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# Oyster Spatfall on Shellstrings in Virginia Rivers: 1973 Annual Summary

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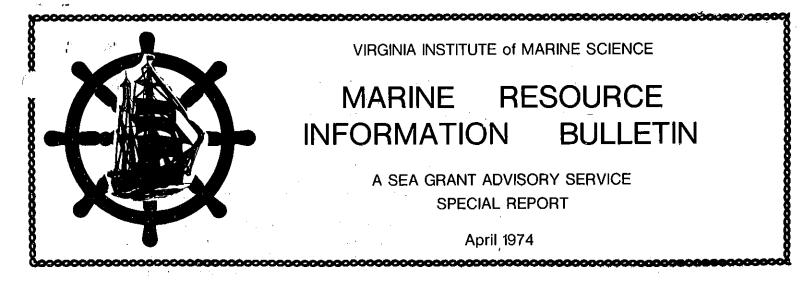
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1973 Annual Summary

# OYSTER SPATFALL ON SHELLSTRINGS IN VIRGINIA RIVERS By Dexter Haven and Paul Kendall

Although oyster setting levels in most Virginia river systems are still far below those which commonly occurred prior to 1960, the 1973 season marked an improvement over the previous year when Tropical Storm Agnes raged through the Chesapeake Bay region, creating adverse environmental conditions which were largely responsible for the lowest setting levels on record. Data for 1972, as well as for 1970 and 1971 are included in this summary of the 1973 setting season for comparison.

Setting information is obtained through surveys conducted weekly by the Virginia Institute of Marine Science (VIMS), with assistance by personnel of the Virginia Marine Resources Commission, from June through early October. Spat counts are made from oyster shells strung on wire and suspended from stakes at collecting areas on public and private beds.

Using the number of spat counted on shells during each week of the spawning season, it is possible to determine the potential of a particular area for receiving a strike and to predict the weeks when the strikes will occur. This information is useful because shells planted just before the period of maximum set have the best chance of getting a good strike.

A moderate or heavy strike on shellstrings usually indicates that a significant strike has also taken place on cultch of good quality. However, a good strike on shellstrings in some locations may not always be accompanied by good spatfall on shells on the natural bottom. Bottom shells are sometimes so fouled by other marine life that no room is left for small spat to attach. Even with a reasonable spatfall, survival on the bottom in saltier waters may be extremely low due to predators such as screwborers, which kill many small oysters soon after attachment, and blue crabs, which may eat the small spat.

The average number of spat which set in one week on the smooth side of 10 shells is tabulated. Set each week is arbitrarily rated as follows: fair, .1 to 1.0; moderate, 2 to 10; heavy, 11 to 100. In evaluating setting levels it should be recognized that certain rivers such as the Rappahannock and Potomac have always

been regions which have experienced a history of low setting levels. Other areas, including the Corrotoman, James, Piankatank and Great Wicomico rivers, typically have received a moderate set and often produce commercial quantities of seed oysters.

The following summary shows that some areas of Virginia still receive fair to moderate sets. Among these are the Piankatank River, Mobjack Bay area, the lower York River, the lower James and the Seaside of Eastern Shore.

If shells are planted in these regions, it is important to plant just prior to the advent of setting. If shells are planted too early, they may become so fouled with marine organisms that larvae will not set. For further information on setting seasons and time to plant shells, contact Dexter Haven, head of the Department of Applied Biology at VIMS.

Inspectors of the Virginia Marine Resources Commission aided in this study by changing shellstrings in many of the estuaries. Their assistance is gratefully acknowledged.

## SUMMARY OF RIVER SYSTEMS

<u>JAMES RIVER</u> - The important public rocks in the James River which annually supply over 75 percent of the seed planted in Virginia received only about 10 percent as much set in 1973 as they did prior to 1960. In the early 1950's weekly sets as high as 50-100 spat/shellface were commonly observed in the mid-section of the system. The decline after 1960 is thought to be associated with MSX which has reduced the brood stock in the lower river. However, other factors such as pollution have not been ruled out.

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The 1973 setting season was no exception to the past series of "poor" years. The limited set which did occur was highest downriver at the Tax Office, Hampton Flats, Brown Shoals and Miles Watch House. In this region setting began in late July and extended to early October. The peak set occurred in early to mid-September. Levels, however, were not high and a maximum weekly figure of 9.0 spat/ shellface was observed at the Tax Office.

In the mid and upper parts of the James River seed area where most of the seed is harvested there was almost no set. Here the maximum number recorded for any week was only 0.3 spat/shellface.

The light sets at upriver stations were still higher than those observed in the same area during 1972 when Tropical Storm Agnes adversely affected setting. The sets in 1970 and 1971 were better at all stations than in 1973.

Studies conducted by VIMS since 1947 indicate that there has been about a 50 percent decline in density of seed oysters on the bottom in the lower James. If the present trend of low setting continues for several years more, a serious shortage of seed in this section will develop.

<u>NANSEMOND RIVER</u> - There was almost no set at the three stations in the Nansemond River in 1973. These low levels, which were similar to those observed in 1972,

are in strong contrast to those observed in 1970 and 1971 when the peak sets were rated moderate to heavy at Nansemond Ridge and light to heavy at the upriver stations. The set in 1970 and 1971 began late in the season and extended through September with a peak in mid-August. This pattern is typical of the system in years when it receives a strike.

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<u>YORK RIVER</u> - In the York the highest set in 1973 was in the lower river at VIMS pier at Gloucester Point. Setting began in mid-August and extended to early October with a moderate peak in mid-September of 7.4 spat/shellface. Upriver from VIMS there was almost no set recorded.

The setting pattern and the abundance of set observed in 1973 were similar to levels observed in 1970, 1971 and 1972. That is, the set occurred late in the season (peaking in September) with the maximum occurring downriver at VIMS.

<u>RAPPAHANNOCK RIVER</u> - The Rappahannock has always been characterized by low setting levels with populations of adult oysters being maintained by occasional years (10 to 15 years apart) when a moderate set occurs.

The 1973 set in the Rappahannock was typical as shown by four stations located in the lower river. Only two of the four showed any set at all and the maximum observed was only 1.6 spat/shellface per week off Broad Creek.

The few spat recorded in the Rappahannock occurred late in the season in September. An oxygen deficiency often develops in this system in summer, and VIMS biologists believe that setting levels are associated with this.

<u>MOBJACK BAY AREA</u> - In this area in 1973 shellstrings were set out in the North and East rivers. In both systems the peak set ranged from light in some areas to heavy in others. Setting began in late June and lasted to early October. The time of peak set varied. In the North River it occurred at the head of the system in mid-July and was 2.1 spat/shellface per week; in the lower river it reached 7.5 spat/shellface per week in late August. In the upriver section of the East River the peak set of 7.3 spat/shellface per week occurred during early July. Downriver there were two periods of maximum set: one in mid-July and a second in mid-September.

In general the 1973 set in the Mobjack area was slightly lower than that observed in 1972.

<u>NEW POINT COMFORT AREA</u> - In this area the 1973 pattern of set in Pepper Creek, Winter Harbor, Horn Harbor and Dyer Creek was about the same. Setting began in early July and extended through early October. There were two periods of peak setting: the first occurred in mid-July; a second of greater magnitude occurred in mid-September. The peak sets in Pepper Creek and Winter Harbor were rated as heavy. In Pepper Creek weekly rates reached 13.6 spat/shellface in early September and in Winter Harbor they reached 18.0 spat/shellface in mid-September. Peak sets in Dyer Creek and Horn Harbor occurred in mid-September and were rated as light to moderate.

The 1973 set was superior to that observed in 1972.

- 3 -

<u>PIANKATANK RIVER & MILFORD HAVEN</u> - In the Milford Haven area shellstrings were placed at Lilly's Neck, Point Breeze and Stutts Creek. Here the 1973 peak sets were rated light, moderate and heavy, depending on the location. Setting began in early July and extended through early October with one peak in mid-July and a second in mid-September. In general the 1973 set was superior to that in 1972. The 1970 and 1971 sets were about at the same level as that observed in 1973.

The Piankatank River received moderate to heavy peak sets in 1973 with most of the setting occurring in the mid-section of the system. As was the case in the Milford Haven area, setting began in early July and extended through October. There were two peak setting periods: one from early to mid-July and a second in late August. The maximum weekly set observed was at Island Bar when 40.6 spat/ shellface were observed.

<u>GREAT WICOMICO RIVER</u> - Setting was far below normal for the 1973 season in the Great Wicomico River. There was practically no set at any station until early September when the peak set was rated light at all but one station where weekly peak set was 8.3 spat/shellface. Set at the upriver stations was nearly zero.

Set was nearly zero in 1972 due to Tropical Storm Agnes. In 1971 set began very late and it was not until late fall that any significant set was observed. In 1970 nearly all stations received a moderate to heavy peak set and the setting period extended over most of the season.

Past records indicate that from 1964 to 1971 the Great Wicomico had a consistant record of a moderate to heavy setting with average weekly sets ranging from 4 to 250 spat/shellface per week. Beginning in 1971, however, the set declined drastically. Surveys by VIMS biologists showed that oxygen was deficient in the deeper waters from mid-July to September in 1971, 1972 and 1973; laboratory tests indicate that waters with low dissolved oxygen do not support oyster larvae. Since tests were not made for oxygen prior to 1971, it is not known when this condition developed. However, the observed condition of low oxygen is believed to be associated with the low sets over the past three years.

EASTERN SHORE - The single station sampled on the Bayside of the Eastern Shore in Pocomoke Sound showed no set in 1973. A similar situation was observed in 1972.

Records for 1973 indicate a light to moderate set in Bogues Bay, Burtons Bay and Upshur Bay, and a moderate to heavy peak set in Poles Channel of Outlet Bay. Reports from watermen and from Mike Castagna at the VIMS' Wachapreague laboratory indicate that moderate to heavy sets were widespread at other stations on the Seaside in 1973.

<u>POTOMAC RIVER</u> - No spat were observed on shellstrings from the Potomac River in 1973, except at Great Neck where 10 spat were counted on 10 shellfaces (for an average of 1 spat/shellface) during the last week of the survey. Studies conducted by the Potomac River Fisheries Commission, the Chesapeake Biological Laboratory and the Virginia Institute of Marine Science in February 1974 confirmed that spatfall had been very light. A light set ranging from 8 to 50 spat/ bushel occurred, probably late in the season, on shells planted by the Potomac River Fisheries Commission at Thicket Point, Upper Jones Bar, Jones Shore and Great Neck.

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#### VIRGINIA INSTITUTE OF MARINE SCIENCE SPATFALL ON SHELLSTRINGS\* ANNUAL SUMMARY 1970-1973

#### James River

		Hampton	Flats		Newport News Tax Office				
1973 Date Exposed**	1970	1971	1972	1973	1970	1971	1972	1973	
June 11-18	0		0	0					
June 18-25	Lost	0	0	0	<del></del> -		0		
June, 25-July 2	0			0			ó		
July 2- 9	0	0.1		0			õ		
July 9-16	0.4		0 '	0			õ	0	
July 16-23	0	0	0	Lost	o	0	ñ	ň	
July 23-30	0.4	0	0	0	0.1	õ	ñ	0.4	
July 30-Aug. 6	11.1	1,2		Ó	. 3.3	0.5	ñ	0	
Aug. 6-13	0.6	10,9	Ö	õ	0,4	3,2	ň	0,2	
Aug. 13-20	5.2	7.3	Ó	ō	1,5	18,3	ň	1.1	
Aug. 20_27	8.6	Lost	0.	0.4	2.3	10.9	ň	0,8	
Aug, 27-Sept, 4	1.6	6.5	Ō	0,7	1.3	33,2	0.5	4.3	
Sept. 4-10	0,6	Lost	0,2	0.4	0.2	2.2	-	4.5	
Sept, 10-17	Lost	4,0	0.7	1.2	0.9	11.7	0.3		
Sept. 17-24	0.2	2.2	0.2	2.6	0.2	5.2	-	9,0	
Sept, 24-Oct, 1	0		0,2	Lost	0.1	1,4	0.3 0.2	0.6 2.0	

Brown Shoals Miles Watch House										
1973 Date Exposed**	1970	1971	1972	1973	1970	1971	1972	1973		
June 11-18	0	T F	0	0			'n	n		
June 18 <sub>=</sub> 25	Q	0.1	0	Ó			õ	ñ		
June 25-July 2	• 0	0	0	Lost		0	. õ	ŏ		
July 2.9	0	0	₩. <b>-</b>	0		Ō	Ď	· Õ		
July 9+16	0	0	. 0	0		0	ò	õ		
July 16-23	0	0	0	0.2		`	õ	ñ		
July 23-30	0.3	0.2	0	0.5		0	Õ	0.1		
July 30-Aug. 6	6,0	0,7	0.1	0.2		0,5	ò	0		
Aug. 6-13	2.8	2.0		0.2		2.3	ŏ	ñ		
Aug. 13-20	3.1	2.7	0	0.2	0.8	0.1	ň	ñ		
Aug. 20-27	5.6	17,0	0	1.4	0.6	1.3	õ	0.1		
Aug. 27-Sept. 4	1.6	6.1	Ó	1.2	0,6	0.1	ŏ	0,2		
Sept, 4-10	0.1	1.5	0.3	8,5	0.1	0	ñ	0,5		
Sept, 10-17	0.4	0.4	0.3	4,7	0.1	· Ő	0,6	4.6		
Sept. 17-24	1.0	0,4	Lost	4,1	0.3		0	0.4		
Sept. 24-Oct, 1	0	Lost	0	1.6			õ	0.7		

		<u>Wreck</u>			Point of Shoals				
1973 Date Exposed**	1970	1971	1972	1973	1970	1971	1972	1973	
June 11-18	· 0	0,2	0	0	0	0	n	0	
June 18-25	Q	0	0	0	ō	ň	õ	0	
June 25-July 2	0	0	0	ñ	ň	õ	ŏ	U Q	
July 2-9	0	ñ	Ó	0.1	ŏ	0	0	0	
July 9-16	Lost	ñ	Ō	0.3	0	0	0	0 -	
July 16-23	0	ů n	ō	0,10	0,4	0	U	U	
July 23-30	0,2	0.1	õ	ň	0.1	0	0	0	
July 30-Aug. 6	9.2	3.4	0,2	0,3	8,4	. 0	0	0	
Aug. 8-13	1.5		0,2	0,0		. 4.4	0	0	
Aug. 13-20	0.4	2.6	0	0	1.5	1.0	0	0	
Aug. 20-27	2.2	0.3	0	0 1	3 8	0,5	0	0	
Aug, 27-Sept, 4	0.8	2.2	0.8	0.1	0.9	: 0,7	0.6	0.1	
Sept. 4-10	0.0	0,4	0	Ů	1.1	0	0	0.2	
Sept, 10-17	0	0	0	0	0	0	0,3	0.1	
Sept, 17-24	07	0.1	1.2	0.3	0.2	0	1,1	0,1	
	0.3	0	0.6	0	0	, Ó	0.3	Q	
Sept, 24-Oct, 1	0.1	0.4	0.2	Lost	0		0.2	Õ	

\* Shows spat per shell (smooth side only).

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 $^{**}$  1970, 1971 and 1972 exposure dates approximately the same.

,1 to 1.0 spat per shell = fair set 2 to 10 spat per shell = moderate set 11 to 100 spat per shell = heavy set

# James River

			Horse	head	Deepwater Shoals				
1973 Dat	e Exposed**	1970	1971	1972	1973	1970	1971	1972	1973
June	11-18	0	0	0	0	0	0	0	0
June	18-25	0	0	0	0	0	0	0	0
June	25-July 2	0	Ó	0	0	0	0	0	0
July	2-9	0	0	0	0	0	0	0	0
July	9-16	0	0	0	0,2	0	0	0	0
July	16-23	0.2	Ō	Ō	0	ò	0	Q	0
July	23-30	0.3	Ō	0	Ó	0.2	0	0	0
July	30-Aug. 6	7.6	7.7	õ	õ	2.8	3.2	0	0
Aug	6-13	3.8	2.5	Ō	Ō	0.8	2.6	0	0
Aug.	13-20	1.6	0.2	Ō	Ó	0.4	0.2	0	0
Aug.	20-27	0.9	1.1	0.6	0,1	0	1.0	0	0
Aug.	27-Sept. 4	0,3	0.1	0.3	0.1	0.3	Ő	Lost	0
Sept.	4-10	0,2	0	0.1	0,1	0	0.1	0	0.3
Sept.	10-17	0.1	0.2	1.1	0	0,1	0	0,2	0
Sept.	17-24	0.1	0.2	0.7	Ō.	0.1	Lost	0.5	0
Sept.	24-Oct. 1	0	0	0.5	õ	0	0	0.2	Ō

## York River

			Foxes	Creek	,		Clay		
1973 Dat	e Exposed**	1970	1971	1972	1973	1970	197 <b>1</b>	<b>1</b> 972	1973
June June June July July July July Aug. Aug. Aug. Aug. Sept.	8-15 15-21 21-29 29-July 6 6-13 13-19 19-26 26-Aug. 2 2-10 10-17 17-24 24-31 31-Sept. 6 6-12	1970 ) 0 0 0 0 0 0 0 0 0 0 0 0 0	1971 · · · · · · · · · · · · · · · · · · ·	1972  0 0 0 0 0 0 0 0 0 0 0 0 0	1973 )0 0 0 Lost 0 0 0 	1970 ) 0 0 0 0 0 0 0 0 0 0 0 0 0	) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	} ) 0 0 0 0 0 0 0 0 0 0 0 0 0	$ \begin{cases} 0 \\ 0 \\ 0 \\ 0 \\ Lost \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ $
		0	0	U N	0.4	0	1,4	0	
Sept. Sept.	12-20 20-27	0	0	<b>^</b> 0	0,4	0 0	1.2 1.4	<b>0.1</b>	<b>^</b> 3.2
Sept.	27-Oct. 4	0.2			0	0,5			0.8

		VIMS PIER						
1973 Dat	e Exposed**	1970	1971	1972	1973			
June	8-15	0	0					
June	15-21							
June	21-29	Q	0	0	0			
June	29-July 6	0	0	0				
July	6-13	0	0	0	Lost			
July	13-19	0	0	0	Lost			
July	19-26	0	0.1	0	0.1			
July	26-Aug. 2	0	0.2	0	0			
Aug.	2-10	1.0	1.9	0				
Aug.	10-17	0.1	0.6	0	0,1			
Aug.	17-24	5.0	0.9	MSG	1.3			
Aug.	24-31	1.5	3.9	0	0			
Aug.	31-Sept. 6	1.4	17.2	0.3	1.2			
Sept.	6-12	2,9	53.2					
Sept.	12-20	5,1	1.6	Lost	6.4			
Sept.	20-27	0.4	7.4	0	7.4			
Sept.	27-Oct. 4	1.3			1.6			

\* Shows spat per shell (smooth side only).

\*\* 1970, 1971 and 1972 exposure dates approximately the same.

.1 to 1.0 spat per shell = fair set 2 to 10 spat per shell = moderate set 11 to 100 spat per shell = heavy set (

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# Pienkatank River and Milford Haven

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Lilly's Neck - Station 2 Point Breeze - Station 3										
1973 Da	ce Exposed**		1970 🕂	1971	1972	1973	1970	1971	1972	1973
June	12-19		0	0		Ó	0	0		
June	19-26		Ó	Ó	: <b>0</b> '	Ö	Q	0	0	0
June	26-July 3	•	1.0	0.7	0	Ó	0.6	0.8	0	0
July	3-10		1.4	0	0.1	0	11.4	0	0.1	1.0
July	10-17		0.6	0,2	0	2,0	0.4	0	0	1.2
July	17-24		0.1	0	ŏ.	3 4	0.1	0	Ò	·· 4.5
July	24-31		0.9	0	. 0	0.7	2.7	0.1	0	0.8
July	31-Aug. 6		0.7	Ó	Ó	0.9	0,5	0	0	0.4
Aug.	6-14		0.7	Ó	ŏ	15	7.2	0.3	0	0.3
Aug.	14-21		1.3	0.1	õ		1.9	0	0	0.3
Aug.	21-28	16	0.2	2.4	ŏ	0,1	Lost	0	' 0	0.6
Aug.	28-Sept, 4		1.5	12.3	õ	1.1	3.5	0.8	0	0.7
Sept.	4-11		0.2	1,6	Lost	11.6	3.6	0.8	0	2.8
Sept.	11-18		0,5	4.4	0	5.0	3.1	0.4	· 0	3.6
Sept.	18-25		1.1	0.2	iõ.	3.2	0.9	0	Lost	1.0
Sept.	25-Oct. 2	· .	1.5	0	Ó	2.0	1.5	0	· 0	Lost
				с.,						, ·

				\$	tutts Creek	- Station				ree Branches	- Statio	on 4
1	973 Dat	e Exposed**		1970	1971	1975	1973		1970	1,971	1972	1973
	June	12-19	• •	0,3	· · o		- · · · · · · · · · · · · · · · · · · ·	. ••	0	0		0
	June	19-26		Ő,	0,1	Ó	0		0	Lost	0	
	June	26-July 3		õ	0,3	ŏ	0.4		2.0		0	• 0
	July	3-10		0.2	0	- 0	0.2	1.1	0.1	0.8	0	· 0
	July	10-17		3,8	Ō	0,1	1,3		0,1	0.1	0	: 0.4
	July	17-24		0	. 0	0	0,9		0,1	0	0	2.0
÷	July	24-31	1 A A	0.3	O O	0	0.6		0,2	0.5	0	3.0
	July	31-Aug. 6		0,1	0	0	· 0		0,7	0	0	1.2
	Aug.	6-14		2.3	0	0	0.7		3.9	0.1	· 0	3.3
	Aug.	14-21	•	0.8	0.1	0	06		0.3	0	0	0
	Aug.	21-28		0.5	0.3	0.	Q		0.1	12.8	0	0.2
	Aug	28-Şept. 4		0.5	· 1,8	0	0		1.1	14.8	0	0.8
	Sept.	4-11		5.8	1.4	Lost	0.2		1.3	Lost	• 0	2.2
	Sept.	11-18		0	1.0	0	0	·	0.3	Lost	0	1.2
	Sept.	1.8-25		0	0.2	0	0	•	0.2	Lost	0	0.8
	Sept.	25-Oct 2		0,1	Q	0	0,2		Q.2	Lost	0	0.4

			Hills Bay	- Station 1		Bur	ton Point	- Station	
1973 Dat	e Exposed**	1970	1971	1972	1973	1970	1971	1972	1973
June	12-19	· 0	0		<u>n</u>	Lost	0		
June	19-26	· 0	ň	0	ŏ	Lost	ŏ	0	0
June	26-July 3	2,8	0.4	õ	0	1.7	0.2	0	0
July	3-10	0	0	0.2	0.8	7.3	0	0	0.1
July	10-17	0.2	0,5	o İ	0,4	2.6	0.3	0	3.4
July	17-24	0.2	Ő	0	3.0	1.4	0	0	3.7
July	24-31	0,1	0.1	· 0	3.7	1.8	0.9	0	2.3
Julý	31-Aug. 6	0	0	D .	0,7	1.7	0.1	0	3.4
Aug.	6-14	0.8	0	· 0	13.5	0.3	0.3	0	15.4
Aug.	14-21	0	· 0	0	0,2	0.3	0.8	0	0.4
Aug.	21-28	0,5	0,1	<u>)</u> 0	1,8	··· 0.7 ·	2.1	0	1.0
Aug.	28-Sept, 4	0.4	1,0	. <b>O</b>	0,1	0.6	3.2	0	0.9
Sept.	4-11	0,7	0	0	6.8	0.2	0.2	0	4.6
Sept.	11-18	Q	0.4	0	2.8	• 0.2	0.6	0	Lost
Sept.	18 <b>-</b> 25	0.3	0	0	1,0	0.5	0	0	Lost
Sept.	25-Oct. 2	0.1	0	0,2	0,4	0.5	Lost	0	0.4

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\* Shows spat per shell (smooth side only). \*\* 1970, 1971 and 1972 exposure dates approximately the same. .1 to 1.0 spat per shell = fair set 2 to 10 spat per shell = moderate set 11 to 100 spat per shell = heavy set

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# Plankatank River and Milford Haven

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1973 Dat	e Exposed**	1970	1971	<ul> <li>Station</li> <li>1972</li> </ul>	1973	1970 -	alace Bar 1971	1972	1973
June	12-19	0	0		<b>4-</b>	o	0	· <del>-</del> -	0
June	19-26	Ō	0	0,1	0.4	0	0	. 0,1	0.2
June	26-July 3	13.1	0,3	0	Ó	10.6	4.1	0	0
July	3-10	17.2	5.0	0	1000	4.5	4.1	0	4.7
July	10-17	0,4	2,3	0.2	3.5	0.5	4.5	0	2.5
July	17-24	2.8	0,7	0	11,2	2.4	0.6	0 :	3.3
July	24-31	0,1	2.2	0	5,9	0.5	4.5	· O	2.4
July	31-Aug, 6	0.4	0.1	Ö	10.2	0	0	· 0	3.7
Aug.	6-14	0.3	5,0	0	8,6	Lost	0	0	3.2
Aug.	14-21	0,2	0	Ó	5,3	0,2	2.8	0	3.7
Aug.	21-28	0.2	4.5	Õ	40.6	0	4.7	· 0	6.5
Aug.	28-Sept. 4	Lost	3 2	ō	2.8	0.7	5.1	0	1.0
Sept.	4-11	Lost	0.4	Ó	7,6	1,6	0,4	` <b>0</b> .	Lost
Sept.	11-18	0,6	0.8	0	1.6	· ō	0,8	~ <b>0</b>	0
Sept,	18-25	0.2	Lost	Ó	Lost	Lost	0.2	0	2.6
Sept.	25-Oct, 2	0.2	Ō	Q	Lost	1.2	0	0	0.6

-			· 0;	Ginney Point - Section 8					Twigg Branch - Station 9				
1973 Dat	e Exposed**		1970	1971	1972	1973		1970 -	1971	1972	1973		
June	12-19	•	0	0	n di serie d	0	•	0	0		0		
June	19-26		0	, Ó	0,1	Ö		0	0	Ó	0.2		
June	26-July 3	·	11.5	1.3	0	0		0,5		0	0		
July	3-10		29.7	25.9	0.8	о <b>р</b> н н		3.3	0.	0.4	5.5		
July	10-17		2.3	1.3	0,1	0.4		1.4	1.9	0	1,7		
July	17-24		11.2	1,8	i oʻ	5,3		12.7	0.7	· 0	7.0		
July	24-31		1.0	3.4	Q	1.9		0,7	0.7	0	2.3		
July	31-Aug. 6		0,1	0,1	Ó	3.4		0,4	0.1	0.6	Lost		
Aug,	6-14		0.1	13.5	0	0		1.8	19.6	~ <b>0</b>	0		
Aug.	14-21		1.0	12.2	0	3.3		1.0	7.9	0	1.4		
Aug.	21-28		0.8	1.1	0	11.7		0,4	11.9	0	20.2		
Aug.	28-Sept, 4	•	0.8	4.6	<b>D</b>			1.9	0.6	0	1.5		
Sept.	4-11		0.7	3.2	Ó	5.8		0.3	2,8	0	2.8		
Sept.	11-18		0	2.8	Ó	2,8		0	0.8	0	Lost		
Sept.	18-25		0.1	Lost	ò	3.8		0.3	0	Lost	1.0		
Sept.	25-Oct. 2		0,4	0	0.2	0,8		0,5	Ó	0	3.2		

			ry Creek	- Station	
1973 Dat	e Exposed**	1970	1971	1972	1973
June	12-19	0	0		0
June	19-26	0	0	ρ	0
June	26-July 3	7,0	0.6	0	0
July	3-10	6,3	1.6	0	0
July	10-17	Lost	0,8	. Q	0,1
July	17-24	23.9	. Ó.B	Q	0,6
Julý	24-31	0	0	0	0,6
July	31-Aug. 6	0	0	0	0.3
Aug.	6-14	0,1	8.9	Ó	0
Aug	14-21	1.9	3.9	0	0.5
Aug.	21-28	0,2	10.4	0	0
Aug,	28-Sept, 4	0,5	Lost	· 0	3.4
Sept.	4-11	Ó	0.8	0	0,2
Sept	11-18	0	0	0	0,2
Sept.	18-25	0	0,2	0	0
Sept.	25-Oct, 2	° Q ° °	Q.	0	0,6

\* Shows spat per shell (smooth side only).

\*\* 1970, 1971 and 1972 exposure dates approximately the same.

1 to 1.0 spat per shell = fair set 2 to 10 spat per shell = moderate set 11 to 100 spat per shell = heavy set

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## Rappahannock River

1077 006	- Burgana WW	1970	Broad Creek		<u>e</u> · 1973 ·	1970 <u>E</u>	road Creek	c - Offsho 1972	ore 1973
1472 Lat	e Exposed"*		1971	1972		1970	1971	1972	1775
			1						
June	11-18								
June	18-25			-7	~ -				
June	25-July 2		1	0				· O	
July	2- 9			0				0	
July	9-16			0				· 0	· ·
July	16-23	Statio	ns Stations	Ö	0	Stations	Stations	·	
July	23-30				0		000000000	· · ·	
July	30-Aug. 6	Not	Not	0	·	Not	Not		· 0
Aug	6-13	100		Ō	ò	noc	Not	· · ·=-	n
Aug.	13-20	Sampled	d Sampled	Ō		Sampled	Sampled		
Aug.	20-27		a oumprea	Ō	· <u>·</u>	oumpred	bumpico	0	·
Aug	27 Sept. 6			Lost	÷	·		~ 0	' <b>N</b>
Sept.	6-13	•		Ŏ.	Lost	•		Lost	· 1.0
Sept.	13-19			Lost				·Lost	1.0
Sept.	19-24			Lost	Lost			Lost	Lost
Sept.	24-0ct, 1			Lost				Lost	
oepe.	LARCEL I			1001					

			Corro	toman			Green	vale	
1975 Dat	e Exposed**	1970	1971	1972	1973	1970	1971	1972	1973
	1		• •		4.4.4				_
June	11-18				0				0
June	18-25			`	0		• .		0
June	25-July 2			0	0			0	0
July	2-9			Ø	. 0			0	. 0
July	9-16			0				0	
July	16+23	Stations	Stations	0	、 0	Stations	Stations	· 0	· 0
July	25-30			0	.0			. 0	0
July	30-Aug, 6	Not	Not	· · O	0	Not	Not	. 0	0
Aug	6-13			· O	.0			0	
Aug,	13-20	Sampled	Sampled	- 0	0	Sampled	Sampled	0	0
Aug.	20-27	•	•.	0	· 0	•	-	0	. 0
Aug.	27-Sept. 6		1 - A	0				0	
Sept.	6-13		•	0	Lost			0	Lost
Sept.	13-19			0	0			0	Lost
Sept.	19-24			0	0			: 0	Lost
Sect.	24-Oct, 1			0	0.4			· 0	0

## Mobjack Bay

		Nonth	Piuon Hos	ad - Station	<b>. .</b> .		North F	iver Blac Stati	k Water îr	eek -
1973 Date	Exposed**	1970	1971	1972	1973		1970	1971	1972	1973
June	7-13	9.9		<b>``</b> ]0.1	<b>J</b> 0		0 '		<b>}</b> 0	):
June	13-20	8-2	3.2	í ·	í		1.4	0.3	J	ſ
June 2	20-27	0	9,8	10	10	•	0'.	0	10	- o
June 2	27-July 5	0	1,9	0.8	1.1		0	C	0.4	0
July	5-11	38,1	0	24.3	0.6		0	0	9.2	0.8
July 1	11-18	0,5	1,8	7.3	0		0.3	0	3.3	0
July	18-25	2.2	. 0.1	0.7	2.1	· · · .	0.	0	0	0
	25-31	0	0.1	0.6	0.3	• ·	0	0	0.3	0
	31-Aug. 8	3,5	1.0	0.1	0	,	0.4	0.9	O	0
	8-15	0	0.1	0.6	0		0.1	Lost	Q	0.9
	15-22	0	0	. 0	1.1		0 ,	Lost	0	n
	22-29	0.1	0	0	0		0 .	Lost	0.1	0.2
	29-Sept, 5	0.4	. 0	: 0.4	0.3		0	Lost	0.9	0.2
Sept.	5-12	0	0 .	0.1	Lost		O Ì	0	0	n
	12-19	0	0.6	0.1	0,4		0.	0.8	0	0.2
• •	19-26	Lost	· 0 ·	· 0	0.4		0.1	C	0	0.4
	26-Oct. 3	0.1	Ö	Ō	0		0	0.2	n	0.2

\* Shows spat per shell (smooth side only).

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## 1970, 1971 and 1972 exposure dates approximately the same.

.1 to 1.0 spat per shell - fair set 2 to 10 spat per shell - moderate set 11 to 100 spat per shell - heavy set

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# Mobjack Bay

		Noi		- Cedar Po on #3	int	East River Head				
1973 Dat	e Exposed**	1970	1971	1972	1973	1970	1971	1972	1973	
June June June July July July July July Aug. Aug. Aug. Sept.	7-13 13-20 20-27 27.July 5 5.11 11-18 18-25 25-31 31.Aug. 8 8-15 15-22 22.29 29.8ept. 5 5-12 12-19	0 0 0 0.2 0 0.2 0 0.2 0.1 0 0.1 0,2 0,1	0,6 0 0 0 0,2 0,1 0 0,2 0 0,2 0 0,2 0 0,2 0 0	<pre>} o o o o o o o o o o o o o o o o o o o</pre>	<pre> } 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</pre>	0.4 1.2 26.7 0.1 33.8 0.8 0.2 0 0.5 19.9 1.0 0 0 0	2.8 5.6 0.5 2.2 0.9 0.1 0 0.1 0 0.1 0 0 0 0 0 0 0	<pre> } 0 0 0.1 10.8 5.0 7.5 1.7 0 0.7 0 0.9 0 0</pre>	) 0 7,3 4.5 1.4 0 4.8 Lost 0.7 0 0.1 0 0.2	
Sept. Sept.	19-26 26-Oct, 3	0 Q	0.2 0	ů o	3.2	1.0 0	0	0 0	0.6 0.2	

		· · ·											
		East	East River - Put-In-Creek Station #5					East River - Williams Wharf Station #11					
1973 Date	e Exposed**	1970	1971	1972	1973	1970	1971	1972	1973				
June June June July July July July July Aug. Aug. Aug. Sept.	7-13 13-20 20-27 27.July 5 5-11 11-18 18-25 25-31 31.Aug. 8 8-15 15-22 22-29 29-Sept. 5 5-12 12-19	0,7 1,2 0.3 0 0 21,5 1,1 10.8 0.3 0 0 0	0,5 6,6 0,6 0 0,3 0 0,4 0,6 0 0 0,3 0 0,3 0	) 0 12.2 4.5 2.3 1.5 0 0 0,7 0,1	0,5 0,7 3.5 0,4 Lost 0.3 0.2 4.7 0 0.3 0.2 3.6	0,1 0.5 2.6 0 1.1 0 0 1.5 0.2 8.6 0.4 0 0.1 0	0.4 1.8 0.1 0.2 0.2 0 0 0 3.5 0.4 0.6	<pre> 3 3 0 0 7,3 2.8 8.6 0.9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</pre>	).8 19.4 2.7 2.9 0.9 0.5 2.5 0.3 1.6 0 1,8 3.4 2.6				
Sept. Sept.	19-26 26-Oct. 3	0.5 0.4	0.4	0	1.4 0	0.5 0	0 	0 0	2.6 0				

			East Rive Statio		
1973 pat	e Exposed**	1,970	1971	1972	1973
June	7-13	0	0	}	}
June June	13-20 20-27	0	0,1	$\mathcal{I}_{0}$	
June July	27-July 5 5-11	0 0	0	0.3	2,1 0,2
July July	11-10 18-25	. Q 0	0.1 0	0.7	2.4 0.2
July July	25.31 31.Aug. 8	0,5 0,3	0 0,1	0.3	0,5
Aug	B-15	0.6	0,1	0	0 0
Aug. Aug.	15-22 22-29	10.9 8.0	0.4	Ō	0.4
Aug. Sept.	29.Sept. 5 5.12	4,2 3,9	5.2 8.2	0.4 0.1	0 3.0
Sept, Sept,	12-19 19-26	2.2	2.4	0 0	8.Q 1.2
Sept.	26-Oct, 3	4,9	1.0	<b>0</b>	0

\* Shows spat per shell (smooth side only).

 $^{\ast\ast}$  1970, 1971 and 1972 exposure dates approximately the same.

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.1 to 1.0 spat per shell = fair set 2 to 10 spat per shell - moderate set 11 to 100 spat per shell - heavy set (

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# New Point Comfort Area

1977 Date Turesedit			Pepper	Creek			Dyer	Creek		
1973 Date Expo	sed**	1	1970	1971	1072	1973	1970	1971	<u>10</u> 72	1973
June 7-1	3 ·		0,5	0.1	<u>م</u> .	ι <b>γ</b> ε	0	0	٦o	<b>)</b> 11
June 13-29			0	0,2	\ <b>~~</b> ·	}	0	0,3	γ	Σ
Juno 20-21			0.1		1.	<u> </u>	0		J	
			0.1	1,0	0	0	11	0.2	0	0
	ily 5		U	0	0	0	2.1	0.1	0	U
July 5-1			. 0	0,2	0	1,2	3.7	0	0	0
July 11-1	3		0	0,2	0	3.3	1.0	0.1	0	0
July 18-2	5		0	0	0.3	3.7	1.3	0.6	0.1	0.1
July 25-3.	1		0.3	0.6	0	0.4	1.3	1.3	0,2	0.1
July 31-A	ıg. 8		0.8	0,1	0	0,2	0.1	0.2	0	0
Aug. 8-1			21,7	0.3	0,4	0,1	2.1	0	0	0
Aug. 15-2	2		1.6	10,4	0,1	o	1.7	0,1	0	0
Aug. 22-25	)	·	1.1	37.0	0,1	0.7	3.7	0,2	0.2	0
	ept, 5		1.8	4.9	0.9	3,6	0.5	0,2	0	1.3
Sept. 5-1;	2		2.0	5.6	0	13,6	0.2	1.6	0	0.6
Sept. 12-19	Э	5 - F	0,8	2,4	0	9.8	0.7	0	0.1	1.6
Sept. 19-20	5		1.9	1,0	0	8.4	0.3		0	0.2
Sept 26-00	et. 3		0,1		0	3.2	0.1	0.2	0	0.6
			÷.,	•						

			Winter				Horn H		
			Public				Old B		
1975 Dat	e Exposed**	1970	1971	1972	1973	±970	1971	1972	1973
June	7+20	0	0	0	0-	0	0	0	0
June	20-27	0	0	Ō	Ō	Ō	0.6	0	0
June	27-July 5	0,4	0.6	0	0	Ó	0.6	0	0
July	5-11	0,4	0	0	1.8	0	0	0	0.1
July	11-18	0.1	0.	0	0.6	. 0.4	0	0.2	0
July	18-25	0,1	0.1	0	2.9	0.2	0	0	0.1
July	25-31	0.2	0	Q	0.6	0	0	0	0.2
July	31-Aug. 8	0,6	1.0	0	0	0.1	3.2	0	0
Aug.	8-15	· 3.9	0.4	0	0	0.2	0	0	0
Aug.	15-22	18,1	0.6	0	, 0	2,2	0.5	0	0
Aug.	22-29	10.5	4,4	0,1	0,1	0.1	0.4	1.0	0
Aug.	29-Sept, 5	5.4	11.6	0	Lost	0.8	0.5	0.8	0.6
Sept.	5-12	7.5	0.8	0.1	7.6	0.1	0	0	0,4
Sept.	12-19	1.4	13.8	0	16,0	0	0.2	0.2	2.2
Sept.	19-26	9.6	0.2	0		. 0.9	0	0.5	
Sept.	26-Oct, 3	· 1.3	1.2	0	2.8	0.2	0	0.1	0,2

## Great Wicomico

		Да	meron Eas Statio	t & West n 182		Mill Creek Station 3				
1973 Dat	e Exposed**	1970	1971	1972	1973	1970	1971	1972	1973	
June	5-12	. 0	. ,	٥		0.2	0	0		
June	12-18	0,7	ň	ŏ	0	0	ň	ŏ	0	
June	18-26	34.4	0.1	ŏ	ŏ	48.7	Ő	ō	0	
June	26-July 2	10.2	0	Ō	ō	17.8	0.5	Ó	0	
July	2-9	1.9	Ő	0	0	0	0	0	0	
July	9-17	0.2	ō	0	0	0.3	õ	0	0	
July	17-23	. 0.4	Ő	0	0	0.5	0	0	0	
July	23-30	0,1	Ō	0	0	0.3	0	0	0	
July	30-Aug. 6	10.2	Ō	Q	0	1.4	Ö	0	0	
Aug.	6-13	0	0.4	Q	0	0,4	0,2	0	0	
Aug.	13-20	• 0	0.4	0	0	. 0	0.5	0	0	
Aug.	20-27	0.4	3.1	0	0	0,1	1,4	0	0	
Aug.	27-Sept. 4	` <b>1.</b> 1	0.2	0	.0	0.4	0.3	0	0	
Sept.	4-10		0	Ó	0.5		0	0	Q	
Sect.	10-17		0	0	1,8		0	0	8.2	
Sept.	17-24	·	· •0	. 0	0.4		0	0	0.6	
Sept.	24-Oct. 1				0				0	

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Shows spat per shell (smooth side only),

\*\* [970, ]97] and 1979 exposure dates approximately the same.

.1 to 1.0 spat per shell = fair set 2 to 10 spat per shell = moderate set 11 to 100 spat per shell = heavy set

# Great Wicomico

			Crane's Stati				Fleețs Sțati		
1973 Dat	e Exposed**	1970	1971	1972	1973	1970	1971	1972	1973
June	5-12	1.9	0			0,2	0	0	- 7
June	12-18	8.7	0	0.	Q	0,3	0	0	<u>-</u> -
June	18-26	132.7	0	0	0	26.6	U 0	, v	Lost
June	26-July 2	9.9	0,2	0	0	0.9	U	U	
July	2- 9	2.1	0.5	0	0	0.5	0	Lost	0
July	9-17	2.3	0	0	• <b>Q</b> ·	. 0	0	0	Lost
July	17-23	2.6	0	Q	0	0	0	0	0
July	23-30	0,5	0	Ò	Lost	0	0	0	0
July	30-Aug. 6	2.6	Ō	0	0	0.3	Lost	. 0	0
Aug.	6-13	0.6	0.9	Lost	0	0,6	0.1	0	Lost
	13-20	0	1,0	0	ň	0	0.3	0	0
Aug.	20-27	2.3	1.4	ň	ñ '	0.1	0.6	Ó	0
Aug.		1.2	0	0	ň	0.3	0.B	· 0	0
Aug.	27-Sept. 4			ñ	ő		0	ō	, 0,2
Sept.	4-10	0.3	0		. 0 c		ŏ	ŏ	0
Sept.	10-17	0.1	0	0.	0,6			.0	0.8
Sept.	17-24	0.9	0	0	0.2		0.2	U	0.0
Sept.	24-Oct. 1				0		0		U
					• •				
			Cockrell	's Creek		* a	Havni	e Point	

			Cockrell Stati			Haynie Point Station 10				
1973 Dat	e Exposed**	1970	1971	1972	1973	1970	<u>רלפד</u>	1972	1973	
June	5-12	0,1	0	0	<del>.</del> .	4,0	0	0	· <del>-</del>	
une	12-18	0	0	0	Ó	9.1	0 -	0		
June	18-26	44.5	0	0	Q	283.3	0.3	0	0	
June	26-July 2	7.8	0 .	0	0	112.5	0.2	Q.	0	
July	2-9	Ó	0.2	Ó	0	12.1	0 ·	0	.0	
July	9-17	0,2	0	0 .	0	0	0.2	0	0	
July	17-23	1.7	0	0	0	2,9	0	. Q	0	
July	23-30	0.1	0.2	Ó	Q	0,6	Ø	0	0	
July	30-Aug. 6	0,3	0	0	Lost	1,9	0	Q	0	
Aug.	6-13	0,1	Ó	0	Lost	0.3	2,3	0	0	
Aug.	13-20	0	1.3	Ō	0	0.3	1.2	Q	0	
Aug.	20-27	Ō	Lost	Ö	Ó	1.1	3.5	0	0	
Aug.	27-Sept. 4	0,2	0	ò	0,2	0,1	0,2	0	0	
Sept.	4-10		Ó	0.1	0	<del>~ ~</del>	0	0	0	
Sept.	10-17		Ō	0	0.2		0	0	2.2	
Sept.	17-24		Ó	Ô.	0.6		0,2	0	0,2	
Sept.	24-Oct. 1		Q		0	·	Q	-+	0	
				· .	-					
								• <b>-</b> • •		

			Shell Stati		Hudnall Dock Station 12				
1973 Eat	e Exposed	1970	1971	1972	1973	19 <b>7</b> 0	1971	1972	1973
June	5-12	7,3	0	0	<del></del>	4,4	0	0	*-
June	12-18	42.7	0	0	0	0,3	0	Û	
June	18-26	290.2	0	0.3	0	373.5	0.3	0,4	0
June	26-July 2	57.2	5.3	0,2	0,1	116,3	9.8	Q	0
July	2-9	43.8	2.6	0	0	4.6	1.4	0	0
July	9-17	2,5	0.4	Ó	0	0.1	0.1	0	0
July	17-23	4.2	0	ó	0	3.4	0	0 '	0
July	23-30	3.9	ň	ò	0	4,4	0	- 0	0
July	30-Aug. 6	1.9	0.1	ō	ò	1,0	0	0	. 0
Aug.	6-13	0.2	0.8	ñ	Ō	1.2	1.1	0	0.1
Aug.	13-20	0,1	1,3	ñ	ō	0	2,2	0	0
Aug.	20~27	Lost	1.0	ň	ñ	0.2	1.7	0	Q
	27-Sept. 4	Lost	Ő	ñ	0,2	0.7	0.2	a	a
Aug.	4-10		0.2	ů Ú	ů, -	0.3	0.2	Ö	0
Sept.			0.2	, o	ň	0,2	0.4	Ó	Ó
Sept.	10-17	·	0	0	ŏ	2.2	0	Ó	1.0
Sept.	17-24		U	Ŷ	0.0		ň'		0
Sept.	24-Oct. 1		- 4	• <b>•</b>	0,2		5		

\* Shows spat per shell (smooth side only).

\*\* 1970, 1971 and 1972 exposure dates approximately the same.

.1 to 1.0 spat per shell - fair set 2 to 10 spat per shell - moderate set 11 to 100 spat per shell - heavy set (

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# Great Wicomico

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·			Glebe Point Station 13					
j	973 Dat	e Exposed**		1970	1971	1972	1973	
••	June	5-12		1.8	. 0	0		
	June	12-18		31.0	0	0	¢	
÷	June	18-26		227.8	0	2.0	0	
	June	26-July 2	•.	530.7	0	0.8	0	
	July	2-9		27.7	20.0	0	0	
	July	9-17		1.6	0	0	Q	
	July	17-23	-	9.8	- O	0	0	
	July	23-30		Lost	0	0	0	
	July	30-Aug. 6		1.2	Lost	0	0	
	Aug	6-13		1.4	0.4	0	0	
•	Aug.	13-20		0.8	18.8	0	0	
	Aug.			0,1	3.3	0.2	0	
	Aug.	27-Sept, 4		0.4	0.2	0	0 .	
	Sept.	4-10	N	0.2	0	0	0	
	Sept.	10-17		0	0	0.1	0	
	Sept.			Ó	0	Ó	0.2	
	Sept.	24-Oct. 1			0		0	
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Nansemond River

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			Nansamo	nd Ridge			Larkin	ns Rock	
1973 Date	Exposed***	1970	1971	1972	1973	1970	1971	1972	1973
June	17-26		· 	O,			<b></b>	0	;
June	26-July 3			0		•		0 '	· · ·
July	3-10			Lost				0	
July	10-17			0				0	
July	17-24	0.1	0	0	0	0.1	0	0	0
July	24-31	0.2	0	0	5. si <b>Q</b>	0,2	0	0	0
July	31-Aug. 7	1.2	0.6	Lost	0	1.4	9.2	Lost	0
Aug.	7-14	1.8	11.2	0	<b>1</b> 0	0.8	7.5	0 '	<b>)</b> 0
Aug.	14-21	0.4	-2.9	0.2	}	0.2	1.5	0	3
Aug.	21-28	0.5	2.9	0.1	٦ ٦	0	0.9	· 0	)
Aug	28-Sept. 4	0.9	4.4	Lost	(o	0,4	0.2	Lost	. <b>(</b> ə
Sept.	4.11	V 1 1 0,4	2.0	)		0.2	0.3	• .	(
Sept.	11-17	0.7	0.6	1.0	ł	0	0.0	0.2	· Į
Sept	17-24	0.1	0,4		10.2	0	0		<b>}</b> ∂.2
Sept.	24-Oct. 1	0		·	J.,	0.1			. <b>J</b>

		Half Por	ne	
1973 Date Exposed**	1970	1971	1972 1973	5
			<u>^</u>	
June 17-26			0	
June 26-July 3			0	
July 3-10			Lost	
July 10-17			0	
July 17-24	0	0 ·	0 . Lost	:
July 24-31	0	0	Lost 0	
July 31-Aug. 7	1.1	6.2	·0 _0	
Aug. 7-14	1.5	22.7	0 10	
Aug. 14-21	4.0	2.0	Lost	
Aug. 21-28	1.8	7.5	5 O (200 🕇 👘	
Aug. 28-Sept. 4	0.9	Lost	Lost 0	
Sept. 4-11	0.1	0.4		
Sept, 11-17	0.3	0.6	): 0 <b>, 1</b> ,	
Sept. 17-24	0.2	Lost	- · · ]0	
Sept. 24-Oct. 1	0	/	° – + ; ; }	

(b) A second se Second seco : .1 to 1.0 spat per shell = fair set 2 to 10 spat per shell = moderate set 11 to 100 spat per shell = heavy set " Shows spat per shell (smooth side only). \*\* 1970, 1971 and 1972 exposure dates approximately the same.

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 $(p_{i},p_{i}) \in \mathbb{R}$ 

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# Eastern Shore

				oles Channel				r Bay	
1973 Pat	e Exposed**	. <b>1</b> 9	970 19	1972	1973	1970	1971	1972	1973
June July July July July July Aug, Aug, Sept, Sept,	25-July 2 2-10 10-17 17-23 23-30 30-Aug. 7 7-14 14-22 22*Sept. 4 4-11 11-18	N( Samj	ot No oled Samp	1	0 0 0,5 53,3 38.4	Stations Not Sampled	Stations Not Sampled	0 0.1 34.3 37.5	 0 0 0.1 1.1 0.9 9,4 
							1.		

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1973 Date	e Exposed**	1970	Bogue 1971	s Bay 1972	1973	1970	Burto	ns Bay 1972	1973
June July July	25+July 2 2-10 10-17			. 0 	0 0,1			0 0	0 0,1
July July	17-23 23-30	Stations	Stations	<b>]</b> 13.6	0	Stations	Stations	<b>]</b> 38.3	0
July Aug.	30-Aug. 7 7-14	Not	NOC		0 0,7	Not	Not	J 1	0
Aug. Aug.	14-22 22-Sept. 4	Sampled	Sampled	Lost		Sampled	Sampled	46.4	0.4
Sept. Sept.	4-11 11-18				र्ग क इन्हें				

1973 Date Exposed**	1970	Congers 1971	Channel 1972	1973	1970	Chincot 1971	eague 1972	1973
June 25-July 2 July 2-10 July 10-17 July 17-23 July 23-30 July 30-Aug, 7 Aug, 7-14 Aug, 14-22	Stations Not Sampled	Stations Not Sampled	0 1.0 }12.0 9.5	0,3 0,3 77 49,0	Ştations Not Şampled	Stations Not Sampled	] 149,0 19,7	р- па пр пр тр тр тр
Aug. 22-Sept. 4 Sept. 4-11 Sept. 11-18				20,6			म स स म स म	 

				Pocomoke Sound						
j	.9 <b>7</b> 3 Da	te Exposed**		1970	tet	1972	1973			
	June	25-July 2								
•	July	2-10	•			<b>H 1</b>	Q			
	July	10-17				0	0			
	July	17-23		Stations	Stations	0	. Q			
	July	23+30				0	· 0			
	July	30-Aug. 7		Not	Not	0	0			
•	Aug	7-14				0				
	Aug,	14-22		Sampled	Sampled	0	0			
	Aug.	22-Sept. 4					· 0			
	Sept.						0			
		11-18				÷				

\* Shows spat per shell (smooth side only).

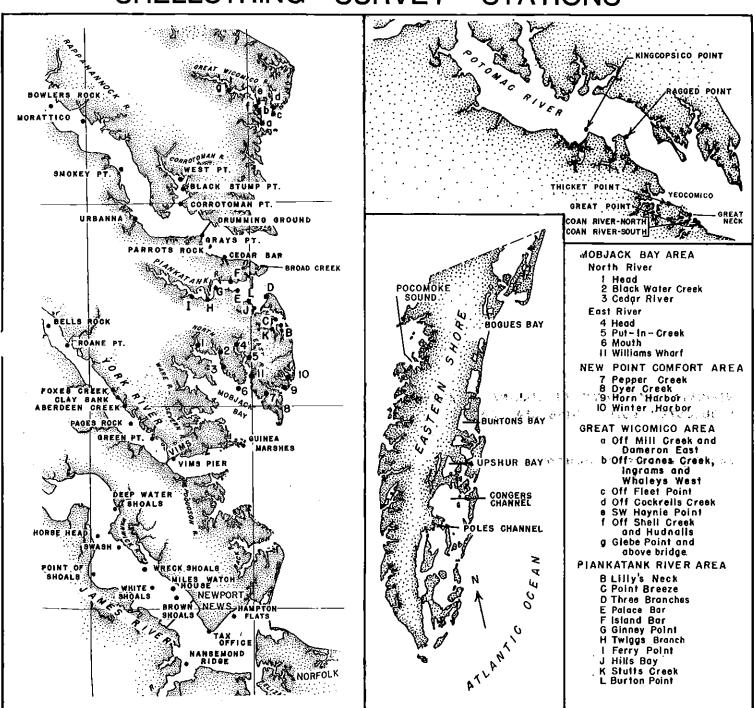
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 $^{\pm\pm}$  1970, 1971 and 1972 exposure dates approximately the same.

,1 to 1.0 spat per shell = fair set 2 to 10 spat per shell = moderate set 11 to 100 spat per shell = heavy set

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SHELLSTRING SURVEY STATIONS

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