

## The Atlantic Coast Surf Clam Fishery—1974

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**ABSTRACT**—The 1974 surf clam fishery produced landings of 96.1 million pounds of meats, 14.8 million pounds more than in 1973. Landings at Virginia ports were 34 percent higher than in 1973 and amounted to over half of the U.S. total. An increase in landings at Atlantic City, N.J., contributed substantially to an increase in New Jersey landings and other ports showed more moderate gains or losses.

### INTRODUCTION

Landings of surf clams, *Spisula solidissima*, along the Middle Atlantic Bight have steadily increased from the beginning of the modern-day fishery in 1945 until today. This resource supplies most of the meats for clam products in the United States. A summary of annual reports for 1965–69, Ropes (1972), indicated that surf clams provided meats for more than half of the U.S. clam products during the 5-year period. Annual reports for 1970–73 documented changes in landings, areas fished, and fleet activities (Ropes and Barker, 1972; Ropes, Barker, and Ward, 1972, 1975; Ropes, Merrill, and Ward, 1975). These and the present report indicate the sharp increase in the utilization of the surf clam resource. In 1974, for example, surf clams supplied 82 percent (by weight) of the total production of clam meats in the United States, an increase of 2 percent over that reported for 1973. Most of the increase was from beds off the Virginia coast. This report compares landings at Virginia, Maryland, and New Jersey ports.

### INFORMATION SOURCE

Landings data in the Middle Atlantic Bight were supplied by the Division of Statistics and Market News, National Marine Fisheries Service, NOAA. Landings by vessel are generally obtainable at

each port from New York through Virginia.

Interviews by port samplers provided specific information on fishing areas, catch, and effort at Point Pleasant, N.J., and in Maryland and Virginia. No interview records were obtained for vessels fishing off New York, Atlantic City and Cape May-Wildwood, N.J., and Delaware, but from personal communications with industry representatives and vessel captains, it appears that no significant new fishing areas were added to those reported for 1973.

### FLEET OPERATIONS AND LANDINGS BY AREA

The number of vessels in the surf clam fleet in 1973 and 1974 and the landings by area are presented in Table 1. In 1974 a total



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of 98 vessels, as in 1973, made up the fishing fleet in the Middle Atlantic Bight. The Virginia fleet increased by 11 to 32 vessels. Four vessels were based at Chincoteague, 5 at Oyster, 3 at Kiptopeke, 19 at Cape Charles, and 1 at Little Creek. The Division of Statistics and Market News observed that as many as 42 vessels used the Virginia ports at various times. The additional 10 vessels were migrants to the area from more northern ports.

The Maryland fleet consisted of 13 vessels—4 less than in 1973. Three very efficient vessels landed their catch in Delaware, although their home port was Cape May-Wildwood. A total of 44 vessels comprised the New Jersey fleet. Twenty-two vessels were based at Cape May-Wildwood—8 fewer than in 1973; 11 at Point Pleasant—a decrease of 2; and 3 vessels shifted to Atlantic City to increase that fleet to 11. The New York fleet, based mostly at

Table 1.—Surf clam vessels and landings by area (1973–74).

Area	Number of vessels		Landings in millions of lb	
	1973	1974	1973	1974
Chincoteague to Norfolk, Va.	<sup>1</sup> 21	32	43.3	58.2
Cape May—Wildwood, N.J.	30	22	12.5	12.6
Atlantic City, N.J.	8	11	4.7	6.4
Lewes, Del.	2	3	6.6	5.8
Ocean City, Md.	<sup>1</sup> 17	<sup>1</sup> 13	7.5	5.4
Long Island, N.Y.	<sup>3</sup> 7	<sup>3</sup> 6	3.2	3.8
Point Pleasant, N.J.	<sup>2</sup> 13	<sup>2</sup> 11	4.1	3.5
Total	98	98	481.9	595.7

<sup>1</sup>Includes one part-time clammer.

<sup>2</sup>Includes one bait clam vessel.

<sup>3</sup>Includes two bait clam vessels.

<sup>4</sup>Total is less 0.338 million pounds of bait.

<sup>5</sup>Total is less 0.250 million pounds of bait.

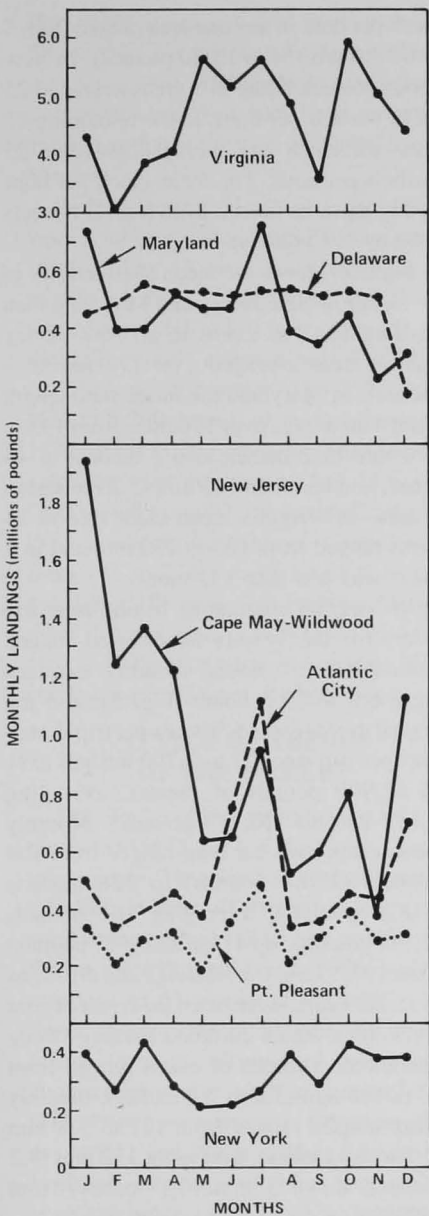


Figure 1.—Monthly landings of surf clams at ports in Virginia, Maryland, Delaware, New Jersey, and New York—1974.

Freeport, Long Island, decreased by 1 to a total of 6 vessels. Eight vessels quit clamming, 2 sank, and 10 new vessels were added to the total fleet in 1974. This resulted in no net change in the number of vessels.

Landings of 96.0 million pounds of meats were 14.8 million pounds (18 percent) higher than in 1973 (Table 1). Virginia landings increased from 43.3 to 58.2 million pounds, a total of 14.9 million pounds (34 percent) over those reported for 1973.

Monthly catches ranged from 3.1 to 6.0 million pounds and averaged 4.6 million pounds (Fig. 1). Maryland landings of 5.4 million pounds were lower than in 1973 by 28 percent (2.1 million pounds). Monthly catches ranged from 0.2 to 0.8 million pounds and averaged 0.5 million pounds. Delaware landings of 5.8 million pounds were 0.8 million pounds lower than in 1973; monthly catches ranged from 0.2 to 0.6 million pounds and averaged 0.5 million pounds. New Jersey landings of 22.5 million pounds were 1.2 million pounds (6 percent) higher than in 1973. Ports of landing were at Cape May-Wildwood, Point Pleasant, and Atlantic City. Landings at Cape May-Wildwood were 0.1 million pounds higher than in 1973. This port has supplied more than half the New Jersey landings since 1967 and its contribution was 56 percent (12.6 million pounds) in 1974. Monthly catches were from 0.4 to 2.1 million pounds, averaging 1.1 million pounds. Vessels at Point Pleasant landed 3.5 million pounds. The decrease at this port was 15 percent (0.6 million pounds), averaging 0.3 million pounds. Vessels at Atlantic City, however, landed 6.4 million pounds, a 36 percent (1.7-million pound) increase over 1973. Monthly landings were from 0.3 to 1.3 million pounds and averaged 0.5 million pounds. The increase at Atlantic City more than compensated for the lower landings at Point Pleasant and contributed to the increase in total New Jersey landings. New York landings of 3.8 million pounds were 0.6 million pounds higher than in 1973. Monthly landings were from 0.2 to 0.4 million pounds, averaging 0.3 million pounds.

In summary, Virginia landings were 61 percent of the 1974 total—New Jersey 23 percent, Maryland 6 percent, Delaware 6 percent, and New York 4 percent. By contrast, 1973 landings by the respective states were 53 percent, 26 percent, 9 percent, 8 percent, and 4 percent.

### FISHING STATISTICS FROM INTERVIEWS

Interviews were obtained from vessel captains monthly throughout 1974 at Oyster, Kiptopeke, and Cape Charles, Va., and twice each month at Ocean City, Md. This activity resulted in 162 and 230 interviews for the respective states. The Division of Statistics, National Marine Fisheries Service, NOAA, provided 128 interviews for

the months of April, June, July, and August in 1974 at Point Pleasant, N.J. The records derived from these interviews included the following: locations of vessel fishing operations, bushels of clams taken during the fishing trip, depths fished, hours spent fishing, and size composition of the catch.

Figure 2 shows 2,250 square nautical miles of ocean with intensity of vessel operations plotted on 5- × 5-nautical-mile areas. Vessels from Virginia fished in 21 of the southernmost areas; those from Maryland fished in 49 off the Delmarva Peninsula; and those from New Jersey fished in 20 of the northernmost areas. From 1 to 46 vessels operated in an area during the sampling period. The average number of trips per area was 5, or 0.2 trip per square mile. As a scale of intensity of fishing, <0.1 trip per square mile (1-2 trips per area) indicated light fishing activity, 0.1 to 0.6 trip per square mile (3-15 trips per area) moderate fishing activity, >0.6 trip per square mile (16+ trips per area) heavy fishing activity. The Virginia fleet concentrated in a 525-square-mile area, fished most intensely in a 75-square-mile area, moderately in a 225-square-mile area, and lightly in a 225-square-mile area. Maryland vessels were distributed in a 1,225-square-mile area, fished most intensely in a 75-square-mile area, moderately in a 525-square-mile area, and lightly in a 625-square-mile area. New Jersey vessels concentrated in a 500-square-mile area, fished most intensely in a 25-square-mile area, moderately in a 300-square-mile area, and lightly in a 175-square-mile area.

Vessels interviewed from Virginia fished at depths of 10.7 to 30.5 meters (35 to 100 feet), averaging 20.1 meters (66 feet); from Maryland at depths of 9.1 to 35.1 meters (30 to 115 feet), averaging 20.7 meters (68 feet); and from New Jersey at depths of 12.2 to 33.5 meters (40 to 110 feet), averaging 22.3 meters (73 feet). Catch rates for Virginia, Maryland, and New Jersey are shown in Figure 3. In Virginia catch rates of more than 200 bushels per hour were reported at 2 fishing areas, 100 to 199 bushels per hour at 5, 50 to 99 bushels per hour at 12, and 49 bushels or less at 2; the mean catch per hour in any one area ranged from 8 to 682 bushels (136 to 11,594 pounds). In Maryland the catch rates in 17 areas averaged 25 to 49 bushels per hour and were less than 25 bushels in the remaining 32 areas. The mean

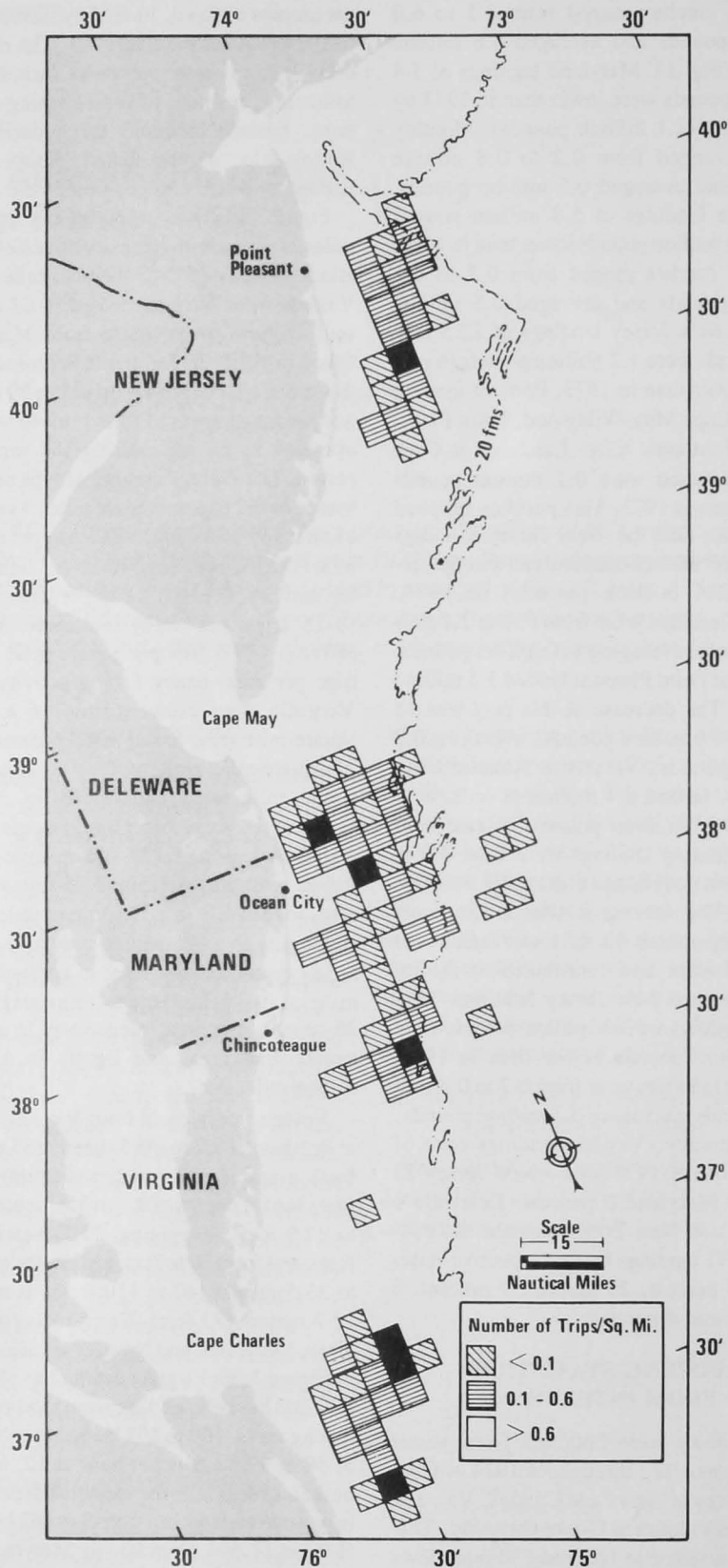


Figure 2.—The area and intensity of surf clam fishing by the Point Pleasant, N.J., Maryland, and Virginia fleet in 1974 (based on 520 interviews).

catch per hour in any one area ranged from 3 to 60 bushels (51 to 1,020 pounds). In New Jersey the catch rate in 5 areas averaged 25 to 49 bushels per hour; in the remaining 15 areas the catch rate averaged less than 25 bushels per hour. The mean catch per hour in any one area ranged from 6 to 42 bushels (102 to 714 pounds).

Figure 4 shows the mean shell lengths to be higher in New Jersey and Maryland than in Virginia. The clams in all New Jersey fishing areas averaged over 170 mm (6.7 inches). In Maryland the mean shell length from 4 areas was over 170 mm, from 133 to 170 mm (5.2 inches to 6.7 inches) in 44 areas, and less than 133 mm (5.2 inches) in 1 area. In Virginia mean clam size in 14 areas ranged from 133 to 170 mm and in 7 areas was less than 133 mm.

In Virginia continuous fishing time trip effort for the vessels interviewed ranged from 2.5 to 30 hours; monthly averages were 6.0 to 12.3 hours (Fig. 5); and the annual average was 8.9 hours per trip. Landings per trip were 23 to 3,700 bushels (391 to 62,900 pounds of meats), averaging 1,189 bushels (20,213 pounds). Monthly mean catch rates per hour ranged from 104 bushels (1,768 pounds) to 228 bushels (3,876 pounds), averaging 161 bushels (2,737 pounds), up 41 bushels (697 pounds) from 1973. Low trip landings and effort, as in earlier years, were often the result of gear breakdown which curtailed normal fishing operations. Lengths of clams ranged from 97 to 188 mm (3.8 to 7.4 inches), monthly mean lengths ranged from 121 to 138 mm (4.8 to 5.4 inches), averaging 132 mm (5.2 inches), down 3 mm (0.1 inches) from 1973.

In Maryland day trip effort for the vessels interviewed ranged from 3 to 14 hours, monthly averages ranged from 5.6 to 10.1 hours (Fig. 5), and the annual average was 8.1 hours. Landings per trip were 17 to 448 bushels (289 to 7,616 pounds of meats), averaging 182 bushels (3,094 pounds). Monthly mean catch rates per hour were 18 bushels (306 pounds) to 37 bushels (629 pounds), averaging 23 bushels (319 pounds), up 1 bushel (17 pounds) from 1973. Lengths of clams ranged from 106 to 192 mm (4.2 to 7.6 inches), averaging 160 mm (6.3 inches). Monthly mean lengths were consistently 150 mm or higher (150 to 169 mm or 5.7 to 6.7 inches), indicating most clams were taken from offshore beds.

This fleet averaged 0.3 more hours of fishing time per trip in 1974 than 1973 and concentrated on offshore beds. Fairly stable catches resulted from fishing an area twice as large as that of the fleets in New Jersey or Virginia.

In New Jersey, day trip effort for the vessels interviewed at Point Pleasant ranged from 2.5 to 14 hours; averages for the months of April, June, July, and August ranged from 8.5 to 9.4 hours (Fig. 5), and the four month average was 9.1 hours. Landings per trip were 25 to 370 bushels (425 to 6,290 pounds of meats), averaging 192 bushels (3,264 pounds). Mean monthly catch rates per hour were 18 to 24 bushels (306 to 408 pounds), averaging 22 bushels (374 pounds). Lengths of clams ranged from 145 to 226 mm (5.7 to 8.9 inches), averaging 186 mm (7.3 inches). Monthly mean lengths were all 150 mm or higher (167 to 189 mm or 6.6 to 7.4 inches). These catches were all from offshore beds.

#### STATUS OF TRENDS OF THE FISHERY

The 96.1 million pounds of surf clam meats landed in 1974 is the highest annual total to date. This resulted from an increase in effort on beds off the Virginia coast. A similar increase in 1973 was reported by Ropes, Merrill, and Ward (1975) to be in response to 1) increased demand and 2) lower landings from the coastal area of Maine through Virginia of other major commercial clams, such as the hard clam (*Mercenaria mercenaria*), soft clam (*Mya arenaria*), and ocean quahog (*Arctica islandica*). Landings of these species have been low since 1972. In 1974, landings of the three species amounted to 21.2 million pounds of meats or 18 percent of the 117.3 million pounds of clam meats harvested from the total resource. It is clear that the surf clam resource is sustaining the bulk of the demand for clam products in the United States.

A larger resident fleet occupied Virginia ports in 1974 than 1973 (32 vs 21), but the number of migrant vessels was smaller (10 vs 20) and, in all, 43 percent of the total surf clam fleet fished Virginia beds in the respective years. Interview records indicated landings per trip increased from an average of 956 bushels (16,252 pounds of meats) in 1973 to 1,189 bushels (20,213 pounds) in 1974 and the monthly mean catch rate per

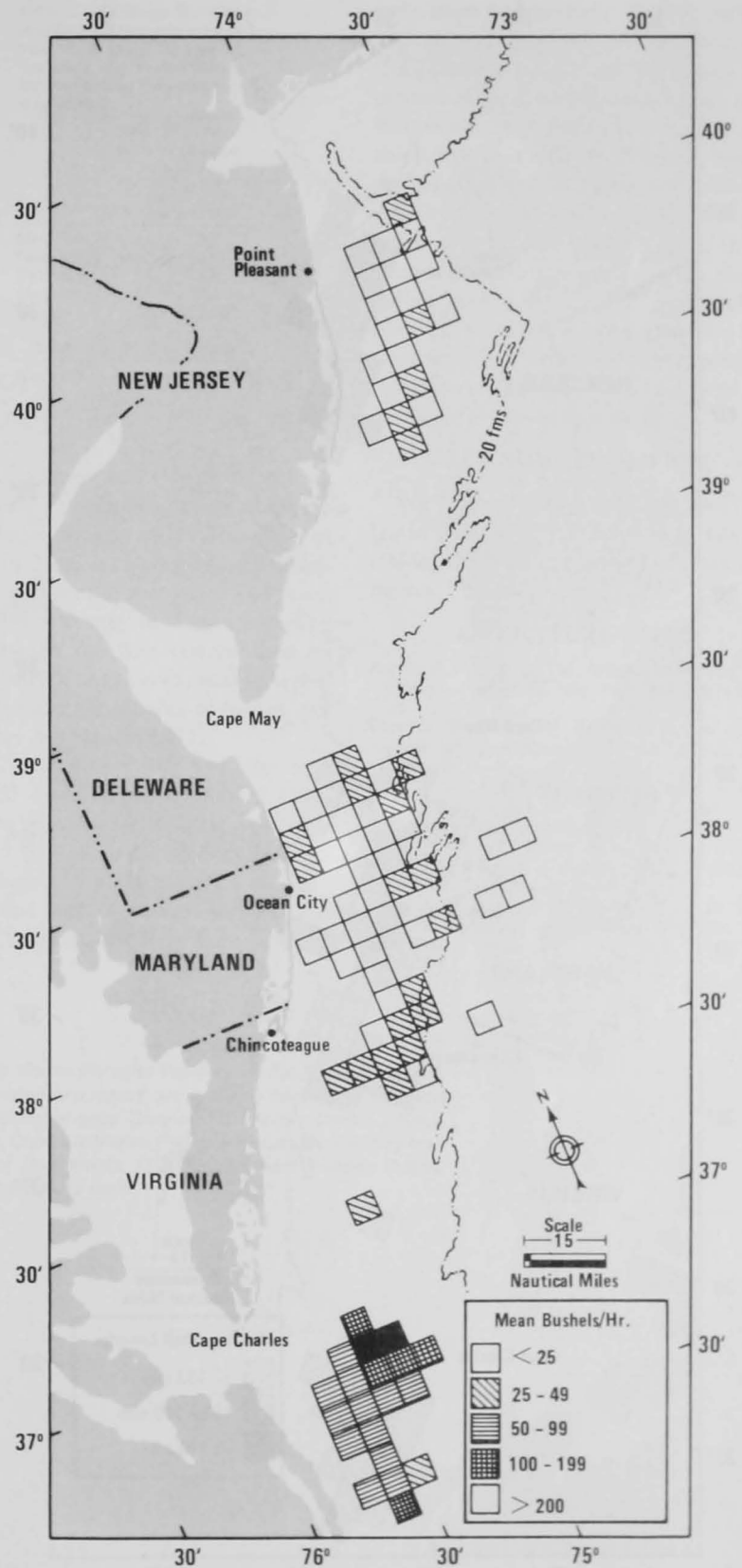


Figure 3.—Catch per hour within the area fished by the Point Pleasant, N.J., Maryland, and Virginia fleet in 1974 (based on 520 interviews).

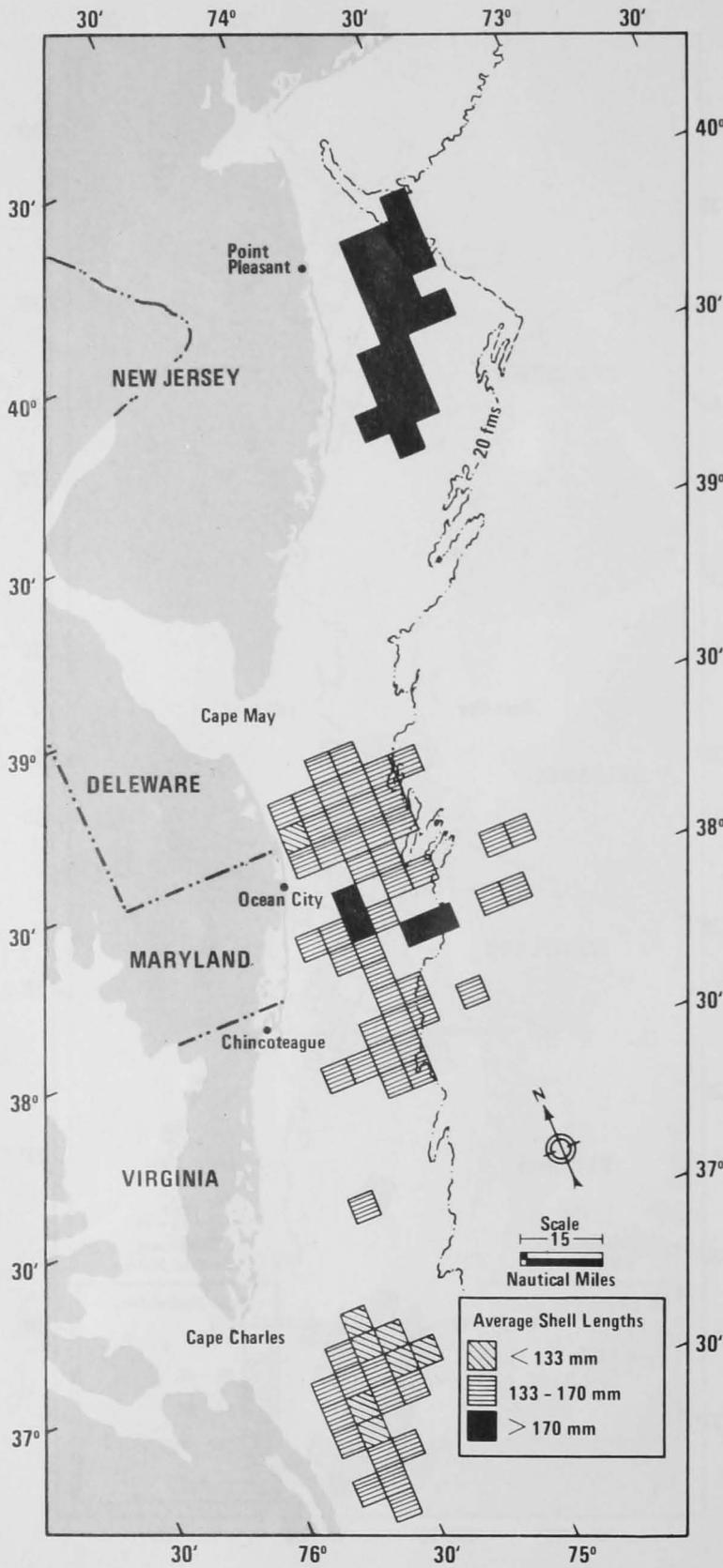


Figure 4.—Mean shell length of surf clams and area of catch by the Point Pleasant, N.J., Maryland, and Virginia fleet in 1974 (based on 520 interviews).

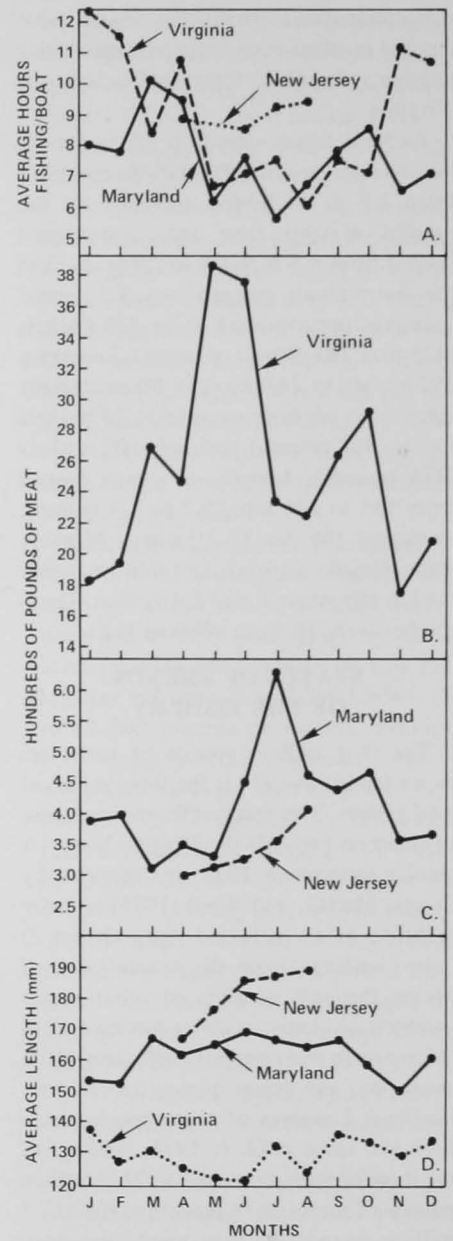


Figure 5.—Monthly averages of trip effort (A), catch per hour (B and C), and shell lengths of surf clams (D) at Point Pleasant, N.J., Maryland, and Virginia ports—1974 (based on 520 interviews).

hour increased by 41 bushels (697 pounds) from 120 bushels (2,040 pounds) in 1973. The fleet concentrated in a relatively small area, most of which had been reported as the Virginia fishing area in 1972 and 1973. Stern dredge vessels, which can harvest greater quantities of clams than other vessels (Ropes, 1972), increased from 6 to 13 at the Virginia ports between 1972 and 1974. Based on the average per vessel catch of 3 million pounds per year (Ropes, 1972), the stern dredge vessels may have accounted for 67 percent (39 million pounds) of the 1974 Virginia landings.

A smaller Maryland fleet (4 less) landed 2.1 million pounds fewer meats in 1974 than 1973. In 1974, operations expanded to include 500 more square miles of ocean; averaged 0.3 more hours fishing time; 9 more bushels of clams per trip; and caught clams that averaged only 1 mm (.04 inch) smaller. This slight increase in effort was not sufficient to compensate for the fewer vessels.

A smaller fleet (2 less) at Point Pleasant, N.J., landed 0.6 million pounds fewer meats in 1974 than 1973. In comparing interview statistics for 1974 with 1972 (none were available for 1973), an equal amount of fishing area was occupied, but the grounds extended more north and south and nearshore areas were avoided in 1974. The fleet averaged 0.2 hour less fishing time and

**Table 2.—Landings by state and distance from shore (data from W. E. Brey, Division of Statistics and Market News, National Marine Fisheries Service, NOAA).**

State	Landings (millions of lb) by distance from shore	
	0+ to 3 miles	3 miles and over
New York	13.8	0
New Jersey	112.1	10.4
Delaware	0	5.8
Maryland	0	5.4
Virginia	5.5	52.7
Total	21.4	74.3

<sup>1</sup>Less bait.

caught an average of 21 more bushels of clams with a mean length 28 mm (1.1 inches) larger than in 1972. The mean of 158 mm (6.2 inches) reported for 1972 was the highest record at that time. The much larger 1974 size may be due to sampling bias, although the fleet concentrated on offshore beds of large clams, as is indicated by a higher average number of bushels per shorter day trip than in 1972.

In 1974, landings from beds 0+ to 3 miles of 21.4 million pounds were 22.4 percent of the annual total: New Jersey vessels took 56.5 percent of the total catch from inshore beds; Virginia vessels took 25.7 percent; and New York vessels took 17.8 percent (Table 2). All New York landings

were from inshore beds. Inshore beds off New Jersey contributed 12.1 million pounds (53.8 percent) to that state's landings: 74.8 percent of these were from off Cape May-Wildwood; 24.7 percent off Atlantic City; and 0.5 percent off Point Pleasant. None of the landings in Delaware and Maryland were from inshore stocks. Although Virginia vessels landed slightly more than a quarter of the total inshore catch, the 5.5 million pounds was only 9.5 percent of that state's total (52.8 million pounds). High catch rates on inshore beds are expected to result in landings from these stocks as high or higher in subsequent years.

#### ACKNOWLEDGMENTS

We are grateful to David McQuay and David Townsend for compiling data and making the initial preparation of graphs and figures.

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*MFR Paper 1249. From Marine Fisheries Review, Vol. 39, No. 5, May 1977. Copies of this paper, in limited numbers, are available from D825, Technical Information Division, Environmental Science Information Center, NOAA, Washington, DC 20235. Copies of Marine Fisheries Review are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402 for \$1.10 each.*