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An Investigation of Oysters in the
James River, Virginia with Emphasis on
the Deep Water Shoal Area and Cruiser
Shoals Rock

by

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INTRODUCTION

On June 7, 1984, at the request of Mr. Ben Daniel (VMRC) we accompanied him and Mr. Herbert Saddler on an inspection of the oyster beds in the James River. The survey was made using the Commission vessel. The author (Dexter Haven) assisted the survey.

Oyster rocks from Deep Water Shoals to the Nansemond Ridge area was sampled. Approximately 20-25 dredge hauls were made, and their contents inspected.

One of the objectives of this trip was to evaluate mortalities associated with fresh water conditions in the upper seed area. A second was to determine if oysters on Cruiser Shoals Rock were sufficiently abundant to serve as a source of seed to be planted elsewhere.

Oyster Mortality in the Upper Seed Area

Since late winter, salinities have been very low in the upper seed area and in the mid James as far down as Wreck Shoals. They were especially low in the upper river section in the vicinity of Deep Water Shoals, Horsehead, Point of Shoals and Mulberry Point (Table 1).

Surveys of this area by VIMS during October and November 1983 indicated a good set in 1983 and few dead oysters. However, in late winter, oysters began dying from the impact of fresh water. By 7 June 1984 we obtained the following mortalities, based on percentages of live and dead (boxes) oysters dredged on that date. Numbers of spat were not used in these calculations.

Deep Water Shoals	= 62%
Point of Shoals (inshore)	= 24%
Horsehead (upriver)	= 20%
Mulberry Point	= 28%

About 50-80% of the 1983 year class of spat had died at the above four locations since November.

Oysters growing downriver from the above locations showed a normal mortality (5-10%) for the various locations and for the season.

Cruiser Shoals and Nansemond Area

Several dredge hauls were made on the extensive Cruiser Shoals area. Oysters had started to grow and mortalities were normal for the area (5-10%). Most of the oysters were less than about 2 1/2 inches

long and some 1983 set was seen. A count made on a sample of dredged oysters showed about 325 oysters/bu.

The long oyster rock, inshore of Nansemond Ridge, showed a similar population as Cruiser Shoals.

Conclusions

1. Oyster from Deep Water Shoals are still dying but the peak period of mortality appears to be over. However, count of seed oysters are now low (395 bu). It would appear uneconomical to utilize oysters from this location as seed to be planted elsewhere.

2. The mortality of oysters at Horsehead, Point of Shoals and Mulberry Point appears to be over.

3. Oysters are surviving well at Cruiser Shoals, but counts (325 bu) are not high enough to move them economically. However, count is sufficient to provide a good harvest at some later date.

Table 2

Selected salinities in ‰ at certain locations
in the James River¹

Station	Date - and Tide Stage					
	4/11	4/26	5/7	5/14	6/21	6/1
	Ebb	Ebb	Flood	Flood	Ebb	Flood
Deep Water Shoals						
S			0.0	0.0	0.2	1.0
B			0.0	0.0	-	1.2
Horsehead						
S	0.2	1.0	0.1		1.6	2.8
B	0.2	1.0	0.1		1.7	3.8
Point of Shoals						
S			0.0	1.2	2.0	3.5
B			0.2	1.2	2.1	3.8
Wreck Shoals offshore						
S	2.5	2.0	5.0	5.0	-	9.5 ²
B	4.5	6.8	-	9.5	4.5	13.5

¹Additional data available in files.

²Wreck Shoals (inshore).