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# Oyster Shoal Survey - Fall 1985

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Oyster Shoal Survey, Fall 1985

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James P. Whitcomb

The objective of the annual oyster shoal survey in the fall is to estimate the success of spatfall on the bottom cultch. Whenever it is possible, bottom samples are taken at the time shellstrings are removed from the river. These samples are taken adjacent to specific shellstring stations. This allows a comparison between set on shellstrings and on bottom cultch.

In river systems where no shellstrings are maintained the bottom samples are usually taken near a former shellstring station location. Analyses of the samples includes separation of spat (set of current year), yearlings (one year old), small oysters (oyster less than three inches but older than one year), market oysters (oysters larger than three inches), and boxes (empty but intact valves indicating an oyster has died). The substrate for each spat is documented and a subsample of one hundred or all the spat, whichever is least, have their lengths recorded. The inherent value of the survey is that it gives us some information about the shoals in the several rivers simultaneously.

In 1985 the setting on shellstrings in the James River was better than in 1984 at downriver stations and at stations southwest of the channel below Burwell Bay. Stations upriver, and on the northeast side of the channel above the James River Bridge, were generally below the average of the 1980-84 period. With the exception of Nansemond Ridge the bottom samples were taken above the Bridge and on the northeast side of the channel.

The value of a bushel of seed to the industry is correlated to the potential for converting it into one to two bushels of market oysters at

harvest time. If the count per bushel of small oysters, approximately one to three inch oysters, equals the count of market oysters per bushel at harvest time, approximately 220-300 oysters, the bushel of seed would be termed good, or a good investment. In addition, if the count of spat in the bushel of seed exceeded the high count of small oysters, for example 300-400 spat in the fall, then there is an additional potential to convert the bushel of seed into more than one bushel of market oysters at harvest time.

Usually total counts of oysters per bushel of seed in the James River exceeding 700 oysters per bushel have a "good count", or potential, of small oysters. The bushel counts for the James River samples taken in the fall demonstrate this statement. None of the fall samples from the James River in 1985 contain the additional potential for production or harvest from the spat count. All of the spat counts per bushel of bottom cultch fall below a 200 count (see Table 1).

The total set on shellstrings at the VIMS pier station was the best since 1980. In the past two years no spat have been found in the bottom samples from the York River. The samples collected in 1984 and 1985 had no value as market or seed stock (Table 2). The sample sites are between four and five miles upriver of the single shellstring station.

At all of the spatfall monitoring stations in the Piankatank River the level of setting was typical of the high levels in the 1980's. The spat per bushel count from bottom samples was between 278 and 638. There is a good correspondence between spat counts in bottom samples and the counts from shellstring monitoring stations. The Piankatank River shows a high level of setting but two of the sampled stations had very little exposed surface shell which might be a suitable substrate for set (Palace Bar and Island Bar) (Table 3).

No shellstring stations were monitored in the Rappahannock River and, therefore, we cannot examine correspondence between bottom set and shellstring set. The set was very low in all of the bottom samples. No samples were taken below the Norris bridge where set has been good in the past two or three years. The percentage of shell in the Rappahannock River samples and the Corrotoman tributary was between 32 and 74 percent of the total volume.

In the Great Wicomico River all of the stations had a better set on shellstrings than in 1984 but, with the exception of Fleet Point, lower than the average for the 1980's. The total bushel counts were all good or excellent (above 700 oysters per bushel). When the composition (Table 5) of markets, small and spat is considered the bottom samples would be considered a good to excellent investment, particularly the Fleet Point, Dameron Marsh, Whaleys East and Cranes Creek stations. These upriver station have markets worth between 60-100 per cent of the cost of the bushel of seed. Therefore when one fraction falls below the criteria for a good or excellent investment one of the other fractions in the bushel compensate for it. The 1985 set in the Great Wicomico River demonstrate a high level of survival rather than an outstanding potential for setting.

cc: Dr. Austin  
R. Mann  
R. Morales  
M. Oesterling

Table 1  
 Counts 1 of Oyster and Boxes  
 in Bottom Samples - 1985-86  
 James River

Location	Date	Market	Small	Spat	Total Oysters	Boxes	Count Per Bushel
Wreck Offshore	8/13/85	21	180	99	300	22	600
Wreck Offshore	8/13/85	38	164	46	248	26	496
Wreck Offshore	8/13/85	10	175	32	217	21	434
Wreck Inshore	8/19/85	24	372	67	463	22	926
Wreck Inshore	8/19/85	33	269	63	365	21	730
Horsehead	8/26/85	16	244	9	269	10	538
Horsehead	8/26/85	6	411	4	421	4	842
Horsehead	8/26/85	9	396	18	419	18	838
Ridge	11/18/85	42	24	32	98	46	196
Brown Shoal	11/18/85	11	44	19	74	34	148
Wreck Offshore	11/18/85	28	146	29	203	81	406
Wreck Inshore	11/18/85	16	357	74	447	34	894
Point Shoals	11/18/85	46	140	15	199	3	398
Horsehead	11/18/85	23	366	17	406	6	812
Deepwater	11/18/85	22	322	25	369	5	738

1. Volume of each sample is 1/2 Virginia bushel (25 quarts).

Table 2  
 Counts of Oysters and Boxes  
 in Bottom Samples - 1985-86  
 York River

Location	Date	Market	Small	Spat	Total Oysters	Boxes	Count Per Bushel
Pages Rock	11/25/85	0	7	0	7	7	14
Aberdeen Rock	11/25/86	3	10	0	13	16	26

Table 3  
 Counts of Oysters and Boxes  
 in Bottom Samples - 1985-86  
 Piankatank River

Location	Date	Market	Small	Spat	Total Oysters	Boxes	Count Per Bushel
Burtens Point	12/6/85	15	99	139	253 <sup>1</sup>	58	506
Palace Bar	12/6/85	29	245	318	592 <sup>1</sup>	35 <sup>2</sup>	1184
Island Bar	12/6/85	16	74	174	264 <sup>3</sup>	57 <sup>2</sup>	528
Ginney Point	12/6/85	17	119	253	692 <sup>3</sup>	40	1384

1. Adjusted sample; original volume 15.5 qts.
2. Forty-six (46) percent spat boxes.
3. Adjusted sample; original volume 19.5 qts.



Table 4  
 Counts of Oysters and Boxes  
 in Bottom Samples - 1985-86  
 Rappahannock River

Location	Date	Market	Small	Spat	Total Oysters	Boxes	Count Per Bushel
Drummond Ground	1/16/86	24	70	32	126	34	252
Hog House	12/4/85	28	10	2	40	9	80
Smokey Point	12/4/85	55	28	2	85	2	170
Morattico	12/4/85	36	15	1	52	12	104
Bowlers Rock	12/4/85	28	13	11	52	6	104

Corrotoman Tributary

Location	Date	Market	Small	Spat	Total Oysters	Boxes	Count Per Bushel
Corrotoman Point	1/16/86	49	91	16	156	25	312
Middle Ground	1/16/86	23	195	3	221	16	442
Black Stump	1/16/86	26	88	0	114	20	228
Shelton Bar	1/16/86	13	178	17	208	14	416

Table 5  
 Counts of Oysters and Boxes  
 in Bottom Samples - 1985-86  
 Great Wicomico

Location	Date	Market	Small	Spat	Total Oysters	Boxes	Count Per Bushel
Fleet Point	1/9/86	38	183	718	939	47	1878
Dameron Marsh	1/9/86	38	101	251	390	44	780
Whaleys East	1/9/86	63	175	283	521	37	1042
Cranes Creek	1/9/86	63	177	173	413	34	826
Rogues Point	1/9/86	14	237	311	562	43	1124
Haynie Point	1/9/86	18	292	268	578	11	1156

## Appendix

Locations of the stations in the various rivers in fall 1985 survey.









