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## Oyster Spatfall on Shellstrings in Virginia Rivers: 1976 Annual Summary

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# MARINE RESOURCE INFORMATION BULLETIN

A SEA GRANT ADVISORY SERVICE

Virginia Institute of Marine Science, Gloucester Point, Virginia 23062

## 1976 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 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 result 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 commercial 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 1976 season. The surveys were based on half bushel samples of bottom material collected by an oyster dredge during the fall and winter of 1976-1977.

#### SUMMARY OF SETTING IN THE RIVER SYSTEMS

JAMES RIVER - Important public rocks in the James River annually supply over 75 percent of the seed planted commercially in Virginia. However, they now receive only about 10 percent as much set as they did prior to 1960. In the 1950's and before, weekly sets as high as 50-100 spat/shellface were common in the mid-section of the seed area. The decline after 1960 is thought to be associated with MSX which has reduced the brood stock in the lower river. Other factors such as chlorine associated with the discharge of sewage treatment plants or some other environmental aspect also may be involved.

In 1976 weekly levels of set in the James River from Wreck Shoals to Hampton Flats ranged from no set to fair at most of the stations. Upriver from Wreck Shoals, the intensity of setting was much lower.

Setting began about mid-July downriver from Miles Watch House while at Wreck Shoals and extending upriver to Deepwater Shoals it began in mid to late August. The time of peak set also differed relative to locations of the sampling seasons. From Wreck Shoals downriver to Hampton Flats the period of maximum set occurred during September and levels ranged from 0.6 to 9.5 spat per shell per week. Stations in the upper seed area at Point of Shoals and Horsehead showed poorly defined peak periods ranging from 0.2 to 0.7 spat per shell per week during August and September. Many weeks during that period showed no set. At Deepwater Shoals, the uppermost seed rock, the set only occurred in late September.

With only two exceptions the total weekly set for 1976 was lower, at comparable stations in 1975 or 1974, but on the average was slightly higher or about equal to the 1973 set.

Examination of half-bushel samples of bottom cultch, dredged up in the fall of 1976 after setting had ended, showed that few spat had survived on the natural seed rocks. The number of spat per bushel

were: Brown Shoals - 10; White Shoals - 11; Wreck Shoals - 16; Point of Shoals - 0; Horsehead - 0; and Deep Water Shoals - 0. This is considered a very low set and is lower than numbers recorded for 1973, 1974 and 1975.

YORK RIVER - Sets in the lower York River averaged only fair or lower during 1976. Spatfall was highest at VIMS pier where setting began in early July and extended to the first week of October. A peak set of 0.7 spat per shell per week occurred in mid-July. Upriver at Clay Bank and Foxes Creek, the weekly set was zero for most of the season. The total 1976 set was far lower than that recorded for the preceding three years at all stations.

Bottom cultch collected in February 1977 showed a very low surviving spatfall on most of the natural rocks. The counts per bushel were: Green Rock - 4; Pages Rock - 6; and Aberdeen Rock - 6. At Bells Rock in the upper river, counts were much higher and totaled 101 spat per bushel.

MOBJACK BAY - In the southwestern part of Mobjack Bay at Tow Stake, setting ranged from fair to moderate. The peak set in 1976 occurred during mid-July with a maximum value of 8.5 spat per shell per week. Setting began in July and ended during September. The total set was only about 25% of the 1975 level.

Data for Browns Bay was missing for most of the season.

WARE RIVER - Setting began in late June and extended to October. The intensity of spatfall ranged from fair to moderate.

Weekly data were not available in this river during mid-summer but, a peak set of 7.9 spat per shell per week occurred during late July.

NORTH RIVER - The setting pattern in this estuary was characterized at the two downriver stations by nearly zero spatfall during most weekly periods. The occasional week when a fair set was observed had levels which did not exceed 0.7 spat per shell per week.

At the upriver station the seasonal set was higher than it was downriver ranging from fair to moderate. Setting began in mid-June and extended to late August. The maximum set, recorded during early August, was 5.2 spat per shell per week.

The 1976 total seasonal set was lower than the preceding three years in the lower river. Upriver it was about the same as 1975 but higher than in 1973 and 1974.

EAST RIVER - The intensity of setting in the East River in 1976 at all three stations was much higher than that observed in North River. Setting ranged from fair to moderate during many weeks with a high of 77 spat per shell per week recorded for Put-in-Creek during late June.

Setting began at all stations during early to mid-June and extended to about mid-September downriver. At the two upriver stations setting was over by August. At all stations the peak setting period occurred from late June to early August.

NEW POINT COMFORT AREA - This area includes Pepper Creek on the lower part of Mobjack Bay and three small creeks on Chesapeake Bay. Setting began later at these stations than it did for most of the locations just discussed for Mobjack Bay and for the North and East rivers.

In Pepper Creek the fair to moderate seasonal set began in early July and extended to mid-September with a peak in late August of 4.5 spat per shell per week. The 1976 set in Pepper Creek was much lower than that recorded during the preceding three year period.

At Dyer Creek on the Bay setting was rated fair. It began the second week in July and lasted to late August. Setting peaked in mid-August.

Horn Harbor to the north of Dyer Creek showed zero spatfall during the season except for one week in September. During that week at set of 0.2 spat was recorded. A record of nearly zero setting intensity over the preceding three years was repeated in 1976.

Winter Harbor showed fair to moderate setting beginning in mid-July and extended to mid-September. The peak set occurred in mid-August at 7.6 spat per shell per week. The total 1976 set was much lower than sets observed in 1973, 1974 and 1975.

PIANKATANK RIVER - The weekly setting intensities at stations in the Piankatank are classed as fair with a moderate set occurring only occasionally. Many stations, however, showed zero set for many weeks in succession. When all stations were considered set averaged about 20% of the 1975 level. Setting occurred from July to mid-August and its early termination was not typical of the preceding three years. Because of the low level of set in 1976 no period could be defined as the time when it reached maximal values.

Samples of bottom cultch collected in the Piankatank River showed spatfall on the natural rocks was low for 1976. The following counts per bushel were recorded: Three Branches - 32; Burton Point - 10; Cape Tune - 46; Palace Bar - 64; Island Bar - 16; and Ginney Point - 22.

RAPPAHANNOCK RIVER - Above Towles Point on the south shore of the Rappahannock, at Punch Bowl and Ball's Point, the weekly set was near zero. On the north shore above Towles Point at Greenvale there was a late set beginning in early August and lasting to early October. The highest level was only 0.2 spat per shell per week and showed no peak period. Levels in 1976 were much lower than in 1975.

Below Towles Point at Corrotoman Point, Mosquito Point and Whiting Creek, setting began late in the season. It started in early August and generally lasted until October peaking during mid to late August.

Setting levels, with one exception, was classed as fair. The highest weekly set below Towles Point was 1.3 spat per shell per week at Corrotoman Point.

Samples of bottom material collected in 1976 from representative natural oyster rocks in the Rappahannock showed that surviving set on public rocks was very low. The set for representative rocks expressed in terms of number of spat per bushel were: Bowlers Rock - 2; Morattico Bar - 2; Smokey Point - 0; Corrotoman Point - 8; and Drumming Ground - 2.

DIVIDING CREEK - In Dividing Creek, the set began in mid-July and ended three weeks later in early August. The maximum intensity was 1.1 spat per shell per week in early August. Setting in 1975 was also restricted to a very short period and was very low.

GREAT WICOMICO RIVER - The weekly set at the seven stations in the Great Wicomico seed area were zero for most weekly periods. In no instance did it exceed 0.9 spat per shell per week. During the season a set was noted in no more than two weeks at any single station. Several stations showed a set occurring for only one week while other stations showed no set all season.

A new setting low for the Great Wicomico River was recorded in 1976 continuing the downward trend established during 1973, 1974, and 1975.

Bottom cultch collected during February 1977 in the Great Wicomico River showed spatfall on the natural rocks had been low during 1976. The following counts per bushel were recorded on several representative rocks: Cranes Creek - 18; Whales East - 24; and Haynie Bar - 101.

POTOMAC RIVER - Thicket Point was the only station on the Potomac River in 1976 to report spat. No strike was observed at the other five stations.

Setting since 1963 has been very low in this system with only a few spat being observed in 1975 in the lower river.

EASTERN SHORE, SEASIDE - The weekly set in 1976 on the Seaside was generally higher at comparable stations than in 1973, 1974, or 1975. At most stations in 1976 weekly values ranged from fair to moderate or from fair to heavy. Setting began about the last week in June or later and continued at many stations to the first week in October. The period of maximum setting intensity frequently occurred from late July to early August. In this period heavy sets (over 11 spat per shell per week) were observed in the Machipongo River and at Watts Bay.

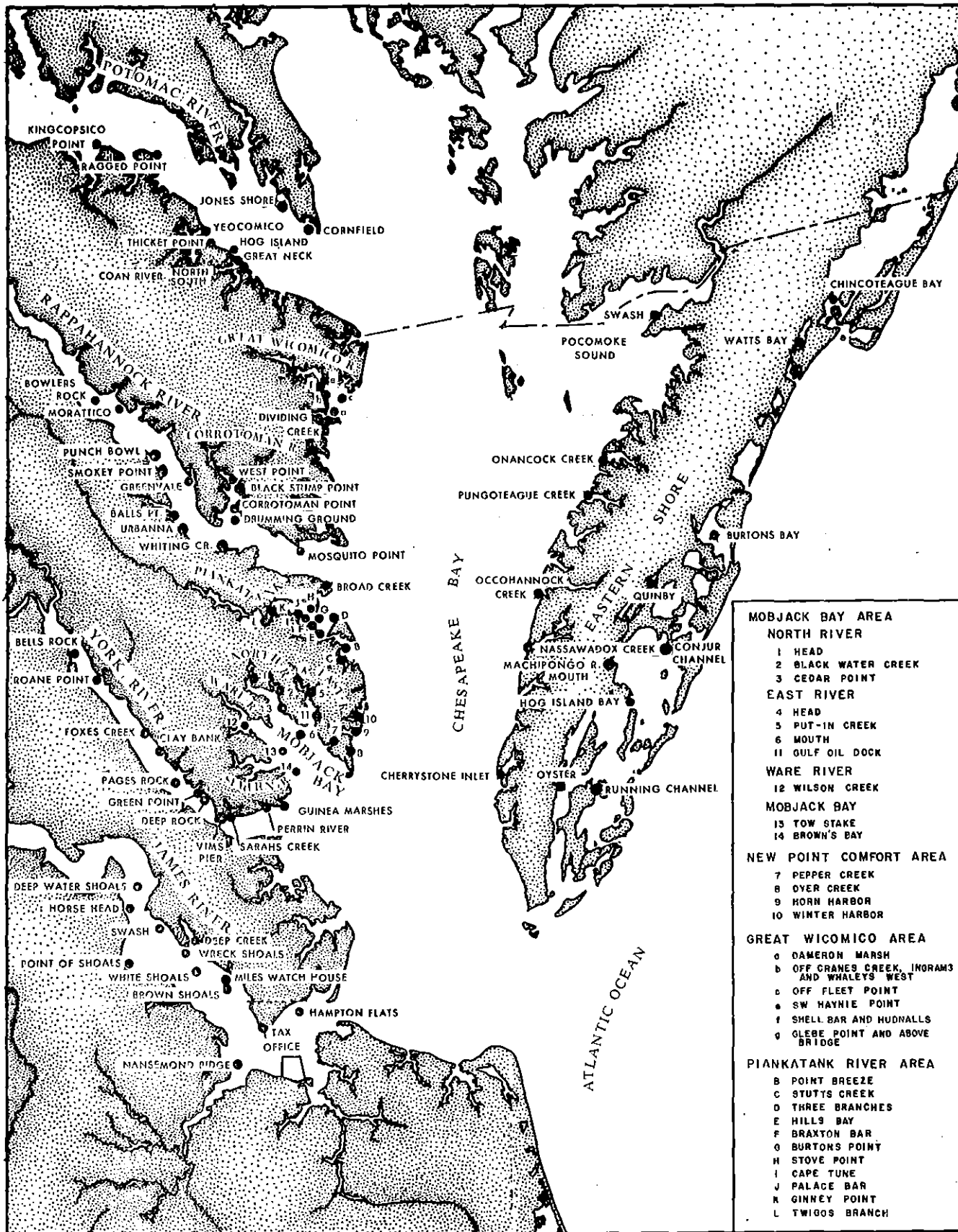
EASTERN SHORE, BAYSIDE - No set was observed in Onancock and Pungoteague Creeks in 1976 on the Bayside of the Eastern Shore.

In Cherrystone Inlet, Nassawadox Creek, Occohannock Creek and Pocomoke Sound set averaged much lower than on the Seaside and most

of the weekly sets ranged from zero to fair. The setting season on Bayside began later than on Seaside, as late as the first of August at some stations, and often extended to the first week in October. The season of peak set often occurred during August or September.

Inspectors and Police Boat Captains of the Virginia Marine Resources Commission aided 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  
1973 - 1976

JAMES RIVER

1976 Date Exposed**	Hampton Flats				Newport News Tax Office			
	1973	1974	1975	1976	1973	1974	1975	1976
Jun 7-17	0	--	--	--	--	--	--	--
Jun 17-24	0	--	0	--	--	--	0	0
Jun 24-Jul 1	0	0.1	0	0	--	0.1	0	0
Jul 1-8	0	0	0	0	--	0	--	0
Jul 8-13	0	0.2	0.1	--	0	--	0.7	--
Jul 13-20	--	3.2		0.2	0	1.2		0.4
Jul 20-27	0	0.3	0.2	0.3	0.4	0.4	0.1	--
Jul 27-Aug 3	0	0	0.1	0.3	0	--	0.5	0.2
Aug 3-10	0	0.3	--	0.1	0.2	0.5	0.4	0.2
Aug 10-16	0	--	--	0.3	1.1	2.9	0.4	0.4
Aug 16-24	0.4	--	1.4	1.7	0.8	0.5	1.9	1.0
Aug 24-30	0.7	0.9	2.0		4.3	4.4	4.6	0
Aug 30-Sep 7	0.4		--	--	0			--
Sep 7-13	1.2	6.2	--	1.1	9.0	4.1	--	2.5
Sep 13-20	2.6	--	5.2	1.3	0.6	9.6	--	9.5
Sep 20-28	--	0.7	--	1	2.0	--	0.6	0.1
Sep 28-Oct 5	--	0.1	1.4	--	--	1.6	--	0.8
TOTALS	5.3	12.0	10.4	0.7	18.4	25.4	9.2	16.9

1976 Date Exposed**	Brown Shoals				1976 Date Exposed**	Hansemond Ridge			
	1973	1974	1975	1976		1973	1974	1975	1976
Jun 7-17	0	--	--	--	Jun 11-18	--	--	0	--
Jun 17-24	0	--	0	--	Jun 18-25	--	--	0	--
Jun 24-Jul 1	--	--	0	0	Jun 25-Jul 1	--	--	0	--
Jul 1-8	0	0.2	0	0	Jul 1-8	--	0	0	--
Jul 8-13	0	0.2	0.2	--	Jul 8-15	--	--	0	--
Jul 13-20	0.2	--		0.9	0.3	Jul 15-22	--	0.2	0.1
Jul 20-27	0.5	0.2	2.0	0.2	Jul 22-29	0	0.2	0	0
Jul 27-Aug 3	0.2	--	0.4	0.2	Jul 29-Aug 4	0	0.3	0.1	0
Aug 3-10	0.2	2.0	0	0	Aug 4-11	0	0.4	0	0
Aug 10-16	0.2	1.0	2.0	0	Aug 11-18	0	0.7	0.2	--
Aug 16-24	1.4	0.7	1.6	0.8	Aug 18-25	0	1.2	1.2	--
Aug 24-30	1.2	6.4	5.6	0.5	Aug 25-Sep 1	0	0.8	0.6	--
Aug 30-Sep 7	8.5		1.0	0.8	Sep 1-7	--			--
Sep 7-13	4.7	4.3	3.6	3.0	Sep 7-16	--	--	--	0.4
Sep 13-20	4.1	1.4	3.4	6.7	Sep 16-23	--	--	--	--
Sep 20-28	1.6	--	2.4	3.2	Sep 23-29	0.2	--	--	1.1
Sep 28-Oct 5	--	0	3.6	0.3	Sep 29-Oct 13	--	--	2.2	--
TOTALS	22.8	16.5	27.4	17.6	TOTALS	0.2	3.8	4.4	1.9

1976 Date Exposed**	Miles Watch House				White Shoals <sup>▲</sup>		Wreck Shoals			
	1973	1974	1975	1976	1975	1976	1973	1974	1975	1976
Jun 7-17	--	0	--	--	--	--	0	0	--	--
Jun 17-24	0	--	0	0	--	--	0	0	0	0
Jun 24-Jul 1	0	0.1	0	0	--	--	0.1	0	0	0
Jul 1-8	0	0	0	0	--	--	0	0	0	0
Jul 8-13	0	0.2	0	--	--	--	0.3	0.3	0	--
Jul 13-20	0	0.6		0	0	0	0	0.6	0	0
Jul 20-27	0.1	0.2	0	0.1	--	0.1	0	0	1.3	0
Jul 27-Aug 3	0	0.2	0.1	0	--	0	0.3	0.1	0.5	0
Aug 3-10	0	0.1	0	0	--	0	0	0.6	0.1	0
Aug 10-16	0	--	0	0	0.6	0.1	0	0.3	0	0.1
Aug 16-24	0.1	0.7	0.2	0.2	2.7	1.3	0.1	1.1	0	0.2
Aug 24-30	0.2	--	0.8	0.1	2.0	0.2	0	--	1.6	0
Aug 30-Sep 7	0.5		1.6	0.1	5.6	0.5	0	0.2	2.2	--
Sep 7-13	4.6	0.4	0.8	0.1	3.4	1.7	0.3	0.4	0.8	0
Sep 13-20	0.4	0.2	1.0	0.4	2.4	2.6	0	0.2	4.0	0.7
Sep 20-28	0.7	0.6	0.2	0.6	1.0	2.3	--	0.3	1.0	1.1
Sep 28-Oct 5	--	0	0	0	0.4	0	--	0	0.6	0.1
Oct 5-14	--	--	--	--	--	0	--	--	--	0
TOTALS	6.6	3.3	5.5	1.6	18.1	8.8	1.1	4.1	12.1	2.2

\* Shows spat per shell (smooth side only)  
 \*\* 1973, 74 & 75 dates approximately the same  
 ▲ Not sampled prior to 1975  
 ● Not sampled in 1973  
 ○ Not sampled in previous years  
 \* Lower Draft

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

JAMES RIVER, CONT.

1976 Date Exposed**	Swash				Deep Creek, Mouth				Warwick River, Mouth			
	1973	1974	1975	1976	1973	1974	1975	1976	1973	1974	1975	1976
Jun 7-17	0	--	--	--	--	--	--	--	--	--	--	--
Jun 17-24	0	--	0	--	--	--	--	--	--	--	--	--
Jun 24-Jul 1	0	0	0.1	0	--	--	--	--	--	--	--	--
Jul 1- 8	0	0	0	0	--	--	--	--	--	--	--	--
Jul 8-13	0	0.4	0	0	--	--	--	--	--	--	--	--
Jul 13-20	0	0	0	0	--	--	--	--	--	--	--	--
Jul 20-27	0	0.1	0	0	--	--	--	0	--	--	--	0
Jul 27-Aug 3	0	0.4	0	0	--	0	--	0	0	0	0	0
Aug 3-10	0	0.6	0	0	0	--	--	0	0	0.3	0.2	0.2
Aug 10-16	0	0.8	0	0	0.1	--	--	0.4	0	0.5	0.1	0.1
Aug 16-24	0.1	3.2	0	0.1	0	--	--	0.4	0	0.4	0.3	0.3
Aug 24-30	0.5	0.2	0.2	0	0	0.4	0.6	0	0	0	0.1	0.1
Aug 30-Sep 7	0.3	0.4	0	0	0	0.4	0.2	0	0	0	0	0
Sep 7-13	0.6	0	0	0.4	0.1	0	0	0	0.1	0	0	0
Sep 13-20	0.2	0	0.8	0.2	0.2	0	0.4	0.3	0.6	0	0.1	0.1
Sep 20-28	0	0.2	0	0	0	0.2	0.2	0	0	1.0	0.1	0.1
Sep 28-Oct 5	0.2	0	0	0	--	0	--	0.1	--	0	0.2	0.2
Totals	1.9	5.9	1.5	0.7	0.4	0.6	2.2	0.4	0.7	2.2	--	1.1

NOT SAMPLED

1976 Date Exposed**	Point of Shoals				Horsehead				Deepwater Shoals			
	1973	1974	1975	1976	1973	1974	1975	1976	1973	1974	1975	1976
Jun 7-17	0	0	--	--	0	0	--	--	0	0	--	--
Jun 17-24	0	0	0	0	0	0	0	0	0	0	0	0
Jun 24-Jul 1	0	0	0.1	0	0	0	0	0	0	0	0	0
Jul 1- 8	0	1.3	0	--	0.2	1.1	0	0	0	1.0	0	0
Jul 8-13	0	0.1	0	0	0	0.1	0	0	0	0	0	0
Jul 13-20	0	0	0	0	0	0	0	0	0	0	0	0
Jul 20-27	0	0.4	0.1	0	0	0.6	0	--	0	0.3	0	--
Jul 27-Aug 3	0	0.1	0	0	0	0.3	0	0	0	0.1	0	0
Aug 3-10	0	0.5	0.2	0.2	0	0.5	0.3	0.3	0	0.5	0	0
Aug 10-16	0.1	1.5	1.3	0	0.1	0.6	0.6	0.1	0	0.3	0.5	0
Aug 16-24	0.2	0.6	1.0	0.1	0.1	0.8	0	0	0	0.6	0	0
Aug 24-30	0.1	0.6	0.6	0	0.1	0	0.2	0	0.3	0	0	0
Aug 30-Sept 7	0.1	0	0	0	0	0	0	0.1	0	0	--	0.1
Sep 7-13	0.1	0	1.0	0	0	0	0.4	0.7	0	0	0	0.2
Sep 13-20	0	0	0	0.2	0	0	0	0.2	0	0	0	0.2
Sep 20-28	0	0.2	0	0	--	0	0	0.1	--	0	0	0.3
Sep 28-Oct 5	--	0.2	0	0	--	0	0	0.1	--	0	0	0.3
TOTALS	0.5	4.7	4.3	0.5	0.5	3.2	2.3	1.5	0.3	2.2	1.1	0.8

YORK RIVER

1976 Date Exposed**	VIMS Pier				Claybank				Foxes Creek			
	1973	1974	1975	1976	1973	1974	1975	1976	1973	1974	1975	1976
Jun 14-21	--	--	0	0	0	0	0	--	0	0	0	--
Jun 21-28	0	--	0	0	0	0	0.5	--	0	0	0	--
Jun 28-Jul 2	--	--	0.1	0.2	0	0	4.4	--	0	0.2	--	--
Jul 2- 8	--	0.7	0	--	0	0	0	0	0	0	0	--
Jul 8-16	--	0.2	0.9	0.7	--	0	0	0	--	0	0	0
Jul 16-23	--	0	0.1	--	0	0	0	--	0	0	0	0
Jul 23-29	0.1	0	0	0	0	0	0	0	0	0	0	--
Jul 29-Aug 5	0	--	0	0	0	0	0	0	0	0	0	0
Aug 5-12	0.1	0	0	0.2	0	0	0	0	0	0	0	0
Aug 12-20	1.3	0	--	--	0	0	0	0	--	--	--	0
Aug 20-26	0	0.3	--	0.1	0	0.2	0	0	--	--	--	0
Aug 26-Sep 2	1.2	0.8	3.0	0	0	0	0	0	0	0	0	0
Sep 2- 9	--	8.0	0	0.3	0	0.4	0	0	0.1	0	0	0
Sep 9-17	6.4	2.2	3.6	0.4	0.2	0.2	0	0	--	0	0	0
Sep 17-24	7.4	0.4	5.0	0.1	--	0	0.2	0	0.4	0.2	0	0
Sep 24-Oct 1	1.6	2.0	0	0.1	0.8	0	0	0.1	0	0	0	0
Oct 1- 8	--	--	--	0	--	--	--	0.1	--	--	--	0
TOTALS	18.1	14.6	12.7	2.1	1.0	0.8	5.1	0.2	0.5	0.4	0	0

Not Sampled

\* Shows spat per shell (smooth side only)  
 \*\* 1973, 74 & 75 dates approximately the same  
 ▲ Not sampled prior to 1975  
 ● Not sampled in 1973  
 ○ Not sampled in previous years  
 + Lower Draft

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

MOBJACK BAY

1976 Date Exposed**	Tow Stake <sup>▲</sup> Station 13		Off Browns Bay <sup>▲</sup> Station 14		Off Wilson Creek <sup>■</sup> Station 12		
	1975	1976	1975	1976	1974	1975	1976
Jun 7-14	--	0	--	0	--	--	0
Jun 14-22	--	0	0	0	--	0.8	0
Jun 22-29	--	0.2	--	0	--	7.3	2.7
Jun 29-Jul 6	2.6	0.1	0.1	0	--	24.0	1.6
Jul 6-15	5.8	8.5	2.0	--	2.3	--	3.7
Jul 15-22	0.2	2.1	5.1	0	--	0.3	2.8
Jul 22-30	0.1	0.3	0.4	0.1	--	0	7.9
Jul 30-Aug 9	0	--	0	0.1	0	0	--
Aug 9-16	0	--	0	--	0	0	--
Aug 16-23	0	--	0	--	0.2	0	--
Aug 23-30	33.6	0.6	2.0	--	0	13.2	--
Aug 30-Sep 6	4.8	0.6	0	--	0	3.6	0.3
Sep 6-13	0	--	0.4	--	0	0.1	--
Sep 13-20	0	0.1	--	--	0	--	0.2
Sep 20-27	0	--	--	--	0	--	--
Sep 27-Oct 4	0	0.1	--	--	0	--	--
Totals	47.1	12.5	10.8	--	2.5	49.3	10.2

NORTH RIVER

1976 Date Exposed**	Cedar Point - Station 3				Black Water Creek - Station 2				Head, Station 1			
	1973	1974	1975	1976	1973	1974	1975	1976	1973	1974	1975	1976
Jun 7-14	0	0	0	--	0	0	0	--	0	0.1	0	--
Jun 14-22	0	0.1	0	0	--	0	0	0	0	0	0	0.1
Jun 22-29	0	0	0	0	0	0	0	0	1.1	0	0	0.4
Jun 29-Jul 6	0	0.6	0.6	0	0.8	0	0	0	0.5	0	0.1	3.0
Jul 6-13	0	0.5	0	0.7	0	0.2	0	0.1	0	5.4	0	2.4
Jul 13-20	0.3	0	0	0	0	0.2	0.1	0.1	2.1	0	0.1	0.5
Jul 20-27	0	0.1	0	0.2	0	0.2	0	0	0.3	0.5	0	0
Jul 27-Aug 3	0.2	0	0	--	0	0	--	0	0	0.1	0.3	--
Aug 3-10	0.4	0	0	0	0.9	0	0	0	0	0.2	0	5.2
Aug 10-17	2.1	0.5	0	0	0	0	0	0	1.1	0	0.1	0.8
Aug 17-24	7.5	2.1	0.3	0	0.2	0	0	0	0	0.7	0	2.8
Aug 24-31	0.2	0	0	0	0.2	0	0.2	0	0.3	0	0	0
Aug 31-Sep 7	2.2	1.8	3.8	0	0	1.4	2.0	0	--	0.6	13.8	0
Sep 7-14	0	0	0	0	0.2	0	0	0	0.4	0.2	0.4	0
Sep 14-21	3.2	0	0.2	0.1	0.4	0	--	0	0.4	0	0	0
Sep 21-28	0	0.2	0	0	0.2	0	--	0	0	0	0	0
Sep 28-Oct 5	--	--	--	0	--	--	--	0	--	--	--	0
Totals	16.1	5.9	4.9	1.0	2.9	2.0	2.3	0.2	6.3	7.8	14.8	15.2

EAST RIVER

1976 Date Exposed**	Mouth - Station 6				Gulf Oil Dock - Station 11				Put-In Creek - Station 5			
	1973	1974	1975	1976	1973	1974	1975	1976	1973	1974	1975	1976
Jun 7-14	--	0	0	0	0.8	0.4	2.0	--	--	0.4	0.1	--
Jun 14-22	--	0.3	0.1	0.1	0	0.6	2.8	0	0	1.0	3.0	0
Jun 22-29	2.1	0	0	--	19.4	0.2	6.7	1.8	1.3	1.2	1.5	77.0
Jun 29-Jul 6	0.2	0.2	7.6	2.6	2.7	0	6.5	4.1	0.7	0	4.2	4.8
Jul 6-13	2.4	0.1	3.8	2.3	2.9	16.2	5.9	4.3	3.5	85.5	0.3	7.9
Jul 13-20	0.2	1.6	3.6	5.6	0.9	0.6	2.9	1.3	0.4	0.5	0.9	4.0
Jul 20-27	0.5	0.1	--	--	0.5	3.9	1.5	--	--	13.5	0.8	0
Jul 27-Aug 3	0	0	1.0	0.8	2.5	0.4	0.2	5.9	0.3	0.3	0.3	1.4
Aug 3-10	0	2.1	0	0.3	1.6	1.6	1.6	--	0.2	1.4	0.5	--
Aug 10-17	0	0	0.9	0.1	1.6	0	1.4	0	4.7	0.2	1.7	0.1
Aug 17-24	0.4	0.2	0	0	0.2	0.2	4.7	0	0	0.6	1.1	0.1
Aug 24-31	0	0.2	0	3.0	1.8	0.4	3.7	0	0.3	0.4	2.4	0
Aug 31-Sep 7	3.0	1.8	9.0	1.2	3.4	2.0	15.8	0	0.2	6.6	4.4	0
Sep 7-14	8.0	0.4	8.4	2.6	0	0.8	0.2	3.6	0.2	0.4	0	0
Sep 14-21	1.2	0.6	5.6	1.1	2.6	0	0.4	0	1.4	0	--	0
Sep 21-28	0	0.4	0.4	0	0	0	0	0	0	0	--	0
Sep 28-Oct 5	--	--	--	0	--	--	--	0	--	--	--	0
Totals	18.0	8.0	40.4	16.8	42.0	26.5	62.9	17.6	16.6	111.8	21.6	95.3

\* Shows spat per shell (smooth side only)  
 \*\* 1973, 74 & 75 dates approximately the same  
 ▲ Not sampled prior to 1975  
 ■ Not sampled in 1973  
 ○ Not sampled in previous years  
 \* Lower Draft

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

NEW POINT COMFORT AREA

1976 Date Exposed**	Horn Harbor, Mitcham's - Station 9				Dyer Creek - Station 8				Winter Harbor, Public Landing - Station 10			
	1973	1974	1975	1976	1973	1974	1975	1976	1973	1974	1975	1976
Jun 7-14	0	0	0	--	0	0	0	--	0	0	0	--
Jun 14-22	0	0	0	0	0	0	0	0	0	0	0	0
Jun 22-29	0	0	0	0	0	0	0	0	0	--	0	0
Jun 29-Jul 6	0	0	0	0	0	0	0	0	1.8	1.6	7.0	0
Jul 6-13	0.7	0	0	0	0	0	0	0.1	0.6	0.6	2.1	0
Jul 13-20	0	0.7	0	0	0.1	0.1	0	0.2	2.9	19.9	6.3	0.2
Jul 20-27	0	0	0.1	0	0.1	0.1	0	0	0.6	0.1	30.7	0.1
Jul 27-Aug 3	--	0	0	--	0	0	0	0	0	1.6	1.4	0
Aug 3-10	0	0	0	0	0	0	0	0	0	0	0.4	0.2
Aug 10-17	0	0	0	0	0	0	0	0.4	0	0.9	4.3	0
Aug 17-24	0	0	0	0	0	0	0	0.6	0.1	0	4.1	7.6
Aug 24-31	0	0	0.1	0	1.3	0	0	0.1	--	5.8	1.9	1.1
Aug 31-Sep 7	0	1.0	0	0	0.6	1.0	0.2	0	7.6	2.4	252.0	0
Sep 7-14	0.8	0	0	} 0.2	1.6	0.2	0	0	18.0	7.4	58.6	0.1
Sep 14-21	0.2	0	0		0.2	0	0.2	0	--	0.4	35.6	0
Sep 21-28	0	0	0		0.6	0	0	0	2.8	2.6	16.2	0
Sep 28-Oct 5	--	--	--	0	--	--	--	0	--	--	--	0
Totals	1.7	1.7	0.2	0.2	4.5	1.4	0.4	1.4	34.4	43.3	420.6	9.3

NEW POINT COMFORT AREA

1976 Date Exposed**	Pepper Creek - Station 7			
	1973	1974	1975	1976
Jun 7-14	--	0	0	0
Jun 14-22	0	0.1	0	0
Jun 22-29	0	0.3	0	--
Jun 29-Jul 6	1.2	0.1	0.5	0.1
Jul 6-13	3.3	0	0.1	0.1
Jul 13-20	3.7	14.1	0.6	0
Jul 20-27	0.4	0.3	} 0.7	} 0.2
Jul 27-Aug 3	0.2	0.2		
Aug 3-10	0.1	0.1		
Aug 10-17	0	0	} 1.2	} 2.1
Aug 17-24	0.7	0.6		
Aug 24-31	3.6	0.1	} 8.0	} 4.5
Aug 31-Sep 7	13.6	2.0		
Sep 7-14	9.8	2.6		
Sep 14-21	8.4	0.4	14.6	} 0.5
Sep 21-28	3.2	0.4	3.2	
Sep 28-Oct 5	--	--	--	0
Totals	48.2	21.3	41.3	7.6

PIANKATANK RIVER AND MILFORD HAVEN

1976 Date Exposed**	Stutts Creek - Station C				Point Breeze - Station B				Three Branches - Station D			
	1973	1974	1975	1976	1973	1974	1975	1976	1973	1974	1975	1976
Jun 7-14	0	0	0	--	--	0	0	0	0	0	0	0
Jun 14-21	0	0	0	0	0	0	0	0	--	0	0	0
Jun 21-28	0.4	0	0	0	0	0	0	0	0	0	0.4	0
Jun 28-Jul 6	0.2	0	0.1	0	1.0	0	0.2	0	0	0	0	0
Jul 6-13	1.3	0.4	0.2	1.9	1.2	0	--	0	0.4	0.5	0	--
Jul 13-19	0.9	0.3	3.6	--	4.5	1.6	1.8	--	2.0	1.7	--	--
Jul 19-26	0.6	0	0.1	0	0.8	0	0.3	--	3.0	0	0	--
Jul 26-Aug 3	0	0.1	0.3	--	0.4	1.0	0	--	1.2	0.2	0.4	0
Aug 3-10	0.7	0	0	0	0.3	0	0.3	--	3.3	--	--	--
Aug 10-16	0.6	0	0	0.2	0.3	0.1	--	--	0	0	0.6	0.3
Aug 16-23	0	0	0	0.1	0.6	--	--	0.5	0.2	0	--	0
Aug 23-30	0	0	0	0	0.7	0	--	0	0.8	--	--	0
Aug 30-Sep 7	0.2	1.8	0.2	0	2.8	0.6	--	0	2.2	--	--	0
Sep 7-14	0	0	0.6	0	3.6	0.2	1.8	0	1.2	0	0	0
Sep 14-20	0	0	0.2	0	1.0	0	0.4	0	0.8	} 1.2	0	0
Sep 20-27	0.2	0.2	0	0	--	0	0	0	0.4		0	0
TOTALS	5.1	2.8	5.3	2.2	17.2	3.5	4.8	0.5	15.5	3.6	1.4	0.3

\* Shows spat per shell (smooth side only)  
 \*\* 1973, 74 & 75 dates approximately the same  
 Δ Not sampled prior to 1975  
 ● Not sampled in 1973  
 ● Not sampled in previous years  
 + Lower Draft

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

PIANKATANK RIVER AND MILFORD HAVEN, CONT.

1976 Date Exposed**	Burton Point - Station G				Stove Point - Station H ▲		Cape Tune - Station I ▲	
	1973	1974	1975	1976	1975	1976	1975	1976
Jun 7-14	--	0	0	0	0	0	0	0
Jun 14-21	0	--	0	0	0	0	0	0
Jun 21-28	0	0	1.1	0	0	0.1	--	0
Jun 28-Jul 6	0.1	0	0.8	0	0.6	0.1	1.7	0.1
Jul 6-13	3.4	0.1	0.6	--	--	--	6.3	0
Jul 13-19	3.7	1.4	1.9	--	0.6	--	--	0
Jul 19-26	2.3	0.8	0.1	0.2	--	0	--	1.0
Jul 26-Aug 3	3.4	2.8	0.2	0.7	0.2	0	0.1	--
Aug 3-10	15.4	0.1	0	0	0.1	1.0	0	0.1
Aug 10-16	0.4	0.1	1.5	} 0	--	} 0.7	0	} --
Aug 16-23	1.0	0	1.6	} 0	--	} 0	1.0	} --
Aug 23-30	0.9	0	--	} 0	--	} 0	2.8	} 0
Aug 30-Sep 7	4.6	} 0	2.2	} 0	0	} 0	0.9	} 0
Sep 7-14	--	} 0	0	0	0.4	0	0.2	0
Sep 14-20	--	} 0	0	0	--	0	0	0
Sep 20-27	0.4	} 0	0	0	--	0	--	0
TOTALS	35.6	5.3	10.0	0.9	1.9	1.9	13.0	1.2

PIANKATANK RIVER

1976 Date Exposed**	Palace Bar - Station J				Ginney Point - Station K			
	1973	1974	1975	1976	1973	1974	1975	1976
Jun 7-14	0	0	0	0	0	0	0	0
Jun 14-21	0.2	0.1	0	0	0	0	0	0
Jun 21-28	0	0	0.5	0	0	--	0.8	0
Jun 28-Jul 6	4.7	0	5.6	0.1	0	0	2.9	0
Jul 6-13	2.5	1.8	3.9	0	0.4	0.3	7.5	0.1
Jul 13-19	3.3	1.7	2.0	0	5.3	2.0	1.2	0
Jul 19-26	2.4	0.9	0	3.0	1.9	3.0	0	0.7
Jul 26-Aug 3	3.7	3.2	0	--	3.4	3.5	0	1.9
Aug 3-10	3.2	1.5	0	0	0	1.5	--	1.0
Aug 10-16	3.7	0.3	--	} 0.3	3.3	0.4	2.3	} --
Aug 16-23	6.5	0	1.2	} 0.3	11.7	0	9.6	} --
Aug 23-30	1.0	0	3.0	} 0	--	0.4	--	} --
Aug 30-Sep 7	--	0.0	0.2	} 0	5.8	0	0	} --
Sep 7-14	0	0.2	2.0	0	2.8	0.2	1.6	0
Sep 14-20	2.6	--	0	0	3.8	0.2	1.4	0
Sep 20-27	0.6	--	0.2	0	0.8	0	0	0
Totals	34.4	10.5	18.6	3.4	39.2	11.5	27.3	3.7

RAPPAHANNOCK RIVER

1976 Date Exposed**	Mosquito Point ▲		Corrotoman Point				Whiting Creek ●	Balls Point ●
	1975	1976	1973	1974	1975	1976	1976	1976
Jun 7-14	0	0	--	0	0	0	0	0
Jun 14-21	0	0	0	0	0	0	0	--
Jun 21-28	0.5	0	0	0	2.3	0	0	0
Jun 28-Jul 5	0.4	0	0	0	0.5	0	0	0
Jul 5-12	8.4	0	--	0	--	0	0	0
Jul 12-19	0	0	0	0	0.4	0	0	0
Jul 19-26	0	0	0	0.1	0.2	0	0	0
Jul 26-Aug 3	0.1	0	0	0	0	0.3	0	0
Aug 3-10	0	0.2	0	0	0	0.1	0.5	0
Aug 10-17	0	0.7	0	0	3.4	1.3	0	0
Aug 17-23	0	0.2	0	0	0	0.1	0.1	--
Aug 23-30	2.6	0.1	--	0.2	4.8	0.4	0	0
Aug 30-Sep 6	2.2	0	--	0.2	2.4	0.5	0.1	--
Sep 6-13	2.8	0.2	0	--	1.2	0	0	0
Sep 13-20	1.2	0	0	0.8	0.2	0	0	0
Sep 20-27	0	0	0.4	0	--	0	0.1	0
Sep 27-Oct 4	--	0.1	--	--	--	0	--	--
Totals	18.2	1.5	0.4	1.3	15.4	2.7	0.8	0

\* Shows spat per shell (smooth side only)  
 \*\* 1973, 74 & 75 dates approximately the same  
 ▲ Not sampled prior to 1975  
 ● Not sampled in 1973  
 ● Not sampled in previous years  
 \* Lower Draft

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

RAPPAHANNOCK RIVER, CONT.

1976 Date Exposed**	Greenvale				Punch-bowl 1976
	1973	1974	1975	1976	
Jun 7-14	0	0	0	--	0
Jun 14-21	0	0	0	0	0
Jun 21-28	0	0	2.5	0	0
Jun 28-Jul 5	0	0	0.8	0	0
Jul 5-12	--	0	7.0	--	0
Jul 12-19	0	0	0	--	0
Jul 19-26	0	--	0	0	0
Jul 26-Aug 3	0	0	0	0	0
Aug 3-10	--	0	0	0.1	0
Aug 10-17	0	0.9	0	0.1	0
Aug 17-23	0	0	0	0.1	0
Aug 23-30	--	0.4	0	--	0
Aug 30-Sep 6	--	0	3.0	0.2	0.1
Sep 6-13	--	--	3.8	0.2	--
Sep 13-20	--	0	7.8	0.1	0
Sep 20-27	0	--	--	0	0
Sep 27-Oct 4	--	--	--	0.1	--
Totals	0	1.3	24.9	0.9	0.1

DIVIDING CREEK

1976 Date Exposed**	Holland's Pier ▲	
	1975	1976
Jun 14-21	0	0
Jun 21-28	0	0
Jun 28-Jul 6	0.2	0
Jul 6-12	0.2	0
Jul 12-19	0	0.3
Jul 19-26	0	0
Jul 26-Aug 2	0	1.1
Aug 2-11	0	0
Aug 11-16	0	0
Aug 16-23	0	0
Aug 23-30	0	0
Aug 30-Sep 7	0	0
Sep 7-13	0	0
Sep 13-20	0	0
Sep 20-27	0	0
Sep 27-Oct 5	0	0
Oct 5-12	--	--
Totals	0.4	1.4

GREAT WICOMICO RIVER

1976 Date Exposed**	Dameron Marsh - Station a				Cranes Creek - Station b				Fleet Point - Station c			
	1973	1974	1975	1976	1973	1974	1975	1976	1973	1974	1975	1976
May 19-24	--	--	--	0	--	--	--	0	--	--	--	0
May 24-31	--	--	--	0	--	--	--	0	--	--	--	0
May 31-Jun 7	--	--	--	0	--	--	--	0	--	--	--	0
Jun 7-14	0	0	0	0	0	0	0.1	0	--	0	0	0
Jun 14-21	0	0	0	0	0	0	--	0	0	0	--	0
Jun 21-28	0	0	0	0	0	0	0	0	--	0	0	--
Jun 28-Jul 5	0	0	0	0	0	0	0.3	0	0	0	0	0
Jul 5-12	0	0	0	0	0	0	0	0	--	0	0	0
Jul 12-19	0	0	0	0	0	0	0	0	0	0	0	0
Jul 19-26	0	0	0	0	--	0	0	0	0	0	0.1	0
Jul 26-Aug 3	0	0	0.1	0	0	0.4	0.2	0.1	0	--	0	0
Aug 3-10	0	0	0	0	0	0.4	0	0	--	0.4	0.1	0
Aug 10-17	0	0	0	0	0	0	0	0	0	0	0.2	0
Aug 17-24	0	0.2	0	--	0	0.2	0	0	0	3.9	0	0
Aug 24-31	0	0	0	0	0	0	0	0	0	1.0	0	0
Aug 31-Sep 7	0.5	0	0	--	0	0	0	0	0.2	0	--	0
Sep 7-13	1.8	0	0	0.1	0.6	0.2	0	0.1	0	0.4	0.6	0
Sep 13-20	0.4	0	0.4	0	0.2	0	0	0	0.3	0	0.2	0
Sep 20-29	0	0	0	0	0	0	0	0	0	0.4	--	0
Sep 29-Oct 5	--	--	--	0	--	--	--	0	--	--	--	0
Oct 5-12	--	--	--	--	--	--	--	0	--	--	--	0
Totals	2.7	0.2	0.5	0.1	0.8	1.2	0.6	0.2	1.0	6.1	1.2	0

\* Shows spat per shell (smooth side only)  
 \*\* 1973, 74 & 75 dates approximately the same  
 ▲ Not sampled prior to 1975  
 ■ Not sampled in 1973  
 ● Not sampled in previous years  
 + Lower Draft

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

GREAT WICOMICO RIVER, CONT.

1976 Date Exposed**	Haynie Point - Station e				Shell Bar - Station f				Hudnall's Dock - Station f			
	1973	1974	1975	1976	1973	1974	1975	1976	1973	1974	1975	1976
May 19-24	--	--	--	0	--	--	--	0	--	--	--	0
May 24-31	--	--	--	0	--	--	--	0	--	--	--	0
May 31-Jun 7	--	--	--	0	--	--	--	0	--	--	--	0
Jun 7-14	--	0	--	0	0	0	--	0	--	0	--	0
Jun 14-21	0	0	0.1	0	0	0	--	0	0	0	0	0
Jun 21-28	0	0	0	0	0.1	0	0	0	0	0	0	0
Jun 28-Jul 5	0	0	0	0	0	0	0	0	0	0	0	0
Jul 5-12	0	0	0	0	0	0	0	0	0	0	0	0
Jul 12-19	0	0.1	0	0	0	1.1	0.2	0	0	0	0.1	--
Jul 19-26	0	0	0.6	0	0	0	0	0	0	0	0	0
Jul 26-Aug 3	0	0.3	0.5	0.1	0	8.9	0	0.2	0	2.0	0	0
Aug 3-10	0	0.7	0	0	0	1.0	0	0	0.1	0.8	0	0
Aug 10-17	0	0	0	0	0	0.1	0	0	0	0	0	0
Aug 17-24	0	0.2	0	0.1	0	0.1	0	0.2	0	0	0	0.4
Aug 24-31	0	0	0	0	0.2	0	0	0	0	0	0	--
Aug 31-Sep 7	0	0	0	0	0	0	0	0	0	0	0	0.2
Sep 7-13	2.2	0	0.2	0	0	1.6	0	0	0	0.2	0	0
Sep 13-20	0.2	0	0.2	0	0	0	0	0	1.0	0	0	0
Sep 20-29	0	0.2	0	0	0.2	0	0	0	0	0	0	0
Sep 29-Oct 5	--	--	--	0	--	--	--	0	--	--	--	0
Oct 5-12	--	--	--	0	--	--	--	0	--	--	--	0
Totals	2.4	1.5	1.6	0.2	0.5	12.8	0.2	0.4	1.1	3.0	0.1	0.6

GREAT WICOMICO RIVER

1976 Date Exposed**	Glebe Point - Station g			
	1973	1974	1975	1976
May 19-24	--	--	--	0
May 24-31	--	--	--	0
May 31-Jun 7	--	--	--	0
Jun 7-14	0	0	--	0
Jun 14-21	0	0.2	0	0
Jun 21-28	0	0	0	0
Jun 28-Jul 5	0	0	0	0
Jul 5-12	0	0	--	--
Jul 12-19	0	0.4	0.2	0
Jul 19-26	0	0	0	0
Jul 26-Aug 3	0	2.3	0	0.9
Aug 3-10	0	8.8	0	0
Aug 10-17	0	0	0	0
Aug 17-24	0	0	0	0
Aug 24-31	0	0	0	0
Aug 31-Sep 7	0	0	0	--
Sep 7-13	0	0	0	0
Sep 13-20	0.2	0	0	0
Sep 20-29	0	0	0	0
Sep 29-Oct 5	--	--	--	0
Oct 5-12	--	--	--	0
Totals	0.2	11.7	0.2	0.9

\* Shows spat per shell (smooth side only)  
 \*\* 1973, 74 & 75 dates approximately the same  
 ▲ Not sampled prior to 1975  
 ● Not sampled in 1973  
 ● Not sampled in previous years  
 + Lower Draft

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

POTOMAC RIVER

1976 Date Exposed**	Hog Island ▲		Cornfield ▲		Jones Shore ■			Great Neck			
	1975	1976	1975	1976	1974	1975	1976	1973	1974	1975	1976
Jun 7-14	0	--	--	--	--	--	--	0	0	0	--
Jun 14-21	0	0	--	0	--	0.1	0	--	0	0	0
Jun 21-28	0	0	--	--	--	0	0	0	--	0	0
Jun 28-Jul 6	0	0	0	0	--	0	--	0	0	0	0
Jul 6-12	0	0	--	--	--	--	--	0	0	0	--
Jul 12-19	0.1	0	--	0	--	0.1	0	0	0	0	0
Jul 19-26	} 0	0	} 0	0	--	} 0	0	0	0	} 0	0
Jul 26-Aug 2		0		0	0		0	0	0		
Aug 2-11	0	0	0	0	--	0	0	0	0	0	0
Aug 11-16	0	0	0	0	--	0	0	0	0.3	0	0
Aug 16-23	0	0	0	0	--	0	0	0	0.4	0	0
Aug 23-30	0	0	0.1	0	--	0	0	0	1.0	0	0
Aug 30-Sep 7	0	0	0	0	--	0.4	0	0	0	0.7	0
Sep 7-13	0	0	0.6	0	1.0	0.8	0	0	--	1.4	0
Sep 13-20	--	0	0	0	2.4	0	0	0	0	--	0
Sep 20-27	0	0	0	0	0	0	0	1.0	0	0	0
Sep 27-Oct 5	--	0	--	0	--	--	0	--	--	--	0
Oct 5-12	0	0	0	0	--	0	0	--	--	0	0
Oct 12-18	0	--	0	--	--	--	0	--	--	0	0
Oct 18-25	0	--	--	--	--	--	0	--	--	0	0
Oct 25-Nov 3	--	--	--	--	--	--	0	--	--	--	} 0
Nov 3-15	--	--	--	--	--	--	--	--	--	--	
Totals	0.1	0	0.7	0	3.4	1.4	0	1.0	1.7	2.1	0

1976 Date Exposed**		Thicket Point
		1976
Jun 14-21		0
Jun 21-28	1973,	0
Jun 28-Jul 6	1974	0.1
Jul 6-12		0
Jul 12-19		0
Jul 19-26	and	0
Jul 26-Aug 2		0
Aug 2-11	1975	0
Aug 11-16		--
Aug 16-23		0
Aug 23-30	All	0
Aug 30-Sep 7		0
Sep 7-13	Zeros	0
Sep 13-20		0
Sep 20-27		0
Sep 27-Oct 5		0
Oct 5-12		0
Totals		0.1

1976 Date Exposed**	Ragged Point ■		King Copsico Point ■			Coan			Yeocomico and Gum Bar ▲
	1975	1976	1975	1976	1973	1974	1975	1976	
Jun 7-14	0	--	0	--	--	--		--	All zeros in 1975 & 1976
Jun 14-21	0	--	0	--	0	0		--	
Jun 21-28	0	0	0	0	0	0		0	
Jun 28-Jul 6	1973	0	1973	0	0	0		0	
Jul 6-12	and	0	and	0	0	0		0	
Jul 12-19		0		0	0	0		0	
Jul 19-26		0		0	0	0		0	
Jul 26-Aug 2	1974	0	1974	0	0	0	0.1	0	
Aug 2-11		0		0	0	0		0	
Aug 11-16		0		0	0	0		0	
Aug 16-23	All	0	All	0	0	0		0	
Aug 23-30		0		0	0	0		0	
Aug 30-Sep 7	Zeros	0.3	Zeros	0	0	0		0	
Sep 7-13		0		0.2	0	0	0.2	0	
Sep 13-20	--	0		--	0	0	0	0	
Sep 20-27		0		0	0	0	0	0	
Sep 27-Oct 5	--	--		--	--	--	--	0	
Totals		0.3		0.2	0	0	0.3	0	

\* Shows spat per shell (smooth side only)  
 \*\* 1973, 74 & 75 dates approximately the same  
 ▲ Not sampled prior to 1975  
 ■ Not sampled in 1973  
 ○ Not sampled in previous years  
 + Lower Draft

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



EASTERN SHORE, BAYSIDE

1976 Date Exposed**	Pocomoke Sound, Swash				Onancock Creek <sup>■</sup>			Pungoteague Creek <sup>■</sup>		
	1973	1974	1975	1976	1974	1975	1976	1974	1975	1976
Jun 17-24	--	--	0	0	0	0	--	0	0	--
Jun 24-Jul 1	--	0	0	0	0	0	--	0	0	0
Jul 1- 8	0	} 0	0	0	} 0	--	0	} 0	--	0
Jul 8-15	0	} 0	0	0	} 0	0	0	} 0	0	0
Jul 15-22	0	} 0	--	0	} 0	0	0	} 0	0	0
Jul 22-29	0		0.3	0		0	0		0	0
Jul 29-Aug 5	0		0.7	0.1		--	0		1.4	0
Aug 5-12	--	} 0.1	0	0.4	} 0	0	0	} 0	0	0
Aug 12-19	0		--	5.1		0	0		0	0
Aug 19-26	0	} 0	0.4	0	} 0	0.1	0	} 0	0	0
Aug 26-Sep 2	0		0	0		0	0		0.6	0
Sep 2- 9	0	} 0.6	0	0.1	} 0	0	0	} 0	2.0	0
Sep 9-16	--		0	--		0.2	0		0	0
Sep 16-23	--	--	0.2	0.3	--	0	0	--	0	0
Sep 23-30	--	--	--	0.2	--	0	0	--	0	0
Sep 30-Oct 7	--	--	--	--	--	--	--	--	--	--
Oct 7-18	--	--	--	--	--	--	--	--	--	--
Totals	0	0.7	1.6	6.2	0	0.3	0	1.4	2.6	0

EASTERN SHORE, BAYSIDE

1976 Date Exposed**	Cocohannock Creek <sup>■</sup>			Nassawadox Creek <sup>▲</sup>		Cherrystone Inlet <sup>■</sup>		
	1974	1975	1976	1975	1976	1974	1975	1976
Jun 17-24	0	0	0	0	0	--	--	0
Jun 24-Jul 1	} 0	0	0	0	0	0.1	--	0
Jul 1- 8		0	0.1	0	0	--	--	0
Jul 8-15	} 0		0	0	0	--	--	0
Jul 15-22		0	0	0	0	0.3	--	0
Jul 22-29	} 0		0	0	0	--	--	0
Jul 29-Aug 5		0	0	0	0.1	--	--	0.1
Aug 5-12	} 0	0	0.1	0	0	--	10.0	0.1
Aug 12-19		0.2	0.1	2.4	0	--		0.6
Aug 19-26	} 0	2.0	0	1.2	0.1	6.0		0.1
Aug 26-Sep 2		0.6	0.1	1.8	0.5			0.5
Sep 2- 9	} 0.4	2.8	0.1	6.4	0.4	4.4		0.1
Sep 9-16		--	0	11.2	0.8		15.6	0
Sep 16-23	--	0.6	0.1	8.6	1.5	--		0.1
Sep 23-30	--		0.1	--	1.3	--		0.9
Sep 30-Oct 7	--	--	0	--	0.4	--	--	0.2
Totals	0.4	6.2	0.7	31.6	5.1	10.8	25.6	2.7

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 \*\* 1973, 74 & 75 dates approximately the same  
 ▲ Not sampled prior to 1975  
 ■ Not sampled in 1973  
 ● Not sampled in previous years  
 + Lower Draft

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 2 to 10 spat per shell = moderate  
 11 to 100 spat per shell = heavy

EASTERN SHORE, SEASIDE

1976 Date Exposed**	Queen Sound, Chincoteague Bay			Burton's Bay				Quinby Br., Machipongo R.		
	1974	1975	1976	1973	1974	1975	1976	1974	1975	1976
Jun 10-17	--	--	--	--	--	--	--	--	--	--
Jun 17-24	--	0	0	--	0	0	--	6.3	--	--
Jun 24-Jul 1	0	0	0	--	0	0	--	0.1	--	--
Jul 1- 8	0	0	0	0	0	--	0.3	--	--	--
Jul 8-15	{0	0	0	0.1	0.2	0	0	7.5	0.5	1.5
Jul 15-22	{0.2	0	0	0	0	0	0	3.2	0.2	0
Jul 22-29	{0.2	0.1	0	0	0	0	1.3	3.2	15.6	12.5
Jul 29-Aug 5	{0	0	3.3	0	0.5	0.2	0	3.2	0.2	4.7
Aug 5-12	{0	0.5	0	--	0	0	3.8	2.0	0.2	14.8
Aug 12-19	{0	4.0	13.2	0.4	0.6	--	3.3	3.2	3.4	0.1
Aug 19-26	{0	0	0.5	--	1.8	4.4	0.3	3.2	11.2	3.2
Aug 26-Sep 2	{0.8	--	8.0	--	0	0	0.4	--	0.2	0
Sep 2- 9	--	--	--	--	0.2	--	--	--	--	0
Sep 9-16	--	{0.4	--	--	--	--	--	--	--	0
Sep 16-23	--	--	--	--	--	--	--	--	--	0
Sep 23-30	--	--	--	--	--	--	2.6	--	--	0
Sep 30-Oct 7	--	--	--	--	--	--	0	--	--	0
Oct 7-14	--	--	--	--	--	--	--	--	--	--
Totals	1.0	5.0	25.0	0.5	3.3	4.6	12.0	22.3	31.1	36.8

1976 Date Exposed**	Quinby Harbor, Upshur Bay			Mouth, Machipongo River	
	1973	1974	1975	1976	1976
Jun 10-17	--	0	{0	--	--
Jun 17-24	--	0	0	--	--
Jun 24-Jul 1	--	{0.4	--	--	1.3
Jul 1- 8	0	0	0	0.1	1.9
Jul 8-15	0	--	0	0	--
Jul 15-22	0	0	0.1	0	0.1
Jul 22-29	0	{1.0	0.3	2.2	19.6
Jul 29-Aug 5	0.1	0	0	3.6	0
Aug 5-12	1.1	{4.6	0	3.6	5.2
Aug 12-19	0.9	--	--	--	2.5
Aug 19-26	9.4	0	--	3.0	3.8
Aug 26-Sep 2	--	{0	1.0	--	--
Sep 2- 9	--	0.6	6.8	0.3	1.6
Sep 9-16	--	--	0	--	--
Sep 16-23	--	--	--	--	--
Sep 23-30	--	--	--	{0.5	--
Sep 30-Oct 7	--	--	0	--	--
Oct 7-14	--	--	--	--	--
Totals	11.5	6.6	8.2	9.7	36.0

1976 Date Exposed**	Hog Island Bay Isaac Tump		South Bay, Running Channel		Hog Island Bay, Conjur Channel				Watts Bay		
	1975	1976	1976	1976	1973	1974	1975	1976	1974	1975	1976
Jun 17-24	0	0	--	--	--	--	0	--	0	0	0
Jun 24-Jul 1	0	0.1	0.5	--	0	--	0	--	0	0	0
Jul 1- 8	--	0.1	1.7	0.3	0.3	0	0	{0	0	0	0
Jul 8-15	0.3	0	--	0.3	0.3	0	0.4	0	0.1	0	0
Jul 15-22	0.1	0	0	--	--	0	0	0	0	0	{0.3
Jul 22-29	0	0.5	9.4	--	--	0.4	0.7	{0.4	0	--	0.3
Jul 29-Aug 5	0	0.1	14.0	--	--	0.4	0.4	0	0	0	7.1
Aug 5-12	--	0	5.3	--	NOT SAMPLED	--	0.3	9.4	0	0	4.2
Aug 12-19	--	0.1	4.0	49.0	--	--	--	--	0.1	--	4.2
Aug 19-26	--	0	0.8	--	--	--	--	--	--	--	10.9
Aug 26-Sep 2	--	0	--	20.6	--	--	--	--	--	--	2.0
Sep 2- 9	--	0.1 <sup>+</sup>	2.1	0	--	--	--	--	--	--	--
Sep 9-16	--	0.5 <sup>+</sup>	0.3	--	--	--	0.5	--	--	--	--
Sep 16-23	--	0.2 <sup>+</sup>	0.5	--	--	--	0.6	--	0	--	--
Sep 23-30	--	--	0.2	--	--	--	0.2	--	--	--	--
Sep 30-Oct 7	--	--	0.1	--	--	--	0	--	--	--	--
Totals	0.4	1.7	38.9	70.2	0.8	2.7	9.9	0.1	0.1	24.5	

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 + Lower Draft

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