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MARINE RESOURCE INFORMATION

VIRGINIA INSTITUTE of MARINE SCIENCE BULLETIN

Vol. 2, No. 12 October 2, 1970

MARSH CLAMS BELIEVED POTENTIAL FOOD SUPPLY

The marsh clams (Rangia), reportedly canned and marketed in the late 19th Century in Galveston, Texas, are abundant in parts of the James and Rappahannock Rivers, and VIMS scientists believe the vast clam beds are a potential supply of useable food.

Dr. Marvin Wass, associate marine scientist in VIMS Ecology-Pollution Department, and Dexter Haven, head of the Applied Science Department told those attending the Regional Seafood Seminar in Virginia Beach, Va., last week that these vast beds of marsh clams are awaiting use by man.

According to Dr. Wass, the marsh clams were present in Back Bay by 1960 and probably entered the James River about that time. Now the clams are so abundant in sections of the James and Rappahannock rivers that they constitute an estimated 98 per cent of all living things on the bottom in those areas, Wass said.

"This is an enormous mass of useable food, and catches of 100 bushels a day can easily be made in that section," said Haven. "Rangia could be manufactured into poultry feed as well as dog and cat food. They might possibly be eaten by humans if prepared in chowders, steamed, or cooked in other ways."

Human consumption of the marsh clam has been reported as far back as 1892 when they were canned in Galveston and marketed as "Little Neck Clams." In 1957, marsh clams in Mexico were being served in a clam and rice dish called "Paella a Valenciana."

Haven said Rangia meats are sold in North Carolina for about 30¢ per pound and added that "numerous persons in this area have reported eating them."

The scientists stressed the point, however, that Rangia, when used for human consumption, should be harvested and handled under health laws regulating the use of oysters and other clams. It is not safe to eat those taken from polluted waters, the scientists warn.

"If it is ascertained that marsh clams coming from fresh water are free of pollution, then flavor of meat can be improved by relaying clams in high salinity water for approximately one week," Haven added.

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OYSTER MEATS QUALITY INDEX
SEPTEMBER 1970

EXPLANATION OF QUALITY INDEX

The Index number is obtained by comparing the actual size of oyster meats with the amount of space inside an oyster's shell cavity. The higher the Index number, the greater the amount and quality of meats that can be expected from a bushel of oysters. Using the Index, one can compare the potential meat yield of oysters of the same size 1) from different growing areas, and 2) from one season to the next.

THE SURVEY

Surveys to determine the condition of oysters in Virginia rivers are directed by Dexter Haven, head of VIMS Department of Applied Biology. Representative stations on public rocks are established and sampled, beginning at the mouth of each river and proceeding to the transition zone between fresh and salt water. (See page 4 for locations.) Oysters on private beds are not examined for survey.

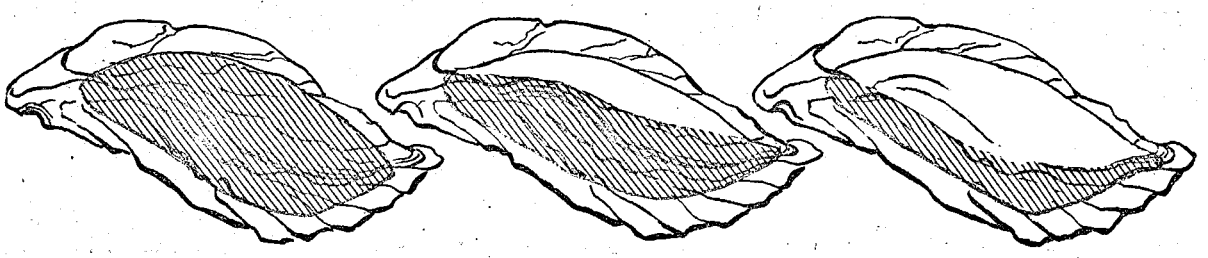
SEPTEMBER INDEX

Oysters for meat quality were collected from all rivers during the first two weeks in September. In this late summer period oysters have generally spawned and quality usually reaches a seasonal low.

In the James River, the general trend was only a slight decline in quality. In the Rappahannock River, quality continues above average in all sections. During the post spawning phase, the York River oysters have declined in quality over the previous month.

INDEX ILLUSTRATION

Three oysters of the same size shown below illustrate grades of meat in VIMS index. Shaded area represents meat.



High index number (7.6 and up) for good quality oyster. Meat fills the shell.

Medium index number (5.6 to 7.5) for fair quality oyster. Meat does not fill the shell.

Low index number (3.0 to 5.5) for poor quality oyster. Much unfilled space in the shell and the meats are watery.

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OYSTER MEATS QUALITY INDEX

	June 1970	July 1970	August 1970	September 1970
JAMES RIVER				
Brown Shoals	7.1	7.8	6.7	6.1
White Shoals	N.S.*	8.4	6.8	6.7
Wreck Shoals				
shallow	N.S.*	6.6	6.5	6.5
deep	6.7	7.6	6.2	6.2
Point Shoals	7.8	9.6	9.7	9.1
Horsehead	6.1	6.8	6.6	6.7
Deepwater Shoals	6.3	7.2	9.0	8.6
YORK RIVER				
Green Rock	7.3	9.0	8.3	7.9
Pages Rock	7.2	8.9	7.9	6.7
Aberdeen Rock	7.5	9.1	8.3	7.1
Bells Rock				
deep	7.8	8.2	7.2	6.3
RAPPAHANNOCK RIVER				
Urbanna	11.8	10.1	9.1	9.3
Smokey Point				
shallow	10.1	10.0	8.0	N.S.*
deep	N.S.*	N.S.*	8.9	8.8
Morattico Bar				
deep	9.1	9.7	8.4	8.5
Bowlers Rock				
shallow	11.9	10.1	9.6	8.7
deep	N.S.*	N.S.*	9.5	N.S.*

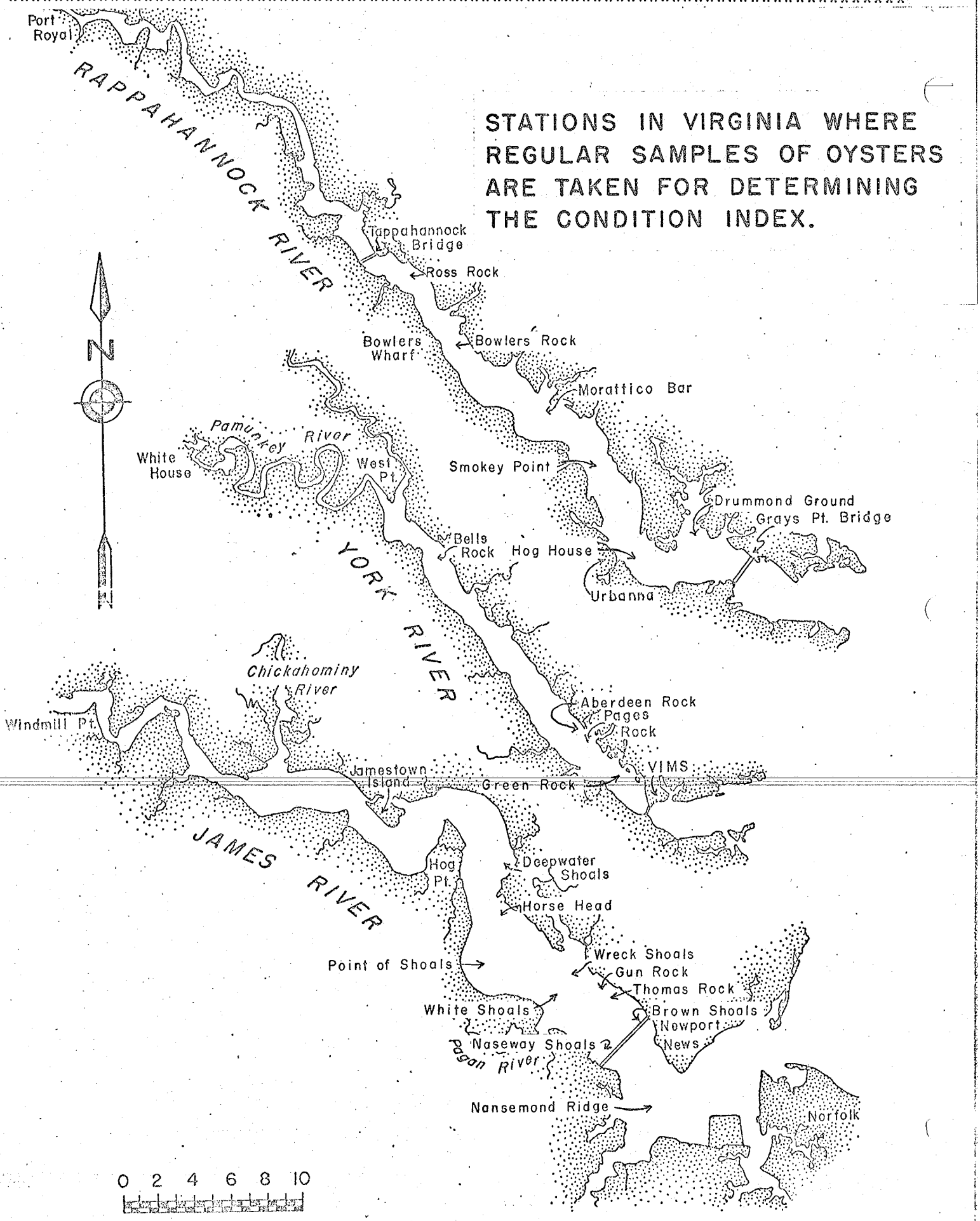
*Not sampled

KEY TO INDEX NUMBERS

3.0 to 5.5 -- Below average

5.6 to 7.5 -- Average

7.6 and up -- Above average


STATIONS IN VIRGINIA WHERE REGULAR SAMPLES OF OYSTERS ARE TAKEN FOR DETERMINING THE CONDITION INDEX.
Port Royal
RAPPAHANNOCK RIVER
Tappahannock Bridge
Ross Rock
Bowlers Wharf
Bowlers Rock
Morattico Bar
Pamunkey River
White House
West Pt.
Smokey Point
Drummond Ground
Grays Pt. Bridge
Bells Rock
Hog House
YORK RIVER
Urbanna
Chickahominy River
Windmill Pt.
Aberdeen Rock
Pages Rock
VIMS
Jamestown Island
Green Rock
JAMES RIVER
Hog Pt.
Deepwater Shoals
Horse Head
Wreck Shoals
Point of Shoals
Gun Rock
Thomas Rock
White Shoals
Brown Shoals
Newport News
Naseway Shoals
Pagan River
Nansemond Ridge
Norfolk
N
0 2 4 6 8 10
NAUTICAL MILES

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WEEKLY OYSTER SPATFALL ON SHELLSTRINGS IN VIRGINIA
AUGUST-SEPTEMBER 1970

Spat counts are obtained from oyster shells strung on wire and suspended from stakes at stations in various rivers in Virginia. The average number of spat which set in one week on the smooth side of each shell on the string comprises the "spat per shell count."

To obtain approximate number of sets on both sides of oyster shells on shellstrings, spat per shell counts may be doubled. Explanation of how surveys are made and how this information may be used has appeared in several recent issues of the Bulletin. If you would like a copy of this information, write the Information and Education Department, VIMS.

The following table presents the current weekly spatfall. See charts on page 7 for locations. Note that numbers to the left of certain river areas correspond to numbers on the charts to identify locations.

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

	Aug. 24 to Aug. 31	Aug. 31 to Sept. 7	Sept. 7 to Sept. 14	Sept. 14 to Sept. 18
JAMES RIVER				
Brown Shoals	5.6	1.6	0.1	0.4
Wreck Shoals	2.2	0.8	0	0
Horse Head	0.9	0.3	0.2	0.1
Point of Shoals	0.9	1.1	0	0.2
Deepwater Shoals	0.3	0.3	0	0.1
	Aug. 26 to Sept. 2	**Sept. 2 to Sept. 10**	**Sept. 10 to Sept. 17**	**Sept. 17 to Sept. 24**
YORK RIVER				
VIMS Pier	1.5	1.4	2.9	5.1
Clay Bank	0.1	0.2	0	0
Foxes Creek	0	0.1	0	0

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SPAT PER SHELL COUNTS - Continued

	Aug. 27 to Sept. 3	Sept. 3 to Sept. 10	Sept. 10 to Sept. 17	Sept. 17 to Sept. 24
MOBJACK BAY AREA				
1 North River head	0.1	0.4	0	0
2 North River Black Water Cr.	0	0	0	0
3 North River Cedar River	0	0.1	0.2	0.1
4 East River head	0	0	0	0
5 East River Put-In Creek	0	0	0	0
6 East River mouth	8.0	4.2	3.9	2.2
11 Williams Wharf	0	0.1	0	0.1

	Aug. 27 to Sept. 3	Sept. 3 to Sept. 10	Sept. 10 to Sept. 17	Sept. 17 to Sept. 24
NEW POINT COMFORT AREA				
7 Pepper Creek	1.6	1.1	1.8	2.0
8 Dyer Creek	1.7	3.7	0.5	0.2
9 Horn Harbor	0	1.5	0.1	0.1
10 Winter Harbor	10.5	5.4	7.5	1.4
Stutts Creek	0.5	5.8	0	0

	Aug. 25 to Sept. 2	Sept. 2 to Sept. 9	Sept. 9 to Sept. 16	Sept. 16 to Sept. 23
PIANKATANK RIVER AREA				
1 Milford Haven	0.2	1.5	0.2	0.5
2 Stoakes Creek	0.9	1.2	1.1	0.5
3 Point Breeze	N.R.**	3.5	3.6	3.1
4 Three Branches	0.1	1.1	1.3	0.3
5 Iron Point	0	0.7	1.6	0
6 Island Bar	0.2	N.S.*	N.S.*	0.6
7 Ginney Point	0.8	0.8	0.7	0
8 Twiggs	0.4	1.9	0.3	0
9 Ferry Point	0.2	0.5	0	0
10 Hill Bay	0.5	0.4	0.7	0
11 Burton Point	0.6	0.6	0.2	0.2

	Aug. 24 to Aug. 31	Aug. 31 to Sept. 7	Sept. 7 to Sept. 14	Sept. 14 to Sept. 21
GREAT WICOMICO RIVER				
3 Off Mill Creek	0.1	0.4	N.S.*	N.S.*
7 Off Cranes Creek	2.3	1.2	0.3	0.1
8 Off Fleet Point	0.1	0.3	N.S.*	N.S.*
9 Off Cockrells Cr.	0	0.2	N.S.*	N.S.*
10 SW Haynie Point	1.1	0.1	N.S.*	N.S.*
11 Off Shell Creek	N.R.**	N.S.*	N.S.*	N.S.*
13 Glebe Point	0.4	0.4	0.2	0

	Aug. 27 to Sept. 3	Sept. 3 to Sept. 9	Sept. 9 to Sept. 16	Sept. 16 to Sept. 23
NANSEMOND RIVER				
Nansemond Ridge	0.5	0.9	0.4	0.7
Larken's Rock	0	0.4	0.2	0
Half Pone	1.8	0.9	0.1	0.3

	Aug. 26 to Sept. 2	Sept. 2 to Sept. 9	Sept. 9 to Sept. 16	Sept. 16 to Sept. 22
RAPPAHANNOCK RIVER				
1 Grey's Point Br.	N.R.**	0.4	0.2	0.3

**Sample Not Recorded

*Not Sampled

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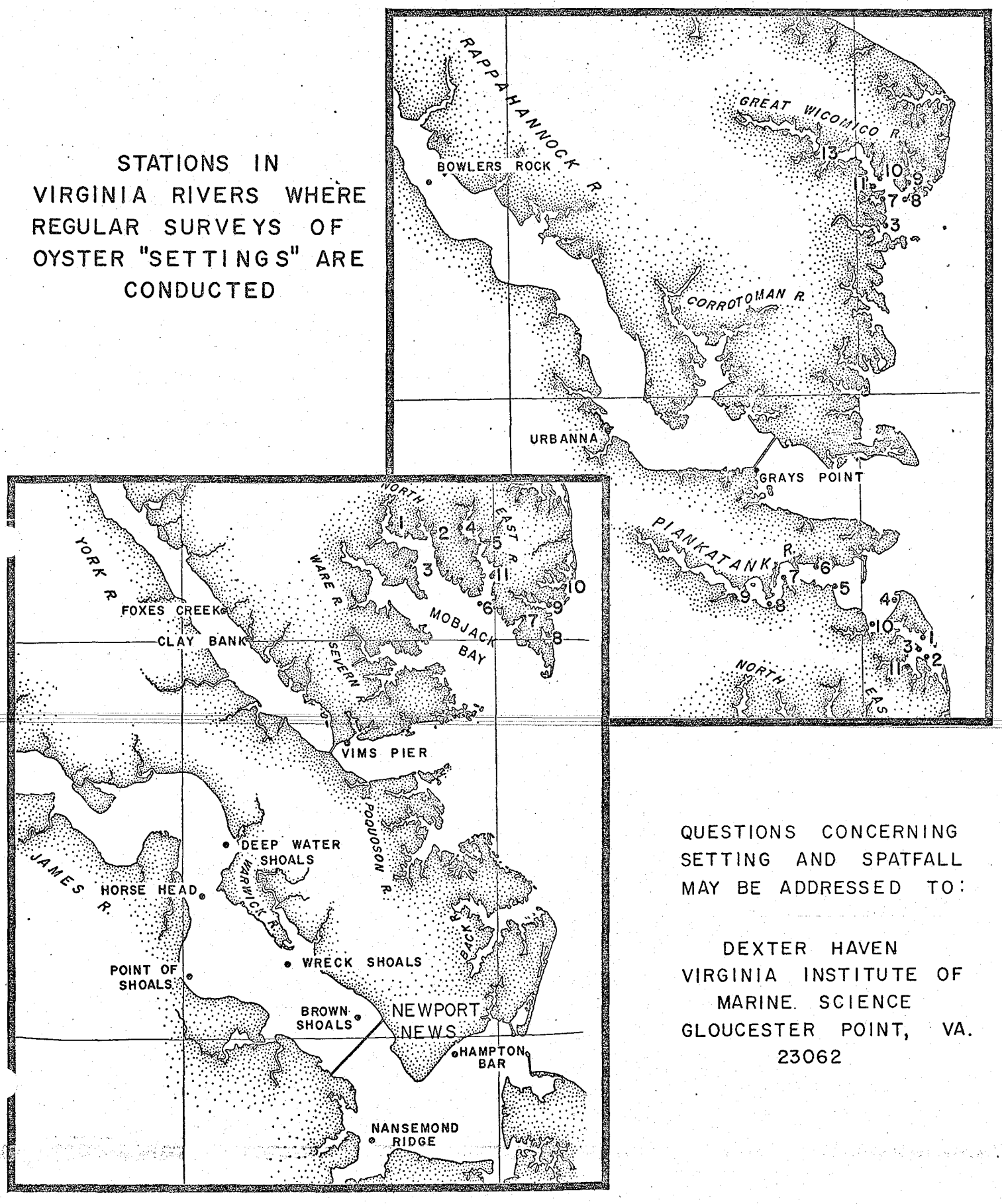
STATIONS IN VIRGINIA RIVERS WHERE REGULAR SURVEYS OF OYSTER "SETTINGS" ARE CONDUCTED



QUESTIONS CONCERNING SETTING AND SPATFALL MAY BE ADDRESSED TO:

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

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ABOVE AVERAGE SPATFALLS REPORTED IN JAMES

Three locations in the upper James River had a higher than average spatfall in mid September, according to Dexter Haven, Head of VIMS Applied Biology Department, who recently conducted a survey of tonged bottom cultch in the James.

Deep Water Shoals, Point of Shoals and Horsehead all reportedly had above average spatfall, and Haven termed the set at Deep Water Shoals as "far above average."

"The Deep Water Shoals area only supplies about five per cent of the James River seed production," said Haven. "However, at this location there are about 2,388 spat per bushel. This is far above the average of 808 spat per bushel which was normal for the years before the microscopic killer MSX struck the Chesapeake Bay."

The Point of Shoals area is much larger than Deep Water Shoals and to date the average counts of spat per bushel are 410. In pre-MSX years (1944-60), average seed production was 288 spat per bushel, but higher counts were reported in 1964 and 1966.

Counts at Horsehead averaged 410 spat per bushel, far below values reported for pre-MSX years. Yet according to Haven, this is the second highest set since 1960, exceeded only by the set of 1966 when 783 spat per bushel was recorded in the locality.

Wreck Shoals and the lower James have not as yet received a strike and averages at these important locations are still low. "But there is a possibility that the bleak picture may improve," Haven added. "There was a late peak in setting in early October 1969 and there is always the possibility of a similar strike in 1970."

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CRAB SUPPLIES LOW IN CHESAPEAKE BAY

By W. A. Van Engel and Mark E. Chittenden, Jr.

(EDITORS NOTE: Mr. Van Engel, head of VIMS Crustaceology Department, and Dr. Chittenden, associate marine scientists in the department, conduct regular crab surveys for the Institute, supported in part by funds provided through Sea Grant Program under P. L. 89-688.)

Crab supplies in Chesapeake Bay are again low and the combined Virginia - Maryland commercial catch may be only about 50 million pounds over the next 12 months.

During our routine surveys of the rivers we have seen relatively few crabs that were hatched in 1969. These are the crabs that must support the commercial fishery from September 1970 through August 1971. The outlook for a smaller crop was first predicted in November 1969 and again last May, when the crabs were 1/2 to 1-1/2 inches wide.

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CRAB SUPPLIES LOW - (Continued from page 8)

The present supply, although it is expected to produce only about 2/3 of the average catch of the last 10 years, may nevertheless produce higher profitability. This will be a relief from an odd situation which began with the superabundant hatch of crabs in 1968 which was predicted to provide up to 100 million pounds of crabs from September 1969 through August 1970. This 1968 hatch maintained its numbers through the summer of 1969, but then rapidly declined to low levels in the spring and summer of 1970. Crabs were not only scarce this year but were of smaller average size and contained less than normal amounts of meat--a strange combination previously unknown in the long history of the Chesapeake Bay crab industry.

The most unexpected blow to the economy came when the crab houses realized that they were getting less crab meat per 100 pounds of crabs than any time previously. Maryland as well as Virginia crab houses reported getting only 8 to 10 pounds of meat per 100 pounds of crabs, instead of the usual 14 pounds.

Although we do not know the exact causes of the decrease in the stock and of the poor condition of the crabs, we believe that the unusually large initial numbers, the heavy rains of August 1969, both before and during Hurricane Camille, and the severe cold of last winter were major factors. The poor condition of the crabs may well have been the result of starvation. Crabs of the 1968 year class were so numerous that their food demands were greater than the environment could provide. They literally "ate themselves out of house and home," as the saying goes. Being in poor condition the crabs would have been more vulnerable to environmental extremes such as freshwater flooding and severe cold.

So many dead crabs were seen in our routine crab surveys between September 1969 and April 1970, that in May 1970 we downgraded our forecast of catch to the 60-70 million pound range. Final figures for the last 12 months are not yet available, but landings are believed to have been close to 70 million pounds. Not all of the blame for a lowered catch should be placed on Nature, for there was a shortage of crab meat pickers which forced many crab houses to cut back in daily purchases of live crabs.

For the still longer outlook, crab stocks appear to be on the increase again. Crabs hatched in 1970 are already present in abundance in Virginia waters and in such large numbers that we predict larger than average supplies for the 12 months beginning September 1971.

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(Please print clearly)

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My connection with fishing industry is: ☐ Waterman ☐ Producer

If waterman, list type of gear: _____

If producer, list type of product(s): _____

I ☐ do ☐ do not wish to continue receiving the MARINE RESOURCE INFORMATION BULLETIN.

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Other comments:

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