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## Oyster Spatfall on Shellstrings in Virginia Rivers: 1978 Annual Summary

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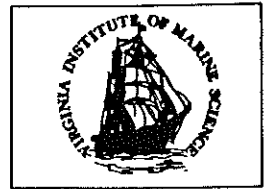
### Recommended Citation

Haven, D. S., & Kendall, P. C. (1979) Oyster Spatfall on Shellstrings in Virginia Rivers: 1978 Annual Summary. Marine Resource Special Report. Virginia Institute of Marine Science, College of William and Mary. <https://doi.org/10.21220/V5S31X>

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# MARINE RESOURCE SPECIAL REPORT



## A SEA GRANT ADVISORY SERVICE

Virginia Institute of Marine Science Gloucester Point, Virginia 23062

### 1978 Annual Summary

#### OYSTER SPATFALL ON SHELLSTRINGS IN VIRGINIA RIVERS

BY

Dexter Haven and Paul Kendall

The Virginia Institute of Marine Science (VIMS) conducts weekly surveys from June through early October to obtain oyster spatfall information. Spat counts are made from oyster shells strung on wire and suspended from stakes on public and private beds. The number of spat on shells are counted each week of the spawning season to determine the potential of a particular area for receiving a strike and to predict the most likely period the strikes will occur. 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 a significant strike on exposed bottom cultch. However, a good strike on shellstrings in some locations may not always be accompanied by good spatfall on shells on the 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 drills and blue crabs which eat the small spat.

Usually a light set of spat on shellstrings indicates a poor set on bottom cultch. During certain exceptional years, for reasons only partially understood, a light set on our shellstrings results in an exceptional set on the natural bottom.

The average number of spat which set in one week on the smooth side of 10 shells is tabulated in this report; it is reported as spat-per-shell-per-week. Weekly set is

arbitrarily rated as follows: fair, 0.1 to 1.0; moderate, 1.1 to 10; heavy, 11 to 100. As an index of total seasonal spatfall, the weekly sets are summed in this report for each station. In evaluating setting levels, it should be recognized that in certain rivers, such as the Rappahannock and Potomac, the set is typically zero in many sections and only fair in others. Other systems, including the lower James and Piankatank rivers, Mobjack Bay and Seaside of the Eastern Shore, typically receive a moderate or heavy set and, as a result, often produce quantities of seed oysters or market oysters.

If shells are to be planted in any region, it is important to plant a week or two prior to peak setting. If shells are planted much earlier, 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, Department of Applied Biology, VIMS.

Included in this report are numbers of oyster spat setting on cultch on the bottom at selected locations in the 1978 season. The data are expressed as number of spat per bushel of bottom material collected by an oyster dredge during the fall and winter of 1978-79.

#### SUMMARY OF SETTING IN THE RIVER SYSTEMS

James River - The public rocks in the James River annually supply over 77% of the seed planted commercially in Virginia. However, rocks in the lower river are now receiving only about 10% as much set as they did prior to 1960. The decline which began after 1960 is thought to be associated with MSX which has reduced brood stocks in the lower river. Other factors such as chlorine associated with the discharge of sewage treatment and other plants or some other environmental aspect may be involved.

Setting in the lower James River from Miles Watch House to Hampton Flats, with one exception, began during the first two weeks of August and continued without a well defined peak into October. At the Tax Office no set was recorded until late August. At all downriver stations, the seasonal set was low and ranged from 0.7 to 5.2 spat. The 1978 set was, in general, about equal to or lower than the 1977 set.

In the mid and upper seed area, setting began in early August and continued to October with no well defined peak setting period. The seasonal set was low and ranged

from 0.9 to 3.9 spat. These levels were less than those observed in 1977.

Bushel samples of bottom material from the public rocks showed a light to moderate set with the mid-river section having the higher counts. Numbers of spat per bushel follow: Nansemond Ridge - 64; Naseway Shoal - 70; Brown Shoal - 24; White Shoal - 78; Gun Rock - 14; Thomas Rock - 44; Wreck Shoal (inshore) - 102; Wreck Shoal (offshore) - 330; Point of Shoals - 328; Horse Head - 54; and Deep Water Shoal - 88.

York River - At Gloucester Point in 1978 the total seasonal set was only 3.1 spat, which is considered low for the area. The peak weekly set of 0.9 spat/shell occurred in late August.

At all six stations upriver from Gloucester Point, the total seasonal set was typically low with a range of from 0.2 to 2.5 spat. The poorly defined period of peak set seemed to occur in September. At all stations the 1978 set was lower than that recorded for 1977.

Dredge samples of bottom cultch taken in December from four of the public rocks in the York River showed few 1978 spat. The numbers ranged from 4 spat/bushel at Pages Rock to 24 spat/bushel at Bells Rock.

Mobjack Bay - In Mobjack Bay, there were two peak setting periods. The first occurred in early August; a second was observed in early September. The total seasonal set was 8.3 at Tow Stake and 10.3 off Brown Bay. These values are considered moderate.

Ware River - In this estuary, at Wilson's Creek, there was an unusually heavy seasonal set of 73.5 spat which was higher than any observed in the preceding three years. There were two periods of heavy setting. One was in mid-July; a second occurred in early September.

North River - The total seasonal set at Cedar Point and Black Water Creek was 12.4 and 18.4 spat, respectively. The moderate to heavy period of peak set occurred at both stations during the third week in July. These levels were far above recorded sets for the preceding three years.

At the head of the North River the peak set occurred the third week in July, the same time as it did downriver. The total set (7.5 spat) was slightly higher in 1978 than in 1977.

East River - Setting levels in this system continue to be far above those typical of other areas in Chesapeake Bay. The heavy peak weekly set near the mouth of the estuary (26.6 spat/shell) occurred in the latter part of August. At the Gulf Oil Dock, there were two peak weekly setting periods. One (69.4 spat/shell) was recorded during the first part of July. The second was observed in early August and reached 112.2 spat/shell. The total seasonal set for the two stations in 1978 exceeded that for the preceding three years.

New Point Comfort Area - There were five locations in four bodies of water monitored in 1978, and there were major differences among the areas. Winter Harbor (Crowe's) had zero set for 1978; this continues a pattern observed during the three preceding years. In contrast, Public Landing in the same estuary had a seasonal set of 25.2 spat. This latter level is regarded as heavy; similar levels were observed during the preceding three years. At Public Landing the first setting peak occurred the last week of August, while the second peak setting period was unusually late - the first week in October.

At Dyer Creek the seasonal set was 6.0 spat, and the period of peak set occurred during mid to late August. The total set in 1978 was higher than for the preceding three years.

Incomplete records for Pepper Creek suggest a lower than average set for 1978.

Milford Haven - At Stutts Creek the total seasonal set was low (2.1 spat); this continued a generally poor setting record observed during the preceding three years. Data for the Point Breeze and Hole-in-the-Wall area are incomplete.

Piankatank River - Weekly data for all stations in 1978 are lacking during the latter part of the setting season. Therefore, no definitive statement can be made relative to the total seasonal set. The data do show, however, that setting began in July and that the peak set occurred sometime in September.

There was only a light set on the public oyster bars in the Piankatank. Bushel samples of bottom material dredged in mid-January showed the following numbers of spat: Three Branches - 66; Burton Point - 36; Cape Tune - 52; Island Bar - 76; Palace Bar - 150; and Ginney Point - 116.

Rappahannock River - There was no set recorded on shellstrings for the four stations maintained above Goose Point (Weeks Creek, Smokey Point, Waterview, and Punchbowl).

In the lower Rappahannock River, there was a fair to moderate total set which ranged from 0.1 to 8.5 spat. Most of the set occurred during September. In 1978 the seasonal set was lower than that recorded in 1977 at all stations.

Bottom samples dredged from the public rocks in December of 1978 showed typically low setting levels. Numbers recorded per bushel were: Parrott's Rock - 10; Drumming Ground - 6; Hogg House - 4; Smokey Point - 4; Morattico - 6; and Bowlers Rock - 4. Nevertheless, these numbers were higher at Smokey Point, Morattico and Bowlers Rock than in most of the last eight years.

Dividing Creek - At Holland's Pier, the set was very light (0.4 spat for the season).

Great Wicomico River - The total seasonal set was low at the seven stations monitored, and ranged from 0.1 to 2.2 spat. The period of peak set occurred late in the season during September. It is noted that setting in the Great Wicomico River has been low since 1971; this is in contrast to the heavy sets routinely recorded in the '60's.

Bushel samples of bottom material dredged in December from the public rocks confirmed results obtained from the shellstrings; that is, few 1978 spat had set on the public rocks. Numbers recorded (per bushel) were: Dameron Marsh - 18; Fleet Point - 10; Cranes Creek - 30; Whaley's East - 46; Whaley's West - 34; Haynie Point - 44; and Rogue Point - 36.

Potomac River - A very light seasonal set ranging from 0.8 to 2.1 spat was observed in the lower Potomac River in the vicinity of Jones Shore, Cornfield and Hog Island. This set occurred late in the year during September. No set

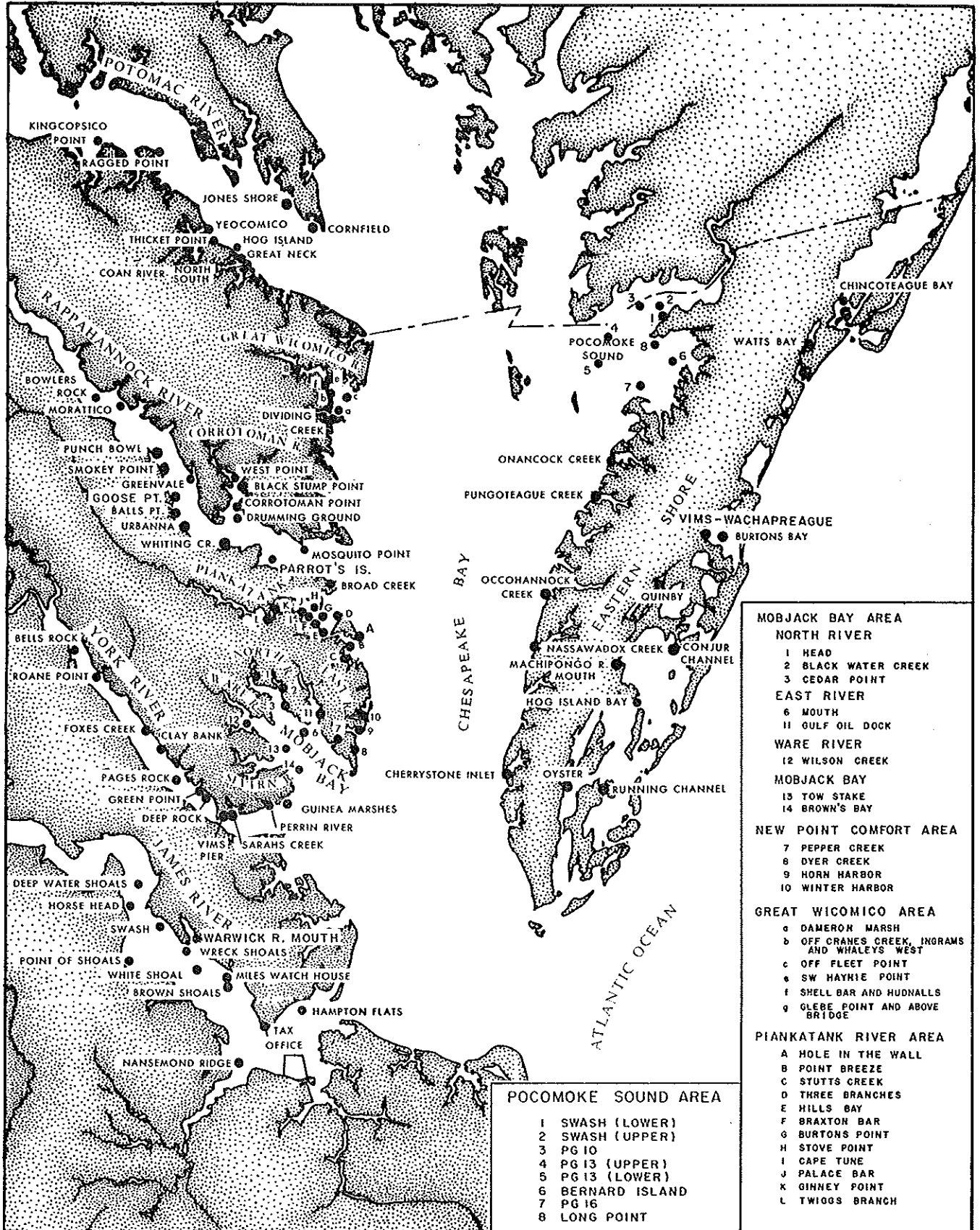
was observed at Great Neck or the seven remaining upriver stations except at King Copsico Point where 0.1 spat for the season was recorded. The low set observed in the mid-Potomac in 1978 was similar to levels observed since 1972.

Eastern Shore, Bayside - Pocomoke Sound - Levels of total seasonal set in Pocomoke Sound in 1978 ranged from zero to 1.6. There are no previous data to compare our 1978 results with, but these levels are considered low. Indications are that the few spat which set did so in August or September.

Eastern Shore, Seaside - As usual at Seaside stations, the seasonal set was heavy at the two stations monitored. At Quinby a heavy peak weekly set of 12.3 spat/shell occurred the second week in August. At Wachapreague (VIMS) there were two peak periods of heavy set; one occurred in late July or early August, and the other in early September. The 1978 set was lower than that observed in 1977 but on a par with '76 and '75.

Acknowledgments - Inspectors and Police Boat Captains of the Virginia Marine Resources Commission cooperated in this survey by changing shellstrings in many of the estuaries. Their assistance is gratefully acknowledged.

# SHELLSTRING SURVEY STATIONS





VIRGINIA INSTITUTE OF MARINE SCIENCE  
Spatfall on Shellstrings\*  
Annual Summary  
1975 - 1978

JAMES RIVER

Dates Exposed**	Hampton Flats				Nansemond Ridge				Newport News Tax Office			
	1975	1976	1977	1978	1975	1976	1977	1978	1975	1976	1977	1978
Jun 19-28	0.0	--	--	--	0.0	--	0.0	}0.0	0.0	0.0	0.0	}0.0
Jun 28-Jul 6	0.0	0.0	0.0	0.0	0.0	--	0.0		0.0	0.0	0.0	
Jul 6-10	}0.1	--	}1.0	0.0	0.0	--	--	}0.0	}0.7	--	0.0	0.0
Jul 10-17		0.2		0.3	0.0	0.1	--			0.3	0.1	0.4
Jul 17-24	0.2	0.3	}0.0	}0.0	0.0	0.0	0.0	}0.0	0.1	--	0.4	0.0
Jul 24-31	0.1	0.3			0.2	0.0	0.1		0.0	--	0.0	0.5
Jul 31-Aug 7	--	0.1	0.6	0.1	0.0	0.0	0.1	0.0	0.4	0.2	0.7	0.0
Aug 7-14	--	0.3	0.8	0.0	0.2	--	0.0	0.8	0.4	0.4	--	0.0
Aug 14-21	1.4	}1.7	0.7	0.1	1.2	--	0.1	0.2	1.9	1.0	0.6	0.0
Aug 21-28	2.0		0.5	0.3	}0.6	--	}1.6	0.9	}4.6	0.0	0.4	}0.1
Aug 28-Sep 5	--	2.5	1.3	0.4		0.4		0.2		0.9	--	
Sep 5-12	--	1.1	0.2	0.7	}2.2	--	0.1	0.0	--	9.5	0.5	0.0
Sep 12-18	5.2	1.3	}2.7	0.0		1.1	0.1	0.4	}0.6	0.1	1.0	0.4
Sep 18-26	--	}4.4		}1.2	}2.2	--	--	--		0.8	1.0	--
Sep 26-Oct 3	1.4		--			--	1.5	--	--	--	0.0	--
Oct 3-10	--	--	--	1.5	--	--	--	0.0	--	--	--	
TOTALS	10.4	9.7	9.2	5.2	4.4	1.9	2.5	3.3	9.2	16.9	6.2	0.7

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

\*\* Dates shown are for 1978. Dates in other years were approximately the same.

● Not sampled in previous years.

General Guide to Setting:

0.1 to 1.0 spat per shell = fair  
1.1 to 10.0 spat per shell = moderate  
10.1 to 100 spat per shell = heavy

Dates Exposed**	Brown Shoal				Miles Watch House				White Shoal			
	1975	1976	1977	1978	1975	1976	1977	1978	1975	1976	1977	1978
Jun 19-28	0.0	--	}0.0	0.0	0.0	0.0	}0.0	0.0	--	0.0	--	0.0
Jun 28-Jul 6	0.0	0.0		0.0	0.0	0.0		0.0	0.0	--	0.0	0.0
Jul 6-10	}0.2	--	0.0	0.0	}0.0	--	--	0.0	--	0.0	--	0.1
Jul 10-17		0.9	--	0.0		0.0	0.0	--	0.0	--	0.0	0.1
Jul 17-24	2.8	0.3	0.0	0.0	0.0	0.1	0.0	0.0	--	0.1	--	0.0
Jul 24-31	0.4	0.2	0.1	0.0	0.1	0.0	0.0	0.0	--	0.0	0.0	0.0
Jul 31-Aug 7	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	--	0.0	0.1	0.0
Aug 7-14	2.0	0.0	0.5	0.2	0.0	0.0	0.5	0.3	0.6	0.1	3.0	0.1
Aug 14-21	1.6	0.8	0.7	0.2	0.2	0.2	0.5	0.1	2.7	1.3	0.6	}0.0
Aug 21-28	5.6	0.5	0.3	0.1	0.8	0.1	0.5	0.2	2.0	0.2	6.0	
Aug 28-Sep 5	1.8	0.8	0.6	0.1	1.6	0.1	0.2	--	5.6	0.5	4.1	0.2
Sep 5-12	3.6	3.9	0.5	0.0	0.8	0.1	}0.2	0.9	3.4	1.7	0.4	0.3
Sep 12-18	3.4	6.7	0.4	0.5	1.8	0.4		0.3	2.4	2.6	0.0	0.2
Sep 18-26	2.4	3.2	0.5	0.7	0.2	0.6	--	1.0	1.0	2.3	0.7	0.9
Sep 26-Oct 3	3.6	0.3	0.1	0.3	0.0	0.0	0.0	0.7	0.4	0.0	0.8	0.6
Oct 3-11	--	--	--	0.0	--	--	--	0.0	--	--	--	0.0
TOTALS	27.4	17.6	3.7	2.2	5.5	1.6	1.9	3.6	18.1	8.8	15.8	2.4

Dates Exposed**	Wreck Shoal				Warwick River Mouth				Point of Shoal			
	1975	1976	1977	1978	1975	1976	1977	1978	1975	1976	1977	1978
Jun 19-28	0.0	0.0	0.0	0.0		--	0.0	0.0	--	--	--	0.0
Jun 28-Jul 6	0.0	0.0	0.0	0.0		--	0.0	0.0	0.1	0.0	0.0	0.0
Jul 6-10	}0.0	--	0.0	0.0		--	0.0	0.0	}0.0	--	0.0	0.0
Jul 10-17		0.0	0.0	0.0	0.0	--	--	0.0		0.0	0.0	0.0
Jul 17-24	1.3	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jul 24-31	0.5	0.0	0.0	0.0		0.0	0.0	0.0	0.1	0.0	0.1	0.0
Jul 31-Aug 7	0.1	0.0	0.0	0.2		0.2	0.0	0.0	}0.2	0.0	0.3	0.0
Aug 7-14	0.0	0.1	0.4	0.6		0.1	2.2	0.0		0.2	0.2	5.7
Aug 14-21	0.0	0.2	0.7	0.0		0.3	0.3	}0.1	1.3	0.0	2.6	}0.2
Aug 21-28	1.6	0.0	0.5	0.0		0.1	0.2		0.1	1.0	0.1	
Aug 28-Sep 5	2.2	--	1.1	0.1		0.0	0.2	0.4	0.6	0.0	1.6	0.3
Sep 5-12	0.8	0.0	0.1	0.1		0.0	0.0	0.4	0.0	0.0	0.8	0.0
Sep 12-18	4.0	0.7	0.1	0.2		0.1	0.0	0.3	1.0	0.0	0.1	--
Sep 18-26	1.0	1.1	0.0	0.1		0.1	0.0	--	0.0	0.2	0.1	0.2
Sep 26-Oct 3	0.6	0.1	0.2	0.4		0.2	0.0	--	0.0	0.0	0.1	0.0
Oct 3-11	--	--		0.2		--		--	--	--	--	0.2
Oct 11-27	--	--	0.0	--		--	}0.1	--	--	--	--	--
TOTALS	12.1	2.2	4.1	1.9		1.1	3.0	0.9	4.3	0.5	14.9	0.9

Dates Exposed**	Mulberry Swash				Horsehead Shoal				Deepwater Shoal			
	1975	1976	1977	1978	1975	1976	1977	1978	1975	1976	1977	1978
Jun 19-28	0.0	--	--	0.0	0.0	--	--	0.0	0.0	--	--	0.0
Jun 28-Jul 6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jul 6-10	}0.0	0.0	0.0	0.0	}0.0	0.0	0.0	0.0	}0.0	0.0	0.0	0.0
Jul 10-17		0.0	0.0	0.0		0.0	0.0	0.0		0.0		
Jul 17-24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	0.0
Jul 24-31	0.0	0.0	0.0	0.0	0.0	--	0.0	0.0	0.0	--	0.0	0.0
Jul 31-Aug 7	0.0	0.0	0.2	0.0	}0.3	0.0	0.0	0.0	}0.0	0.0	0.0	0.4
Aug 7-14	0.0	0.0	4.0	0.1		0.3	1.1	0.1		0.0	0.0	0.6
Aug 14-21	0.0	0.1	0.0	}0.4	0.6	0.1	0.5	0.0	0.5	0.0	0.4	0.0
Aug 21-28	0.2	0.0	1.7		0.8	0.0	2.3	0.1	0.6	0.0	1.5	0.6
Aug 28-Sep 5	0.4	0.0	2.4	0.3	0.2	0.0	0.4	0.0	0.0	0.0	0.4	0.0
Sep 5-12	0.0	0.4	0.1	1.1	0.0	0.1	0.2	0.5	--	1.1	0.2	0.4
Sep 12-18	0.8	0.2	0.0	0.7	0.4	0.7	0.1	--	0.0	0.2	0.3	0.0
Sep 18-26	0.0	0.0	0.1	0.4	0.0	0.2	0.0	0.1	0.0	0.2	0.1	0.3
Sep 26-Oct 3	0.0	0.0	0.0	0.7	0.0	0.1	0.0	0.2	0.0	0.3	0.0	0.3
Oct 3-11	--	--	--	0.2	--	--	--	--	--	--	--	0.2
TOTALS	1.5	0.7	8.5	3.9	2.3	1.5	4.6	1.0	1.1	0.8	3.5	2.2

YORK RIVER

Dates Exposed**	VIMS Ferry Pier				Deep Stakes				Green Rock			
	1975	1976	1977	1978	1975	1976	1977	1978	1975	1976	1977	1978
Jun 12-19	0.0	}0.0	--	--	Not Sampled	Not Sampled	0.0	--	Not Sampled	Not Sampled	0.0	--
Jun 19-26	0.0		0.0	0.0			0.0	--			--	
Jun 26-Jul 3	}0.1	0.0	}1.0	0.0			--	--				
Jul 3-10		0.2		0.0			0.0	--			--	
Jul 10-17	0.0	--	1.2	0.0			--	--				
Jul 17-24	0.9	0.7	0.0	0.1			0.2	--				
Jul 24-Aug 1	0.1	--	1.0	0.1			0.0	--				
Aug 1-7	0.0	0.0	0.0	0.3			0.0	0.3				
Aug 7-14	0.0	0.2	}0.4	0.1			}0.8	0.2			}0.4	
Aug 14-23	--	--		0.6				0.2				0.0
Aug 23-29	--	0.1	0.3	0.9	0.5	0.3	0.5	0.2				
Aug 29-Sep 5	3.0	0.0	0.9	0.4	0.0	}1.2	}0.2	0.4	}1.1	}0.0		
Sep 5-11	0.0	0.3	6.7	0.1	0.4			0.0				
Sep 11-19	3.6	0.4	6.6	0.3	0.4			0.0				
Sep 19-27	5.0	0.1	3.8	0.1	0.4			0.0				
Sep 27-Oct 2	0.0	0.1	1.0	0.1	}1.8	}0.4	}0.4	}0.0				
Oct 2-10	--	0.0	--	--					0.0	0.0		
TOTALS	12.7	2.1	22.9	3.1		4.5	2.5		3.3	0.2		

Dates Exposed**	Pages Rock				Aberdeen Rock				Claybank										
	1975	1976	1977	1978	1975	1976	1977	1978	1975	1976	1977	1978							
Jun 12-19			0.0	--			0.0	--	0.0	--	--	--							
Jun 19-26			}0.0	--			}0.0	--	0.5	--	--	--							
Jun 26-Jul 3				0.0	--				0.0	4.4	--	--	0.0						
Jul 3-10			0.0	--			0.0	--	0.0	0.0	--	0.0							
Jul 10-17			0.1	--			0.0	--	0.0	0.0	--	0.0							
Jul 17-24			0.1	--			1.1	--	0.0	0.0	--	0.0							
Jul 24-Aug 1	Not Sampled	Not Sampled	0.1	0.4	Not Sampled	Not Sampled	0.0	0.0	0.0	--	--	0.0							
Aug 1-7							0.9			0.0	0.0	0.0	0.0	--	0.2				
Aug 7-14							}0.1	--			}0.3	0.0	0.0	0.0	0.0	0.0			
Aug 14-23								0.5	0.0				1.0	0.0	0.0	0.0	0.7	0.0	
Aug 23-29							0.3				0.5	0.0	0.0	0.0	0.0	0.0			
Aug 29-Sep 5							}1.0	}0.0			}7.0	}0.0	0.0	0.0	2.8	0.0			
Sep 5-11																0.0	0.0	2.0	0.0
Sep 11-19																0.0	0.0	0.8	0.3
Sep 19-27							}2.0				}--		0.2	0.0	0.4	0.0			
Sep 27-Oct 2									0.0					0.0	0.1	--	0.0		
Oct 2-10							--	0.6			--	0.1	--	0.1	--	--			
TOTALS							4.2	1.9			9.9	0.4	5.1	0.2	6.7	0.5			

Dates Exposed**	Foxes Creek			
	1975	1976	1977	1978
Jun 12-19	0.0	--	}0.0	--
Jun 19-26	0.0	--		0.0
Jun 26-Jul 3	}0.2	--	--	0.0
Jul 3-10		--	0.1	0.0
Jul 10-17		0.0	--	0.0
Jul 17-24	0.0	0.0	0.0	0.0
Jul 24-Aug 1	0.0	--	0.0	0.0
Aug 1-7	0.0	0.0	0.0	0.0
Aug 7-14	0.0	0.0	}0.5	0.0
Aug 14-23	--	0.0		0.0
Aug 23-29	--	0.0	0.2	0.0
Aug 29-Sep 5	0.0	0.0	0.5	0.0
Sep 5-11	0.0	0.0	0.1	0.0
Sep 11-19	0.0	0.0	0.4	0.2
Sep 19-27	0.2	0.0	0.4	0.1
Sep 27-Oct 2	0.0	0.0	--	--
Oct 2-10	--	0.0	--	--
TOTALS	0.4	0.0	3.2	0.3

## MOBJACK BAY

Dates Exposed**	Tow Stake Station 13				Off Brown's Bay Station 14				Off Wilson's Creek Station 12			
	1975	1976	1977	1978	1975	1976	1977	1978	1975	1976	1977	1978
	Jun 12-19	--	0.0	0.0	--	0.0	0.0	0.0	--	0.8	0.0	0.0
Jun 19-26	0.0	0.2	--	0.0	--	0.0	0.0	0.0	7.3	2.7	0.0	0.0
Jun 26-Jul 6	} 2.6	0.1	0.0	0.0	0.1	0.0	0.0	--	} 24.0	1.6	--	0.2
Jul 6-11		--	8.8	1.7	--	2.0	--	0.0		--	3.7	0.0
Jul 11-17	5.8	8.5	0.1	1.0	5.1	0.0	2.3	1.0	--	2.8	0.7	30.8
Jul 17-24	0.2	2.1	1.3	0.1	0.4	0.1	0.2	0.1	0.3	7.9	1.5	3.0
Jul 24-30	0.1	0.3	0.0	1.0	0.0	0.1	0.7	1.1	0.0	--	5.8	0.4
Jul 30-Aug 7	0.0	} 0.6	0.2	2.3	0.0	--	0.0	2.8	0.0	--	--	2.4
Aug 7-14	0.0		0.0	0.6	0.0	--	0.0	0.7	0.0	--	--	0.7
Aug 14-22	} 33.6	} 0.6	2.4	0.0	} 2.8	--	--	--	} 13.2	--	--	1.0
Aug 22-29			0.0	0.0		0.9	--	--		5.1		
Aug 29-Sep 5	} 4.8	} 0.6	} 1.3	0.1	} 0.0	--	--	0.9	} 3.6	--	--	0.0
Sep 5-11				1.4		0.9	0.0					
Sep 11-18	} 0.0	--	2.0	0.0	0.4	--	--	--	0.3	--	--	6.4
Sep 18-Oct 2		0.1	--	--	--	--	--	--	0.1	0.2	5.0	0.0
Oct 2-9												
TOTALS	47.1	12.5	16.1	8.3	10.8	0.2	3.2	10.3	49.3	19.2	13.0	73.5

## NORTH RIVER

Dates Exposed**	Cedar Point Station 3				Black Water Creek Station 2				Head Station 1			
	1975	1976	1977	1978	1975	1976	1977	1978	1975	1976	1977	1978
	Jun 13-20	0.0	0.0	0.0	--	0.0	0.0	0.0	--	0.0	0.1	0.0
Jun 20-27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	0.0	0.4	0.0	0.0
Jun 27-Jul 5	0.6	0.0	0.0	0.9	0.0	0.0	0.0	0.6	0.1	3.0	} 0.0	0.7
Jul 5-11	0.0	0.7	} 0.1	0.9	0.0	0.1	} 0.1	2.7	0.0	2.4		1.2
Jul 11-18	0.0	0.0		3.6	0.1	0.1		11.8	0.1	0.5	--	3.0
Jul 18-25	0.0	0.2	0.0	3.3	0.0	0.0	0.0	1.7	0.0	0.0	--	0.1
Jul 25-Aug 1	0.0	--	0.6	0.0	0.0	--	0.0	0.0	0.3	--	0.0	0.0
Aug 1-8	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.1	0.0	5.2	0.1	0.3
Aug 8-15	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.1	0.8	0.0	0.4
Aug 15-22	0.3	0.0	0.2	1.7	0.0	0.0	0.0	0.8	0.0	2.8	2.7	0.6
Aug 22-29	0.0	0.0	0.6	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0
Aug 29-Sep 5	3.8	0.0	0.0	0.4	2.0	0.0	0.0	0.0	13.8	0.0	0.1	0.2
Sep 5-12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.0	0.0	0.2
Sep 12-19	0.2	0.1	0.0	0.7	--	0.0	0.2	0.3	0.0	0.0	1.1	0.7
Sep 19-26	0.0	0.0	1.4	0.0	--	0.0	0.4	0.0	0.0	0.0	1.2	0.1
Sep 26-Oct 3	--	--	--	0.0	--	--	--	0.0	--	--	--	0.0
Oct 3-11	--	--	--	0.4	--	--	--	0.0	--	--	--	0.0
TOTALS	4.9	1.0	3.2	12.4	2.3	0.2	0.7	18.4	14.8	15.2	5.2	7.5

## EAST RIVER

Dates Exposed**	Mouth Station 6				Gulf Oil Dock Station 11			
	1975	1976	1977	1978	1975	1976	1977	1978
	Jun 5-12	0.0	0.0	--	--	2.0	--	--
Jun 12-19	0.1	0.1	--	--	2.8	0.0	0.0	--
Jun 19-27	0.0	--	--	0.0	6.7	1.8	0.0	0.0
Jun 27-Jul 5	7.6	2.6	--	} 1.2	6.5	4.1	0.0	6.8
Jul 5-11	3.8	2.3	--		5.9	4.3	} 0.0	69.4
Jul 11-18	3.6	5.6	0.0	} 0.5	2.9	1.3		31.5
Jul 18-25	} 1.0	} 0.8	} 3.0		1.5	--	12.0	2.0
Jul 25-Aug 2				0.2	5.9	0.0	10.0	
Aug 2-9	} 0.9	} 0.1	} 4.5	} 5.4	1.6	--	0.0	9.2
Aug 9-15					1.4	0.0	2.8	112.2
Aug 15-22	} 9.0	} 3.0	} 4.5	} 1.2	4.7	0.0	11.6	48.8
Aug 22-29					9.7	0.0	1.6	62.7
Aug 29-Sep 5	} 8.4	} 1.1	} 7.6	} 1.2	15.8	0.0	0.2	0.7
Sep 5-12					0.8	0.2	1.7	0.7
Sep 12-19	5.6	} 1.1	} 7.6	} 1.2	0.4	0.0	1.6	2.0
Sep 19-26	0.4				0.0	3.6	0.1	
Sep 26-Oct 3	--	0.0	--	--	--	0.0	--	0.0
Oct 3-11	--	--	--	--	--	--	--	0.0
TOTALS	40.4	16.8	15.1	39.5	62.9	17.6	35.1	356.1

## NEW POINT COMFORT AREA

Dates Exposed**	Winter Harbor, Crowe's Station 10				Horn Harbor, Mitcham's Station 9				Dyer Creek Station 8			
	1975	1976	1977	1978	1975	1976	1977	1978	1975	1976	1977	1978
	Jun 13-20	0.0	0.0	0.0	--	0.0	0.0	0.0	--	0.0	0.0	0.0
Jun 20-27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jun 27-Jul 5	0.0	0.1	0.0	0.0	0.0	0.0	--	0.0	0.0	0.0	0.5	0.0
Jul 5-11	--	0.0	} 0.0	0.0	0.0	0.0	} 0.0	0.0	0.0	0.1	} 0.0	0.0
Jul 11-18	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.2		0.0
Jul 18-25	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	--	0.0
Jul 25-Aug 2	0.0	--	0.0	0.0	0.0	--	0.0	0.0	0.0	0.0	0.4	0.1
Aug 2-9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aug 9-15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0
Aug 15-22	--	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.1	1.5
Aug 22-29	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.0	0.0	0.1	0.0	3.0
Aug 29-Sep 5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.0	0.0	1.3
Sep 5-12	0.0	0.0	0.0	0.0	0.0	} 0.2	0.2	0.1	0.0	0.0	--	0.1
Sep 12-19	--	0.0	0.0	0.0	0.0		0.0	0.1	0.0	0.2	0.0	0.0
Sep 19-26	--	0.0	0.0	0.0	0.0	} 0.2	0.4	0.0	0.0	0.0	0.0	0.0
Sep 26-Oct 3	--	--	--	0.0	--		--	--	0.0	--	--	--
Oct 3-11	--	--	--	0.0	--	--	--	0.0	--	--	--	0.0
TOTALS	0.0	0.1	0.0	0.0	0.2	0.2	1.0	0.3	0.4	1.4	1.0	6.0

Dates Exposed**	Winter Harbor, Public Landing - Station 10				Pepper Creek Station 7			
	1975	1976	1977	1978	1975	1976	1977	1978
Jun 6-13	--	--	--	--	0.0	0.0		--
Jun 13-20	0.0	0.0	0.0	--	0.0	0.0		--
Jun 20-27	0.0	0.0	0.0	0.0	0.0	--		0.0
Jun 27-Jul 5	7.0	0.0	0.0	0.0	0.5	0.1		} 0.0
Jul 5-11	2.1	0.0	} 0.0	0.1	0.1	0.0		
Jul 11-18	6.3	0.2		0.0	0.0	0.6	0.0	
Jul 18-25	30.7	0.1	0.1	0.1	} 0.7	} 0.2		} 0.0
Jul 25-Aug 2	1.4	--	7.0	1.5				
Aug 2-9	0.4	0.2	--	0.3				} 0.0
Aug 9-15	4.3	0.0	3.8	} 0.9	} 1.2	} 2.1		
Aug 15-22	4.1	7.6	2.0					
Aug 22-29	1.9	1.1	3.7	6.3	} 8.0	4.5		} 3.1
Aug 29-Sep 5	252.0	0.0	4.2	2.4		0.1		
Sep 5-12	58.6	0.1	3.6	0.5	12.4	} 0.5		0.0
Sep 12-19	35.6	0.0	2.8	0.4	14.6			
Sep 19-26	16.2	0.0	7.8	0.2	3.2			--
Sep 26-Oct 3	--	--	--	4.3	--	0.0		0.1
Oct 3-11	--	--	--	8.2	--	--		--
TOTALS	420.6	9.3	35.0	25.2	41.3	7.6		4.9

MILFORD HAVEN

Dates Exposed**	Point Breeze Station B				Stutts Creek Station C				Hole-in-Wall Station A			
	1975	1976	1977	1978	1975	1976	1977	1978	1975	1976	1977	1978
Jun 12-19	0.0	0.0	0.0	--	0.0	0.0	0.0	--			0.0	--
Jun 19-26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	--
Jun 26-Jul 3	0.2	0.0	--	0.0	0.1	0.0	0.0	0.0			--	--
Jul 3-10	--	0.0	0.0	0.0	0.2	1.9	} 0.0	0.0			0.0	--
Jul 10-17	1.8	--	--	0.0	3.6	--		0.0	0.0			--
Jul 17-24	0.3	--	--	0.5	0.1	0.0	0.0	0.0			--	0.6
Jul 24-31	0.0	--	--	0.1	0.3	--	0.0	0.2			--	--
Jul 31-Aug 7	0.3	--	0.1	--	0.0	0.0	0.3	0.0			0.8	--
Aug 7-14	--	--	0.5	--	0.0	0.2	0.2	0.0			0.3	0.0
Aug 14-21	--	0.5	} 0.2	--	0.0	0.1	0.0	0.0			0.5	} 5.3
Aug 21-28	--	0.0		--	--	0.0	0.0	0.5	0.3			
Aug 28-Sep 4	--	0.0	0.1	--	0.2	0.0	0.1	0.2			0.2	
Sep 4-11	1.8	0.0	0.0	--	0.6	0.0	0.1	0.3			0.2	
Sep 11-18	0.4	0.0	0.6	--	0.2	0.0	0.0	0.0			1.2	
Sep 18-25	0.0	0.0	0.0	0.1	0.0	0.0	0.4	0.0			0.3	
Sep 25-Oct 3	--	--	--	--	--	--	--	0.2			--	--
Oct 3-11	--	--	--	--	--	--	--	0.0			--	--
TOTALS	4.8	0.5	1.5	0.7	5.3	2.2	1.6	2.1			3.5	6.2

PLANKATANK RIVER

Dates Exposed**	Three Branches Station 9				Burton Point Station G				Stove Point Station H			
	1975	1976	1977	1978	1975	1976	1977	1978	1975	1976	1977	1978
Jun 12-19	0.0	0.0	0.0	--	0.0	0.0	0.0	--	0.0	0.0	0.0	--
Jun 19-26	0.4	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Jun 26-Jul 3	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.6	0.1	0.1	0.0
Jul 3-10	0.0	--	0.0	0.0	0.6	--	0.0	0.0	--	--	0.0	0.0
Jul 10-17	--	--	0.2	0.0	1.9	--	--	0.0	0.6	--	--	0.0
Jul 17-24	0.0	--	0.0	0.0	0.1	0.2	--	0.1	--	0.0	--	0.2
Jul 24-31	0.4	0.0	0.1	0.0	0.2	0.7	--	0.2	0.2	0.0	--	0.9
Jul 31-Aug 7	--	--	0.0	0.0	0.0	0.0	--	0.1	0.1	1.0	--	0.1
Aug 7-14	0.6	0.3	4.3	0.0	1.5	}0.0	64.0	0.2	--	}0.7	--	--
Aug 14-21	--	}0.0	0.1	}0.0	1.6		0.4	}0.5	--		--	0.2
Aug 21-28	--		0.0		--	--	0.0		--	--	--	0.0
Aug 28-Sep 5	--	0.0	0.0	}2.2	2.2	}0.0	}0.0	}9.8	0.0	}0.0	}0.0	}0.1
Sep 5-12	0.0	}0.0	0.0		0.0				0.0			
Sep 12-18	0.0		0.0	0.7	0.0	0.0	}0.0	}5.2	--	0.0	--	}9.8
Sep 18-25	0.0	0.0	--	0.0	0.0	0.0			--	--	0.0	
TOTALS	1.4	0.3	5.4	2.2	10.0	0.9	64.4	6.3	1.9	1.9	0.5	11.3

Dates Exposed**	Bland Point Station L				Cape Tune Station I				Palace Bar Station J			
	1975	1976	1977	1978	1975	1976	1977	1978	1975	1976	1977	1978
Jun 12-19		0.0	--	--	0.0	0.0	0.0	--	0.0	0.0	--	--
Jun 19-26		0.0	--	0.0	--	0.0	0.0	0.0	0.5	0.0	0.0	0.0
Jun 26-Jul 3		0.0	--	0.0	1.7	0.1	0.0	0.0	5.6	0.1	0.0	0.0
Jul 3-10		0.0	--	0.0	6.3	0.0	0.0	0.0	3.9	0.0	6.9	0.0
Jul 10-17		0.0	--	0.2	--	0.0	0.6	0.0	2.0	0.0	0.4	0.0
Jul 17-24		1.9	--	0.5	--	1.0	1.2	0.7	0.0	3.0	0.3	1.0
Jul 24-31		--	--	0.0	0.1	--	--	0.0	0.0	--	22.8	0.1
Jul 31-Aug 7		0.6	--	0.0	0.0	0.1	0.2	0.0	0.0	0.0	5.6	0.0
Aug 7-14		--	--	0.0	0.0	}--	--	0.0	--	}0.3	23.1	0.0
Aug 14-21		--	0.4	}0.3	1.0		3.0	}0.3	1.2		0.3	}0.8
Aug 21-28		}0.0	0.1		2.8	0.0	0.0		3.0	0.0	0.0	
Aug 28-Sep 5			0.0	0.0	0.9	}0.0	0.0	}16.8	0.2	0.0	0.0	
Sep 5-12		0.0	0.1	0.2	0.0		0.0		2.0	0.0	0.0	
Sep 12-18		0.0	0.0	0.0	0.0	0.0	--	0.0	0.0	0.1	}3.4	
Sep 18-25		0.0	0.0	--	0.0	--	--	0.2	0.0	0.1		
TOTALS		2.5	0.6	2.6	13.0	1.2	5.0	17.8	18.6	3.4	59.6	5.3



Dates Exposed**	Ginney Point Station K			
	1975	1976	1977	1978
Jun 12-19	0.0	0.0	0.0	--
Jun 19-26	0.8	0.0	0.0	0.0
Jun 26-Jul 3	2.9	0.0	--	0.0
Jul 3-10	7.5	0.1	--	0.0
Jul 10-17	1.2	0.0	--	0.0
Jul 17-24	0.0	0.7	0.0	0.0
Jul 24-31	0.0	1.9	0.8	0.3
Jul 31-Aug 7	--	1.0	1.5	0.0
Aug 7-14	2.3	}0.0	28.2	0.0
Aug 14-21	9.6		0.0	}--
Aug 21-28	--	}0.0	}0.0	
Aug 28-Sep 5	0.0			
Sep 5-12	1.6	0.0	}0.2	}--
Sep 12-18	1.4	0.0		
Sep 18-25	0.0	0.0	0.0	
TOTALS	27.3	3.7	30.7	0.3

RAPPAHANNOCK RIVER

Dates Exposed**	Lawson's Bay, near Mosquito Point				Parrot's Island	Cedar Bar	Corrotoman Point			
	1975	1976	1977	1978	1978	1978	1975	1976	1977	1978
Jun 12-19	0.0	0.0	0.0	--	--	--	0.0	0.0	0.0	--
Jun 19-26	0.5	0.0	0.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0
Jun 26-Jul 3	0.4	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0
Jul 3-10	8.4	0.0	0.0	0.0	--	0.0	--	0.0	0.0	0.0
Jul 10-17	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0
Jul 17-24	0.0	0.0	0.2	0.0	0.0	0.0	0.2	0.0	0.0	0.0
Jul 24-31	0.1	0.0	0.0	0.0	0.0	--	0.0	0.3	0.0	--
Jul 31-Aug 7	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Aug 7-14	0.0	0.7	2.0	0.0	--	0.0	3.4	1.3	18.9	0.0
Aug 14-21	0.0	0.2	1.8	0.0	0.0	0.0	0.0	0.1	14.7	0.0
Aug 21-28	2.6	0.1	1.2	3.1	0.0	--	4.8	0.4	3.9	0.5
Aug 28-Sep 4	2.2	0.0	}3.0	4.5	0.0	--	2.4	0.5	}3.0	1.4
Sep 4-11	2.8	0.2		}0.7	}0.0	}0.2	1.2	0.0		
Sep 11-18	1.2	0.0	}0.4				}5.6	}0.0	0.2	0.0
Sep 18-25	0.0	0.0		}0.0	}--	}--			--	0.0
Sep 25-Oct 2	--	0.1	}0.2				}--	}--	--	0.0
Oct 2-9	--	--		}0.2	}--	}--			--	--
TOTALS	18.2	1.5	8.7				8.5	5.6	0.2	15.4

Dates Exposed**	Balls Point				Goose or Long Point				Greenvale					
	1975	1976	1977	1978	1975	1976	1977	1978	1975	1976	1977	1978		
Jun 12-19		--	0.0	--		0.0	0.0	--	0.0	0.0	0.0	--		
Jun 19-26		--	0.0	0.0		--	0.0	0.0	2.5	0.0	0.0	0.0		
Jun 26-Jul 3		0.0	--	0.0		--	0.0	0.0	0.8	0.0	0.0	0.0		
Jul 3-10		0.0	--	0.0		--	0.0	0.0	7.0	--	0.0	0.0		
Jul 10-17		0.0	0.0	0.0		0.0	0.0	0.0	0.0	--	0.0	0.0		
Jul 17-24		0.0	--	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Jul 24-31		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	--		
Jul 31-Aug 7	Not Sampled	0.0	--	0.0	Not Sampled	--	--	0.0	0.0	0.1	0.0	0.0		
Aug 7-14		0.0	0.5	0.0		0.1	0.4	0.0	0.0	0.0	0.1	0.2	0.0	
Aug 14-21		--	0.1	0.0		0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	
Aug 21-28		0.0		0.0		0.0	0.1	0.0	0.0	0.0	--	0.2	0.0	
Aug 28-Sep 4		--	0.6	0.0		0.0	0.3	0.1	0.1	3.0	0.2		0.0	
Sep 4-11		0.0	0.1	0.4		0.0	0.1	0.0	0.0	3.8	0.2	0.7		
Sep 11-18		0.0	--	0.0		0.0	2.0	0.0	0.0	7.8	0.1		0.0	
Sep 18-25		0.0	0.2	--		0.0	0.0	--	--	--	0.0	0.2		
Sep 25-Oct 2		--	--	--		--	--	--	--	--	0.1	--	0.0	
Oct 2-9		--	--	--		--	--	--	--	--	--	--	0.2	
TOTALS			0.0	1.5		0.4		0.2	2.9	0.1	24.9	0.9	1.3	0.2

Dates Exposed**	Weeks Creek				Smokey Point		Waterview		Punchbowl					
	1975	1976	1977	1978	1977	1978	1977	1978	1975	1976	1977	1978		
Jun 12-19		0.0	--	--		0.0	--	0.0	--	0.0	0.0	--		
Jun 19-26		0.0	--	0.0		0.0	0.0	0.0	0.0	--	0.0	0.0		
Jun 26-Jul 3		0.0	--	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Jul 3-10		--	--	0.0		0.0	0.0	--	0.0	0.0	0.0	0.0		
Jul 10-17		0.1	--	--		0.0	0.0	0.0	0.0	0.0	--	0.0		
Jul 17-24	Not Sampled	0.0	0.0	0.0	Not Sampled	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Jul 24-31		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Jul 31-Aug 7		--	0.0	--		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Aug 7-14		--	0.3	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	
Aug 14-21		0.0	0.0	0.0		0.0	0.0	0.2	0.0	0.0	0.0	0.0	--	
Aug 21-28		0.0	0.1	0.0		0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.0	
Aug 28-Sep 4		0.0	0.3	0.0		0.2	0.0	0.3	0.0	0.0	0.1	0.3	0.0	
Sep 4-11		0.0	0.3	0.0		0.6	0.0	0.3	--	--	--	0.0	0.0	
Sep 11-18		0.0	0.6	0.0		1.3	0.0	0.0	0.0	0.0	0.0	7.0	0.0	
Sep 18-25		0.0	0.1	--		0.2	--	0.1	--	--	0.0	--	--	
TOTALS			0.1	1.7		0.0		2.3	0.0	1.0	0.0	0.1	7.7	0.0

GREAT WICOMICO RIVER

Dates Exposed**	Dameron Marsh Station a				Cranes Creek Station b				Fleet Point Station c			
	1975	1976	1977	1978	1975	1976	1977	1978	1975	1976	1977	1978
	Jun 6-13	0.0	0.0	--	--	0.1	0.0	--	--	0.0	0.0	--
Jun 13-20	0.0	0.0	--	}0.0	--	0.0	--	}0.0	--	0.0	--	}0.0
Jun 20-27	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	--	
Jun 27-Jul 6	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	--	0.0	0.0
Jul 6-11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jul 11-18	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Jul 18-24	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.0
Jul 24-31	0.1	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.2	--
Jul 31-Aug 7	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Aug 7-14	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.4
Aug 14-21	0.0	--	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aug 21-28	0.0	0.0	0.4	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.7	0.1
Aug 28-Sep 5	0.0	--	--	--	0.0	0.0	0.4	0.1	--	0.0	0.2	0.5
Sep 5-12	0.0	0.1	0.0	0.4	0.0	0.1	1.6	0.0	0.6	0.0	0.5	--
Sep 12-19	0.4	0.0	0.0	--	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2
Sep 19-25	0.0	0.0	0.0	--	0.0	0.0	0.0	0.0	--	0.0	--	0.8
Sep 25-Oct 2	--	--	--	--	--	--	--	0.0	--	--	--	0.2
TOTALS	0.5	0.1	0.7	0.7	0.6	0.2	2.2	0.1	1.2	0.0	1.8	2.2

Dates Exposed**	Haynie Point Station e				Shell Bar Station f				Hudnall's Dock Station f			
	1975	1976	1977	1978	1975	1976	1977	1978	1975	1976	1977	1978
	Jun 6-13	--	0.0	--	--	--	0.0	--	--	--	0.0	--
Jun 13-20	0.1	0.0	--	}0.0	--	0.0	--	}0.0	0.0	0.0	--	}0.0
Jun 20-27	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Jun 27-Jul 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jul 6-11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jul 11-18	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	--	0.0	0.0
Jul 18-24	0.6	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--
Jul 24-31	0.5	0.1	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Jul 31-Aug 7	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.1	0.0
Aug 7-14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0
Aug 14-21	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.4	0.0	0.0
Aug 21-28	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	--	0.6	0.2
Aug 28-Sep 5	0.0	0.0	0.2	0.7	0.0	0.0	0.7	0.6	0.0	0.2	0.7	0.7
Sep 5-12	0.2	0.0	0.4	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.1	0.5
Sep 12-19	0.2	0.0	0.2	0.2	0.0	0.0	0.2	0.3	0.0	0.0	0.6	0.0
Sep 19-25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sep 25-Oct 2	--	--	--	0.0	--	--	--	0.0	--	--	--	0.0
TOTALS	1.6	0.2	1.1	1.1	0.2	0.4	1.5	1.0	0.1	0.6	3.8	1.4

## DIVIDING CREEK

Dates Exposed**	Glebe Point Station g				Holland's Pier			
	1975	1976	1977	1978	1975	1976	1977	1978
Jun 6-13	--	0.0	--	--	--	--	--	--
Jun 13-20	0.0	0.0	--	}0.0	0.0	0.0	--	}--
Jun 20-27	0.0	0.0	--		0.0	0.0	0.0	
Jun 27-Jul 6	0.0	0.0	0.0	0.0	0.2	0.0	0.0	--
Jul 6-11	--	--	0.0	0.2	0.2	0.0	0.1	0.0
Jul 11-18	0.2	0.0	0.0	--	0.0	0.3	0.0	0.0
Jul 18-24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jul 24-31	0.0	0.9	0.0	--	0.0	1.1	0.0	--
Jul 31-Aug 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aug 7-14	0.0	0.0	--	0.1	0.0	0.0	--	0.0
Aug 14-21	0.0	0.0	0.0	--	0.0	0.0	0.0	0.0
Aug 21-28	0.0	0.0	0.3	0.2	0.0	0.0	0.0	0.0
Aug 28-Sep 5	0.0	--	0.1	0.4	0.0	0.0	0.1	0.0
Sep 5-12	0.0	0.0	0.5	0.1	0.0	0.0	0.0	0.2
Sep 12-19	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
Sep 19-25	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0
Sep 25-Oct 2	--	--	--	0.4	--	--	--	0.2
TOTALS	0.2	0.9	1.0	1.9	0.4	1.4	0.2	0.4

## POTOMAC RIVER

Dates Exposed**	Cornfield				Jones Shore				Great Neck			
	1975	1976	1977	1978	1975	1976	1977	1978	1975	1976	1977	1978
Jun 13-20	--	0.0	0.0	--	0.1	0.0	--	--	0.0	0.0	--	--
Jun 20-27	--	--	0.0	--	0.0	0.0	0.0	--	0.0	0.0	0.0	--
Jun 27-Jul 4	0.0	0.0	--	0.0	0.0	--	0.0	0.0	0.0	0.0	0.0	0.0
Jul 4-10	--	--	--	0.0	--	--	--	0.0	0.0	--	0.0	0.0
Jul 10-17	--	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jul 17-24	}0.0	0.0	0.0	0.0	}0.0	0.0	0.0	0.0	}0.0	0.0	0.0	0.0
Jul 24-31		0.0	--	--		0.0	0.0	0.0				
Jul 31-Aug 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	0.0	0.0	0.0	0.0
Aug 7-14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aug 14-21	0.0	0.0	0.1	}--	0.0	0.0	0.1	}0.0	0.0	0.0	0.0	0.0
Aug 21-28	0.1	0.0	1.9		0.0	0.0	0.6		0.0	0.0	0.0	0.0
Aug 28-Sep 5	0.0	0.0	0.1	0.3	0.4	0.0	0.7	0.1	0.7	0.0	0.0	0.0
Sep 5-11	0.6	0.0	}0.0	0.2	0.8	0.0	}0.1	0.0	1.4	0.0	0.1	0.0
Sep 11-17	0.0	0.0		0.5	0.0	0.0		0.0	0.0	--	0.0	0.0
Sep 17-25	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0
Sep 25-Oct 2	--	--	--	0.0	--	--	--	0.0	--	--	--	0.0
TOTALS	0.7	0.0	2.1	1.3	1.4	0.0	1.5	0.8	2.1	0.0	0.1	0.0

Dates Exposed**	Coan				Hog Island				Thicket Point				
	1975	1976	1977	1978	1975	1976	1977	1978	1975	1976	1977	1978	
Jun 13-20		--	0.0	--	0.0	0.0	--	--	0.0	--	--	--	
Jun 20-27		0.0	0.0	--	0.0	0.0	0.0	--	0.0	0.0	--	--	
Jun 27-Jul 4		0.0	0.0	0.0	0.0	0.0	0.0	--	0.0	0.0	--	--	
Jul 4-10		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	--	
Jul 10-17		0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	--	
Jul 17-24	Not Sampled	0.0	0.0	0.0	}0.0	0.0	--	0.0	0.0	0.0	0.0	--	
Jul 24-31		0.0	0.0	--		0.0	0.0	--	0.0	0.0	0.0	0.1	0.0
Jul 31-Aug 7		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Aug 7-14		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	0.0	0.0	
Aug 14-21		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Aug 21-28		0.0	0.0	0.0	0.0	0.0	--	0.0	0.0	0.0	0.0	0.3	0.0
Aug 28-Sep 5		0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
Sep 5-11		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	--
Sep 11-17		0.0	0.0	0.0	--	0.0	0.0	0.1	0.0	0.0	0.0	0.0	--
Sep 17-25		0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	}0.0
Sep 25-Oct 2	--	--	--	--	--	--	0.0	--	--	--	--		
TOTALS		0.0	0.1	0.0	0.1	0.0	0.0	2.1	0.0	0.1	0.7	0.0	

Dates Exposed**	Yeocomico		Ragged Point		King Copsico Point	
	1975	1978	1975	1978	1975	1978
Jun 13-20		--	0.0	--	0.0	--
Jun 20-27		--	0.0	0.0	0.0	0.0
Jun 27-Jul 4		0.0	0.0	}0.0	0.0	}--
Jul 4-10	1975,	0.0	0.0		1976	
Jul 10-17		0.0	0.0	0.0	0.0	
Jul 17-24	1976,	0.0	0.0	And	--	
Jul 24-31		0.0	0.0	0.0	0.0	
Jul 31-Aug 7	& 1977	0.0	0.0	1977	0.0	
Aug 7-14		0.0	0.0	0.0	0.0	
Aug 14-21	All	0.0	0.0	All	0.0	
Aug 21-28		0.0	0.0	0.0	0.0	
Aug 28-Sep 5	Zeros	0.0	0.3	Zeros	0.0	
Sep 5-11		0.0	0.0	--	0.2	
Sep 11-17		0.0	--	--	--	
Sep 17-25		0.0	0.0	--	0.0	
Sep 25-Oct 2		0.0	--	}--	--	
Oct 2-9		--	--		--	
TOTALS		0.0	0.3	0.0	0.2	0.1

Dates Exposed**	Gum Bar	
	1977	1978
Jun 13-20	0.0	--
Jun 20-27	0.0	0.0
Jun 27-Jul 4	0.0	0.0
Jul 4-10	1975 0.0	0.0
Jul 10-17	0.0	0.0
Jul 17-24	And 0.0	0.0
Jul 24-31	0.0	0.0
Jul 31-Aug 7	1976 0.0	0.0
Aug 7-14	0.0	0.0
Aug 14-21	All 0.0	0.0
Aug 21-28	0.0	0.0
Aug 28-Sep 5	Zeros } 0.1	0.0
Sep 5-11	0.0	0.0
Sep 11-17	0.0	0.0
Sep 17-25	0.0	0.0
Sep 25-Oct 2	--	0.0
Oct 2- 9	--	--
TOTALS	0.1	0.0

POCOMOKE SOUND

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

Dates Exposed**	PG15	PG16	PG14	PG13
	Bernard Island 1978	1978	Long Point 1978	Lower 1978
Jun 16-23	0.0	0.0	0.0	--
Jun 23-30	0.0	0.0	0.0	0.0
Jun 30-Jul 6	0.0	0.0	0.0	0.0
Jul 6-13	0.0	0.0	0.0	0.0
Jul 13-20	0.0	0.0	0.0	0.0
Jul 20-25	}0.0	}0.0	}0.0	}0.0
Jul 25-31				
Jul 31-Aug 4	}0.0	}0.0	}0.0	0.0
Aug 4-10				0.0
Aug 10-17	0.1	0.1	--	0.0
Aug 17-24	0.0	0.0	0.0	0.0
Aug 24-Sep 4	0.0	0.0	0.2	0.0
Sep 4-11	}0.0	}0.0	}0.0	}0.0
Sep 11-19				
Sep 19-26	--	--	--	--
Sep 26-Oct 3	--	--	--	--
TOTALS	0.1	0.1	0.2	0.0

EASTERN SHORE, SEASIDE

Dates Exposed**	Quinby Bridge, Machipongo River				VIMS, Wachapreague Pier
	1975	1976	1977	1978	1978
Jun 14-21	--	--	0.0	--	--
Jun 21-29	--	--	44.1	0.0	0.0
Jun 29-Jul 5	--	--	0.0	}0.0	}0.0
Jul 5-10	--	1.5	2.7		
Jul 10-19	0.5	0.0	41.6	0.2	0.0
Jul 19-26	}15.6	12.5	0.6	0.3	6.4
Jul 26-Aug 3		4.7	0.7	1.3	72.4
Aug 3-11		0.2	14.8	0.0	3.0
Aug 11-16	--	0.1	8.4	12.3	4.1
Aug 16-24	3.4	}3.2	2.4	8.4	0.5
Aug 24-30	11.2		1.8	1.0	0.2
Aug 30-Sep 7	}0.2		0.1	0.0	14.3
Sep 7-14			}0.0	}0.1	}2.0
Sep 14-20					
Sep 20-26	0.0	--	}0.0	}1.2	
Sep 26-Oct 2	--	--			
Oct 2-9	--	--	}0.0	}0.0	
Oct 9-16	--	--			
Oct 16-23	--	--			
Oct 23-Nov 1	--	--	--	--	
TOTALS	31.1	36.8	102.4	26.6	122.7





MARINE RESOURCE  
SPECIAL REPORT

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Gloucester Point, Virginia 23062

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