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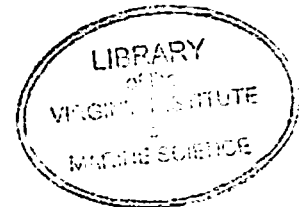
The Impact of Dredging on Public Grounds in the Pocomoke
Sound Area During the 1978-1979 Oyster Season.

by

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INTRODUCTION

The areas opened to dredging in Pocomoke Sound by the Virginia Marine Resources Commission (VMRC) were studied by the Virginia Institute of Marine Science (VIMS) to determine the effects of dredging upon the oyster populations.

Samples of the bottom were taken during October and November 1978 by patent tongs on public grounds #13, 14, 15, 17, 18 and 19. An equal number of samples were taken at the same stations in July 1979. The location and extent of the public grounds in Pocomoke Sound in the dredging area are shown in Figure 1.

The basis for our sampling program were charts prepared by VIMS of the Baylor Grounds in the Pocomoke Sound area. The mapping phase of this study, completed in the fall of 1978, delineated areas of oyster rock, mud-shell, sand-shell, sand, mud, and buried shell in respect to the bounds of the Baylor Grounds.

A final report containing all the data collected in the study will follow.

METHODS

How the bottom samples were collected

Samples of the substrate were taken with hydraulically operated patent tongs which collected 7.29 square feet of bottom

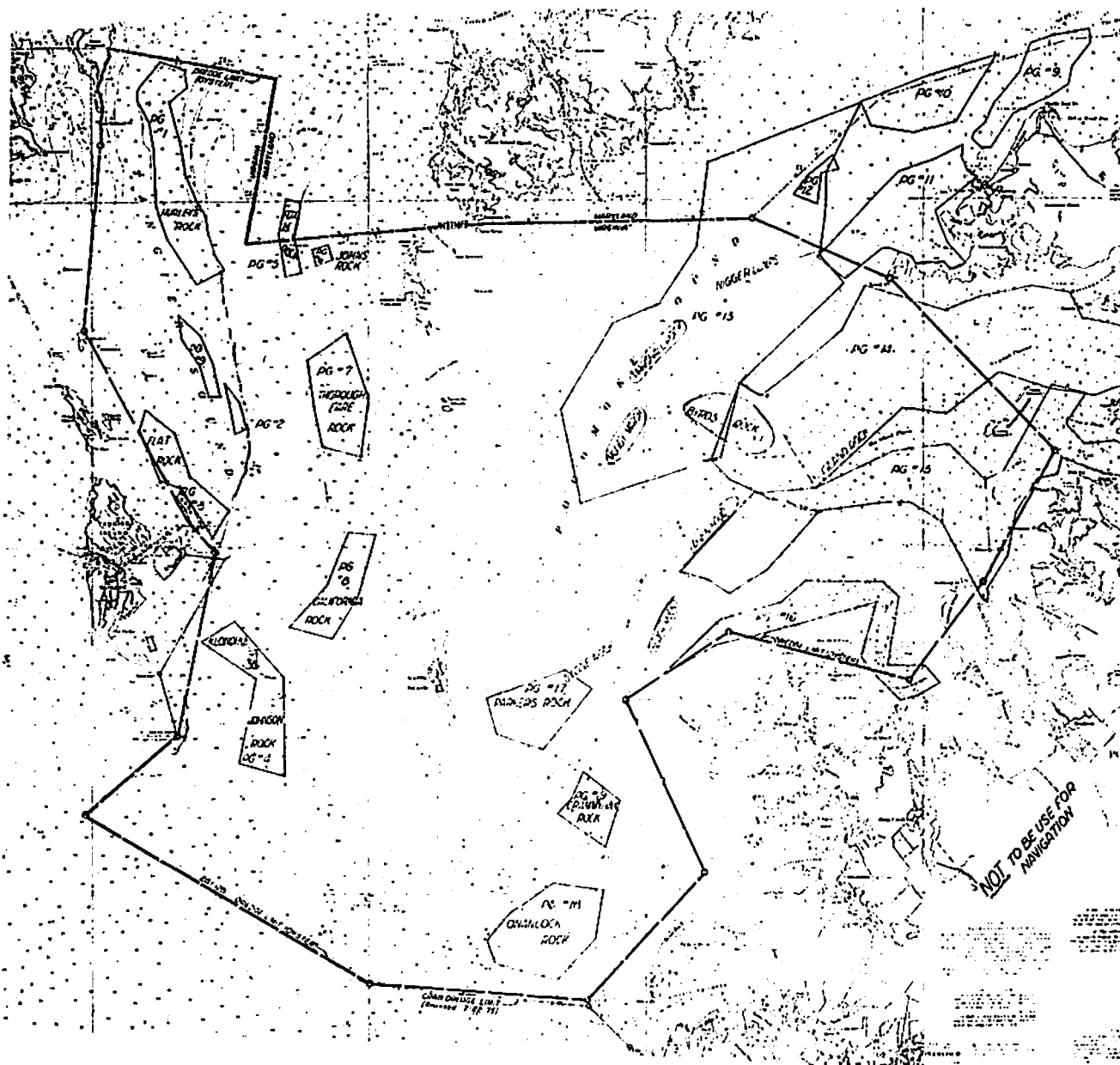


Figure 1. Areas of Baylor Ground in Pocumoke Sound.

to a depth of four to five inches. During the two year study a total of 1342 samples were collected. Areas selected for sampling were representative zones found to have surface shell and/or oysters during the Baylor bottom study. A few samples were taken in areas of sand or mud. Therefore, the data were tabulated in two manners.

1. All samples taken on or in the immediate vicinity of shelly bottoms;
2. Only those samples collected from areas which the VIMS Baylor bottom study showed as oyster rock, mud-shell, or sand-shell areas.

The bottom samples were collected with patent tongs in a grid pattern along transects and at stations whose exact position relative to the rocks and latitude and longitude was established by Teledyne Hastings-Raydist. Figure 2 shows the sampling pattern and sampling density on one of the representative areas surveyed. Areas of shelly bottom on the other public grounds (see Figure 1) were sampled using a similar grid pattern.

Frequency of sampling

On public grounds #13 and #14 the transects were 400 feet apart and the stations were every 400 feet on the shelled areas. On public ground #15 the stations were

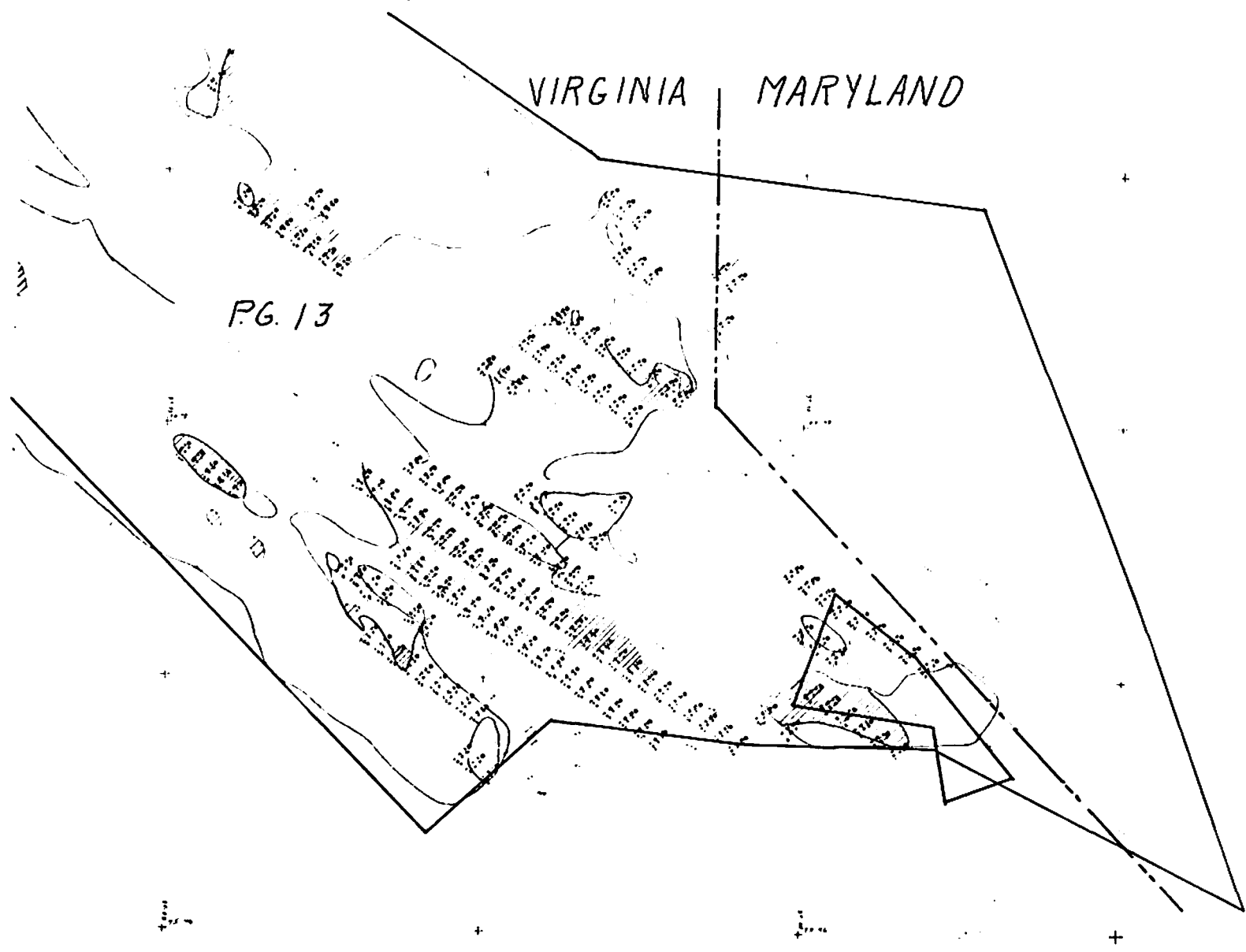


Figure 2. Stations where patent tong samples were taken in 1978 and 1979 on P.G. #15 in Pocomoke Sound.

similarly spaced on selected shelled areas. On public grounds #17, 18 and 19 the transects were 800 feet apart but the stations along the transects were located every 400 feet. Public grounds #18 and 19 as shown by the Baylor Ground study had only a small amount of surface shell. Therefore, the numbers of samples collected here was relatively small.

Tabulation of data

The material collected in each grab of the patent tongs was examined in the field and the following data tabulated: numbers of large and small oysters, volumes of small oysters (qts), volume of shells (qts), and percentage of total shells which were at or on the surface. Using these data on density were expressed two ways:

1. Total number of market oysters (over 3 inches) and small oysters (less than 3 inches) collected by the patent tong in 1978 compared to numbers collected in 1979 at the same locations.
2. The estimated density of oysters and shell in terms of bushels per acre.

These data are sub-divided into:

1. All samples for 1978 and 1979 on or adjacent to bottoms classed as oyster rock, mud-shell

or sand-shell. A few of these samples come from mud or sandy bottoms, but they were in close proximity to the shell areas (671 samples each year).

2. All samples for 1978 and 1979 from bottoms classed as rock, mud-shell or sand-shell during the Baylor bottom study (620 samples each year).
3. Only those samples for 1978 and 1979 from bottoms classed as oyster rock in our Baylor Ground study (159 samples each year).

Calculations are based on the area covered by the patent tong grab (7.29 ft²), the average number of oysters that make up 50 qts of oysters and total shell quarts of shell divided by 50 to determine bushels of shell. The average oyster count per bushel in 1978 was 195; and, oysters per bushel in 1979 was 198.

To evaluate setting (recruitment) during the 1978 season, shellstrings were maintained at eight representative stations in Pocomoke Sound during the setting season. The strings were changed weekly by the VMRC and examined by VIMS for attached spat. The results were tabulated for each station as the sum of the average weekly set for the entire season (total seasonal set).

In March, 1979, six bottom samples were dredged by the VMRC for VIMS at representative locations in Pocomoke Sound. This material was examined for 1978 spat, numbers of large and small oysters, numbers of shell and numbers of "boxes" (hinged valves). Data are expressed in terms of number of shells, oysters, or spat per bushel.

RESULTS

Introduction

As will be shown in the following pages, there has been a decline in numbers of market-sized and small oysters as collected by patent tongs on most of the areas classed as oyster rock, mud-shell or sand-shell areas. The numbers are based on quantitative samples taken at the same station in 1978 and 1979. We interpret the changes to indicate an overall decline in oyster density during the dredging season.

A decline in oyster number - all patent tong grabs

As stated in methods, patent tong grabs were collected on areas classed as shelly bottom, oyster rock, mud-shell or sand-shell bottoms. In 143 instances, the sampling pattern intentionally extended beyond areas with shell on to barren sandy or mud bottoms. These data were useful in proving the validity of our definition of shelly

bottom. These data are summarized in the Appendix (Tables A and B). It is sufficient here to state that when all samples are considered there was a definite decline in numbers of market and small oysters during the dredging season on most of the public grounds.

A decline in oyster number - areas classed as oyster rock, mud-shell or sand-shell bottoms according to the 1978 Baylor Ground study

These data show a decided decline in oyster density from 1978 to 1979. In most instances, this decline was caused by declines in both the numbers of small oysters and in market-sized oysters. These changes, of course, were reflected in declines in total numbers. The changes shown in Table 1 are as follows:

1. Small oyster number declined from 21% to 76% on P.G. #13, 14, 15 and 17.
2. Market oyster number declined from 6% to 29% on P.G. #13, 14 and 17. On P.G. #15 number of market oysters showed a 24% increase, but as shown below, total count at the station declined.
3. Total count (market plus small oysters) declined from 6% to 58% on P.G. #13, 14, 15 and 17.

Table 1

The total number of small and market-sized oysters taken in patent tong samples in Pocomoke Sound, Virginia before and after dredging. Data shows sample size and percentage of the total samples which had oysters. Based on shelled areas only.

Public Ground #10

	<u>1978</u>	<u>1979</u>	<u>Net Change %</u>
No. of stations	70		
Total count market oysters	216	Not sampled	
Total count small oysters	64		
Total oysters	280		
% stations with oysters	41.4		
Market oysters % total	77.1		
Small oysters % total	22.9		

Public Ground #13

No. of stations	163	163	
Total count market oysters	220	174	- 20.9%
Total count small oysters	246	119	- 51.6%
Total oysters	466	293	- 37.1%
% stations with oysters	30.1	22.1	
Market oysters % total	47.2	59.4	+ 25.8%
Small oysters % total	52.8	40.6	- 23.1%

Public Ground #14

No. of stations	204	204	
Total count market oysters	84	79	- 5.9%
Total count small oysters	213	99	- 53.5%
Total oysters	297	180	- 39.3%
% stations with oysters	19.6	15.2	
Market oysters % total	28.3	44.4	+ 56.9%
Small oysters % total	71.7	55.6	- 22.5%

Table 1 (Contd.)

Public Ground #15

	<u>1978</u>	<u>1979</u>	<u>Net Change %</u>
No. of stations	69	69	
Total count market oysters	55	68	+ 23.6%
Total count small oysters	108	85	- 21.3%
Total oysters	163	153	- 6.1%
% stations with oysters	20.3	24.6	
Market oysters % total	33.7	44.4	+ 31.8%
Small oysters % total	66.3	55.6	- 16.1%

Public Ground #17

No. of stations	13	13	
Total count market oysters	21	15	- 28.6%
Total count small oysters	38	9	- 76.3%
Total oysters	59	24	- 57.6%
% stations with oysters	69.2	38.5	
Market oysters % total	35.6	62.5	+ 75.6%
Small oysters % total	64.4	37.5	- 41.8%

Public Ground #18

No. of stations	8	8	
Total count market oysters	0	8	
Total count small oysters	0	9	
Total oysters	0	17	
% stations with oysters	0	37.5	
Market oysters % total	0	47.1	+ 47.1%
Small oysters % total	0	52.9	+ 52.9%

Public Ground #19

No. of stations	1	1	
Total count market oysters	0	0	--
Total count small oysters	0	0	--
Total oysters	0	0	--
% stations with oysters	0	0	
Market oysters % total	0	0	--
Small oysters % total	0	0	--

There was no discernable trends on P.G. #18 and 19 where sampling intensity was low. Table 1 shows only eight stations on P.G. #18 and one on 19 being occupied. Table A (Appendix), however, shows 38 stations being occupied on P.G. #18 and 22 on P.G. #19; most of these however, were on mud or sandy bottom.

Declines expressed in terms of bushels of oysters per acre for oyster rock, mud-shell and sand-shell bottoms

The volumes of oysters and shells recovered by the patent tongs was recorded. Therefore, it is possible to calculate bushels of oysters per acre (small oysters plus market oysters). These data were obtained from the same grabs utilized to calculate values in Table 1.

Since the bu/acre data are based on volumes, they do not necessarily show the same percentage trends as those based on numbers. They do, however, show in more realistic terms the magnitude of the declines after dredging.

The 1978 study showed oyster density on P.G. #13, 14, 15 and 17 ranging from 45 to 139 bu/acre; after dredging densities ranged from 26 to 66 bu/acre. The percentage declines for the four grounds ranged from 8 to 60%. For P.G. #18 and 19, sample size was too small to draw any conclusions (Table 2).

Table 2

Estimated bushels of oysters and shell per acre and percentage of surface shell in Pocomoke Sound based upon shelled areas only. Data are based on the same samples as are shown in Table 1.

<u>Year</u>	<u>Area</u>	<u>No. of Samples</u>	<u>Oysters bu/acre</u>	<u>Shells bu/acre</u>	<u>Percent Surface Shell</u>
1978	P.G. #13	163	87.6	567.1	23.3
1979		163	54.2	566.0	25.0
Change %			- 38.1	- 0.2	
1978	P.G. #14	204	44.6	530.6	19.0
1979		204	26.3	514.3	21.0
Change %			- 41.0	- 3.1	
1978	P.G. #15	69	72.4	464.2	18.3
1979		69	66.9	717.0	16.3
Change %			- 7.6	+ 54.4	
1978	P.G. #17	13	139.1	1185.9	51.9
1979		13	55.7	919.3	52.1
Change %			- 60.0	- 22.5	
1978	P.G. #18	8	0	1314.6	58.8
1979		8	64.1	1150.2	56.8
Change %			--	- 12.5	
1978	P.G. #19	1	0	0	0
1979		1	0	119.5	0
Change %			--	--	

Declines expressed in terms of bushels of oysters per acre for oyster rock only

The patent tong samples obtained on oyster rock were summarized in terms of bushels per acre. On P.G. #13, 14, 15 and 17 this showed densities prior to dredging ranging from 56 to 172 bu/acre; after dredging they ranged from 32 to 86 bu/acre. Declines ranged from 28 to 75% (Table 3).

Shell density on areas classed as oyster rock, shell-mud or shell-sand

The patent tongs used in this study penetrated 4-5 inches into the bottom. Therefore, shell density data expressed as bushels per acre are based on this depth of penetration. More shell probably exists below four inches over most of Pocomoke Sound.

The density of shell in 1978 ranged from 464 to 1315 bu/acre; in 1979 after dredging, it ranged from 514 to 1150 bu/acre. P.G. #15 showed an increase in shell density from 1978 to 1979. P.G. #13 and 14 showed little, if any, change. There was a decline of 22% on P.G. #17. P.G. #19 had little shell.

The study showed considerably volumes of shell at or very near the surface. In 1978, the percentage of surface shell ranged from 18 to 59%; in 1979 it ranged from 16% to 57%. It is concluded that for stations where large numbers of samples were collected, there was no consistent change in shell density from 1978 to 1979 (Table 1).

Table 3

Estimated bushels of oysters per acre on the areas designated as hard rock.

<u>Year</u>	<u>Area</u>	<u>No. of Samples</u>	<u>Oysters bu/acre</u>	<u>Change in %</u>	<u>Remarks</u>
1978	P.G. #13	44	172.0		
1979		44	85.7	-50.2	
1978	P.G. #14	72	77.9		
1979		72	56.2	-27.9	
1978	P.G. #15	27	128.2		
1979		27	32.4	-74.7	
1978	P.G. #17	8	111.1		
1979		8	45.3	-59.2	
1978	P.G. #18	8	0.0		
1979		8	113.2		
1978	P.G. #19	0	No oysters		Less than 1-5 bu/acre based on all samples
1979		-	No oysters		

Additional data showing changes in shell density on all bottoms are shown in Table B in the Appendix.

Oyster recruitment

Recruitment (spatfall) was very low in Pocomoke Sound in the dredging area in 1978 as shown by several separate studies.

The oyster and shell material collected in the oyster density study discussed above (Tables 1 and 2) obtained only seven 1978 spat in the material collected on the rock, mud-shell and sand-shell areas.

The shellstring study conducted during the summer of 1978 at eight representative stations in Pocomoke Sound show low setting levels (Table 4). The total seasonal set ranged from only 0.0 to 6.2 spat per season. These values are considered poor or at best marginal for adequate recruitment.

To confirm the low setting levels indicated by the 1978 shellstring study, bottom materials dredged by the VMRC from six representative rocks in March 1979 was examined. Numbers of spat per bushel ranged from 0 to 20. These ranged from 6.0 to 36.5 mm; average length was 20.4 mm (7/8 inch). It is noted, that 69% of the oysters collected were market-sized (Table 5).

Table 4

Spatfall on shellstrings at various stations in the dredge area in Pocomoke Sound.

Dates Exposed	PG9	Public Ground 9				PG10	PG13,	PG15	PG16	PG14	PG13
	Swash, Upper 1978	Swash, Lower						Upper 1978		Bernard Island 1978	
		1975	1976	1977	1978	1978	1978	1978	1978	1978	1978
Jun 16-23	0.0	0.0	0.0	0.0	0.0	0.0	--	0.0	0.0	0.0	--
Jun 23-30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jun 30-Jul 6	0.0	0.0	0.0	--	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jul 6-13	0.0	0.0	0.0	--	0.0	--	0.0	0.0	0.0	0.0	0.0
Jul 13-20	0.0	--	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jul 20-25		0.3	0.0	0.0							
Jul 25-31	}0.0	0.7	0.1	0.0	}0.0	0.0	}0.0	}0.0	}0.0	}0.0	}0.0
Jul 31-Aug 4	0.0	0.0	0.4	0.2	0.0	0.0	0.0	}0.0	}0.0	}0.0	0.0
Aug 4-10	0.0	--		0.3	0.0	0.0	0.0				0.0
Aug 10-17	0.0	0.4	}5.1	0.1	0.1	0.0	0.0	0.1	0.1	--	0.0
Aug 17-24	1.6	--	0.0	--	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aug 24-Sep 4	0.0	0.0	0.1	1.4	0.0	0.0	0.0	0.0	0.0	0.2	0.0
Sep 4-11		0.0	--	0.2							
Sep 11-19	}0.0	0.2	0.3	--	}0.0	0.0	}0.0	}0.0	}0.0	}0.0	}0.0
Sep 19-26	--	--		--	--	--	--	--	--	--	--
Sep 26-Oct 3	--	--	}0.2	--	--	--	--	--	--	--	--
Totals	1.6	1.6	6.2	2.3	0.1	0.0	0.0	0.1	0.1	0.2	0.0

Table 5

Bushel samples¹ of bottom cultch collected with an oyster dredge from various public rocks dredged in 1978 in Pocomoke Sound. Data collected by VMRC in representative dredged areas in March, 1979.

	<u>PG17</u>	<u>PG13a</u>	<u>PG13b</u>	<u>PG13-14</u>	<u>PG18</u>	<u>PG15</u>	<u>Avg.</u>	<u>% Total Oysters</u>
No. Blank Shells	200	290	271	280	285	200		
No. Market Oysters	33	30	29	25	65	35	36.2	30.7
No. Small Oysters	27	25	143	65	140	90	81.7	69.3
No. 1978 Spat ²	10	5	7	15	20	0	9.5	
% Boxes	9%	21%	8%	10%	2%	11%	10%	

Note: 17 = Parkers Rock; 13a = Nigger Lump; 13b = Muddy Marsh; PG13-14 = Byrds Rock; 18 = Onancock Rock;
15 =

1. Not all samples were bu size; therefore, data converted to 1 bu.
2. Ranges in length spat 6.0 to 36.5 mm; average length = 20.4 mm (7/8 inch).

Oyster length (large vs. small)

Our study suggests that on the areas sampled there are relatively few oysters to replace those being harvested.

In 1978 the oysters collected by patent tongs on P.G. #10, 14 and 15 were measured to the nearest mm (Figure 3). In late fall of 1978, 67.1% of the oysters on P.G. #14 were less than three inches and 64% were smaller than three inches on P.G. #15. On P.G. #10 only 22% were less than three inches. Data obtained from Table 1 shows this in another way. That is, in 1978 64% of all the oysters taken in the patent tongs were less than three inches long. In 1979, however, data extracted from Table 1 shows only 48% less than three inches long. These data suggest that the stations sampled experienced only light recruitment for the past two years and that the small oysters were growing to market size.

Spacial distribution of oysters in terms of bushels per acre

The preceding comparisons showing declines in oyster density in numbers of bushels per acre indicates low average densities per acre for 1978 and 1979. That is, even when oyster rock areas were considered, the maximum density recorded was 172 bu/acre in 1978 on P.G. #13 (Table 3).

It is evident, however, that Pocomoke Sound during the 1978-79 season did support a commercial harvest of considerable magnitude. Our evaluation of this situation is

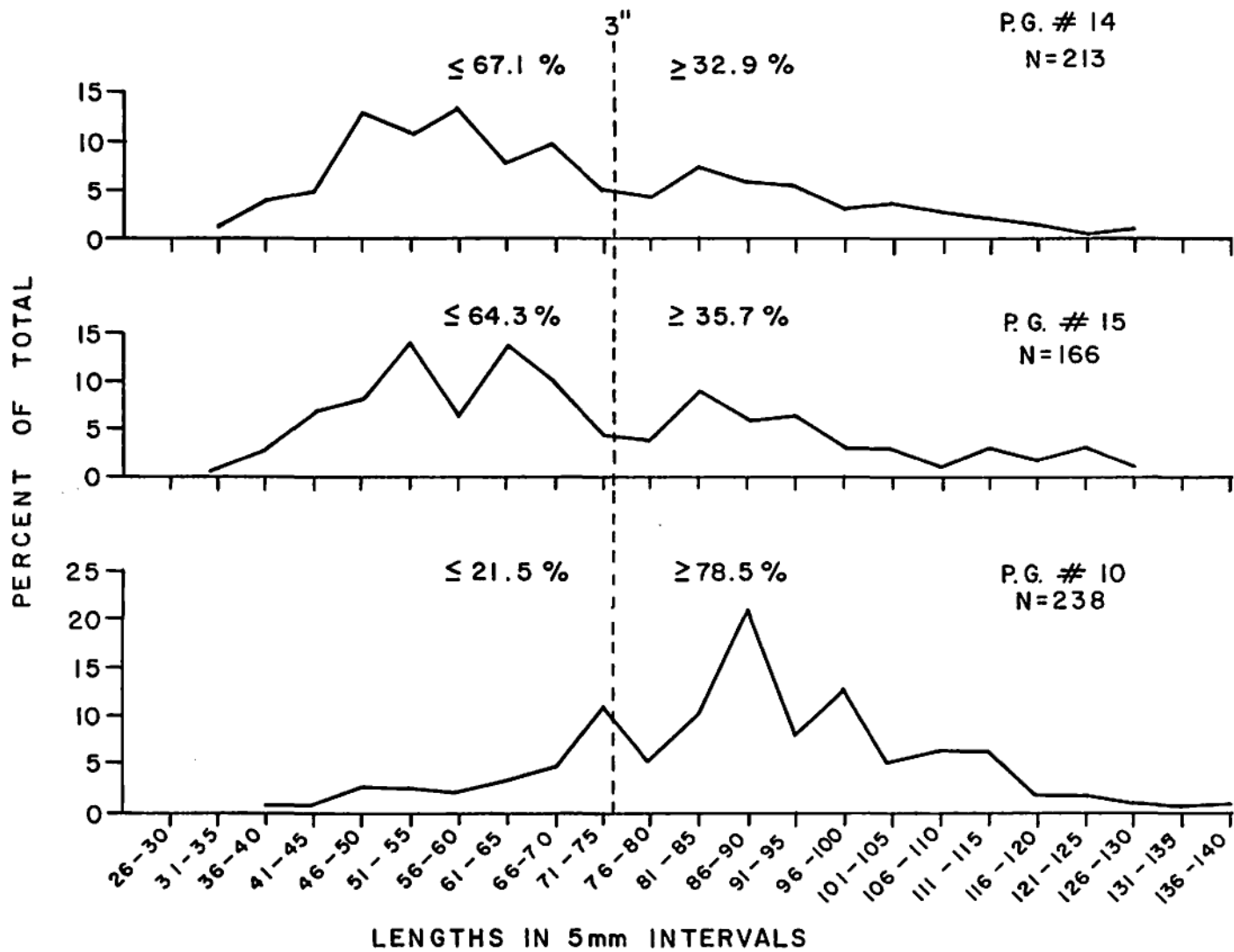


Figure 3. Length frequencies of oysters on P.G. #10, 14 and 15 in 1978.

that oysters are not distributed evenly in Pocomoke Sound. This aspect is shown when numbers of oysters per grab were tabulated from all bottoms classed as rock, shell-mud, and shell-sand (Table 6 and Table C, Appendix). For example, for 1978 on P.G. #10, 13, 14, 15, 17, 18 and 19 from 31% to 80% of the grabs contained no oysters (0 bu/acre). Data tabulated from the same areas for 1979 showed a similar range of from 62% to 100% being without oysters.

However, while oysters were scarce over most regions, a significant percentage of the stations showed densities which would easily support commercial culture. In 1978 on P.G. #13, 14 and 15 from 4% to 11% of the grabs indicated densities higher than 337 bu/acre. For 1979 there was a decline and from 2% to 6% showed densities in excess of 332 bu/acre (Table C, Appendix).

Table 6

Frequency and percentages of sample sizes in patent tongs shown with representative bushels per acre. Based on shelled areas only.

Public Ground #10

Oysters/ Grab	Frequencies in		% Total		Bu/Acre	
	1978	1979	1978	1979	1978	1979
0	41		58.6		0	
1	3	Not Sampled	4.3		30.6	
2	4		5.7		61.3	
3	4		5.7		91.9	
4	1		1.4		122.6	
5	2		2.9		153.2	
6-10	6		8.6		184.1	
> 11	9		12.9		337.1	
	<u>70</u>					

Public Ground #13

0	114	128	69.9	78.5	--	--
1	6	0	3.7	--	30.6	--
2	1	3	0.6	1.8	61.3	60.4
3	10	3	6.1	1.8	91.9	90.5
4	2	5	1.2	3.1	122.6	120.7
5	5	2	3.1	1.2	153.2	150.9
6-10	7	13	4.3	8.0	184.1	181.3
> 11	18	9	11.0	5.5	337.1	331.9
	<u>163</u>	<u>163</u>				

Table 6 (Contd.)

Public Ground #14

Oysters/ Grab	Frequencies in		% Total		Bu/Acre	
	1978	1979	1978	1979	1978	1979
0	165	172	80.9	84.3	--	--
1	4	0	2.0	--	30.6	--
2	5	2	2.5	0.9	61.3	60.4
3	4	8	2.0	3.9	91.9	90.5
4	4	7	2.0	3.4	122.6	120.7
5	5	1	2.5	0.5	153.2	150.9
6-10	9	10	4.4	4.9	184.1	181.3
> 11	8	4	3.9	2.0	337.1	331.9
	<u>204</u>	<u>204</u>				

Public Ground #15

0	55	52	79.7	75.4	--	--
1	0	2	--	2.9	--	30.2
2	0	0	--	--	--	--
3	1	1	1.4	1.4	91.9	90.5
4	2	2	2.9	2.9	122.6	120.7
5	2	1	2.9	1.4	153.2	150.9
6-10	4	7	5.8	10.1	184.1	181.3
> 11	5	4	7.2	5.8	337.1	331.9
	<u>69</u>	<u>69</u>				

Public Ground #17

0	4	8	30.8	61.5	--	--
1	0	0	--	--	--	--
2	2	0	15.4	--	61.3	--
3	2	2	15.4	15.4	91.9	90.5
4	0	1	--	7.7	--	120.7
5	1	0	7.7	--	153.2	--
6-10	1	2	7.7	15.4	184.1	181.3
> 11	3	0	23.1	--	337.1	--
	<u>13</u>	<u>13</u>				

Table 6 (Contd.)

Public Ground #18

Oysters/ Grab	Frequencies in		% Total		Bu/Acre	
	1978	1979	1978	1979	1978	1979
0	8	5	100	62.5	--	--
1	0	0	--	--	--	--
2	0	0	--	--	--	--
3	0	1	--	12.5	--	90.5
4	0	1	--	12.5	--	120.7
5	0	0	--	--	--	--
6-10	0	1	--	12.5	--	--
> 11	0	0	--	--	--	--
	<u>8</u>	<u>8</u>				

Public Ground #19

0	1	1	100	100	--	--
1	0	0	--	--	--	--
2	0	0	--	--	--	--
3	0	0	--	--	--	--
4	0	0	--	--	--	--
5	0	0	--	--	--	--
6-10	0	0	--	--	--	--
> 11	0	0	--	--	--	--
	<u>1</u>	<u>1</u>				

APPENDIX

Table A

The total number of small and market-sized oysters taken in patent tong samples in Pocomoke Sound, Virginia before and after dredging. Data shows sample size and percentage of the total samples which had oysters. Based on all samples.

Public Ground #10

	<u>1978</u>	<u>1979</u>	<u>Net Change %</u>
No. of stations	75		
Total count market oysters	216	Not sampled	
Total count small oysters	64		
Total oysters	280		
% stations with oysters	--		
Market oysters % total	77.1		
Small oysters % total	22.9		

Public Ground #13

No. of stations	214	214	
Total count market oysters	220	183	- 16.8%
Total count small oysters	252	140	- 44.4%
Total oysters	472	323	- 31.6%
% stations with oysters	24.2	18.2	
Market oysters % total	46.6	56.6	+ 10.0%
Small oysters % total	53.4	43.3	- 10.0%

Public Ground #14

No. of stations	217	217	
Total count market oysters	84	85	+ 1.0%
Total count small oysters	201	93	- 46.3%
Total oysters	285	178	- 37.5%
% stations with oysters	17.5	32.0	
Market oysters % total	29.5	47.8	+ 18.3%
Small oysters % total	70.5	52.2	- 18.3%

Table A (Contd.)

Public Ground #15

	<u>1978</u>	<u>1979</u>	<u>Net Change %</u>
No. of stations	75	75	
Total count market oysters	55	68	+ 19.1%
Total count small oysters	108	85	- 21.2%
Total oysters	163	153	- 6.0%
% stations with oysters	18.9	23.0	
Market oysters % total	33.7	38.6	+ 4.9%
Small oysters % total	66.3	61.4	- 4.9%

Public Ground #17

No. of stations	30	30	
Total count market oysters	21	15	- 28.6%
Total count small oysters	38	9	- 76.3%
Total oysters	59	24	- 59.0%
% stations with oysters	34.8	16.7	
Market oysters % total	35.6	62.5	+ 26.9%
Small oysters % total	64.4	37.5	- 26.9%

Public Ground #18

No. of stations	38	38	
Total count market oysters	1	34	+972.0%
Total count small oysters	27	54	+ 50.0%
Total oysters	28	88	+ 68.2%
% stations with oysters	10.5	26.3	
Market oysters % total	3.6	38.6	+ 35.0%
Small oysters % total	96.4	61.4	- 35.0%

Public Ground #19

No. of stations	22	22	
Total count market oysters		4	
Total count small oysters		1	
Total oysters		5	
% stations with oysters	1.0	2.0	
Market oysters % total	100.0	80.0	Insufficient number to obtain data
Small oysters % total	None	20.0	

Table B

Estimated bushels of oysters and shell per acre and percentage of surface shell in Pocomoke Sound based upon all patent tong samples taken from areas designated in the Baylor Ground study.

<u>Year</u>	<u>Area</u>	<u>No. of Samples</u>	<u>Oysters bu/acre</u>	<u>Shells bu/acre</u>	<u>Percent Surface Shell</u>
1978	P.G. #13	214	67.7	478.6	19.1
1979		214	45.1	507.1	19.6
Change %			-33.4%	+ 6.0%	
1978	P.G. #14	217	40.6	475.3	18.1
1979		217	24.4	488.0	20.4
Change %			-39.9	+ 2.7	
1978	P.G. #15	75	66.4	423.9	16.8
1979		75	61.6	670.8	19.6
Change %			- 7.2%	+ 58.2%	
1978	P.G. #17	30	39.2	515.9	20.0
1979		30	24.1	298.4	20.3
Change %			38.5%	- 22.8%	
1978	P.G. #18	38	8.1	671.41	22.4
1979		38	67.5	462.3	25.7
Change %			+833.3%	- 31.1%	
1978	P.G. #19	22	>1	404.7	15.5
1979		22	6.8	336.8	30.0
Change %			--	- 16.8%	

