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1975

Oyster Spatfall on Shellstrings in Virginia Rivers: 1974 Annual Summary

Dexter S. Haven
Virginia Institute of Marine Science

Paul C. Kendall
Virginia Institute of Marine Science

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Recommended Citation

Haven, D. S., & Kendall, P. C. (1975) Oyster Spatfall on Shellstrings in Virginia Rivers: 1974 Annual Summary. Marine Resource Special Report. Virginia Institute of Marine Science, College of William and Mary. <https://doi.org/10.21220/V5JG86>

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SPECIAL
REPORT

MARINE RESOURCE INFORMATION BULLETIN

A SEA GRANT ADVISORY SERVICE

Virginia Institute of Marine Science, Gloucester Point, Virginia 23062

1974 Annual Summary

OYSTER SPATFALL ON SHELLSTRINGS IN VIRGINIA RIVERS

By

Dexter Haven and Paul Kendall

Oyster setting levels in most Virginia river systems are still far below those which commonly occurred prior to 1960. However, the 1974 season showed continuing improvement since 1972 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 1973, as well as for 1971 and 1972 are included in this summary for comparison with the 1974 setting season.

Setting information is obtained through surveys conducted weekly by the Virginia Institute of Marine Science (VIMS) from June through early October, with assistance of personnel of the Virginia Marine Resources Commission.

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 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 screwborers which kill many small oysters soon after attachment, 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 weekly set over a long period may 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. Weekly set 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 levels in certain rivers such as the Rappahannock and Potomac have always been comparatively low. 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 with isolated heavy setting. Among these are the Piankatank River, Mobjack Bay area, the lower York River, and the Seaside of the 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.

Included in this report is a study of numbers of oyster spat setting on bushel samples of natural bottom cultch for selected locations in the 1974 season. The surveys were based on half or quarter bushel samples of bottom material collected by dredge.

In the lower Rappahannock these studies indicated an exceptionally good set on shells planted by the VMRC. However, it is noted that shellstrings were not placed in this downriver location in 1974. In the lower James the bottom shells also showed an exceptional set which was not reflected on shellstrings. In the York River, the upper James and the upper Rappahannock, the fair set observed on shellstrings was similar to that on the natural bottom.

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

SUMMARY OF RIVER SYSTEMS

JAMES RIVER - In nearly all regions of the James River set was higher than for 1972 and 1973. On a river-wide basis it was highest downriver at Hampton Flats, the Tax Office and Brown Shoals. In this section the highest weekly set was 10 spat per shellface at the Tax Office in mid-September. The long season over which setting occurred extended from July to October.

Upriver from Miles Watch House to Deep Water Shoals setting on the shellstrings was fair. In this area maximum weekly set ranged from 1 to 2 spat per shell. Again as in the lower river, the season over which it occurred was unusually long, from July to mid-September. There appeared to be no time when setting was at a maximum.

A study of setting on natural rock showed an exceptional set on bottom cultch from Wreck Shoals to downriver stations. Number of spat per bushel of bottom cultch found in this study were: Wreck Shoals, outer edge, 654; Wreck Shoals, top, 310; White Shoals, 800; Thomas' Rock, 535; Nassaway Shoals, 320. With the exception of the 1964-1965 season this has been one of the best sets in this downriver region since 1960.

In the upper James the set on bottom shells was average; the following bushel counts were recorded: Point of Shoals, 150; Horse Head, 115; and Deep Water Shoals, 60. A possible reason for the exceptional bottom set in 1974 (in relation to the low set on shellstrings) may be the long season over which setting occurred and the exceptionally low levels of fouling noted on natural bottom cultch in the lower river.

The important public rocks in the James River which annually supply over 75 percent of the seed planted commercially in Virginia now receive only about 10 percent as much set 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 chlorine associated with the discharge of sewerage treatment plants may be involved.

Although the 1974 spatfall on shellstrings was higher than that recorded for the previous two years, it was no real exception to the past series of poor setting years, as judged by the period prior to 1960.

NANSEMOND RIVER - In this system records extend only to early September, and during this period the set was fair. In all probability, setting extended to October as it did in the lower James. For the period when records exist, set in 1974 was higher than in 1972 and 1973.

YORK RIVER - In 1974 set in the York ranged from fair to moderate. The highest weekly set of 8 spat per shellface was recorded at VIMS pier and it occurred in early September. Setting above and below VIMS was only fair. In the lower river at VIMS, Sarah's Creek and Perrin River, the set occurred over a long season from July to October; upriver there was a late set during August and September. The 1974 set at VIMS was about the same as in 1973, but higher than in 1972.

Spatfall on natural bottom upriver from VIMS was low and the following number of spat per bushel were recorded: shell plants in lower

river (5-90), Green Rock 36, Pages Rock 28, Aberdeen Rock 58, and Bells Rock 18.

MOBJACK BAY AREA - This region includes the North and East rivers. The set differed sharply in these two systems.

In the East River setting extended from mid-June through September with an exceptionally heavy and sharply defined set in mid-July. This peak set occurred in the upper river where 101 and 85 spat per shellface were recorded. This was much higher than records for 1971, 1972 and 1973. At the mouth of the East River (Pultz Bar) set was only fair.

In the North River the set was only fair to moderate, and this was scattered over a long period from early July to the first of October. In general the set for 1974 was about the same or lower than it was in 1971, 1972 and 1973. Shell planted by the VMRC in Mobjack Bay where shellstrings were not set out showed bushel counts ranging from 0 to 1020.

NEW POINT COMFORT AREA - This region includes Pepper Creek, Dyer Creek, Winter Harbor and Horn Harbor. Within these areas set ranged from fair to heavy.

Pepper Creek and Winter Harbor showed similar patterns; sets began in late June or early July and peaked in mid-July at 4 and 20 spat per shellface, respectively. In both areas setting declined in August and increased to second peaks in mid-September of 13 and 7 spat per shellface, respectively.

Horn Harbor and Dyer Creek had only fair sets lasting from July to mid-September. There was no well defined peak and levels were equal to or less than those occurring in 1971, 1972 and 1973.

PIANKATANK AND MILFORD HAVEN AREA - In the Milford Haven area shellstrings were placed at Lilly's Neck, Point Breeze and Stutts Creek. In most instances the weekly set was fair and was spread equally over a period from July to October. In all instances the 1974 set was lower than in 1973.

In the Piankatank River, from Ferry Point to Palace Bar, fair to moderate sets occurred in the mid and upper part of the estuary. In this zone setting extended from mid-June to October; peak weekly sets ranging from 1.3 to 3.8 spat per shellface occurred in late July and early August. Without exception set in 1974 was lower than in 1973.

RAPPAHANNOCK RIVER - In the lower Rappahannock there was a fair set at all locations surveyed. It occurred from mid-July to October with no well defined peak period. Although set was only fair in 1974 it represented a major improvement in that there was an almost complete absence of a strike in the area in 1972 and 1973.

The number of spat setting on natural rocks in the upper river was low and the following bushel counts were recorded: Smokey Point - Morratico, 0. In the lower Rappahannock counts on shell planted by the VMRC ranged from 115 to 515 per bushel.

GREAT WICOMICO RIVER - As has been the case since 1971, setting in the Great Wicomico in 1974 was far below normal at all stations. Set was fair to moderate.

From 1964 to 1970 the Great Wicomico had a consistent record of moderate to heavy setting with peak weekly sets ranging from 4 to 283 spat per shellface. In 1971, however, the set declined drastically and has remained low. Oxygen was often deficient in the deeper waters from mid-July to September in 1971, 1972, 1973 and 1974; laboratory tests indicate that waters with similar levels of dissolved oxygen are harmful to oyster larvae. Since tests were not made for oxygen in the Great Wicomico prior to 1971, it is not known when this condition developed. However, conditions of low oxygen are associated with the low sets over the past four years.

A survey of setting on natural bottom cultch for this system has not been completed.

POTOMAC RIVER - A fair set was recorded for a short period during August and September at the mouth of the Coan River. At Jones Shore on the opposite side of the river moderate setting was recorded in the few weeks when sampling was conducted. Although the set was quite light, it represents an improvement over 1972 and 1973 when no set occurred at sampling locations in the river.

An unusually heavy set has occurred on planted shells and on natural bottom cultch in the lower Potomac at Jones Shore and Cornfield. On natural bottoms this ranged from 204 to 408 spat per bushel; on shells planted by the Potomac River Fisheries Commission, counts ranged from 300 to 1485 spat per bushel. The good set on bottom shell in relation to the relatively low set on shellstrings is probably due to the exceptionally low level of fouling noted in the area in 1974.

EASTERN SHORE SEASIDE - The set on the seaside varied from fair to heavy. As in other areas in Virginia, setting in 1974 occurred over a long period from early July through September. The heaviest set was recorded for Bradfords Bay in early September when 13 spat per shellface were counted.

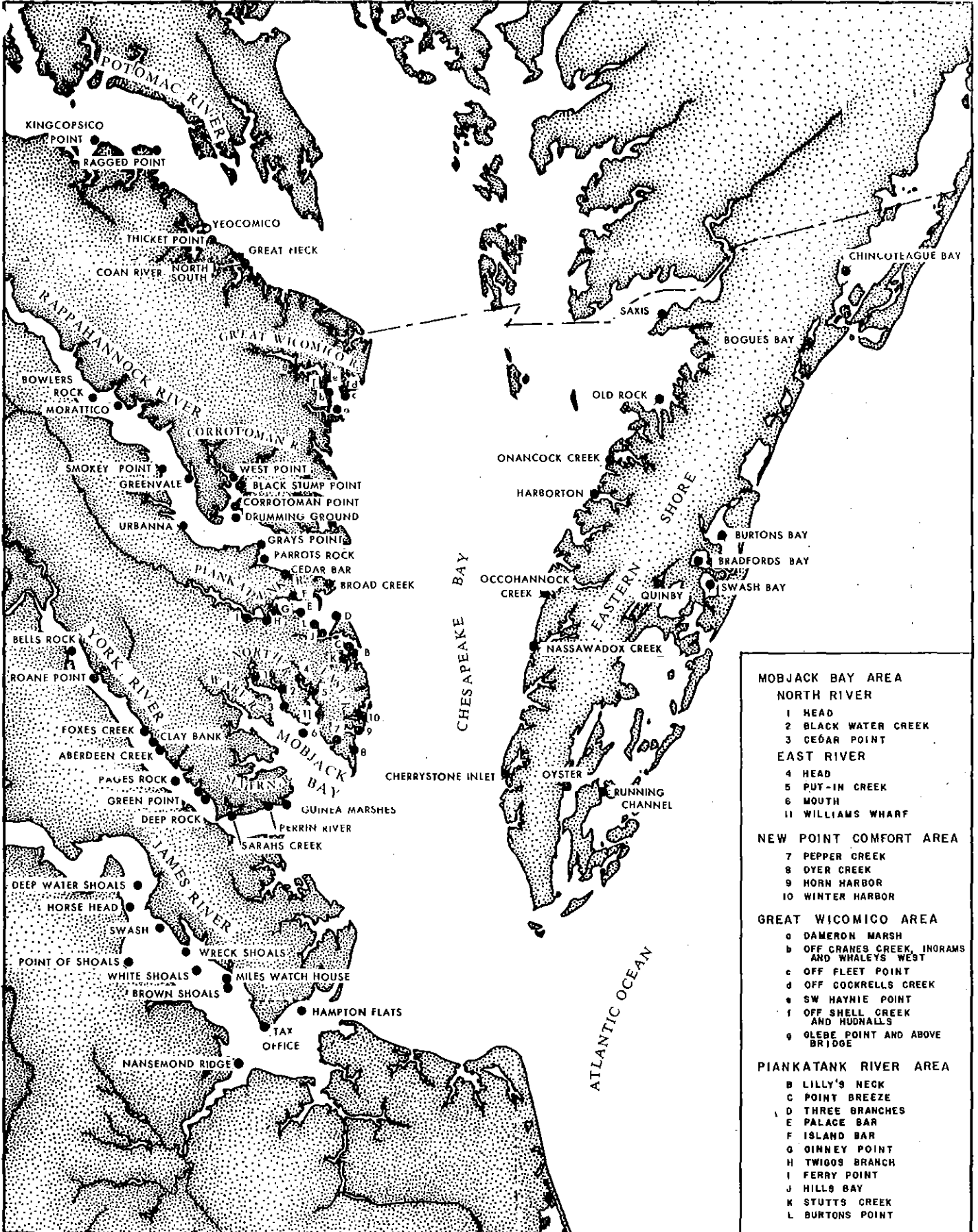
Watermen on the Eastern Shore report a heavy set on bottom shells in certain areas.

EASTERN SHORE BAYSIDE - A very light set was recorded in Pocomoke Sound in 1974 and this occurred from mid-August to mid-September. No set was recorded for this area in 1972 and 1973.

No set was recorded in Occahannock Creek, and set in Pungoteague Creek was nearly zero. However, set in Cherrystone Inlet was fair to moderate with a peak weekly count of 6 spat per shellface in mid-August.

Set on bottom shells planted by the VMRC on the Bayside were generally low and ranged from 15 to 210 spat per bushel.

SHELLSTRING SURVEY STATIONS



- MOBJACK BAY AREA**
- NORTH RIVER**
- 1 HEAD
- 2 BLACK WATER CREEK
- 3 CEDAR POINT
- EAST RIVER**
- 4 HEAD
- 5 PUT-IN CREEK
- 6 MOUTH
- 11 WILLIAMS WHARF
- NEW POINT COMFORT AREA**
- 7 PEPPER CREEK
- 8 DYER CREEK
- 9 HORN HARBOR
- 10 WINTER HARBOR
- GREAT WICOMICO AREA**
- o DAMERON MARSH
- b OFF CRANES CREEK, INGRAMS AND WHALEYS WEST
- c OFF FLEET POINT
- d OFF COCKRELLS CREEK
- e SW HAYNIE POINT
- f OFF SHELL CREEK AND HUDNALLS
- g OLEBE POINT AND ABOVE BRIDGE
- PIANKATANK RIVER AREA**
- B LILLY'S NECK
- C POINT BREEZE
- D THREE BRANCHES
- E PALACE BAR
- F ISLAND BAR
- G GINNEY POINT
- H TWIGGS BRANCH
- I FERRY POINT
- J HILLS BAY
- K STUTTS CREEK
- L BURTONS POINT

VIRGINIA INSTITUTE OF MARINE SCIENCE
SPATFALL ON SHELLSTRING*
ANNUAL SUMMARY
1971 - 1974

James River

1974 Date Exposed**	Hampton Flats				Tax Office			
	1971	1972	1973	1974	1971	1972	1973	1974
June 7 - 25	-	0	0	-	-	-	-	-
June 25 - July 1	-	-	0	0.1	-	0	-	0.1
July 1 - 8	0.1	-	0	0	-	0	-	0
July 8 - 15	-	0	0	0.2	-	0	0	-
July 15 - 22	0	0	Lost	3.2	0	0	0	1.2
July 22 - 29	0	0	0	0.3	0	0	0.4	0.4
July 29 - Aug. 5	1.2	-	0	0	0.5	0	0	-
Aug. 5 - 12	10.9	0	0	0.3	3.2	0	0.2	0.5
Aug. 12 - 19	7.3	0	0	-	18.3	0	1.1	2.9
Aug. 19 - 26	Lost	0	0.4	-	10.9	0	0.8	0.6
Aug. 26 - Sept. 9	6.5	0	0.7	0.9	33.2	0.5	4.3	4.4
Sept. 9 - 16	4.0	0.7	1.2	6.2	11.7	0.3	9.0	4.1
Sept. 16 - 23	2.2	0.2	2.6	-	5.2	0.3	0.6	9.6
Sept. 23 - Oct. 1	-	0.2	Lost	0.7	1.4	0.2	2.0	-
Oct. 1 - 7	-	-	-	0.1	-	-	-	1.6
Total	32.2	1.1	4.9	12.0	84.4	1.3	18.4	25.4

1974 Date Exposed**	Brown Shoals				Miles Watch House			
	1971	1972	1973	1974	1971	1972	1973	1974
June 7 - 25	0.1	0	0	-	-	0	0	0
June 25 - July 1	0	0	Lost	-	0	0	0	0.1
July 1 - 8	0	-	0	0.2	0	0	0	0
July 8 - 15	0	0	0	0.2	0	0	0	0.2
July 15 - 22	0	0	0.2	-	-	0	0	0.6
July 22 - 29	0.2	0	0.5	0.2	0	0	0.1	0.2
July 29 - Aug. 5	0.7	0.1	0.2	-	0.5	0	0	0.2
Aug. 5 - 12	2.0	-	0.2	2.0	2.3	0	0	0.1
Aug. 12 - 19	2.7	0	0.2	1.0	0.1	0	0	-
Aug. 19 - 26	17.0	0	1.4	0.9	1.3	0	0.1	0.7
Aug. 26 - Sept. 9	6.1	0	1.2	6.4	0.1	0	0.2	-
Sept. 9 - 16	0.4	0.3	4.7	4.3	0	0.6	4.6	0.4
Sept. 16 - 23	0.4	Lost	4.1	1.4	-	0	0.4	0.2
Sept. 23 - Oct. 1	Lost	0	1.6	-	-	0	0.7	0.6
Oct. 1 - 7	-	-	-	0	-	-	-	0
Total	29.6	0.4	14.5	16.6	4.3	0.6	6.1	3.3

1974 Date Exposed**	Wreck Shoals				Point of Shoals			
	1971	1972	1973	1974	1971	1972	1973	1974
June 7 - 25	0.2	0	0	0	0	0	0	0
June 25 - July 1	0	0	0	0	0	0	0	0
July 1 - 8	0	0	0.1	0	0	0	0	0
July 8 - 15	0	0	0.3	0.3	0	0	0	1.3
July 15 - 22	0	0	0	0.6	0	0	0	0.1
July 22 - 29	0.1	0	0	0	0	0	0	0
July 29 - Aug. 5	3.4	0.2	0.3	0.1	4.4	0	0	0.4
Aug. 5 - 12	2.6	0	0	0.6	1.0	0	0	0.1
Aug. 12 - 19	0.3	0	0	0.3	0.5	0	0	0.5
Aug. 19 - 26	2.2	0.8	0.1	1.1	0.7	0.6	0.1	1.5
Aug. 26 - Sept. 9	0.4	0	0	0.2	0	0	0.2	0.6
Sept. 9 - 16	0.1	1.2	0.3	0.4	0	1.1	0.1	0
Sept. 16 - Oct. 1	0	0.6	0	0.2	0	0.3	0	0
Oct. 1 - 7	0.4	0.2	Lost	0.3	-	0.2	0	0
Total	9.7	3.0	1.1	4.1	6.6	2.2	0.4	4.7

* Shows spat per shell (smooth side only).
 ** 1971, 1972, 1973, dates approximately the same.
 ● Not sampled in 1971.
 ● Not sampled in previous years.
 ▲ Not sampled prior to 1973.

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

James River

1974 Date Exposed**	Horsehead				Deepwater Shoals			
	1971	1972	1973	1974	1971	1972	1973	1974
June 7 - 25	0	0	0	0	0	0	0	0
June 25 - July 1	0	0	0	0	0	0	0	0
July 1 - 8	0	0	0	0	0	0	0	0
July 8 - 15	0	0	0.2	1.1	0	0	0	1.0
July 15 - 22	0	0	0	0.1	0	0	0	0
July 22 - 29	0	0	0	0	0	0	0	0
July 29 - Aug. 5	7.7	0	0	0.6	3.2	0	0	0.3
Aug. 5 - 12	2.5	0	0	0.3	2.6	0	0	0.1
Aug. 12 - 19	0.2	0	0	0.5	0.2	0	0	0.5
Aug. 19 - 26	1.1	0.6	0.1	0.6	1.0	0	0	0.3
Aug. 26 - Sept. 9	0.1	0.3	0.1	0	0	Lost	0	-
Sept. 9 - 16	0.2	1.1	0	-	0	0.2	0	0
Sept. 16 - 23	0.2	0.7	0	0	0.1	Lost	0.5	0
Sept. 23 - Oct. 1	0	0.5	0	0	0	0.2	0	-
Oct. 1 - 7	-	-	-	0	-	-	-	0
Total	12.0	3.2	0.4	3.2	7.1	0.4	0.5	2.2

York River

1974 Date Exposed**	VIMS Pier				Perrin River	Sarah's Creek	Deep Rock	Green Rock	Pages Rock
	1971	1972	1973	1974	1974*	1974*	1974*	1974*	1974*
June 10 - 17	0	-	-	-	0	0	0	0	0
June 17 - 24	-	-	-	-	0	0	0	0	0
June 24 - July 1	0	0	0	-	0.1	0	0	0	0
July 1 - 8	0	0	-	-	0	0.1	0	0	0
July 8 - 15	0	0	Lost	0.7	0.1	0.5	0	0	0
July 15 - 22	0	0	Lost	0.2	0.2	0	0	-	0
July 22 - 29	0.1	0	0.1	0	0.1	0	0	0	0
July 29 - Aug. 5	0.2	0	0	-	0	0	0	0	0
Aug. 5 - 12	1.9	0	-	0	0	0	0.1	0	0
Aug. 12 - 19	0.6	0	0.1	-	-	0	0	0	0
Aug. 19 - 26	0.9	MSG	1.3	0.3	0.8	0.3	0.4	0.4	0.2
Aug. 26 - Sept. 4	3.9	0	0	0.8	1.0	0.4	0.6	0	0.4
Sept. 4 - 10	17.2	0.3	1.2	8.0	0	0	0	0	0.4
Sept. 10 - 16	53.2	-	-	2.2	1.2	0.6	0	0.2	0.2
Sept. 16 - 24	1.6	Lost	6.4	0.4	0.2	0	0	0	0
Sept. 24 - Oct. 1	7.4	0	7.4	2.0	0.2	0	0.4	0	0
Total	87.0	0.3	16.5	14.6	3.9	1.9	1.5	0.6	0.8

* Shows spat per shell (smooth side only).
 ** 1971, 1972, 1973, dates approximately the same.
 0 Not sampled in 1971.
 ● Not sampled in previous years.
 ▲ Not sampled prior to 1973.

.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

1974 Date Exposed**	Lilly's Neck Station 2				Point Breeze Station 3			
	1971	1972	1973	1974	1971	1972	1973	1974
June 10 - 17	0	-	0	0	0	-	-	0
June 17 - 24	0	0	0	0	0	0	0	0
June 24 - July 1	0.7	0	0	0	0.8	0	0	0
July 1 - 8	0	0.1	0	0	0	0.1	1.0	0
July 8 - 15	0.2	0	2.0	0.3	0	0	1.2	0
July 15 - 22	0	0	3.4	0.3	0	0	4.5	1.6
July 22 - 29	0	0	0.7	0	0.1	0	0.8	0
July 29 - Aug. 5	0	0	0.9	0.3	0	0	0.4	1.0
Aug. 5 - 12	0	0	1.5	0	0.3	0	0.3	0
Aug. 12 - 19	0.1	0	0	0	0	0	0.3	0.1
Aug. 19 - 26	2.4	0	0.1	0.1	0	0	0.6	-
Aug. 26 - Sept. 3	12.3	0	1.1	-	0.8	0	0.7	0
Sept. 3 - 9	1.6	Lost	11.6	0	0.8	0	2.8	0.6
Sept. 9 - 16	4.4	0	5.0	0	0.4	0	3.6	0.2
Sept. 16 - 24	0.2	0	3.2	0	0	Lost	1.0	0
Sept. 24 - 30	0	0	2.0	0.8	0	0	Lost	0
Total	21.9	0.1	31.5	1.8	3.2	0.1	17.2	3.5

1974 Date Exposed**	Stutts Creek, West Station 11				Three Branches Station 4			
	1971	1972	1973	1974	1971	1972	1973	1974
June 10 - 17	0	-	0	0	0	-	0	0
June 17 - 24	0.1	0	0	0	Lost	0	-	0
June 24 - July 1	0.3	0	0.4	0	-	0	0	0
July 1 - 8	0	0	0.2	0	0.8	0	0	0
July 8 - 15	0	0.1	1.3	0.4	0.1	0	0.4	0.5
July 15 - 22	0	0	0.9	0.3	0	0	2.0	1.7
July 22 - 29	0	0	0.6	0	0.5	0	3.0	0
July 29 - Aug. 5	0	0	0	0.1	0	0	1.2	0.2
Aug. 5 - 12	0	0	0.7	0	0.1	0	3.3	-
Aug. 12 - 19	0.1	0	0.6	0	0	0	0	0
Aug. 19 - 26	0.3	0	0	0	12.8	0	0.2	0
Aug. 26 - Sept. 3	1.8	0	0	0	14.8	0	0.8	-
Sept. 3 - 9	1.4	Lost	0.2	1.8	Lost	0	2.2	-
Sept. 9 - 16	1.0	0	0	0	Lost	0	1.2	0
Sept. 16 - 24	0.2	0	0	0	Lost	0	0.8	1.2
Sept. 24 - 30	0	0	0.2	0.2	Lost	0	0.4	0
Total	5.2	0.1	5.1	2.8	29.1	0	15.5	3.6

1974 Date Exposed**	Hills Bay Station 1				Burton Point Station 5			
	1971	1972	1973	1974	1971	1972	1973	1974
June 10 - 17	0	-	0	0.2	0	-	-	0
June 17 - 24	0	0	0	0	0	0	0	-
June 24 - July 1	0.4	0	0	0	0.2	0	0	0
July 1 - 8	0	0.2	0.8	0	0	0	0.1	0
July 8 - 15	0.5	0	0.4	1.0	0.3	0	3.4	0.1
July 15 - 22	0	0	3.0	1.5	0	0	3.7	1.4
July 22 - 29	0.1	0	3.7	0	0.9	0	2.3	0.8
July 29 - Aug. 5	0	0	0.7	0.2	0.1	0	3.4	2.8
Aug. 5 - 12	0	0	13.5	0	0.3	0	15.4	0.1
Aug. 12 - 19	0	0	0.2	0	0.8	0	0.4	0.1
Aug. 19 - 26	0.1	0	1.8	0	2.1	0	1.0	0
Aug. 26 - Sept. 3	1.0	0	0.1	0	3.2	0	0.9	0
Sept. 3 - 9	0	0	6.8	0.4	0.2	0	4.6	0
Sept. 9 - 16	0.4	0	2.8	0.4	0.6	0	Lost	0
Sept. 16 - 24	0	0	1.0	0	0	0	Lost	0
Sept. 24 - 30	0	0.2	0.4	0	Lost	0	0.4	0
Total	2.5	0.4	35.2	3.3	8.7	0	35.6	5.3

* Shows spat per shell (smooth side only).
 ** 1971, 1972, 1973, dates approximately the same.
 o Not sampled in 1971.
 • Not sampled in previous years.
 ▲ Not sampled prior to 1973.

.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

1974 Date Exposed**	Island Bar Station 7				Palace Bar Station 6			
	1971	1972	1973	1974	1971	1972	1973	1974
June 10 - 17	0	-	-	0	0	-	0	0
June 17 - 24	0	0.1	0.4	0	0	0.1	0.2	0.1
June 24 - July 1	0.3	0	0	-	4.1	0	0	0
July 1 - 8	5.0	0	10.0	0	4.1	0	4.7	0
July 8 - 15	2.3	0.2	3.5	0	4.5	0	2.5	1.8
July 15 - 22	0.7	0	11.2	1.3	0.6	0	3.3	1.7
July 22 - 29	2.2	0	5.9	0	4.5	0	2.4	0.9
July 29 - Aug. 5	0.1	0	10.2	0.8	0	0	3.7	3.2
Aug. 5 - 12	5.8	0	8.6	0	0	0	3.2	1.5
Aug. 12 - 19	0	0	5.3	0.2	2.8	0	3.7	0.3
Aug. 19 - 26	4.5	0	40.6	0	4.7	0	6.5	0
Aug. 26 - Sept. 3	3.2	0	2.8	0	5.1	0	1.0	0
Sept. 3 - 9	0.4	0	7.6	-	0.4	0	Lost	0.8
Sept. 9 - 16	0.8	0	1.6	0.2	0.8	0	0	0.2
Sept. 16 - 24	Lost	0	Lost	0	0.2	0	2.6	-
Sept. 24 - 30	0	0	Lost	0	0	0	0.6	-
Total	25.3	0.3	107.7	2.5	31.8	0.1	34.4	10.5

1974 Date Exposed**	Ginney Point Station 8				Twigg Branch Station 9			
	1971	1972	1973	1974	1971	1972	1973	1974
June 10 - 17	0	-	0	0	0	-	0	0
June 17 - 24	0	0.1	0	0	0	0	0.2	0
June 24 - July 1	1.3	0	0	-	-	0	0	0
July 1 - 8	25.9	0.8	0	0	0	0.4	5.5	0.7
July 8 - 15	1.3	0.1	0.4	0.3	1.9	0	1.7	1.0
July 15 - 22	1.8	0	5.3	2.0	0.7	0	7.0	3.8
July 22 - 29	3.4	0	1.9	3.0	0.7	0	2.3	3.0
July 29 - Aug. 5	0.1	0	3.4	3.5	0.1	0.6	Lost	0.4
Aug. 5 - 12	13.5	0	0	1.5	19.6	0	0	0
Aug. 12 - 19	12.2	0	3.3	0.4	7.9	0	1.4	0.4
Aug. 19 - 26	1.1	0	11.7	0	11.9	0	20.2	-
Aug. 26 - Sept. 3	4.6	0	-	0.4	0.6	0	1.5	0
Sept. 3 - 9	3.2	0	5.8	0	2.8	0	2.8	0
Sept. 9 - 16	2.8	0	2.8	0.2	0.8	0	Lost	1.0
Sept. 16 - 24	Lost	0	3.8	0.2	0	Lost	1.0	0
Sept. 24 - 30	0	0.2	0.8	0	0	0	3.2	0
Total	71.2	1.2	39.2	11.5	47.0	1.0	46.8	10.3

1974 Date Exposed**	Ferry Creek Station 10			
	1971	1972	1973	1974
June 10 - 17	0	-	0	0
June 17 - 24	0	0	0	-
June 24 - July 1	0.6	0	0	0.1
July 1 - 8	1.6	0	0	0.1
July 8 - 15	0.8	0	0.1	0.3
July 15 - 22	0.8	0	0.6	0
July 22 - 29	0	0	0.8	1.8
July 29 - Aug. 5	0	0	0.3	0.2
Aug. 5 - 12	8.9	0	0	0.1
Aug. 12 - 19	3.9	0	0.5	0.3
Aug. 19 - 26	10.4	0	0	0
Aug. 26 - Sept. 3	Lost	0	3.4	0.4
Sept. 3 - 9	0.8	0	0.2	0
Sept. 9 - 16	0	0	0.2	0
Sept. 16 - 24	0.2	0	0	1.4
Sept. 24 - 30	0	0	0.6	0
Total	28.0	0	6.7	4.7

* Shows spat per shell (smooth side only).
 ** 1971, 1972, 1973, dates approximately the same.
 † Not sampled in 1971.
 ● Not sampled in previous years.
 ▲ Not sampled prior to 1973.

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

Rappahannock River

1974 Date Exposed**	Broad Creek, Inshore ^c			Broad Creek, Offshore ^c		
	1972	1973	1974	1972	1973	1974
June 10 - 17	-	-	-	-	-	-
June 17 - 24	-	-	-	-	-	-
June 24 - July 1	0	-	0	0	-	0
July 1 - 8	0	-	0	0	-	0
July 8 - 16	0	-	0	0	-	0
July 16 - 24	0	0	0.1	-	-	0.1
July 24 - 30	-	0	0	-	-	0.1
July 30 - Aug. 6	0	-	0.1	-	0	0.2
Aug. 6 - 12	0	0	0.6	-	0	0.7
Aug. 12 - 19	0	-	0	-	-	-
Aug. 19 - 26	0	-	0	0	-	-
Aug. 26 - Sept. 3	Lost	-	-	0	0	0
Sept. 3 - 10	0	Lost	0.4	Lost	1.0	0.2
Sept. 10 - 17	Lost	-	-	Lost	1.0	-
Sept. 17 - 23	Lost	Lost	0.2	Lost	Lost	0.4
Sept. 23 - 30	Lost	-	-	Lost	-	-
Total	0	0	1.4	0	2.0	1.7

1974 Date Exposed**	Corrotoman ^c			Greenvale ^c		
	1972	1973	1974	1972	1973	1974
June 10 - 17	-	0	0	-	0	0
June 17 - 24	-	0	0	-	0	0
June 24 - July 1	0	0	0	0	0	0
July 1 - 8	0	0	0	0	0	0
July 8 - 16	0	-	0	0	-	0
July 16 - 24	0	0	0	0	0	0
July 24 - 30	0	0	0.1	0	0	-
July 30 - Aug. 6	0	0	0	0	0	0
Aug. 6 - 12	0	0	0	0	-	0
Aug. 12 - 19	0	0	0	0	0	0.9
Aug. 19 - 26	0	0	0	0	0	0
Aug. 26 - Sept. 3	0	-	0.2	0	-	0.4
Sept. 3 - 10	0	Lost	0.2	0	Lost	0
Sept. 10 - 17	0	0	-	0	Lost	-
Sept. 17 - 23	0	0	0.8	0	Lost	0
Sept. 23 - 30	0	0.4	0	0	0	-
Total	0	0.4	1.3	0	0	1.3

Mobjack Bay

1974 Date Exposed**	North River Head Station 1				North River - Black Water Creek Station 2			
	1971	1972	1973	1974	1971	1972	1973	1974
June 7 - 18	-	0.1	0	0.1	-	0	0	0
June 18 - 25	9.8	0	0	0	0.3	-	-	0
June 25 - July 1	1.9	0.8	1.1	0	0	0.4	0	0
July 2 - 9	0	24.3	0.6	0	0	9.2	0.8	0
July 16 - 23	0.1	0.7	2.1	0	0	0	0	0.2
July 23 - 30	0.1	0.6	0.3	0.5	0	0.3	0	0.2
July 30 - Aug. 6	1.0	0.1	0	0.1	0.9	0	0	0
Aug. 6 - 13	0.1	0.6	0	0.2	Lost	0	0.9	0
Aug. 13 - 20	0	0	1.1	0	Lost	0	0	0
Aug. 20 - 27	0	0	0	0.7	Lost	0.1	0.2	0
Aug. 27 - Sept. 3	0	0.4	0.3	0	Lost	0.9	0.2	0
Sept. 3 - 10	0	0.1	Lost	0.6	0	0	0	1.4
Sept. 10 - 17	0.6	0.1	0.4	0.2	0.8	0	0.2	0
Sept. 17 - 24	0	0	0.4	0	0	0	0.4	0
Sept. 24 - Oct. 1	0	0	0	0	0.2	0	0.2	0
Total	13.6	27.8	6.3	2.4	2.2	10.9	2.9	1.8

* Shows spat per shell (smooth side only).
 ** 1971, 1972, 1973, dates approximately the same.
^c Not sampled in 1971.
 • Not sampled in previous years.
 ▲ Not sampled prior to 1973.

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

Mobjack Bay

1974 Date Exposed**	North River - Cedar Point				East River Head			
	Station 3							
	1971	1972	1973	1974	1971	1972	1973	1974
June 11 - 18	-	0	0	0	2.8	-	-	0
June 18 - 25	0.6	-	-	0.1	5.6	0	0	0.3
June 25 - July 2	0	0	0	0	0.5	0.1	7.3	0.2
July 2 - 9	0	0	0	0.6	2.2	10.8	4.5	0
July 9 - 16	0	0.2	0.3	0.5	0.9	5.0	1.4	101.4
July 16 - 23	0	0	0	0	0.1	7.5	0	0.6
July 23 - 30	0.2	0	0.2	0.1	0	1.7	4.8	4.9
July 30 - Aug. 6	0.1	0	0.4	0	0.2	0	Lost	0.3
Aug. 13 - 20	0	0	2.1	0.5	0	0.7	0.7	0.3
Aug. 20 - 27	0	0.1	7.5	2.1	0	0	0	0
Aug. 27 - Sept. 3	0.2	0.8	0.2	0	0	0.9	0.1	0.2
Sept. 3 - 10	0	0.3	2.2	1.8	0	0	0	0.6
Sept. 10 - 17	1.0	0	0	0	0.4	0	0.2	0
Sept. 17 - 24	0.2	0	3.2	0	0	0	0.6	0
Sept. 24 - Oct. 1	0	0	0	0.2	-	0	0.2	0
Total	2.3	1.4	16.1	5.9	12.7	26.7	19.8	108.8

1974 Date Exposed**	East River-Put In Creek				East River Mouth			
	1971	1972	1973	1974	1971	1972	1973	1974
June 11 - 18	0.5	-	-	0.4	-	-	-	0
June 18 - 25	6.6	0	0	1.0	0.1	0	-	0.3
June 25 - July 2	0.6	0	1.3	1.2	0	-	2.1	0
July 2 - 9	0	12.2	0.7	0	0	0.3	0.2	0.2
July 9 - 16	0.3	4.5	3.5	85.5	0.1	0.7	2.4	0.1
July 16 - 23	0	2.3	0.4	0.5	0	0.2	0.2	1.6
July 23 - 30	0.4	1.5	Lost	13.5	0	0	0.5	0.1
July 30 - Aug. 6	0.6	0	0.3	0.3	0.1	0.3	0	0
Aug. 13 - 20	0	0	4.7	0.2	0.4	0	0	0
Aug. 20 - 27	0	0	0	0.6	0.8	0	0.4	0.2
Aug. 27 - Sept. 3	0.3	0.7	0.3	0.4	5.2	0.4	0	0.2
Sept. 3 - 10	0	0	0.2	6.6	8.2	0.1	3.0	1.8
Sept. 10 - 17	0.8	0.1	3.6	0.2	2.4	0	8.0	0.4
Sept. 17 - 24	0.4	0	1.4	0	3.6	0	1.2	0.6
Sept. 24 - Oct. 1	-	0	0	0	1.0	0	0	0.4
Total	10.5	21.3	16.4	110.4	21.9	2.0	18.0	5.9

New Point Comfort Area

1974 Date Exposed**	Pepper Creek				Dyer Creek			
	1971	1972	1973	1974	1971	1972	1973	1974
June 7 - 18	0.1	-	-	0	0	0	0	0
June 18 - 25	0.1	0	0	0.1	0.2	0	0	0
June 25 - July 2	0	0	0	0.3	0.1	0	0	0
July 2 - 9	0.2	0	1.2	0.1	0	0	0	0
July 9 - 16	0.2	0	3.3	0	0.1	0	0	0
July 16 - 23	0	0.3	3.7	14.1	0.6	0.1	0.1	0.1
July 23 - 30	0.6	0	0.4	0.3	1.3	0.2	0.1	0.1
July 30 - Aug. 6	0.1	0	0.2	0.2	0.2	0	0	0
Aug. 6 - 13	0.3	0.4	0.1	0.1	0	0	0	0
Aug. 13 - 20	10.4	0.1	0	0	0.1	0	0	0
Aug. 20 - 27	37.0	0.1	0.7	0.6	0.2	0.2	0	0
Aug. 27 - Sept. 3	4.9	0.9	3.6	0.1	0.2	0	1.3	0
Sept. 3 - 10	5.6	0	13.6	2.0	1.6	0	0.6	1.0
Sept. 10 - 16	2.4	0	9.8	2.6	0	0.1	1.6	0.2
Sept. 17 - 24	1.0	0	8.4	0.4	-	0	0.2	0
Sept. 24 - Oct. 1	-	0	3.2	0.4	0.2	0	0.6	0
Total	62.9	1.8	48.2	21.3	4.8	0.6	4.5	1.4

* Shows spat per shell (smooth side only).
 ** 1971, 1972, 1973, dates approximately the same.
 0 Not sampled in 1971.
 ● Not sampled in previous years.
 ▲ Not sampled prior to 1973.

.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

1974 Date Exposed**	Winter Harbor - Public Landing				Horn Harbor - Old Barge (Public)			
	1971	1972	1973	1974	1971	1972	1973	1974
June 7 - 18	0	0	0	0	0	0	0	0
June 18 - 25	0	0	0	0	0.6	0	0	0
June 25 - July 2	0.6	0	0	0	0.6	0	0	0
July 2 - 9	0	0	1.8	1.6	0	0	0.1	0
July 9 - 16	0	0	0.6	0.6	0	0.2	0	-
July 16 - 23	0.1	0	2.9	19.9	0	0	0.1	0.2
July 23 - 30	0	0	0.6	0.1	0	0	0.2	0
July 30 - Aug. 6	1.0	0	0	1.6	3.2	0	0	0
Aug. 6 - 13	0.4	0	0	0	0	0	0	0
Aug. 13 - 20	0.6	0	0	0.9	0.5	0	0	0
Aug. 20 - 27	4.4	0.1	0.1	0	0.4	1.0	0	0
Aug. 27 - Sept. 3	11.6	0	Lost	5.8	0.5	0.8	0.6	0
Sept. 3 - 10	0.8	0.1	7.6	2.4	0	0	0.4	0.4
Sept. 10 - 16	13.8	0	18.0	7.4	0.2	0.2	2.2	0
Sept. 17 - 24	0.2	0	-	0.4	0	0.5	-	0
Sept. 24 - Oct. 1	1.2	0	2.8	2.6	0	0.1	0.2	0
Total	34.7	0.2	34.4	43.3	6.0	2.8	3.8	0.6

Great Nicomico River

1974 Date Exposed**	Dameron Marsh Station 1				Whaley's East Station 3			
	1971	1972	1973	1974	1971	1972	1973	1974
June 8 - 18	0	0	0	0	0	0	0	0
June 18 - 25	0.1	0	0	0	0	0	0	0
June 25 - July 1	0	0	0	0	0	-	0	0
July 1 - 8	0	0	0	0	0.1	0	0	0
July 8 - 15	0	0	0	0	0	0	0	0
July 15 - 22	0	0	0	0	0	0	0	0
July 22 - 29	0	0	0	0	0	0	0	0
July 29 - Aug. 5	0	0	0	0	0	-	0	0
Aug. 5 - 12	0.4	0	0	0	0	0	0	0
Aug. 12 - 19	0.4	0	0	0	0	0	0	0
Aug. 19 - 26	3.1	0	0	0.2	0.4	0	0	0.1
Aug. 26 - Sept. 2	0.2	0	0	0	1.5	0	0	0
Sept. 2 - 9	0	0	0.5	0	0	0	0	0
Sept. 9 - 16	0	0	1.8	0	0.2	0.1	2.6	0
Sept. 16 - 23	0	0	0.4	0	0.2	0	0.1	0
Sept. 23 - 30	-	-	0	0	0	0	0.2	0
Total	4.2	0	2.7	0.2	2.4	0.1	2.9	0.1

1974 Date Exposed**	Crane's Creek Station 4				Fleet Point Station 5			
	1971	1972	1973	1974	1971	1972	1973	1974
June 8 - 18	0	0	0	0	0	0	-	0
June 18 - 25	0	0	0	0	0	0	0	0
June 25 - July 1	0.2	0	0	0	0	0	Lost	0
July 1 - 8	0.5	0	0	0	0	Lost	0	0
July 8 - 15	0	0	0	0	0	0	Lost	0
July 15 - 22	0	0	0	0	0	0	0	0
July 22 - 29	0	0	Lost	0	0	0	0	0
July 29 - Aug. 5	0	0	0	0.4	Lost	0	0	-
Aug. 5 - 12	0.9	Lost	0	0.4	0.1	0	Lost	0.4
Aug. 12 - 19	1.0	0	0	0	0.3	0	0	0
Aug. 19 - 26	1.4	0	0	0.2	0.6	0	0	3.9
Aug. 26 - Sept. 2	0	0	0	0	0.8	0	0	1.0
Sept. 2 - 9	0	0	0	0	0	0	0.2	0
Sept. 9 - 16	0	0	0.6	0.2	0	0	0	0.4
Sept. 16 - 23	0	0	0.2	0	0.2	0	0.8	0
Sept. 23 - 30	-	-	0	0	0	-	0	0.4
Total	4.0	0	0.8	1.2	2.0	0	1.0	6.1

* Shows spat per shell (smooth side only).
 ** 1971, 1972, 1973, dates approximately the same.
 0 Not sampled in 1971.
 ● Not sampled in previous years.
 ▲ Not sampled prior to 1973.

.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

1974 Date Exposed**	Middle Ground Station 10				Haynie Bar Station 6			
	1971	1972	1973	1974	1971	1972	1973	1974
June 8 - 18	0	0	-	0	0	0	-	0
June 18 - 25	0	0.8	0	0	0.3	0	0	0
June 25 - July 1	0	0.1	0	0	0.2	0	0	0
July 1 - 8	0.2	Lost	0	0	0	0	0	0
July 8 - 15	6.6	0	0	0	0.2	0	0	0
July 15 - 22	0.2	0	Lost	0	0	0	0	0.1
July 22 - 29	0	0	0	0.5	0	0	0	0
July 29 - Aug. 5	Lost	0	0	0	0	0	0	0.3
Aug. 5 - 12	0	0	0	1.2	2.3	0	0	0.7
Aug. 12 - 19	4.5	0	0	0.1	1.2	0	0	0
Aug. 19 - 26	15.8	0	0	0	3.5	0	0	0.2
Aug. 26 - Sept. 2	6.3	0	0	0	0.2	0	0	0
Sept. 2 - 9	0.8	0	0	0	0	0	0	0
Sept. 9 - 16	0	0	0.2	0.2	0	0	2.2	0
Sept. 16 - 23	0	0	0	0	0.2	0	0.2	0
Sept. 23 - 30	0	0	0	0	0	-	0	0.2
Total	34.4	0.9	0.2	2.0	8.1	0	2.4	1.5

1974 Date Exposed**	Shell Bar Station 7				Hudnall's Dock Station 8			
	1971	1972	1973	1974	1971	1992	1973	1974
June 8 - 18	0	0	0	0	0	0	-	0
June 18 - 25	0	0.3	0	0	0.3	0.4	0	0
June 25 - July 1	5.3	0.2	0.1	0	9.8	0	0	0
July 1 - 8	2.6	0	0	0	1.4	0	0	0
July 8 - 15	0.4	0	0	0	0.1	0	0	0
July 15 - 22	0	0	0	1.1	0	0	0	0
July 22 - 29	0	0	0	0	0	0	0	0
July 29 - Aug. 5	0.1	0	0	8.9	0	0	0	2.0
Aug. 5 - 12	0.8	0	0	1.0	1.1	0	0.1	0.8
Aug. 12 - 19	1.3	0	0	0.1	2.2	0	0	0
Aug. 19 - 26	1.0	0	0	0.1	1.7	0	0	0
Aug. 26 - Sept. 2	0	0	0.2	0	0.2	0	0	0
Sept. 2 - 9	0.2	0	0	0	0.2	0	0	0
Sept. 9 - 16	0	0	0	1.6	0.4	0	0	0.2
Sept. 16 - 23	0	0	0	0	0	0	1.0	0
Sept. 23 - 30	-	-	0.2	0	0	-	0	0
Total	11.7	0.5	0.5	12.8	17.4	0.4	1.1	3.0

1974 Date Exposed**	Glebe Point Station 9			
	1971	1972	1973	1974
June 8 - 18	0	0	0	0
June 18 - 25	0	2.0	0	0.2
June 25 - July 1	0	0.8	0	0
July 1 - 8	20.0	0	0	0
July 8 - 15	0	0	0	0
July 15 - 22	0	0	0	0.4
July 22 - 29	0	0	0	0
July 29 - Aug. 5	Lost	0	0	2.3
Aug. 5 - 12	0.4	0	0	8.8
Aug. 12 - 19	18.8	0	0	0
Aug. 19 - 26	3.3	0.2	0	0
Aug. 26 - Sept. 2	0.2	0	0	0
Sept. 2 - 9	0	0	0	0
Sept. 9 - 16	0	0.1	0	0
Sept. 16 - 23	0	0	0.2	0
Sept. 23 - 30	0	-	0	0
Total	42.7	3.1	0.2	11.7

* Shows spat per shell (smooth side only).
 ** 1971, 1972, 1973, dates approximately the same.
 † Not sampled in 1971.
 ● Not sampled in previous years.
 ▲ Not sampled prior to 1973.

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

Nansemond River

1974 Date Exposed**	Nansemond Ridge Station 1				Larkins Rock Station 2			
	1971	1972	1973	1974	1971	1972	1973	1974
July 4 - 11	-	Lost	-	0	-	0	-	0.1
July 11 - 18	-	0	-	-	-	0	-	1.5
July 19 - 25	0	0	0	0.2	0	0	0	0
July 25 - Aug. 1	0	0	0	0.2	0	0	0	1.3
Aug. 1 - 8	0.6	Lost	0	0.3	9.2	Lost	0	0.8
Aug. 8 - 15	11.2	0	0	0.4	7.5	0	0	1.9
Aug. 15 - 22	2.9	0.2	0	0.7	1.5	0	0	-
Aug. 22 - 29	2.9	0.1	0	1.2	0.9	0	0	0.6
Aug. 29 - Sept. 5	4.4	Lost	0	0.8	0.2	Lost	0	1.6
Sept. 5 - 12	2.0	0	0	-	0.3	0	0	-
Sept. 12 - 19	0.6	1.0	0	-	0.8	0.2	0	-
Sept. 19 - 26	0.4	0	0	-	0	0	0.2	-
Sept. 26 - Oct. 3	-	-	0	-	-	-	-	-
Total	25.0	2.3	0	3.8	20.4	0.2	0.2	7.8

1974 Date Exposed**	Half Pone Station 3			
	1971	1972	1973	1974
July 4 - 11	-	Lost	-	0
July 11 - 18	-	0	-	0.5
July 19 - 25	0	0	Lost	0.9
July 25 - Aug. 1	0	Lost	0	0.5
Aug. 1 - 8	6.2	0	0	1.1
Aug. 8 - 15	22.7	0	0	0.1
Aug. 15 - 22	2.0	Lost	0	1.0
Aug. 22 - 29	7.5	0	0	0.6
Aug. 29 - Sept. 5	Lost	Lost	0	0
Sept. 5 - 12	0.4	0	0	-
Sept. 12 - 19	0.6	0.1	0	-
Sept. 19 - 26	Lost	0	0	-
Sept. 26 - Oct. 3	-	-	0	-
Total	39.4	0.1	0	4.7

Potomac River

1974 Date Exposed**	Lower Jones Shore 1974	Upper Jones Shore 1974	Great Neck 1973	Great Neck 1974	Coan, North 1974	Coan, South 1974
	June 11 - 18	-	-	0	0	0
June 18 - 26	-	-	-	0	0	-
June 26 - July 1	-	-	0	-	0	0
July 1 - 8	-	-	0	0	0	0
July 8 - 15	-	-	0	0	0	0
July 15 - 23	-	-	0	0	0	0
July 23 - 29	-	-	0	0	0	0
July 29 - Aug. 5	-	-	0	0	0.1	0
Aug. 5 - 12	-	-	0	0	0	0
Aug. 12 - 19	-	-	0	0.3	0	0.2
Aug. 19 - 26	-	-	0	0.4	0	0
Aug. 26 - Sept. 3	-	-	0	1.0	0	0
Sept. 3 - 9	-	-	0	0	0	0
Sept. 9 - 16	0.8	1.0	0	-	0.2	0
Sept. 16 - 25	0	2.4	0	0	0	0
Sept. 25 - 30	0	0	1.0	0	0	-
Total	0.8	3.4	1.0	1.7	0.3	0.2

* Shows spat per shell (smooth side only).

** 1971, 1972, 1973, dates approximately the same.

o Not sampled in 1971.

● Not sampled in previous years.

▲ Not sampled prior to 1973.

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

In addition shellstrings were hung between 11 June and 10 October at the following stations but no spat was seen: King Copsico, Ragged Point, Yeocomico and Thickett Point.

Eastern Shore, Seaside

1974 Dates Exposed**	Oyster [●]	Quinby Harbor [●]	Quinby Bridge [●]	Swash Bay [●]	Bradford's Bay [●]	Burtons Bay [○]		
	1974	1974	1974	1974	1974	1972	1973	1974
June 11 - 19	-	0	0	0	-	-	-	-
June 19 - 26	-	0	6.3	0	0	-	-	0
June 26 - July 3	-	{ 0.4	{ 0.1	-	0	0	-	0
July 3 - 10	-	-	-	0	0	-	0	0
July 10 - 17	-	-	-	0	0	0	0.1	0.2
July 17 - 24	{ 0	{ 1.0	{ 7.5	0	0.2	{ 38.3	0	0
July 24 - 31	-	{ 4.6	{ 3.2	-	-	-	0	0
July 31 - Aug. 6	-	{ 1.4	{ 2.0	{ 3.0	{ 0	{ 46.4	0	{ 0.5
Aug. 6 - 13	-	0	-	-	{ 2.8	-	0.4	{ 0.6
Aug. 13 - 20	-	-	-	{ 2.4	{ 13.2	-	-	-
Aug. 20 - 27	{ 0.2	-	-	-	-	-	-	-
Aug. 27 - Sept. 3	-	-	-	-	-	-	-	-
Sept. 3 - 10	{ 0.2	{ 0.6	{ 3.2	{ 0.6	-	-	-	{ 1.8
Sept. 10 - 17	-	-	-	-	-	-	-	-
Sept. 17 - 24	-	-	-	0.2	0	-	-	0.2
Total	1.8	6.6	22.3	6.2	16.2	84.7	0.5	3.3

1974 Date Exposed**	Chincoteague Bay [○]		
	1972	1973	1974
June 11 - 19	-	-	-
June 19 - 26	-	-	-
June 26 - July 3	-	-	0
July 3 - 10	-	-	0
July 10 - 17	-	-	-
July 17 - 24	-	-	{ 0.2
July 24 - 31	-	-	-
July 31 - Aug. 6	{ 149.0	-	-
Aug. 6 - 13	-	-	{ 0
Aug. 13 - 20	19.7	-	-
Aug. 20 - 27	-	-	{ 0
Aug. 27 - Sept. 3	-	-	-
Sept. 3 - 10	-	-	{ 0.8
Sept. 10 - 17	-	-	-
Sept. 17 - 24	-	-	-
Total	168.7	-	1.0

Eastern Shore, Bayside

1974 Dates Exposed**	Cherry-stone Inlet [●]	Occohannock Creek [●]	Pungoteague Creek [●]	Onancock Creek [●]	Pocomoke Sound [○]		
	1974	1974	1974	1974	1972	1973	1974
June 11 - 19	-	0	0	0.3	-	-	-
June 19 - 26	-	0	0	0	-	-	-
June 26 - July 3	0.1	{ 0	{ 0	{ 0	-	-	0
July 3 - 10	-	-	-	-	-	0	0
July 10 - 17	-	-	-	-	0	0	0
July 17 - 24	{ 0.3	{ 0	{ 0	0	0	0	0
July 24 - 31	-	-	-	0	0	0	0
July 31 - Aug. 6	-	-	-	1.4	0	0	0
Aug. 6 - 13	-	{ 0	{ 0	-	0	-	{ 0.1
Aug. 13 - 20	-	-	-	-	0	0	-
Aug. 20 - 27	{ 6.0	{ 0	{ 0	{ 0	-	0	{ 0
Aug. 27 - Sept. 3	-	-	-	-	-	0	-
Sept. 3 - 10	{ 4.4	{ 3.4	{ 0	{ 0	-	0	{ 0.6
Sept. 10 - 17	-	-	-	-	-	-	-
Total	10.8	0.4	0	1.7	0	0	0.7

* Shows spat per shell (smooth side only).

** 1971, 1972, 1973, dates approximately the same.

○ Not sampled in 1971.

● Not sampled in previous years.

▲ Not sampled prior to 1973.

.1 to 1.0 spat per shell = fair
2 to 10 spat per shell = moderate
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