	100.0	66.5	33.5
Mid-Atlantic															
1978	1.8	1.9	4.2	7.3	15.0	17.6	16.9	12.1	7.4	8.2	4.9	2.7	100.0	76.3	23.7
1979	2.6	3.1	7.9	12.0	15.3	14.0	14.7	11.6	7.3	5.4	3.5	2.6	100.0	74.9	25.1
1980	3.6	4.5	4.8	12.3	16.0	12.9	12.4	8.4	8.9	6.5	5.5	4.2	100.0	70.9	29.1
1981	6.5	7.9	10.9	14.2	17.4	14.1	7.4	3.9	7.0	5.3	3.3	2.1	100.0	64.0	36.0
1982	1.2	4.4	5.4	10.1	12.9	15.2	9.5	9.2	9.3	7.0	8.6	7.2	100.0	66.2	33.8
1983	2.8	4.8	11.5	11.9	12.9	11.2	8.6	10.8	9.0	5.5	5.4	5.6	100.0	64.4	35.6
1984	6.4	8.2	11.3	11.7	11.4	13.1	9.3	8.0	6.2	6.0	5.5	2.9	100.0	59.7	40.3
1985	1.8	3.4	8.6	15.7	23.5	12.8	6.2	8.6	6.5	6.2	4.2	2.5	100.0	73.3	26.7
1978-1985[1]	3.3	4.8	8.1	11.9	15.5	13.9	10.6	9.1	7.7	6.3	5.1	3.7	100.0	68.7	31.3
Gulf of Maine															
1978	16.6	16.7	20.0	8.0	1.0	1.0	1.0	0.7	0.5	0.2	14.3	20.0	100.0	12.2	87.8
1979	9.7	7.8	11.8	6.1	3.0	1.9	2.1	2.4	3.4	6.2	22.1	23.5	100.0	18.9	81.1
1980	6.4	12.2	15.3	16.2	12.2	9.3	4.3	4.7	3.7	1.9	5.8	8.0	100.0	50.4	49.6
1981	12.2	11.2	11.5	6.4	3.6	3.0	9.2	8.3	8.7	7.7	10.9	7.3	100.0	39.2	60.8
1982	9.6	6.9	8.7	2.6	3.7	5.0	2.3	4.7	5.0	9.6	16.6	25.3	100.0	23.3	76.7
1983	17.1	10.5	9.7	6.7	3.6	2.4	2.4	2.9	5.5	7.2	16.7	15.3	100.0	23.5	76.5
1984	24.1	18.8	16.0	6.0	0.9	1.4	2.0	0.6	2.1	2.3	14.7	11.1	100.0	13.0	87.0
1985	28.7	22.7	17.3	11.2	0.3	0.3	0.3	0.1	0.4	0.9	9.5	8.3	100.0	12.6	87.4
1978-1985[1]	15.6	13.3	13.8	7.9	3.5	3.0	3.0	3.0	3.7	4.5	13.8	14.9	100.0	24.1	75.9
All Areas[2]															
1978	3.1	5.0	5.6	7.9	11.3	11.9	13.8	12.9	8.8	8.6	7.0	4.1	100.0	66.6	33.4
1979	3.4	3.1	8.1	9.2	13.1	12.6	13.4	11.4	8.2	7.3	5.9	4.3	100.0	67.9	32.1
1980	4.1	5.9	6.4	11.3	13.7	12.8	12.2	9.2	9.1	6.0	5.0	4.3	100.0	68.3	31.7
1981	3.6	5.1	6.3	8.2	13.0	15.4	15.4	9.8	8.0	6.5	4.6	4.1	100.0	69.8	30.2
1982	3.2	5.3	7.4	7.0	10.8	13.4	13.1	10.5	8.2	7.2	7.3	6.6	100.0	63.0	37.0
1983	6.5	5.7	7.5	8.1	11.0	12.0	10.7	11.3	9.1	6.0	6.2	5.9	100.0	62.2	37.8
1984	7.5	7.6	8.2	8.5	11.1	11.7	11.4	9.0	6.5	6.7	6.7	5.1	100.0	58.2	41.8
1985	4.0	5.3	6.9	9.4	13.0	11.8	13.8	10.8	7.7	6.6	5.6	5.1	100.0	66.5	33.5
1978-1985[1]	4.4	5.4	7.1	8.7	12.1	12.7	13.0	10.6	8.2	6.9	6.0	4.9	100.0	65.3	34.7

[1]Mean of percentages.

[2]Includes Southern New England (Area 5Zw) landings as well as Georges Bank, Mid-Atlantic, and Gulf of Maine.

Table 11. USA commercial sea scallop effort (days fished) on Georges Bank (Subdivision 5Ze), in the Mid-Atlantic (Statistical Area 6), and in the Gulf of Maine (Division 5Y), by vessel tonnage class[1], 1965-1985. Data derived from vessels using scallop dredges and landing in New England and Mid-Atlantic ports.

Year	Georges Bank (Subdivision 5Ze)				Mid-Atlantic (Area 6)				Gulf of Maine (Division 5Y)			
	Class 2	Class 3	Class 4	Total	Class 2	Class 3	Class 4	Total	Class 2	Class 3	Class 4	Total
1965	-	1921.2	216.4	2137.6	48.1	3621.5	312.8	3982.4	261.0	20.4	-	281.4
1966	-	886.3	168.9	1055.2	3.0	3784.4	524.7	4312.1	270.3	-	-	270.3
1967	-	1467.9	401.9	1869.8	5.0	2224.2	452.0	2681.2	239.4	2.7	-	242.1
1968	5.5	1500.0	304.2	1809.7	38.9	2517.4	1180.2	3736.5	423.9	12.8	-	436.7
1969	-	1953.8	759.5	2713.3	3.5	1142.4	701.4	1847.3	510.9	53.7	-	564.6
1970	-	1755.3	822.9	2578.2	-	476.7	516.0	992.7	584.1	49.7	-	633.8
1971	-	1424.2	988.7	2412.9	-	239.9	479.5	719.4	1062.7	116.1	37.3	1216.1
1972	20.4	965.0	805.9	1791.3	-	717.9	688.5	1406.4	1998.7	90.5	10.0	2099.2
1973	0.2	1102.7	739.6	1842.5	-	128.0	428.0	556.0	2364.5	128.8	30.7	2524.0
1974	0.2	811.8	576.3	1388.3	-	523.6	700.9	1224.5	1545.7	33.9	-	1579.6
1975	10.5	594.4	494.9	1099.8	3.3	819.3	923.8	1746.4	2392.8	14.0	-	2406.8
1976	308.1	914.2	516.8	1739.1	59.8	984.3	1625.9	2670.0	2257.5	32.0	-	2289.5
1977	1028.4	2313.5	1120.7	4462.6	70.7	818.3	1216.1	2105.1	1371.4	4.1	-	1375.5
1978	675.0	3177.1	2088.6	5940.7	199.4	1888.3	1832.9	3920.6	1606.2	5.9	-	1612.1
1979	445.0	4056.6	4405.4	8907.0	150.0	2566.1	1564.3	4280.4	1853.6	79.1	44.5	1977.2
1980	301.1	4641.8	6132.8	11075.7	39.3	2358.3	1993.0	4390.6	2827.0	346.5	249.0	3422.5
1981	164.7	4618.6	8578.1	13361.4	3.0	1240.4	1193.5	2436.9	2700.1	264.7	232.9	3197.7
1982	60.8	3462.1	7572.0	11094.9	32.9	1984.9	1784.5	3802.3	1670.6	160.5	268.4	2099.5
1983	214.7	3228.1	7026.8	10469.6	36.5	3790.7	3091.0	6918.2	3757.8	389.6	256.2	4403.6
1984	15.9	3276.4	6208.5	9500.8	50.1	5091.2	4997.0	10138.3	2674.5	228.9	144.7	3048.1
1985	13.8	2649.5	6610.0	9273.3	31.5	4285.5	5539.4	9856.4	1833.2	219.5	148.2	2200.9

[1]Class 2 = 5-50 GRT; Class 3 = 51-150 GRT; Class 4 = 151-500 GRT.

Source: NEFC Detailed Weighout Records for vessels using scallop dredges. Mid-Atlantic weighout data are only included from 1978 onward. Weighout data from Virginia ports are included for part of 1981 and from 1982 onward.

Table 12. USA commercial sea scallop catch rates (metric tons of meats per day fished) from Georges Bank (Subdivision 5Ze), the Mid-Atlantic (Statistical Area 6), and the Gulf of Maine (Division 5Y), by vessel tonnage class[1], 1965-1985. Data derived from vessels using scallop dredges and landing in New England and Mid-Atlantic ports.

Year	Georges Bank (Subdivision 5Ze)				Mid-Atlantic (Area 6)				Gulf of Maine (Division 5Y)			
	Class 2	Class 3	Class 4	Annual Mean[2]	Class 2	Class 3	Class 4	Annual Mean[2]	Class 2	Class 3	Class 4	Annual Mean[2]
1965	-	0.67	0.89	0.70	0.43	1.00	1.10	1.00	0.38	0.74	-	0.43
1966	-	0.83	0.90	0.84	0.22	0.93	1.01	0.94	0.34	-	-	0.34
1967	-	0.63	0.73	0.65	0.16	0.70	0.72	0.70	0.32	0.77	-	0.33
1968	0.27	0.55	0.57	0.55	0.20	0.63	0.69	0.65	0.26	0.34	-	0.26
1969	-	0.47	0.53	0.49	0.40	0.42	0.52	0.46	0.21	0.26	-	0.22
1970	-	0.57	0.51	0.55	-	0.40	0.52	0.47	0.20	0.34	-	0.22
1971	-	0.54	0.55	0.54	-	0.30	0.42	0.39	0.21	0.93	0.71	0.47
1972	0.46	0.48	0.42	0.46	-	0.40	0.53	0.47	0.24	0.36	0.49	0.25
1973	0.09	0.61	0.52	0.58	-	0.33	0.47	0.45	0.17	0.37	0.60	0.21
1974	0.15	0.69	0.61	0.66	-	0.76	0.77	0.77	0.14	0.36	-	0.15
1975	0.19	0.83	0.71	0.78	0.27	0.81	0.91	0.87	0.31	0.46	-	0.31
1976	0.85	1.02	1.03	1.00	0.31	1.06	1.18	1.13	0.15	0.45	-	0.16
1977	0.87	1.10	1.13	1.06	0.48	1.14	1.32	1.24	0.18	1.12	-	0.20
1978	0.55	0.94	1.05	0.96	0.76	0.89	1.28	1.10	0.15	0.55	-	0.16
1979	0.42	0.64	0.78	0.71	0.69	0.60	0.77	0.67	0.17	0.44	1.20	0.33
1980	0.24	0.42	0.55	0.50	0.34	0.39	0.51	0.45	0.21	1.24	1.82	1.01
1981	0.47	0.51	0.65	0.61	0.52	0.32	0.40	0.36	0.28	0.89	1.03	0.55
1982	0.43	0.52	0.58	0.56	0.20	0.37	0.49	0.43	0.22	0.47	0.69	0.39
1983	0.24	0.39	0.42	0.41	0.52	0.35	0.56	0.47	0.14	0.35	0.53	0.24
1984	0.18	0.31	0.32	0.32	0.32	0.33	0.39	0.36	0.20	0.29	0.38	0.22
1985	0.18	0.31	0.31	0.31	0.30	0.29	0.36	0.33	0.17	0.23	0.28	0.19

[1] Class 2 = 5-50 GRT; Class 3 = 51-150; Class 4 = 151-500 GRT.

[2] Annual mean catch rates, for each area, were derived by weighting individual tonnage class annual catch rates by the percentage of total annual landings accounted for by each vessel class and summing the weighted catch rates over all three vessel class categories.

Source: NEFC Detailed Weighout Records for vessels using scallop dredges. Mid-Atlantic weighout data are only included from 1978 onward. Weighout data for Virginia ports are included for part of 1981 and from 1982 onward.

Table 13. USA commercial sea scallop catch rates (metric tons of meats per day fished), by principal sea scallop region[1] and vessel tonnage class[2], on Georges Bank (NAFO Subdivision 5Ze), 1965-1985. Data derived from vessels using scallop dredges.

Year	South Channel		Southeast Part		No. Edge & Peak		Georges Bank	
	Class 3	Class 4	Class 3	Class 4	Class 3	Class 4	Class 3	Class 4
1965	0.68	0.83	0.62	0.89	0.71	0.97*	0.67	0.89
1966	0.83	0.80	0.74	0.54*	0.83	1.25*	0.83	0.90
1967	0.66	0.69	0.58	0.79	0.57	0.71	0.63	0.73
1968	0.56	0.55	0.50	0.54	0.50	0.60	0.55	0.57
1969	0.49	0.48	0.40	0.47	0.48	0.57	0.47	0.53
1970	0.60	0.54	0.39	0.47	0.41	0.49	0.57	0.51
1971	0.56	0.60	0.34	0.47	0.38*	0.52	0.54	0.55
1972	0.50	0.46	0.39	0.40	0.29*	0.38	0.48	0.42
1973	0.64	0.61	0.33	0.43	0.47*	0.41*	0.61	0.52
1974	0.69	0.67	0.51*	0.53	0.65*	0.55*	0.69	0.61
1975	0.82	0.76	0.66*	0.69	0.92*	0.68	0.83	0.71
1976	1.02	1.10	0.63*	0.90	-	0.90*	1.02	1.03
1977	1.09	1.18	0.92*	1.13	1.39	1.01	1.10	1.13
1978	0.89	1.10	0.81	0.92	1.22	1.03	0.94	1.05
1979	0.67	0.83	0.48	0.72	0.61	0.76	0.64	0.79
1980	0.44	0.56	0.38	0.47	0.39	0.56	0.42	0.55
1981	0.51	0.62	0.36	0.39	0.55	0.69	0.51	0.65
1982	0.54	0.58	0.51	0.57	0.45	0.58	0.52	0.58
1983	0.38	0.43	0.37	0.32	0.42	0.44	0.39	0.42
1984	0.31	0.32	0.32	0.34	0.28	0.31	0.31	0.32
1985	0.31	0.31	0.28	0.31	0.32	0.31	0.31	0.31

* = Based on less than 10 trips.

[1]South Channel: Statistical Areas 521, 522, 526
Southeast Part: Statistical Area 525
No. Edge and Peak: Statistical Areas 523 and 524.

[2]Tonnage Class 3: 51-150 GRT
Tonnage Class 4: 151-500 GRT.

Table 14. USA commercial sea scallop catch rates (metric tons of meats per day fished), by principal sea scallop region[1] and vessel tonnage class[2], in the Mid-Atlantic (NAFO Statistical Area 6), 1965-1985. Data derived from vessels using scallop dredges.

Year	New York Bight		Delmarva		Virginia-North Carolina		Mid-Atlantic	
	Class 3	Class 4	Class 3	Class 4	Class 3	Class 4	Class 3	Class 4
1965[3]	-	-	-	-	-	-	1.00	1.10
1966[3]	-	-	-	-	-	-	0.93	1.01
1967[3]	-	-	-	-	-	-	0.70	0.72
1968	0.63	0.68	0.61	0.72	-	-	0.63	0.69
1969	0.39	0.51	0.49	0.54	-	-	0.42	0.52
1970	0.40	0.54	0.31*	0.42	-	-	0.40	0.52
1971	0.30	0.42	-	-	-	-	0.30	0.42
1972	0.32	0.43	0.51	0.61	-	0.77*	0.40	0.53
1973	0.32	0.44	0.34*	0.52	0.36*	0.50*	0.33	0.47
1974	0.71	0.78	0.89	0.73	-	-	0.76	0.77
1975	0.79	0.92	1.08*	0.88	-	-	0.81	0.92
1976	1.06	1.18	1.10	1.15	-	-	1.06	1.18
1977	1.12	1.32	1.55*	1.30*	-	-	1.14	1.32
1978	1.04	1.31	0.77	1.25	0.35*	0.83*	0.89	1.28
1979	0.62	0.78	0.41	0.65	-	-	0.61	0.77
1980	0.41	0.53	0.32	0.45	-	-	0.39	0.51
1981	0.33	0.40	0.19	0.21*	0.23*	-	0.32	0.40
1982	0.40	0.60	0.28	0.33	0.23*	0.26	0.37	0.49
1983	0.38	0.59	0.23	0.34	0.13*	0.37*	0.35	0.56
1984	0.36	0.39	0.28	0.43	0.25	0.26	0.33	0.39
1985	0.31	0.37	0.23	0.28	0.27*	0.20*	0.29	0.36

* = Based on less than 10 trips.

[1]New York Bight: Statistical Areas 611-616.
Delmarva: Statistical Areas 621-626.
Virginia-No. Carolina: Statistical Areas 631-632.

[2]Tonnage Class 3: 51-150 GRT
Tonnage Class 4:151-500 GRT

[3]During 1965-1967, landings were not categorized into regions within the Mid-Atlantic.

Table 15. Percent frequency distributions of sample meat counts (number of scallop meats per pound) derived from USA commercial size frequency (shell height) sea scallop samples from the three principal scallop regions on Georges Bank, 1972-1985. For each year and region, the percent of samples within each 5-unit meat count interval is indicated[1]. The total Georges Bank frequency distributions were derived by "weighting" the sample meat count frequency distributions in each region by the annual USA sea scallop landings from that region, and hence represent annual meat count frequency distributions of USA Georges Bank sea scallop landings.

Area	Year	Number[2] of Samples	Meat Count Intervals 5.0-9.9	10.0-14.9	15.0-19.9	20.0-24.9	25.0-29.9	30.0-34.9	35.0-39.9	40.0-44.9	45.0-49.9	≥50	Total
South Channel (SA 521,522,526)	1972	31		22.6	35.5	25.8	3.2		9.7	3.2			100.0
	1973	32		28.1	28.1	15.6	12.5	6.3	3.1	6.3			100.0
	1974	24		8.3	33.3	54.2			4.2				100.0
	1975	9		33.3	33.3	33.3							99.9
	1976	16		26.7	13.3	6.7	26.7	26.7					100.1
	1977	35		14.7	8.8	5.9	32.4	20.6	14.7	2.9			100.0
	1978	38	2.6	28.9	26.3	23.7	15.8	2.6					99.9
	1979	54	9.3	35.2	24.1	22.2	5.6	1.9			1.9		100.2
	1980	36	16.7	33.3	30.6	8.3	2.8	8.3					100.0
	1981	25	12.0	12.0	16.0	16.0	8.0	4.0	12.0	4.0	8.0	8.0	100.0
	1982	33	12.5	12.5	31.3	6.3	12.5	9.4	3.1			12.5	100.1
	1983	22		18.2	50.0	18.2	9.1	4.5					100.0
	1984	13	7.7	15.4	53.8	7.7	15.4						100.0
	1985	14		21.4	28.6	28.6	7.1	7.1	7.1				99.9
Southeast Part (SA 525)	1972	6	16.7	83.3									100.0
	1973	8		12.5	25.0	50.0	12.5						100.0
	1974	8		12.5		50.0	12.5	12.5			12.5		100.0
	1975	4			50.0	50.0							100.0
	1976	0											
	1977	1			100.0								100.0
	1978	8		87.5		12.5							100.0
	1979	8	37.5	50.0	12.5								100.0
	1980	12		41.7	33.3	16.7		8.3					100.0
	1981	3		33.3		33.3		33.3					99.9
	1982	3		66.7		33.3							100.0
	1983	6	16.7	83.3									100.0
	1984	8	12.5	50.0	25.0			12.5					100.0
	1985	7			57.1	28.6	14.3						100.0
Northern Edge and Peak (SA 523, 524)	1972	11	36.4	27.3	36.4								100.1
	1973	0											
	1974	0											
	1975	1		50.0		50.0							100.0
	1976	0											
	1977	7		28.6	42.9		28.6						100.1
	1978	14		71.4	7.1	7.1	14.3						99.9
	1979	29		58.6	31.0	6.9	3.4						99.9
	1980	26	3.8	38.5	15.4	23.1	15.4	3.8					100.0
	1981	40		12.5	7.5	15.0	2.5	7.5	2.5		10.0	42.5	100.0
	1982	34		17.1	20.0	22.9	17.1	11.4		11.4			99.9
	1983	10	10.0	10.0	40.0	10.0	30.0						100.0
	1984	7	14.3	14.3	14.3	42.8	14.3						100.0
	1985	16	6.3	31.2	25.0	25.0	6.3	6.2					100.0
Georges Bank (Total)	1972	48	7.2	28.1	32.9	19.6	2.4		7.4	2.4			100.0
	1973	40		25.6	27.6	21.2	12.5	5.3	2.6	5.3			100.1
	1974	32		8.9	28.8	53.6	1.7	1.7	3.6		1.7		100.0
	1975	14		28.8	32.2	39.0							100.0
	1976	16		26.7	13.3	6.7	26.7	26.7					100.1
	1977	43		15.0	16.9	5.1	30.2	17.7	12.6	2.5			100.0
	1978	60	1.8	42.6	20.1	19.1	14.4	1.8					99.8
	1979	91	10.0	43.4	24.7	15.4	4.3	1.2			1.2		100.2
	1980	74	10.2	36.1	25.7	14.4	6.8	6.7					99.9
	1981	68	4.2	13.6	10.0	16.5	4.3	7.9	5.7	1.4	8.7	27.9	100.2
	1982	70	6.5	19.1	24.1	15.2	13.2	9.4	1.6	4.5		6.5	100.1
	1983	38	5.0	21.9	41.6	13.6	15.2	2.5					99.8
	1984	28	10.4	22.9	37.7	14.5	11.7	2.8					100.0
	1985	37	2.1	21.8	31.3	27.4	7.8	5.8	3.7				99.9

[1]Meat count for each sample was derived by calculating the average meat weight per scallop in each sample and dividing this value into 453.6 grams (1 pound). The average meat weight per scallop was calculated by applying the 1978-1982 USA Georges Bank research survey sea scallop shell height-meat weight equation.

$$\text{Meat Weight (g)} = 7.76721 \times 10^{-6} \text{ Shell Height}_{(mm)}^{3.1693} \quad (n = 5{,}863;\ r = 0.98)$$

to each shell height in the sample frequency distribution, multiplying by the frequency at height, summing the products, and dividing by the total number of scallops in the sample.

[2]Scallop dredge samples only.

Table 16 Percent frequency distributions of sample meat counts (number of scallop meats per pound) derived from USA commercial size-frequency (shell height) sea scallop samples from the three principal scallop regions in the Mid-Atlantic, 1972-1985. For each year and region the percent of samples within each 5-unit meat count interval is indicated.[1] The total Mid-Atlantic frequency distributions were derived by "weighting" the sample meat count frequency distributions in each region by the annual USA sea scallop landings from that region, and hence represent annual meat count frequency distributions of USA Mid-Atlantic sea scallop landings.

Areas	Year	Number[2] of Samples	Meat Count Intervals 5.0-9.9	10.0-14.9	15.0-19.9	20.0-24.9	25.0-29.9	30.0-34.9	35.0-39.9	40.0-44.9	45.0-49.9	≥50	Total
New York Bight (SA 6A)	1972	21		28.6	61.9	9.5							100.0
	1973	11	9.1	18.2	36.4	18.2		18.2					100.1
	1974	17			17.6	29.4	11.8	23.5	5.9	5.9	5.9		100.0
	1975	30		3.3	40.0	26.7	16.7	10.0	3.3				100.0
	1976	42		2.4	11.9	31.0	7.1	33.3	11.9	2.4			100.0
	1977	29		3.4	17.2	44.8	31.0	3.4					99.8
	1978	18			50.0	44.4	5.6						100.0
	1979	8	12.5	25.0	25.0	37.5							100.0
	1980	24	8.3	37.5	29.2	20.8		4.2					100.0
	1981	10	10.0	60.0	10.0	10.0					10.0		100.0
	1982	6		33.3	16.7	16.7		16.7	16.7				100.1
	1983	46	2.2	23.9	39.1	21.7	10.9	2.2					100.0
	1984	30	3.3	16.7	33.3	23.3		13.3	6.7			3.3	99.9
	1985	26	3.9	11.5	26.9	26.9	23.1	7.7					100.0
Delmarva (SA 6B)	1972	21	4.8	19.0	4.8	4.8	14.3	19.0	19.0	9.5	4.8		100.0
	1973	6		33.3		16.7		50.0					100.0
	1974	3					33.3	33.3	33.3				99.9
	1975	2				50.0	50.0						100.0
	1976	2				50.0		50.0					100.0
	1977	7		14.3	71.4		14.3						100.0
	1978	17	17.6	52.9	23.5	5.9							99.9
	1979	11	9.1	36.4	27.3	9.1	9.1	9.1					100.1
	1980	42	7.1	35.7	47.6	9.5							99.9
	1981	8	12.5	50.0	25.0			12.5					100.0
	1982	19		47.4	47.4	5.3							100.1
	1983	32	4.5	63.6	13.6	13.6	4.5						99.8
	1984	26		34.6	30.8	23.1	3.8	3.8	3.8				99.9
	1985	37		48.7	18.9	13.5	8.1	2.7	5.4		2.7		100.0
Virginia-North Carolina (SA 6C)	1972	1	100.0										100.0
	1973	2			50.0	50.0							100.0
	1974	0											
	1975	0											
	1976	0											
	1977	0											
	1978	7		71.4	28.6								100.0
	1979	5			20.0	60.0	20.0						100.0
	1980	5		20.0	40.0		40.0						100.0
	1981	2		50.0	50.0								100.0
	1982	7		57.1	42.9								100.0
	1983	0											
	1984	3		66.7	33.3								100.0
	1985	4		75.0	25.0								100.0
Mid-Atlantic Total	1972	43	3.7	22.7	27.7	6.6	8.4	11.2	11.2	5.6	2.8		99.9
	1973	19	5.2	23.2	23.1	19.0		29.5					100.0
	1974	20			10.2	17.1	20.8	27.6	17.4	3.4	3.4		99.9
	1975	32		2.1	25.8	34.9	28.5	6.5	2.1				99.9
	1976	44		1.7	8.6	36.3	5.1	37.9	8.6	1.7			99.9
	1977	36		7.6	38.2	27.5	24.5	2.1					99.9
	1978	42	11.3	38.0	31.8	17.2	1.7						100.0
	1979	24	11.0	27.8	25.6	29.2	3.5	2.9					100.0
	1980	71	7.8	36.7	36.0	16.5	0.4	2.6					100.0
	1981	20	9.9	58.0	14.2	8.0		1.9			8.0		100.0
	1982	32		36.7	23.6	14.0		12.9	12.9				100.1
	1983	68	2.4	27.6	36.7	20.9	10.3	2.0					99.9
	1984	59	2.4	21.8	32.7	23.0	0.9	10.8	5.9			2.4	99.9
	1985	67	3.3	17.7	25.6	24.7	20.6	6.9	0.9		0.4		100.1

[1]Meat count for each sample was derived by calculating the average meat weight per scallop in each sample and dividing this value into 453.6 grams (1 pound). The average meat weight per scallop was calculated by applying the 1977-1982 USA Mid-Atlantic research survey sea scallop shell height-meat weight equation.

$$\text{Meat Weight (g)} = 5.22111 \times 10^{-6} \text{ Shell Height}_{(mm)}^{3.2539} \qquad (n = 11{,}943;\ r = 0.98)$$

to each shell height in the sample frequency distribution, multiplying by the frequency at length, summing the products, and dividing by the total number of scallops in the sample.

[2]Scallop dredge samples only.

Table 17. Percent frequency distribution of sample meat counts (number of scallop meats per pound) derived from USA commercial size frequency (shell height) samples from the Gulf of Maine, 1965-1985. For each year, the percent of samples within each 5-unit meat count interval is indicated[1].

Area	Year	Number[2] of Samples	Meat Count Intervals 5.0-9.9	10.0-14.9	15.0-19.9	20.0-24.9	25.0-29.9	30.0-34.9	35.0-39.9	40.0-44.9	45.0-49.9	≥50	Total
Gulf of Maine (SA 5Y)	1965[3]	1		100.0									100.0
	1966	0											
	1967	0											
	1968	0											
	1969	2			50.0	50.0							100.0
	1970	1			100.0								100.0
	1971	3			100.0								100.0
	1972	5			40.0				40.0	20.0			100.0
	1973	8		12.5	25.0		12.5	12.5		12.5		25.0	100.0
	1974	4			25.0	25.0				25.0	25.0		100.0
	1975	1		100.0									100.0
	1976	4				25.0	50.0	25.0					100.0
	1977	5		20.0		20.0				20.0	20.0	20.0	100.0
	1978	1								100.0			100.0
	1979	0											
	1980	30			5.6		5.6				27.8	61.1	100.1
	1981	4			50.0			25.0	25.0				100.0
	1982	3					33.3	66.7					100.0
	1983	10		20.0	20.0	30.0	10.0	10.0		10.0			100.0
	1984	4		50.0		25.0		25.0					100.0
	1985	5			40.0	20.0	20.0		20.0				100.0

[1]Meat count for each sample was derived by calculating the average meat weight per scallop in each sample and dividing this value into 453.6 grams (1 pound). The average meat weight per scallop was calculated by applying the 1980 and 1982 USA offshore Gulf of Maine commercial sample sea scallop shell height-meat weight equation,

$$\text{Meat weight (g)} = 8.69641 \times 10^{-6} \text{ Shell Height}_{(mm)}^{3.0584} \quad (n = 3{,}487;\ r = 0.97)$$

to each shell height in the sample frequency distribution, multiplying by the frequency at height, summing the products, and dividing by the total number of scallops in the sample.

[2]Scallop dredge samples only.

[3]During 1965-1971, individual scallops larger than 149 mm shell height that occurred in USA commercial samples were grouped into the 145-149 mm size frequency interval. Hence, for these samples, the true meat counts are lower than those calculated and presented in this table.

Table 18 Possible mixing combinations of sea scallops of different meat counts (number of meats per pound) under an average 35 count standard.

Meat Count	Meat Count				
	30	25	20	15	10
80	8/27	14/21	20/15	24/11	28/7
75	8/27	15/20	20/15	25/10	28/7
70	8/27	15/20	21/14	25/10	29/6
65	9/26	16/19	21/14	26/9	29/6
60	10/25	17/18	22/13	26/9	30/5
55	11/24	18/17	23/12	27/8	30/5
50	12/23	20/15	25/10	28/7	31/4
45	15/20	22/13	27/8	30/5	32/3
40	20/15	26/9	30/5	32/3	33/2

Table 19 USA sea scallop research survey relative abundance indices (standardized stratified mean number and mean weight per tow) (meats only, kg), mean shell height (mm), mean meat weight (g) per scallop, and average meat weight (number of scallop meats per pound) of sea scallops from NMFS surveys on Georges Bank, 1975, 1977-1985. Data are presented by principal scallop regions on Georges Bank. Survey indices are presented for pre-recruit (<70 mm shell height), recruit (≥70 mm shell height), and total scallops per tow.[1]

		Standardized Stratified Mean Number Per Tow			Standardized Stratified Mean Weight (kg) Per Tow					
Area	Year	Number <70 mm Per Tow	Number ≥70 mm Per Tow	Total Number Per Tow	Weight <70 mm Per Tow	Weight ≥70 mm Per Tow	Total Weight Per Tow	Mean Shell Height	Mean[2] Meat Weight	Average[3] Meat Count
South Channel	1975	30.2	26.3	56.5	0.07	0.77	0.84	81.9	14.8	30.6
	1977	3.9	53.0	56.9	0.01	1.15	1.16	101.1	20.4	22.2
	1978	5.2	33.2	38.4	0.02	0.76	0.78	101.2	20.4	22.2
	1979	4.5	56.5	61.0	0.01	0.98	0.99	93.1	16.2	28.0
	1980	51.2	19.3	70.5	0.08	0.35	0.43	58.2	6.1	74.6
	1981	9.9	24.0	33.9	0.02	0.43	0.45	81.2	13.3	34.0
	1982	139.3	41.9	181.2	0.32	0.60	0.92	60.7	5.1	89.4
	1983	15.2	37.0	52.2	0.04	0.52	0.56	79.6	10.7	42.3
	1984	10.2	17.9	28.1	0.02	0.35	0.37	81.2	13.3	34.1
	1985	30.1	33.1	63.2	0.00	0.53	0.61	74.2	9.6	47.1
Southeast Part	1974	1.8	38.4	40.2	<0.01	1.02	1.02	110.3	25.5	17.8
	1977	2.9	24.7	27.6	0.01	0.62	0.63	103.9	22.8	19.9
	1978	2.1	24.8	26.9	0.01	0.86	0.87	117.5	32.2	14.1
	1979	6.9	19.2	26.1	0.01	0.64	0.65	99.4	24.9	18.2
	1980	19.4	37.4	56.8	0.03	0.63	0.66	78.2	11.7	38.8
	1981	1.3	17.4	18.7	<0.01	0.42	0.42	102.5	22.2	20.5
	1982	0.7	8.8	9.5	<0.01	0.28	0.28	113.5	29.9	15.2
	1983	10.2	8.4	18.6	0.02	0.23	0.25	78.7	13.7	33.2
	1984	4.2	12.1	16.3	0.01	0.22	0.23	86.6	14.4	31.4
	1985	8.2	10.9	19.1	0.02	0.21	0.23	76.0	11.8	38.4
Northern Edge and Peak	1975	86.8	120.6	207.4	0.23	1.81	2.04	77.0	9.8	46.2
	1977	66.1	384.8	450.9	0.24	5.06	5.30	85.3	11.8	38.6
	1978	178.6	372.0	550.6	0.31	7.56	7.87	84.9	14.3	31.7
	1979	64.3	234.9	299.2	0.18	4.03	4.21	87.2	14.1	32.2
	1980	598.6	129.3	727.9	0.82	1.85	2.67	52.4	3.7	123.9
	1981	277.4	405.7	683.1	0.63	3.79	4.42	68.9	6.5	70.1
	1982	37.0	58.8	95.8	0.11	0.85	0.96	78.1	10.0	45.2
	1983	43.4	33.4	76.8	0.07	0.60	0.67	68.2	8.7	51.9
	1984	264.2	48.6	312.8	0.27	0.75	1.02	46.7	3.3	139.2
	1985	76.1	173.2	249.3	0.23	1.67	1.90	73.9	7.6	59.4
Georges Bank (All Areas)	1975	46.3	62.8	109.1	0.12	1.19	1.31	80.2	12.0	37.8
	1977	27.9	176.4	204.3	0.10	2.57	2.67	87.6	13.1	34.7
	1978	66.5	152.5	219.0	0.12	3.21	3.33	87.0	15.2	29.8
	1979	28.8	121.7	150.5	0.08	2.14	2.22	88.6	14.8	30.7
	1980	305.3	74.7	380.0	0.42	1.11	1.53	53.5	4.0	112.6
	1981	76.4	120.1	196.5	0.17	1.29	1.46	70.7	7.4	61.2
	1982	73.2	43.9	117.1	0.18	0.66	0.84	67.5	7.1	63.5
	1983	26.5	30.9	57.4	0.05	0.51	0.56	73.0	9.7	46.6
	1984	118.6	30.1	148.7	0.13	0.50	0.63	50.1	4.2	107.2
	1985	46.4	89.9	136.3	0.13	0.97	1.10	74.0	8.1	56.0

[1]Relative abundance indices for the Northern Edge and Peak, 1978-1981, were derived from Canadian research vessel survey data standardized to USA tow distance.

[2]Mean meat weight derived by applying the 1978-1982 USA Georges Bank research survey sea scallop shell height-meat weight equation,

$$\ln \text{Meat Weight (g)} = -11.7656 + 3.1693 \ln \text{Shell Height (mm)} \quad (n = 5863,\ r = 0.98)$$

to each shell height in the survey frequency distribution, multiplying by the frequency at height, summing the products, and dividing by the total number of scallops in the frequency distribution.

[3]Average meat count derived by dividing the calculated mean meat weight into 453.6 grams (1 pound).

Table 20 USA sea scallop research survey relative abundance indices (standardized stratified mean number and mean weight per tow), (meats only, kg), mean shell height (mm), mean meat weight (g) per scallop, and average meat count (number of scallop meats per pound) of sea scallops from NMFS surveys in the Mid-Atlantic, 1975, 1977-1985. Data are presented by principal scallop regions in the Mid-Atlantic. Survey indices are presented for pre-recruit (≤70 mm shell height), recruit (≥70 mm shell height) and total scallops per tow.

		Standardized Stratified Mean Number Per Tow			Standardized Stratified Mean Weight (kg) Per Tow					
Area	Year	Number <70 mm Per Tow	Number ≥70 mm Per Tow	Total Number Per Tow	Weight <70 mm Per Tow	Weight ≥70 mm Per Tow	Total Weight Per Tow	Mean Shell Height	Mean[1] Meat Weight	Average[2] Meat Count
New York Bight	1975	27.3	23.8	51.1	0.07	0.43	0.50	75.3	9.6	47.1
	1977	1.1	39.7	40.8	<0.01	0.72	0.72	98.5	17.7	25.7
	1978	2.5	36.7	39.2	0.01	0.80	0.81	102.6	20.6	22.0
	1979	3.9	13.7	17.6	0.01	0.35	0.36	95.3	20.2	22.4
	1980	10.7	10.8	21.5	0.02	0.25	0.27	75.7	12.4	35.6
	1981	13.1	13.5	26.6	0.02	0.21	0.23	68.2	8.6	52.5
	1982	7.9	15.1	23.0	0.02	0.24	0.26	78.5	11.1	40.8
	1983	8.0	9.9	17.9	0.02	0.20	0.22	80.6	12.5	36.2
	1984	13.0	13.9	26.9	0.02	0.23	0.25	70.3	9.4	48.3
	1985	34.0	22.1	56.1	0.07	0.31	0.38	65.7	6.8	66.5
Delmarva	1975	25.2	16.1	41.3	0.09	0.24	0.33	72.1	7.9	57.7
	1977	2.9	24.2	27.1	0.01	0.60	0.62	103.9	22.7	20.0
	1978	8.3	26.2	34.5	0.03	0.62	0.65	95.7	18.9	24.1
	1979	30.8	39.3	70.1	0.05	0.60	0.65	73.7	9.3	48.9
	1980	23.4	13.3	36.7	0.04	0.27	0.31	66.8	8.4	54.3
	1981	2.8	5.9	8.7	0.01	0.15	0.16	90.1	18.0	25.2
	1982	5.5	8.0	13.5	0.02	0.18	0.20	85.2	14.5	31.3
	1983	7.8	5.4	13.2	0.03	0.13	0.16	78.7	11.8	38.4
	1984	5.4	6.9	12.3	0.01	0.15	0.16	75.8	12.8	35.5
	1985	24.0	11.4	35.4	0.04	0.18	0.22	57.1	6.3	72.1
Virginia-No. Carolina	1975	47.7	11.0	58.7	0.17	0.14	0.31	66.0	5.3	86.2
	1977	0.2	0.3	0.5	<0.01	0.01	0.01	88.7	14.2	31.9
	1978	15.7	7.3	23.0	0.06	0.09	0.15	68.7	6.4	71.2
	1979	4.6	6.5	11.1	0.01	0.10	0.11	75.3	9.9	45.9
	1980	0.8	4.6	5.4	<0.01	0.07	0.07	87.9	13.5	33.7
	1981	0.4	0.8	1.2	<0.01	0.02	0.02	95.2	18.5	24.5
	1982	1.0	0.3	1.3	<0.01	0.01	0.01	67.3	7.5	60.2
	1983	4.7	2.0	6.7	0.01	0.07	0.08	74.7	11.6	39.0
	1984	0.1	0.8	0.9	<0.01	0.02	0.02	95.3	17.4	26.1
	1985	2.9	2.3	5.2	0.01	0.03	0.04	70.8	7.5	60.2
Mid-Atlantic (All Areas)	1975	29.0	19.6	48.6	0.08	0.33	0.41	73.0	8.5	53.4
	1977	1.6	30.3	31.9	<0.01	0.61	0.61	100.0	19.0	23.8
	1978	6.0	29.7	35.7	0.02	0.66	0.68	97.8	18.9	23.9
	1979	13.9	22.9	36.8	0.02	0.43	0.45	79.9	12.4	36.6
	1980	14.8	11.3	26.1	0.02	0.25	0.27	71.3	10.4	43.8
	1981	8.6	10.0	18.6	0.01	0.18	0.19	72.0	10.3	44.2
	1982	6.2	10.9	17.1	0.01	0.19	0.20	80.2	12.0	37.9
	1983	7.6	7.4	15.0	0.02	0.16	0.18	79.7	12.3	37.0
	1984	8.8	10.0	18.8	0.01	0.18	0.19	71.6	10.2	44.5
	1985	26.8	16.1	42.9	0.06	0.23	0.29	63.4	6.7	67.8

[1]Mean meat weight derived by applying the 1977-1982 USA Mid-Atlantic research survey sea scallop shell height-meat weight equation,

$$\ln \text{Meat Weight (g)} = -12.1628 + 3.2539 \ln \text{Shell Height (mm)} \quad (n = 11943,\ r = 0.98)$$

to each shell height in the survey frequency distribution, multiplying by the frequency at height, summing the products, and dividing by the total number of scallops in the frequency distribution.

[2]Average meat count derived by dividing the calculated mean meat weight into 453.6 grams (1 pound).

Table 21. Summary of 1985 NMFS sea scallop research vessel survey data for sea scallops, by sampling stratum. Shell height data are in mm (25.4 mm = 1 inch); meat weight data are in grams (453.6g = 1 pound); meat count refers to number of meats per pound. Area mean number and mean weight per tow values represent stratified means weighted by stratum area.

Stratum or Area	Depth Range (fm)	No. of Tows	Mean Number Per Tow: Number <70 mm Per Tow	Mean Number Per Tow: Number >70 mm Per Tow	Mean Number Per Tow: Total Number Per Tow	All Scallops: Average Shell Height	All Scallops: Calculated[1] Meat Count	Average Meat Weight (g) Per Tow	Percent Distribution of Catch in Numbers: >80 Count	80-40 Count	40-35 Count	35-30 Count	<30 Count
1	15-25	3	5.3**	3.4	8.7	65	98	40	61.5	38.5	0.0	0.0	0.0
2	25-30	3	0.3	0.0	0.3	27	1911	< 1	100.0	0.0	0.0	0.0	0.0
3	30-40	3	0.0	1.0	1.0	99	28	16	0.0	0.0	33.3	33.3	33.4
4	40-60	3	0.0	0.0	0.0	-	-	-	-	-	-	-	-
5	15-25	3	0.0	0.7	0.7	135	10	30	0.0	0.0	0.0	0.0	100.0
6	25-30	5	2.2	10.0	12.2	107	17	333	18.0	0.0	0.0	0.0	82.0
7	30-40	5	1.0	3.8	4.8	98	23	93	20.8	4.2	0.0	16.7	58.3
8	40-60	3	0.0	0.0	0.0	-	-	-	-	-	-	-	-
Virginia-No. Carolina (1-8)	*15-60*	*28*	*2.9*	*2.3*	*5.2*	*71*	*60*	*39*	*55.8*	*33.7*	*0.4*	*0.7*	*9.4*
9	15-25	4	17.8**	5.7	23.5	49	56	191	75.5	0.0	0.0	0.0	24.5
10	25-30	8	22.6	14.0	36.6	69	44	380	61.8	8.2	1.4	1.7	26.9
11	30-40	8	24.4	18.0	42.4	68	47	408	53.5	16.5	3.2	3.8	19.0
12	40-60	4	0.0	0.8	0.8	92	35	10	0.0	66.7	0.0	0.0	33.3
13	15-25	4	0.0	0.8	0.8	97	30	11	0.0	0.0	33.3	33.3	33.4
14	25-30	10	131.7**	28.0	159.7**	39	163	444	82.4	12.5	0.7	0.4	4.0
15	30-40	12	35.3	27.3	62.6	72	51	552	56.5	21.3	3.3	1.6	17.3
16	40-60	8	3.5	2.4	5.9	71	57	46	59.6	17.0	2.1	2.1	19.2
17	15-25	3	0.0	1.3	1.3	115	17	35	0.0	0.0	0.0	0.0	100.0
18	25-30	8	68.9**	15.7	84.6	45	134	286	81.3	12.3	1.2	1.2	4.0
19	30-40	8	137.9	99.6**	237.5	67	85	1271	58.1	38.5	0.9	0.8	1.7
20	40-60	3	3.0	2.7	5.7	72	38	68**	53.0	23.5	5.9	0.0	17.6
Delmarva (9-20)	*15-60*	*80*	*24.0*	*11.4*	*35.4*	*57*	*72*	*223*	*67.8*	*18.4*	*1.2*	*1.0*	*11.6*
21	15-25	4	5.5**	3.8	9.3	67	51	82	59.5	24.3	5.4	0.0	10.8
22	25-30	8	13.8**	7.5	21.3	54	58	165	64.7	14.7	4.7	4.1	11.8
23	30-40	16	72.1**	23.9	96.0	56	80	545	75.0	14.3	1.3	1.5	7.9
24	40-60	6	0.7	7.3	8.0	91	30	121	8.3	41.7	8.3	4.2	37.5
25	15-25	4	5.3	13.7	19.0	86	29	294	27.7	19.7	6.6	6.6	39.4
26	25-30	14	48.7	23.5	72.2	56	80	410	67.5	15.9	4.6	2.4	9.6
27	30-40	12	165.3**	66.8	232.1**	64	91	1163	71.2	23.3	2.0	0.7	2.8
28	40-60	6	70.8	36.7	107.5	65	85	574**	65.8	27.8	1.4	0.9	4.1
29	15-25	6	3.3	13.0	16.3	88	28	265	20.4	20.4	12.2	8.2	38.8
30	25-30	15	23.7**	28.4	52.1	68	50	472	45.6	24.7	4.7	4.6	20.4
31	30-40	24	122.7**	35.1	157.8	60	100	714	77.7	13.9	2.1	1.7	4.6
32	40-60	4	0.3	0.5	0.8	79	43	8	33.3	0.0	33.3	0.0	33.4
33	15-25	10	17.2	50.0	67.2	78	47	646	25.6	45.5	9.2	7.0	12.7
34	25-30	10	19.6	55.2	74.8	80	44	780**	26.2	38.0	8.3	7.8	19.7
35	30-40	6	41.2**	71.6**	112.8**	74	55	936	36.4	35.2	8.0	9.2	11.2
36	40-60	2	0.0	0.0	0.0	-	-	-	-	-	-	-	-
New York Bight (21-36)	*15-60*	*147*	*34.0*	*22.1*	*56.1***	*66*	*66*	*383*	*60.5*	*22.4*	*4.0*	*3.3*	*9.8*
Mid-Atlantic (1-36)	*15-60*	*255*	*26.8*	*16.1*	*42.9*	*63*	*68*	*287*	*62.4*	*21.5*	*3.2*	*2.6*	*10.3*

Table 21. Continued.

Stratum or Area	Depth Range (fm)	No. of Tows	Mean Number Per Tow: Number <70 mm Per Tow	Mean Number Per Tow: Number >70 mm Per Tow	Mean Number Per Tow: Total Number Per Tow	All Scallops: Average Shell Height	All Scallops: Calculated[1] Meat Count	Average Meat Weight (g) Per Tow	Percent Distribution of Catch in Numbers: >80 Count	80-40 Count	40-35 Count	35-30 Count	<30 Count
37	15-25	2	8.5	17.0	25.5	81	33	349	33.3	15.7	7.8	17.6	25.6
38	25-30	6	1.2	21.6	22.8	104	21	488	5.1	23.4	3.6	4.4	63.5
39	30-40	3	1.3	1.7	3.0	64	88	15	44.4	55.6	0.0	0.0	0.0
40	40-60	2	0.0	0.0	0.0	-	-	-	-	-	-	-	-
41	15-25	3	0.7	0.6	1.3	73	47	13	50.0	25.0	-	-	25.0
42	25-30	3	0.0	0.0	0.0	-	-	-	-	-	-	-	-
43	30-40	2	0.0	0.0	0.0	-	-	-	-	-	-	-	-
44	40-60	2	0.5	0.0	0.5	52	213	1	100.0	-	-	-	-
So. New England (37-44)	*15-60*	*23*	*1.9*	*4.6*	*6.5*	*84*	*32*	*94*	*28.9*	*21.9*	*5.5*	*12.0*	*31.4*
45	15-25	3	9.7	1.6	11.3	36	113	46	85.3	5.9	0.0	0.0	8.8
46	25-30	6	15.0**	12.8	27.8	63	66	190	53.9	40.1	0.6	1.2	4.2
47	30-40	10	53.7**	33.6	87.3**	71	53	750	61.5	18.7	3.6	4.8	11.4
48	40-60	9	14.1**	11.2	25.3	74	55	209	55.7	22.8	2.6	4.4	14.5
49	15-25	9	28.0	20.3	48.3	65	57	383	57.9	19.5	6.7	3.7	12.2
50	25-30	12	217.2	101.2	318.4	61	84	1729	68.2	19.2	3.7	2.4	6.5
51	30-40	12	55.1	27.3	82.4	61	66	562	66.8	8.3	3.5	5.0	16.4
52	40-60	7	20.1	223.2**	243.3**	90	34	3244**	8.3	36.3	8.3	16.3	30.8
53	40-60	7	8.1**	27.0	35.1	96	22	709	23.2	24.0	2.4	5.3	45.1
54	30-40	7	15.1	17.0	32.1	85	29	499	47.1	20.0	3.1	3.1	26.7
55	30-40	7	26.6**	13.3	39.9**	74	43	417	66.7	10.4	4.7	6.5	11.7
56	40-60	3	6.3**	0.4	6.7	45	254	12	95.0	5.0	0.0	0.0	0.0
South Channel (45-56)	*15-60*	*92*	*30.1*	*33.1*	*63.2*	*74*	*47*	*609*	*47.7*	*23.6*	*4.6*	*7.0*	*17.1*
57	30-40	3	0.0	3.0	3.0	125	11	123	0.0	11.1	11.1	0.0	77.8
58	40-60	4	15.3**	3.2	18.5**	56	61	139	82.4	9.5	0.0	0.0	8.1
59	30-40	12	8.0	10.7	18.7	83	34	249	42.9	13.4	7.1	7.6	29.0
60	40-60	12	7.6	15.7	23.3	77	40	267	32.5	36.4	6.1	3.9	21.1
So. East Part (57-60)	*30-60*	*31*	*8.2*	*10.9*	*19.1*	*76*	*38*	*226*	*42.8*	*25.2*	*5.5*	*4.3*	*22.2*
61	30-40	8	2.1	18.4	20.5	99	23	401	10.4	19.5	14.6	14.6	40.9
621	40-60	12	46.9	36.8	83.7	64	62	610	56.1	28.9	2.7	1.5	10.8
631	30-40	7	6.3	9.4	15.7	82	37	193	40.0	22.7	11.8	9.1	16.4
651	30-40	10	168.4	186.9	355.3	68	72	2250	47.4	45.8	2.3	1.6	2.9
661	40-60	10	97.7	100.3	198.0	71	64	1412	49.3	38.5	3.1	2.2	6.9
71	25-30	6	13.8	18.5	32.3	75	38	383*	42.8	20.6	7.7	8.2	20.7
72	15-25	6	0.8	5.0*	5.8*	92	26	101*	14.3	28.6	20.0	5.7	31.4
73	15-25	5	0.4	4.2	4.6	104	21	99	8.7	8.7	4.3	0.0	78.3
74	25-30	8	0.8	8.3	9.1	110	16	258	8.2	15.1	6.8	4.1	65.8
USA No. Edge & Peak (61-661,71-74)	*15-60*	*72*	*18.5*	*23.2*	*41.7*	*73*	*48*	*396*	*44.5*	*32.9*	*4.7*	*3.5*	*14.4*
622	40-60	4	138.8	83.2	222.0	64	71	1420	62.5	24.3	1.8	2.8	8.6
632	30-40	7	108.7	160.9	269.6	73	64	1918	40.3	50.9	3.5	2.1	3.2
64	40-60	16	193.9	651.0**	844.9	76	59	6481	23.0	68.2	3.5	2.1	3.2
652	30-40	6	664.0	910.8	1574.8	68	78	9178	42.2	53.6	1.7	1.2	1.3
662	40-60	8	167.1	109.8	276.9	68	63	1992	60.4	11.3	8.3	10.1	9.9
Can. No. Edge & Peak (622-662,64)	*30-60*	*41*	*186.0*	*460.3*	*646.3*	*74*	*61*	*4784*	*28.8*	*61.9*	*3.5*	*2.3*	*3.5*
Total No. Edge & Peak (61-66,71-74)	*15-60*	*113*	*76.0*	*173.2*	*249.2*	*74*	*59*	*1902*	*30.5*	*58.7*	*3.6*	*2.5*	*4.7*
Georges Bank (45-66, 71-74)	*15-60*	*236*	*46.4*	*89.9*	*136.3*	*74*	*56*	*1105*	*34.1*	*51.3*	*3.9*	*3.2*	*7.5*

[1]Derived by applying shell height-meat weight equations to shell height frequency distributions.
*Lowest value obtained in 1975-1985 survey time series.
**Highest value obtained in 1975-1985 survey time series.

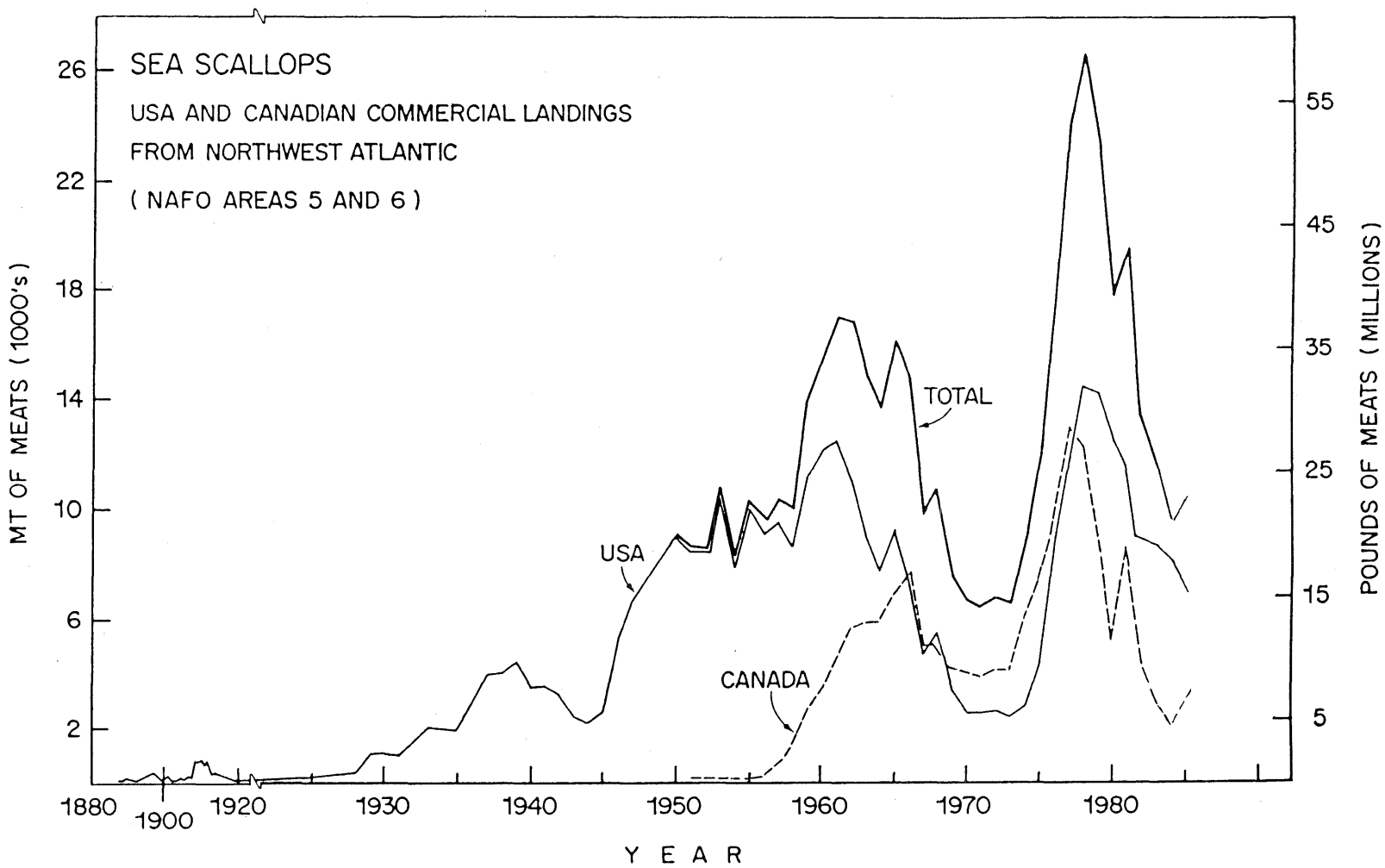

Figure 1. USA and Canadian commercial sea scallop landings (meats) from the Northwest Atlantic (NAFO Areas 5 and 6), 1887-1985.

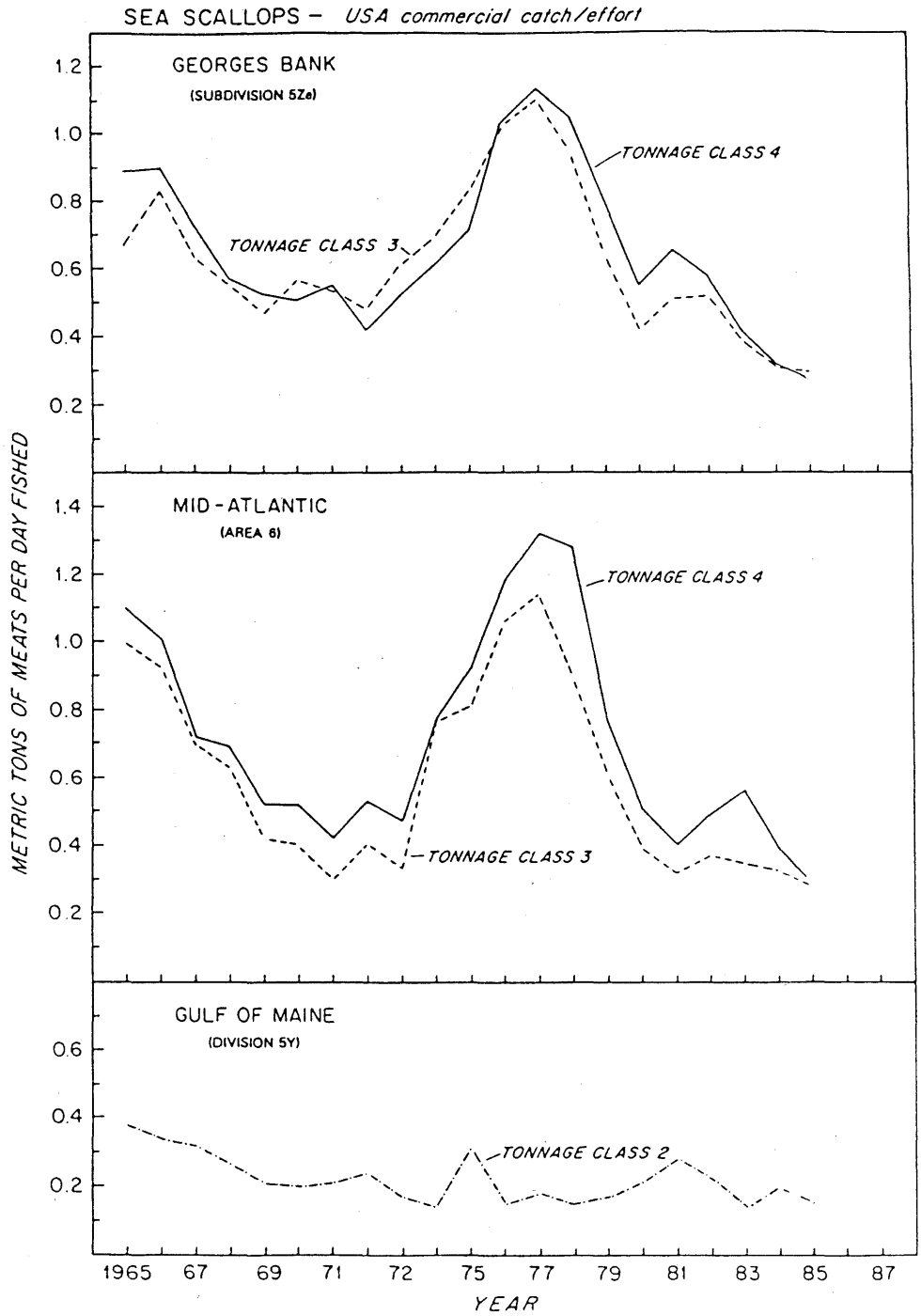

Figure 2. USA commercial sea scallop catch rates (metric tons of meats landed per day fished) from Georges Bank (NAFO Subdivision 5Ze), the Mid-Atlantic region (NAFO Statistical Area 6) and the Gulf of Maine (NAFO Division 5Y), by principal vessel tonnage class, 1965-1985. Data derived from vessels using scallop dredges and landing in New England (1965-1985) and Mid-Atlantic (1978-1985) ports.

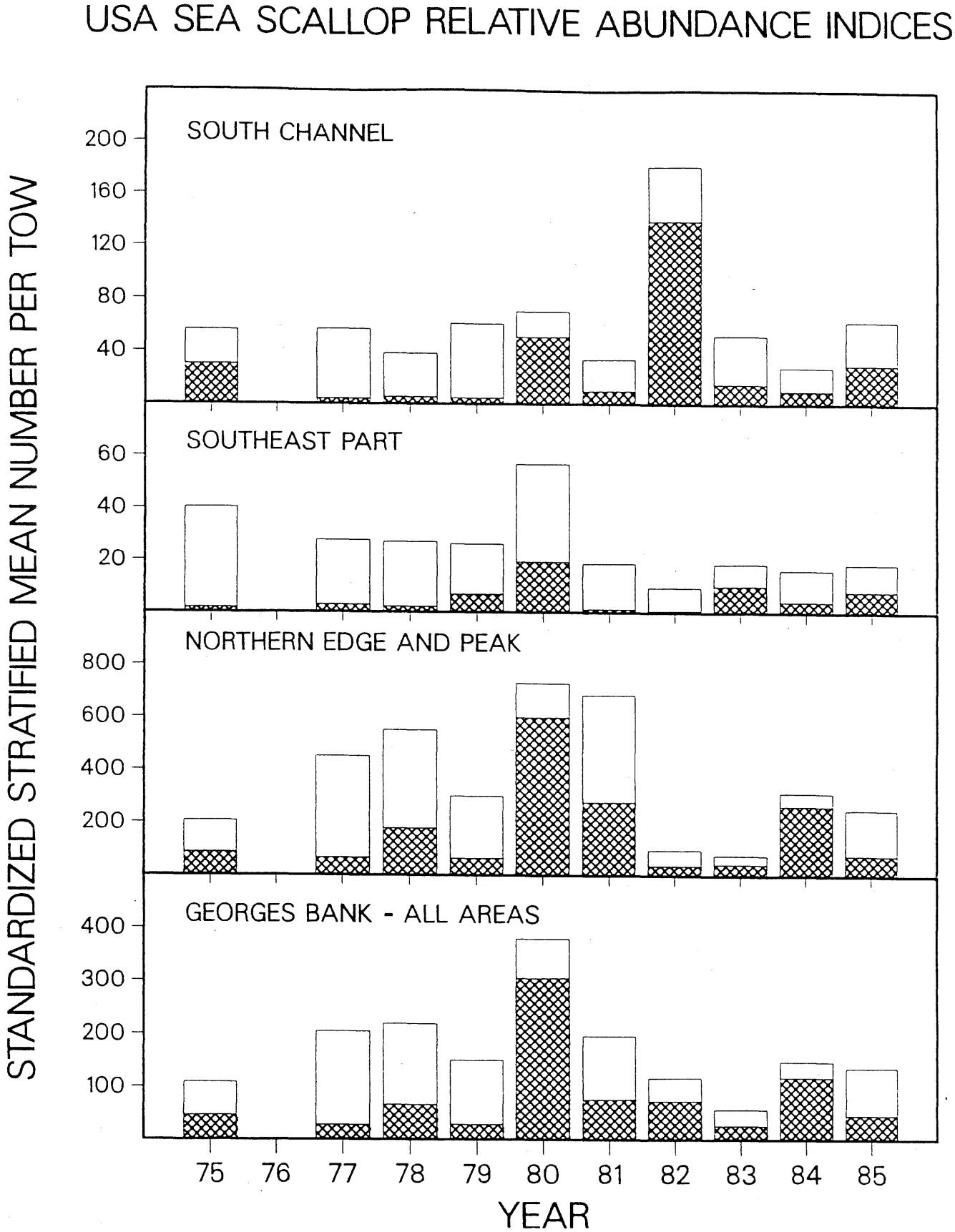

Figure 3. USA sea scallop relative abundance indices (standardized stratified mean number per tow), by principal scallop regions on Georges Bank, from USA sea scallop research vessel surveys of Georges Bank conducted during 1975 and 1977-1985. The shaded portion of each bar represents the relative abundance of pre-recruit scallops (<70 mm shell height); the upper, non-shaded portion of each bar represents the relative abundance of recruit or commercial-size scallops (≥70 mm shell height).

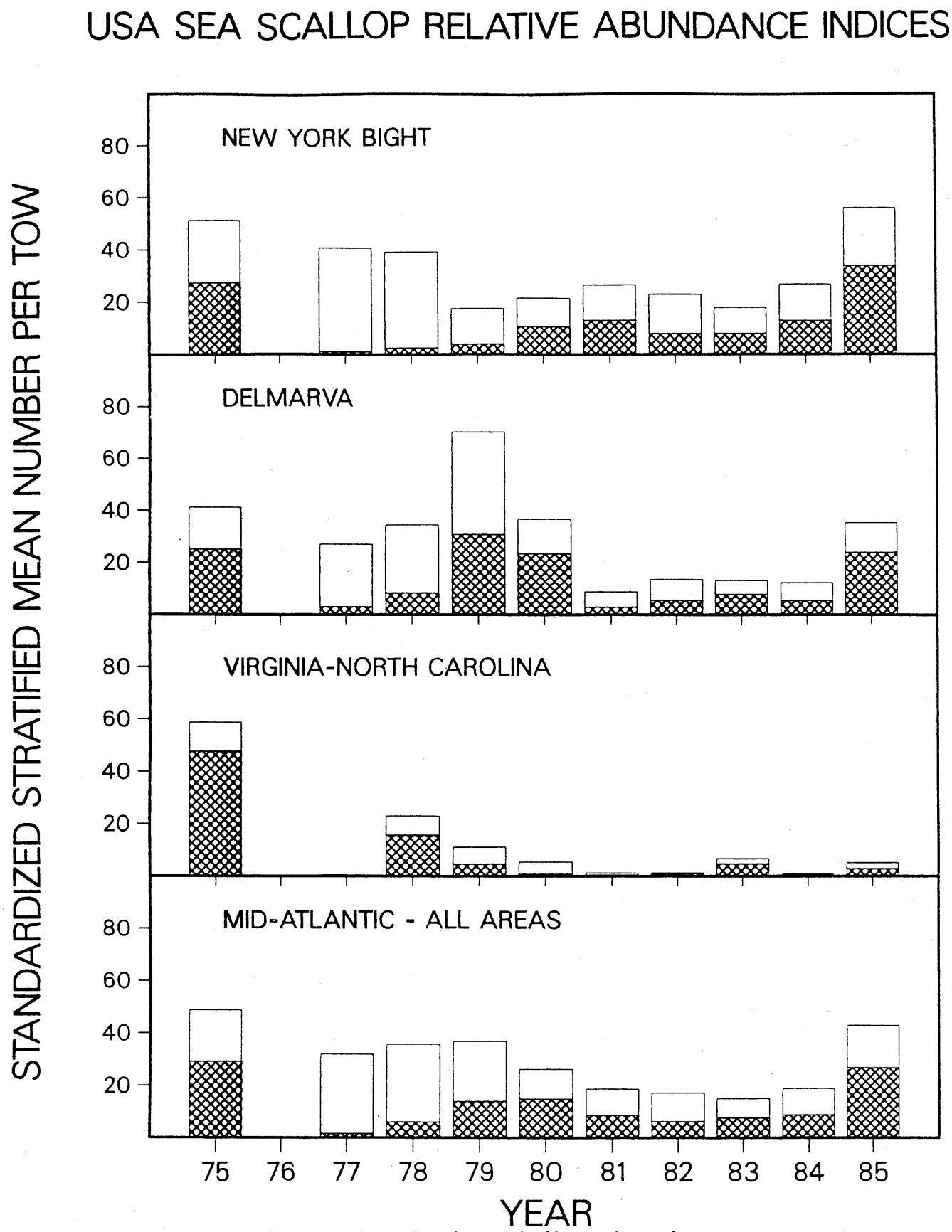

Figure 4. USA sea scallop relative abundance indices (standardized stratified mean number pe tow), by principal scallop regions in the Middle Atlantic, from USA sea scallop research vessel surveys in the Middle Atlantic conducted during 1975 and 1977-1985. The shaded portion of each bar represents the relative abundance of pre-recruit scallops (<70 mm shell height); the upper, non-shaded portion of each bar represents the relative abundance of recruit or commercial-size scallops (≥70 mm shell height).

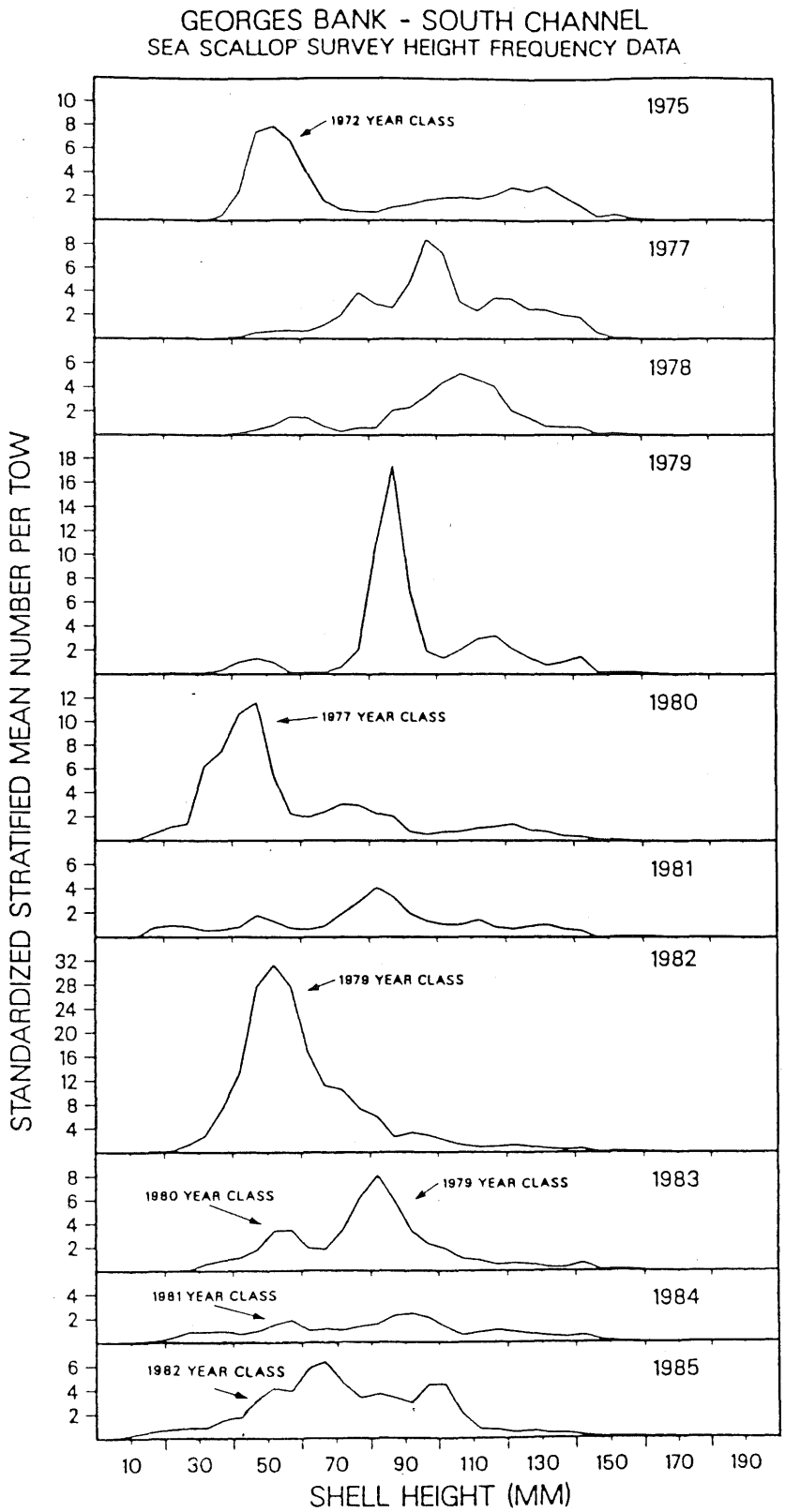

Figure 5. USA sea scallop research vessel survey shell height frequency distributions of sea scallops from the South Channel region (Strata 45-56) of Georges Bank, 1975, 1977-1985.

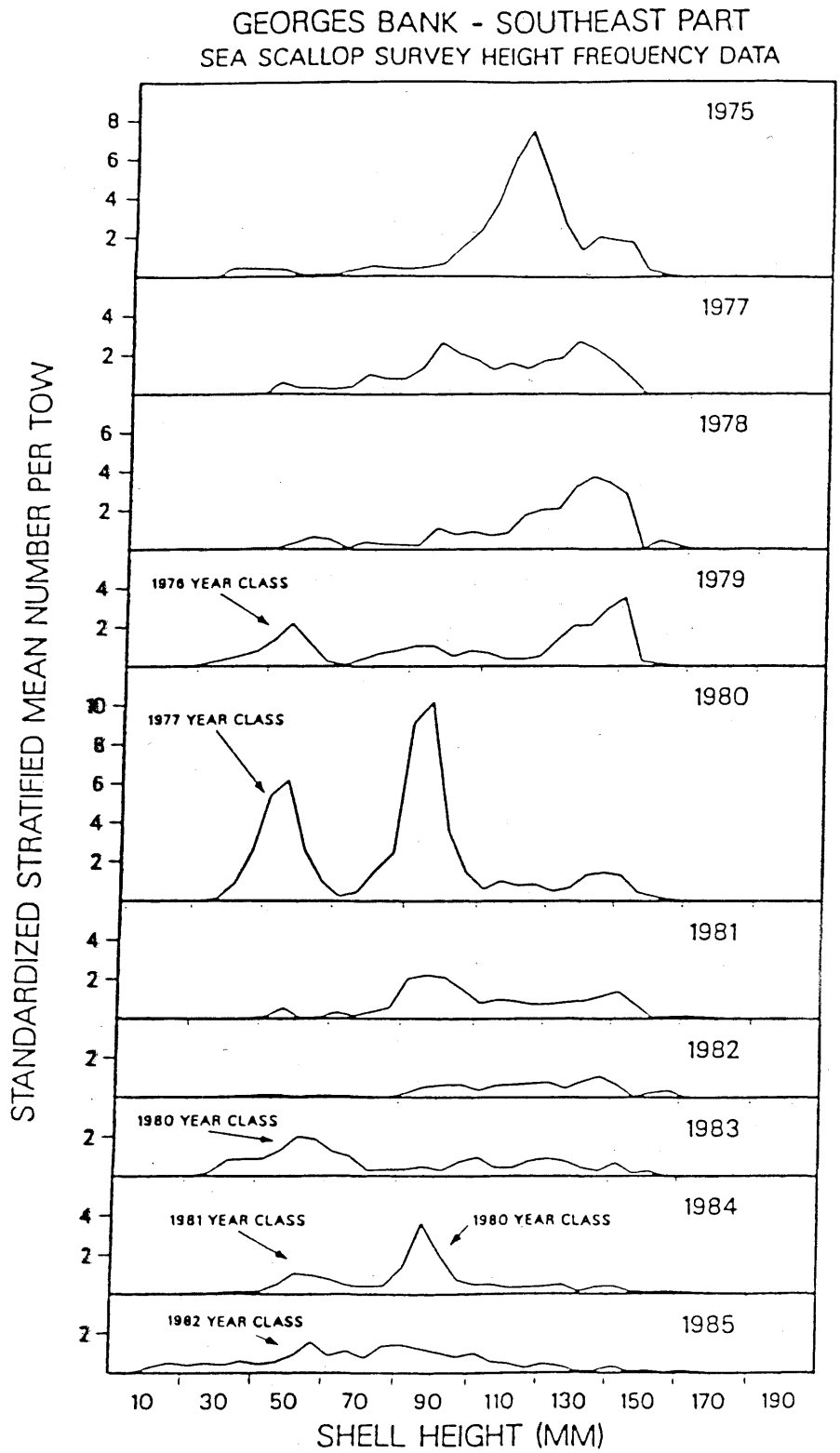

Figure 6. USA sea scallop research vessel survey shell height frequency distributions of sea scallops from the Southeast Part region (Strata 57-60) of Georges Bank, 1975, 1977-1985.

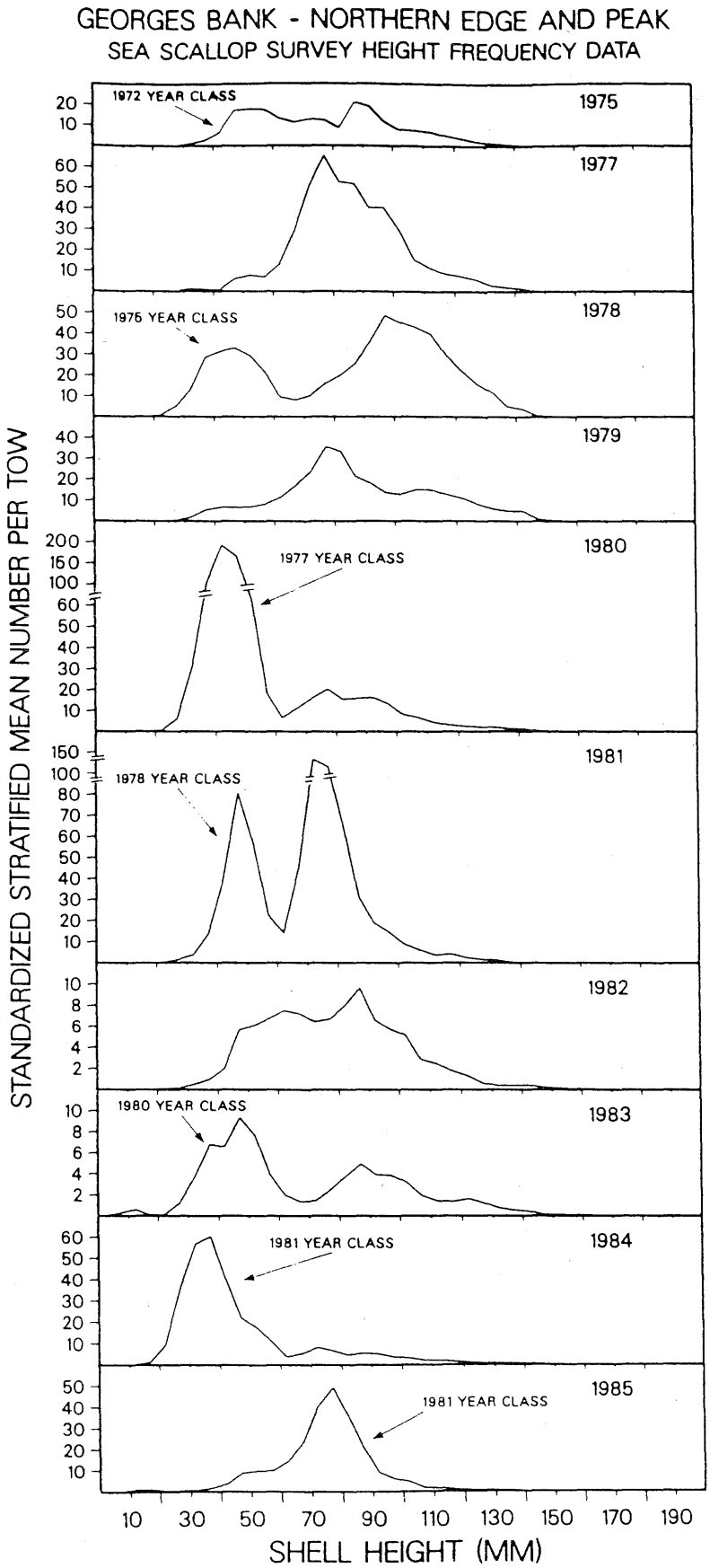

Figure 7. Sea scallop research vessel survey shell height frequency distributions of sea scallops from the Northern Edge and Peak region (Strata 61-66; 71-74) of Georges Bank, 1975, 1977-1985.

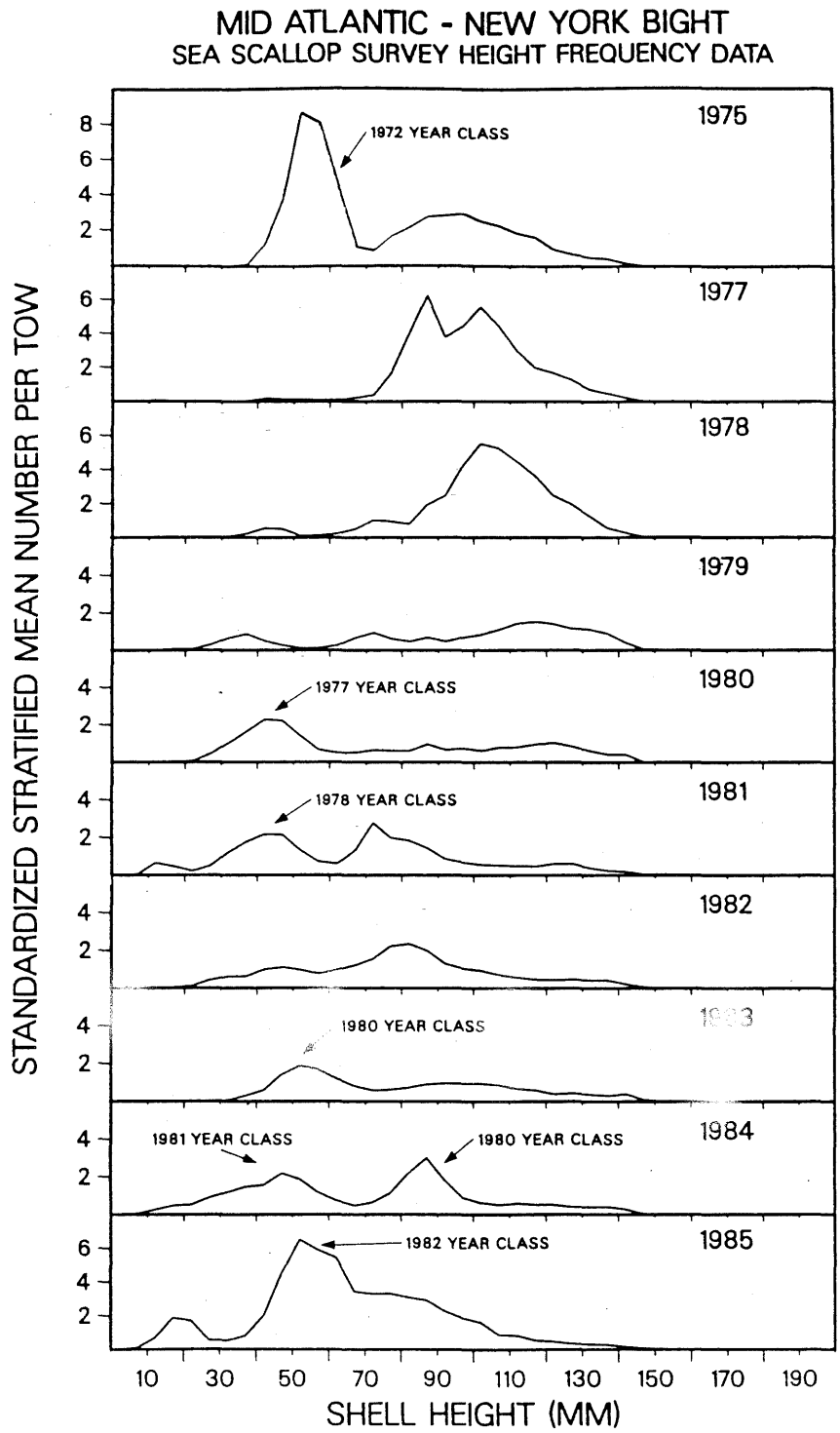

Figure 8. USA sea scallop research vessel survey shell height frequency distributions of sea scallops from the New York Bight region (Strata 21-36) of the Middle Atlantic, 1975, 1977-1985.

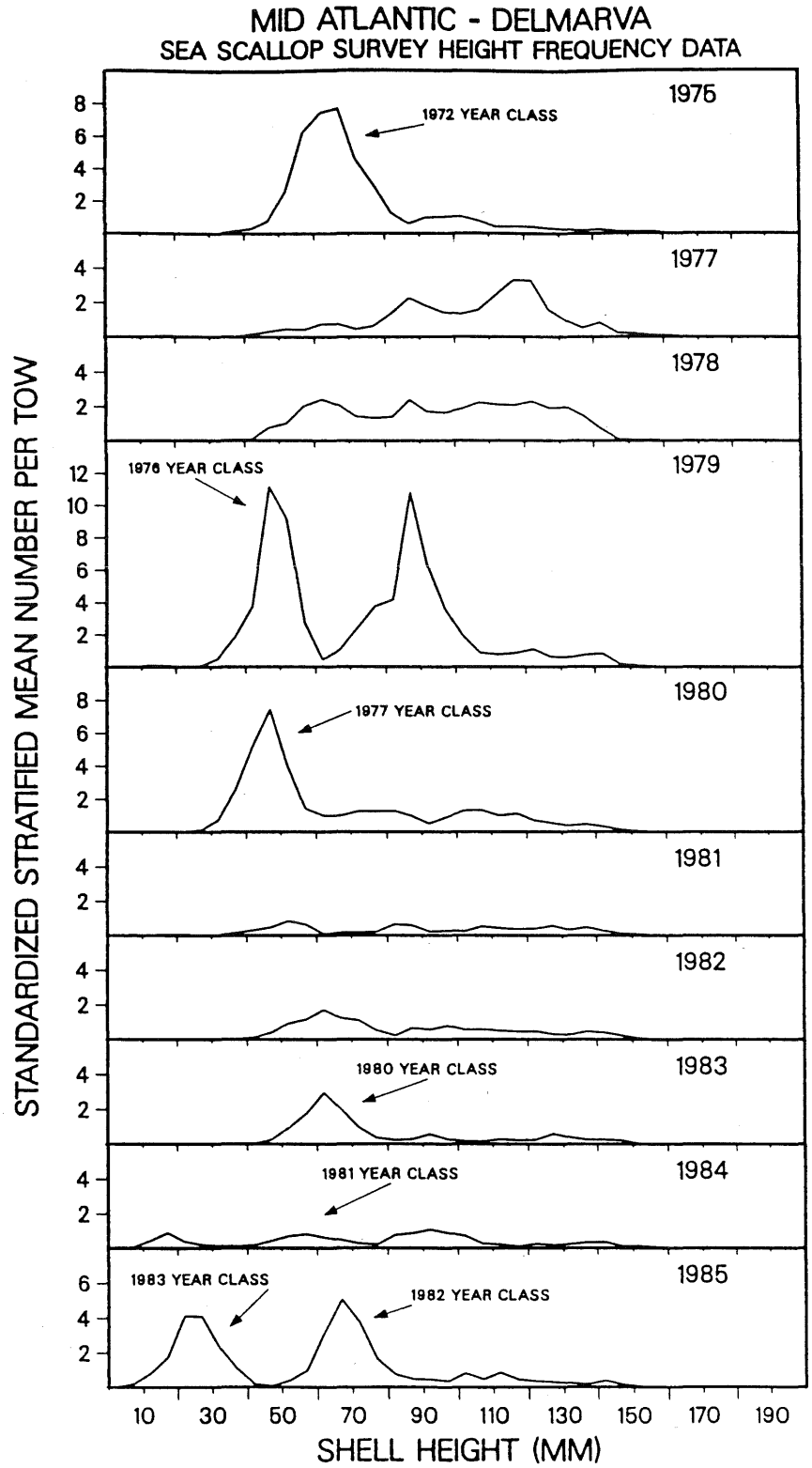

Figure 9. USA sea scallop research vessel survey shell height frequency distributions of sea scallops from the Delmarva region (Strata 9-20) of the Middle Atlantic, 1975, 1977-1985.

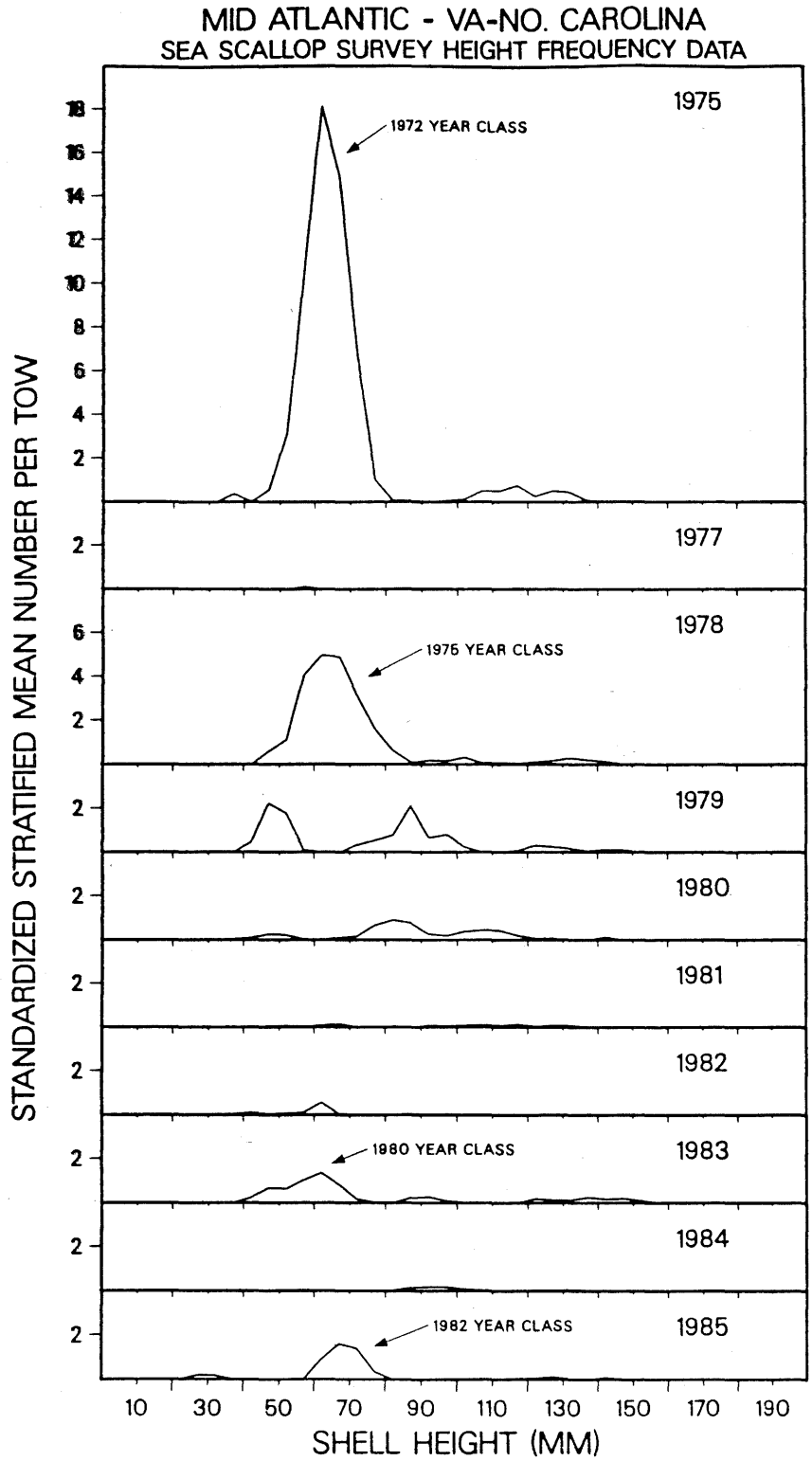

Figure 10. USA sea scallop research vessel survey shell height frequency distributions of sea scallops from the Virginia-North Carolina region (Strata 1-8) of the Middle Atlantic, 1975, 1977-1985.