11-1970

Oyster Spatfall on Shellstrings in Virginia Rivers: 1970 Annual Summary

Dexter S. Haven
Virginia Institute of Marine Science

MARINE RESOURCE INFORMATION

VIRGINIA INSTITUTE of MARINE SCIENCE BULLETIN

Annual Summary for 1970

OYSTER SPATFALL ON SHELLSTRINGS IN VIRGINIA RIVERS NOVEMBER 1970

The Applied Biology Department in the VIMS Division of Applied Marine Science and Ocean Engineering conducts weekly surveys of oyster "setting" in Virginia rivers from the end of May through early October each year. Starting at the mouth of each river and proceeding upstream to the limits of oyster setting, the collecting areas are established on public and private beds. Spat counts are obtained from oyster shells strung on wire and suspended from stakes. The number of spat which set in one week on the smooth side of each shell on the string are tabulated.

Using the numbers of spat counted on shells during each week of the spawning season, it is possible to estimate the potential of a particular area for receiving a "strike" or set of oysters, and the weeks when the strike occurs. This information is useful because shells planted just before the period of maximum set have the best chance of getting a good strike.

A good strike on shellstrings usually indicates that a strike has taken place on bottom shells. However, a good strike on shellstrings in some locations may not be accompanied by good spatfall on the rock. One reason for such a failure is that bottom shells can become so fouled by other marine life (much of which cannot even be detected with the naked eye) that no room is left for small spat to attach. Even with a reasonable spatfall, survival may be extremely low due to predators such as screwborers in the saltier waters which kill many small oysters soon after attachment.

The following study is for spatfall on shellstrings only. To provide information on the actual situation on the rocks, a companion survey of spatfall on bottoms will be issued in January 1971. This will help in determining the success of this year's strike on bottom shells and can be compared to the information presented in the following summary.

JAMES RIVER - Peak setting occured in the James River during August, with a sharp maximum at all stations during the week of August 3 to 11. Set during all other months was very light. The pattern of set in 1970 in the James differed from that in 1969 when there were two peaks in setting: One during mid-July and the second in mid-September.

The 1970 shellstring strike during peak setting ranged from 0.6 to 11.1 spat per shell per week. By past standards, this is rated as fair. In 1970, however, it resulted in a much better than average strike on bottom cultch

****

at Deep Water Shoals, Horse Head and Point of Shoals. Little, if any, seem to have struck at Wreck Shoals and at other stations on the north side of the James. The reason for this is unknown.

NANSEMOND RIVER - The set on strings in the Nansemond River was light to moderate and was greater at all three stations this year than during 1969. Setting began in mid-July with a peak in mid-August and then tapered off through late September.

YORK RIVER - In the York River at Foxes Creek and Clay Bank the set on strings was poor. Numbers counted were essentially the same as those recorded in 1969. At Gloucester Point in the lower river, numbers setting on shellstrings were considerably higher than for 1969. It was a late strike. None were recorded for June and July, and the peak occured during mid-August with some strike recorded as late as mid-October.

PIANKATANK - GWYNN ISLAND - There was no strike during June 1970, but a moderate to heavy set on shellstrings began the first week in July. Peak setting occured during the first two weeks of July in the vicinity of Gwynn Island and the lower and middle Piankatank, and about a week or two later in the upper river. After July, set diminished quickly, but a light set continued at about equal intensity at all stations through October 7.

In general, results in 1970 differed sharply from those which occured in 1969 in the following ways:

1) Set on shellstrings was much heavier than in 1969 at comparable stations.
2) In 1969 there was only a very light set after August; in contrast, during 1970 a light but persistant strike occured in all stations throughout September.

MOBJACK BAY AREA

North River - In the lower part of the North River, the set on shellstrings extended from mid-June into October. However, numbers attaching were small and there was no peak set. Conditions differed in the upper river where there was a sharp peak of heavy set during mid-July.

East River - The East River showed a widely varying setting pattern. At the station located just off the entrance to the river there was no strike during June and July. The set began gradually the first week in August and reached a peak of 10.9 spat per shell by mid-August, then gradually declined through the first week in October. Up the East River, the seasonal pattern of setting differed. The strike began in mid-June and extended into October. The station furthest up river received its peak strike during the first week in July while the two stations in the mid-portion received their peak set in August.

RAPPAHANNOCK RIVER - A light strike occured in the vicinity of Grey's Point Bridge over the period from July 1 through mid-September.

****

NEW POINT COMFORT AREA

Winter Harbor - Setting began July 1 at both stations and extended into October. The peak of setting occured at station 10 during late August with a heavy set occuring the last week in August. Station 10a, further up the estuary, received only a light set during the same period.

Horn Harbor - No strike occured prior to July 1; however a light set occured from about July 1 through October 15 with indications of a small peak in strike during mid-August.

Pepper Creek - A light set occured over most of the season from mid-June through mid-October. Within this period there was a single sharp peak of heavy set during late August when set reached 21.7 spat per shell per week.

Dyer Creek - No set occured prior to July 1. Thereafter, set was light but continuous through 15 October.

GREAT WICOMICO RIVER - The strike in the Great Wicomico River began in mid-June and quickly reached a peak at all stations the last week in June. In general the set on shellstrings was heaviest up river. After the peak set there was an abrupt decline in attachment, but a few spat continued to attach through September.

The 1970 set on strings differed from that in 1969 in the following ways:

1) Peak setting was a week earlier in 1970 than in 1969.
2) Numbers attaching was much greater in 1970 than in 1969.
3) In 1969 few if any spat attached after August 4. In contrast, a light strike continued through September in 1970.

Spat per shell indicates the average number of spat on the smooth side of a shell. The key below, ranging from "Poor" to "Good", is used with the following summary tables.

SPAT PER SHELL	
	0 TO 1 SPAT PER SHELL = POOR SET
	2 TO 10 SPAT PER SHELL = FAIR SET
	11 TO 100 SPAT PER SHELL = GOOD SET

VIRGINIA INSTITUTE OF MARINE SCIENCE
SPATFALL ON SHELLSTRINGS
ANNUAL SUMMARY

James River--1970

	Brown Shoals		Wreck Shoals		Horsehead	
	Total	Spat/shell	Total	Spat/shell	Total	Spat/shell
May 13-June 15	0	0	Lost	Lost	0	0
June 15-22	0	0	0	0	0	0
June 22-29	0	0	0	0	0	0
June 29-July 6	0	0	0	0	0	0
July 6-13	0	0	0	0	0	0
July 13-20	0	0	Lost	Lost	0	0
July 20-27	0	0	0	0	2	0.2
July 27-Aug. 3	3	0.3	2	0.2	3	0.3
Aug. 3-10	60	6.0	92	9.2	76	7.6
Aug. 10-17	28	2.8	15	1.5	38	3.8
Aug. 17-24	31	3.1	4	0.4	16	1.6
Aug. 24-31	56	5.6	22	2.2	9	0.9
Aug. 31-Sept. 7	16	1.6	8	0.8	3	0.3
Sept. 7-14	1	0.1	0	0	2	0.2
Sept. 14-18	4	0.4	0	0	1	0.1
Sept. 18-30	10	1.0	3	0.3	1	0.1
Sept. 28-Oct. 5	0	0	1	0.1	0	0
Oct. 5-12	6	0.6	1	0.1	0	0
Oct. 12-19	0	0	0	0	0	0

	Point of Shoals		Deepwater Shoals		Hampton Flats	
	Total	Spat/shell	Total	Spat/shell	Total	Spat/shell
May 13-June 15	0	0	0	0	Lost	Lost
June 15-22	0	0	0	0	0	0
June 22-29	0	0	0	0	Lost	Lost
June 29-July 6	0	0	0	0	0	0
July 6-13	0	0	0	0	0	0
July 13-20	0	0	0	0	4	0.4
July 20-27	4	0.4	0	0	0	0
July 27-Aug. 3	1	0.1	2	0.2	4	0.4
Aug. 3-10	84	8.4	28	2.8	111	11.1
Aug. 10-17	15	1.5	8	0.8	6	0.6
Aug. 17-24	38	3.8	4	0.4	52	5.2
Aug. 24-31	9	0.9	0	0	86	8.6
Aug. 31-Sept. 7	11	1.1	3	0.3	16	1.6
Sept. 7-14	0	0	0	0	6	0.6
Sept. 14-18	2	0.2	1	0.1	Lost	Lost
Sept. 18-30	0	0	1	0.1	2	0.2
Sept. 28-Oct. 5	0	0	0	0	0	0
Oct. 5-12	0	0	0	0	0	0
Oct. 12-19	0	0	0	0	0	0

	Newport News Tax Office	
	Total	Spat/shell
June 17-26	0	0
July 24-31	1	0.1
July 31-Aug. 10	33	3.3
Aug. 10-14	4	0.4
Aug. 14-21	15	1.5
Aug. 21-28	23	2.3
Aug. 28-Sept. 4	13	1.3
Sept. 4-11	2	0.2
Sept. 11-23	9	0.9
Sept. 23-Oct. 2	2	0.2
Oct. 2-9	1	0.1

Data given: Total = spatfall on 10 shells (smooth surface only)
Spat/shell = spat per shell (smooth side only)

Nansemond River--1970

	Nansemond Ridge		Larken's Rock*		Half Pone*	
	Total	Spat/shell	Total	Spat/shell	Total	Spat/shell
June 24-July 1	0	0	0	0	0	0
July 1-8	0	0	0	0	0	0
July 8-20	1	0.1	1	0.1	0	0
July 20-29	2	0.2	2	0.2	0	0
July 29-Aug. 5	12	1.2	14	1.4	11	1.1
Aug. 5-12	Lost	Lost	29	2.9	30	3.0
Aug. 12-19	18	1.8	8	0.8	15	1.5
Aug. 19-27	4	0.4	2	0.2	40	4.0
Aug. 27-Sept. 3	5	0.5	0	0	18	1.8
Sept. 3-9	9	0.9	4	0.4	9	0.9
Sept. 9-16	4	0.4	2	0.2	1	0.1
Sept. 16-23	7	0.7	0	0	3	0.3
Sept. 23-Oct. 2	1	0.1	0	0	2	0.2
Oct. 2-8	0	0	1	0.1	0	0

York River--1970

	Foxes Creek		Clay Bank		VIMS Pier	
	Total	Spat/shell	Total	Spat/shell	Total	Spat/shell
June 17-24	0	0	0	0	0	0
June 24-July 1	0	0	0	0	0	0
July 1-8	0	0	0	0	0	0
July 8-15	0	0	0	0	0	0
July 15-23	0	0	0	0	0	0
July 23-29	0	0	0	0	0	0
July 29-Aug.5	0	0	0	0	0	0
Aug. 5-12	0	0	6	0.6	10	1.0
Aug. 12-19	0	0	0	0	1	0.1
Aug. 19-26	0	0	0	0	50	5.0
Aug. 26-Sept. 2	0	0	1	0.1	15	1.5
Sept. 2-10	1	0.1	2	0.2	14	1.4
Sept. 10-17	0	0	0	0	29	2.9
Sept. 17-24	0	0	0	0	51	5.1
Sept. 24-Oct. 1	0	0	0	0	4	0.4
Oct. 1-8	0	0	0	0	10	1.0
Oct. 8-15	2	0.2	5	0.5	13	1.3

Piankatank River and Gwynn Island--1970

	Milford Haven Station #1		Stoakes Creek Station #2		Point Breeze Station #3	
	Total	Spat/shell	Total	Spat/shell	Total	Spat/shell
June 4-16	0	0	0	0	4	.4
June 16-23	0	0	0	0	0	0
June 23-30	0	0	0	0	0	0
June 30-July 7	10	1.0	23	2.3	6	0.6
July 7-14	14	1.4	37	3.7	115	11.5
July 14-21	6	0.6	3	0.3	4	0.4
July 21-28	1	0.1	3	0.3	1	0.1
July 28-Aug. 4	9	0.9	20	2	27	2.7
Aug. 4-12	7	0.7	11	1.1	5	0.5
Aug. 12-18	7	0.7	50	5.0	72	7.2
Aug. 18-25	13	1.3	0	0	19	1.9
Aug. 25-Sept. 2	2	0.2	9	0.9	Lost	Lost
Sept. 2-9	15	1.5	12	1.2	35	3.5
Sept. 9-16	2	0.2	11	1.1	36	3.6
Sept. 16-23	5	0.5	5	0.5	31	3.1
Sept. 23-30	11	1.1	1	0.1	9	0.9
Sept. 30-Oct. 7	15	1.5	6	0.6	15	1.5

Data given: Total = spatfall on 10 shells (smooth side only)
Spat/shell = spat per shell (smooth side only)

*Up river from Nansemond Ridge; not shown on map

Piankatank River and Gwynn Island continued

	Three Branches Station #4		Iron Point Station #5		Island Bar Station #6	
	Total	Spat/shell	Total	Spat/shell	Total	Spat/shell
June 4-16	0	0	0	0	0	0
June 16-23	0	0	0	0	0	0
June 23-30	0	0	0	0	0	0
June 30-July 7	20	2.0	106	10.6	131	13.1
July 7-14	1	0.1	45	4.5	172	17.2
July 14-21	1	0.1	5	0.5	4	0.4
July 21-28	1	0.1	24	2.4	28	2.8
July 28-Aug. 4	2	0.2	5	0.5	1	0.1
Aug. 4-12	7	0.7	0	0	4	0.4
Aug. 12-18	39	3.9	Lost	Lost	3	0.3
Aug. 18-25	3	0.3	2	0.2	2	0.2
Aug. 25-Sept. 2	1	0.1	0	0	2	0.2
Sept. 2-9	11	1.1	7	.7	Lost	Lost
Sept. 9-16	13	1.3	16	1.6	Lost	Lost
Sept. 16-23	3	0.3	0	0	6	0.6
Sept. 23-30	2	0.2	Lost	Lost	2	0.2
Sept. 30-Oct. 7	2	0.2	12	1.2	2	0.2

	Ginney Point Station #7		Twigg Branch Station #8		Ferry Point Station #9	
	Total	Spat/shell	Total	Spat/shell	Total	Spat/shell
June 4-16	0	0	0	0	0	0
June 16-23	0	0	0	0	0	0
June 23-30	0	0	0	0	0	0
June 30-July 7	115	11.5	5	0.5	70	7.0
July 7-14	297	29.7	33	3.3	63	6.3
July 14-21	23	2.3	14	1.4	Lost	Lost
July 21-28	112	11.2	127	12.7	239	23.9
July 28-Aug. 4	18	1.8	7	0.7	0	0
Aug. 4-12	1	0.1	4	0.4	0	0
Aug. 12-18	1	0.1	18	1.8	1	0.1
Aug. 18-25	10	1.0	10	1.0	19	1.9
Aug. 25-Sept. 2	8	0.8	4	0.4	2	0.2
Sept. 2-9	8	0.8	19	1.9	5	0.5
Sept. 9-16	7	0.7	3	0.3	0	0
Sept. 16-23	0	0	0	0	0	0
Sept. 23-30	1	0.1	3	0.3	0	0
Sept. 30-Oct. 7	4	0.4	5	0.5	0	0

	Hills Bay Station #10		Burton Point Station #11	
	Total	Spat/shell	Total	Spat/shell
June 4-16	0	0	Lost	Lost
June 16-23	0	0	Lost	Lost
June 23-30	0	0	Lost	Lost
June 30-July 7	28	2.8	17	1.7
July 7-14	0	0	73	7.3
July 14-21	2	0.2	26	2.6
July 21-28	2	0.2	14	1.4
July 28-Aug. 4	1	0.1	18	1.8
Aug. 4-12	0	0	17	1.7
Aug. 12-18	8	0.8	3	0.3
Aug. 18-25	0	0	3	0.3
Aug. 25-Sept. 2	5	0.5	7	0.7
Sept. 2-9	4	0.4	6	0.6
Sept. 9-16	7	0.7	2	0.2
Sept. 16-23	0	0	2	0.2
Sept. 23-30	3	0.3	5	0.5
Sept. 30-Oct. 7	1	0.1	5	0.5

Data given: Total = spatfall on 10 shells (smooth side only)
Spat/shell = spat per shell (smooth side only)

Piankatank River and Gwynn Island continued

	Stutts Creek	
	Total	Spat/shell
May 25-June 11	0	0
June 11-18	3	.3
June 18-25	0	0
June 25-July 2	0	0
July 2-9	2	0.2
July 9-16	38	3.8
July 16-23	0	0
July 23-30	3	0.3
July 30-Aug. 6	1	0.1
Aug. 6-13	23	2.3
Aug. 13-20	8	0.8
Aug. 20-27	5	0.5
Aug. 27-Sept. 3	5	0.5
Sept. 3-10	58	5.8
Sept. 10-17	0	0
Sept. 17-24	0	0
Sept. 24-Oct. 1	1	0.1
Oct. 1-8	5	0.5
Oct. 8-15	0	0

Rappahannock River--1970

	Grey's Point Bridge	
	Total	Spat/shell
July 1-8	29	2.9
July 8-15	0	0
July 15-22	0	0
July 22-29	6	0.6
July 29-Aug. 5	0	0
Aug. 5-12	7	0.7
Aug. 12-19	1	0.1
Aug. 19-26	2	0.2
Aug. 26-Sept. 2	Lost	Lost
Sept. 2-9	4	.4
Sept. 9-16	2	0.2
Sept. 16-22	3	0.3

	Hog House	
	Total	Spat/shell
July 10-Aug. 6	0	0
Aug. 6-Sept. 21	Lost	Lost

	Bowler's Rock	
	Total	Spat/shell
July 10-Aug. 6	0	0
Aug. 6-Sept. 21	0	0

Mobjack Bay--1970

	North River Head Station #1		North River Black Water Creek Station #2		North River Cedar Point Station #3	
	Total	Spat/shell	Total	Spat/shell	Total	Spat/shell
May 25-June 11	0	0	0	0	0	0
June 11-18	99	9.9	0	0	0	0
June 18-25	82	8.2	14	1.4	0	0
June 25-July 2	0	0	0	0	0	0
July 2-9	0	0	0	0	0	0
July 9-16	381	38.1	0	0	0	0
July 16-23	5	0.5	3	0.3	2	0.2
July 23-30	22	2.2	0	0	0	0
July 30-Aug. 6	0	0	0	0	0	0
Aug. 6-13	35	3.5	4	0.4	2	0.2
Aug. 13-20	0	0	1	0.1	1	0.1
Aug. 20-27	0	0	0	0	0	0
Aug. 27-Sept. 3	1	0.1	0	0	0	0
Sept. 3-10	4	0.4	0	0	1	0.1
Sept. 10-17	0	0	0	0	2	0.2
Sept. 17-24	0	0	0	0	1	0.1
Sept. 24-Oct. 1	Lost	Lost	1	0.1	0	0
Oct. 1-Oct. 8	1	0.1	0	0	0	0
Oct. 8-15	0	0	0	0	2	0.2

Data given: Total = spatfall on 10 shells (smooth side only)
Spat/shell = spat per shell (smooth side only)

Mobjack Bay continued

	East River Head Station #4		East River Put-In Creek Station #5		East River Mouth Station #6		Williams Wharf Station #11	
	Total	Spat/shell	Total	Spat/shell	Total	Spat/shell	Total	Spat/shell
May 25-June 11	0	0	0	0	0	0	0	0
June 11-18	4	0.4	1	0.1	0	0	1	0.1
June 18-25	12	1.2	12	1.2	0	0	5	0.5
June 25-July 2	267	26.7	3	0.3	0	0	26	2.6
July 2-9	1	0.1	0	0	0	0	0	0
July 9-16	338	33.8	0	0	0	0	11	1.1
July 16-23	8	0.8	0	0	0	0	0	0
July 23-30	2	0.2	0	0	0	0	0	0
July 30-Aug. 6	0	0	215	21.5	5	0.5	15	1.5
Aug. 6-13	5	0.5	11	1.1	3	0.3	2	0.2
Aug. 13-20	199	19.9	108	10.8	6	0.6	86	8.6
Aug. 20-27	10	1.0	3	0.3	109	10.9	4	0.4
Aug. 27-Sept. 3	0	0	0	0	80	8.0	0	0
Sept. 3-10	0	0	0	0	42	4.2	1	0.1
Sept. 10-17	0	0	0	0	39	3.9	0	0
Sept. 17-24	0	0	0	0	22	2.2	1	0.1
Sept. 24-Oct. 1	1	1.0	5	0.5	74	7.4	5	0.5
Oct. 1-8	0	0	4	0.4	49	4.9	0	0
Oct. 8-15	0	0	0	0	2	0.2	0	0

New Point Comfort Area--1970

	Pepper Creek Station 7		Dyer Creek Station 8	
	Total	Spat/shell	Total	Spat/shell
May 25-June 11	0	0	0	0
June 11-18	0	0	0	0
June 18-25	5	0.5	0	0
June 25-July 2	0	0	0	0
July 2-9	1	0.1	0	0
July 9-16	0	0	21	2.1
July 16-23	0	0	37	3.7
July 23-30	0	0	10	1.0
July 30-Aug. 6	0	0	13	1.3
Aug. 6-13	3	0.3	13	1.3
Aug. 13-20	8	0.8	1	0.1
Aug. 20-27	217	21.7	21	2.1
Aug. 27-Sept. 3	16	1.6	17	1.7
Sept. 3-10	11	1.1	37	3.7
Sept. 10-17	18	1.8	5	0.5
Sept. 17-24	20	2.0	2	0.2
Sept. 24-Oct. 1	8	0.8	7	0.7
Oct. 1-8	19	1.9	3	0.3
Oct. 8-15	1	0.1	1	0.1

Horn Harbor

	Old Barge Station 9		Mitchum Crab House Station 9a	
	Total	Spat/shell	Total	Spat/shell
May 25-June 11	0	0	0	0
June 11-18	0	0	0	0
June 18-25	0	0	0	0
June 25-July 2	0	0	0	0
July 2-9	0	0	8	0.8
July 9-16	0	0	0	0
July 16-23	4	0.4	5	0.5
July 23-30	2	0.2	0	0
July 30-Aug. 6	0	0	12	1.2
Aug. 6-13	1	0.1	6	0.6
Aug. 13-20	2	0.2	2	0.2
Aug. 20-27	22	2.2	65	6.5
Aug. 27-Sept. 3	1	0.1	0	0
Sept. 3-10	8	0.8	15	1.5
Sept. 10-17	1	0.1	1	0.1
Sept. 17-24	0	0	1	0.1
Sept. 24-Oct. 1	9	0.9	1	0.1
Oct. 1-8	2	0.2	0	0
Oct. 8-15	1	0.1	0	0

Data given: Total = spatfall on 10 shells (smooth side only)
Spat/shell = spat per shell (smooth side only

Winter Harbor

	Public Landing Station 10		C. B. Hurst Station 10a	
	Total	Spat/shell	Total	Spat/shell
May 25-June 11	0	0	0	0
June 11-18	0	0	0	0
June 18-25	0	0	0	0
June 25-July 2	0	0	0	0
July 2-9	4	0.4	0	0
July 9-16	4	0.4	1	0.1
July 16-23	1	0.1	0	0
July 23-30	1	0.1	0	0
July 30-Aug. 6	2	0.2	40	4.0
Aug. 6-13	6	0.6	0	0
Aug. 13-20	39	3.9	0	0
Aug. 20-27	181	18.1	4	0.4
Aug. 27-Sept. 3	105	10.5	1	0.1
Sept. 3-10	54	5.4	2	0.2
Sept. 10-17	75	7.5	3	0.3
Sept. 17-24	14	1.4	5	0.5
Sept. 24-Oct. 1	96	9.6	1	0.1
Oct. 1-8	13	1.3	0	0
Oct. 8-15	5	0.5	0	0

Great Wicomico--1970

	Dameron East & West Station 1&2		Mill Creek Station 3		Cranes Creek Station 7	
	Total	Spat/shell	Total	Spat/shell	Total	Spat/shell
June 1-8	0	0	0	0	9	0.9
June 8-15	0	0	2	0.2	19	1.9
June 15-22	7	0.7	0	0	87	8.7
June 22-29	344	34.4	487	48.7	1327	132.7
June 29-July 6	102	10.2	178	17.8	99	9.9
July 6-13	19	1.9	0	0	21	2.1
July 13-20	2	0.2	3	0.3	23	2.3
July 20-27	4	0.4	5	0.5	26	2.6
July 27-Aug. 3	1	0.1	3	0.3	5	0.5
Aug. 3-10	12	1.2	14	1.4	26	2.6
Aug. 10-17	0	0	4	0.4	6	0.6
Aug. 17-24	0	0	0	0	0	0
Aug. 24-31	4	0.4	1	0.1	23	2.3
Aug. 31-Sept. 7	11	1.1	4	0.4	12	1.2
Sept. 7-14					3	0.3
Sept. 14-21					1	0.1
Sept. 21-28					9	0.9

	Fleet Point Station 8		Cockrells Creek Station 9		Haynie Point Station 10	
	Total	Spat/shell	Total	Spat/shell	Total	Spat/shell
June 1-8	0	0	0	0	5	0.5
June 8-15	2	0.2	1	0.1	40	4
June 15-22	3	0.3	0	0	91	9.1
June 22-29	266	26.6	445	44.5	2833	283.3
June 29-July 6	9	0.9	78	7.8	1125	112.5
July 6-13	5	0.5	0	0	121	12.1
July 13-20	0	0	2	0.2	0	0
July 20-27	0	0	17	1.7	29	2.9
July 27-Aug. 3	0	0	1	0.1	6	0.6
Aug. 3-10	3	0.3	3	0.3	19	1.9
Aug. 10-17	6	0.6	1	0.1	3	0.3
Aug. 17-24	0	0	0	0	3	0.3
Aug. 24-31	1	0.1	0	0	11	1.1
Aug. 31-Sept. 7	3	0.3	2	0.2	1	0.1
Sept. 7-14						
Sept. 14-21						
Sept. 21-28						

Data given: Total = spatfall on 10 shells (smooth side only)
Spat/shell = spat per shell (smooth side only)

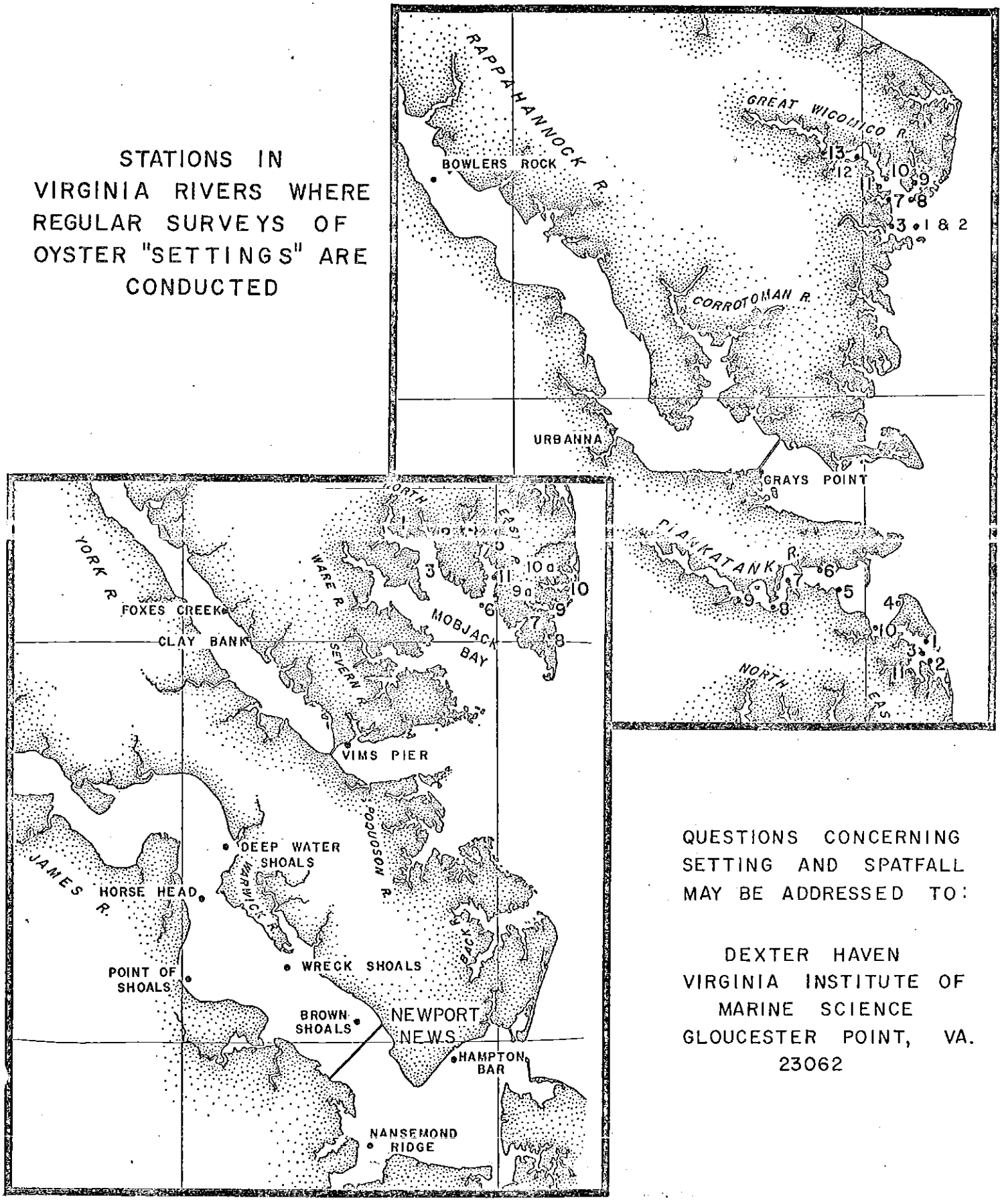
Great Wicomico continued

	Shell Creek Station 11		Hudnall Rock Station 12		Glebe Point Station 13	
	Total	Spat/shell	Total	Spat/shell	Total	Spat/shell
June 1-8	1	0.1	8	0.8	0	0
June 8-15	73	7.3	44	4.4	18	1.8
June 15-22	427	42.7	3	0.3	310	31.0
June 22-29	2902	290.2	3735	373.5	2278	227.8
June 29-July 6	572	57.2	1163	116.3	5307	530.7
July 6-13	438	43.8	46	4.6	277	27.7
July 13-20	25	2.5	1	0.1	16	1.6
July 20-27	42	4.2	34	3.4	98	9.8
July 27-Aug. 3	39	3.9	44	4.4	Lost	Lost
Aug. 3-10	18	1.8	10	1.0	12	1.2
Aug. 10-17	2	0.2	12	1.2	14	1.4
Aug. 17-24	1	0.1	0	0	8	0.8
Aug. 24-31	Lost	Lost	2	0.2	1	0.1
Aug. 31-Sept. 7	Lost	Lost	7	0.7	4	.4
Sept. 7-14			3	0.3	2	0.2
Sept. 14-21			2	0.2	0	0
Sept. 21-28			22	2.2	0	0

Data given: Total = spatfall on 10 shells (smooth side only)
Spat/shell = spat per shell (smooth side only)

****

STATIONS IN VIRGINIA RIVERS WHERE REGULAR SURVEYS OF OYSTER "SETTINGS" ARE CONDUCTED



QUESTIONS CONCERNING SETTING AND SPATFALL MAY BE ADDRESSED TO:

DEXTER HAVEN
VIRGINIA INSTITUTE OF MARINE SCIENCE
GLOUCESTER POINT, VA. 23062