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Virginia Marine Resource Bulletin

Virginia Sea Grant

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Virginia Institute of Marine Science

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**BULLETIN**  
**VIRGINIA INSTITUTE OF MARINE SCIENCE**

VOL. 3, NO. 2

January 28, 1971

## SURVEY REVEALS LITTLE CHANGE ON POTOMAC RIVER OYSTER BEDS

The supply of market oysters in the Potomac River for the 1970-71 season appears about equal to that for the previous season, according to the report on a survey conducted in August 1970 to assess the status of oyster bars following the 1969-70 harvesting season. However, despite high prices for fat oysters, the catch was down considerably in the fall of 1970 due to reduced harvesting effort.

Representative oyster bars were inspected by the Virginia Institute of Marine Science and the Chesapeake Biological Laboratory of the University of Maryland at the request of the Potomac River Fisheries Commission which, along with Virginia Marine Research Commission personnel, assisted in the survey. The Virginia and Maryland laboratories cooperate in surveys and in providing advisory services to the Potomac River Commission. Patent tongs and a commercial dredge were used to collect oysters. One-half Maryland oyster bushel samples were counted and standard bar composition data were recorded. Except at Cornfield Harbor, near the mouth of the river, no significant new set was observed during the survey.

During the 1969-70 season, catches from bars above the Potomac River Bridge were unusually large (ca. 75,000 bu.). The high salinity period of 1964-68 brought many oysters to market size in this area where growth is slow and most do not ordinarily reach three inches. There are still sizeable quantities of market oysters on these bars, but because of the very low recruitment in the area, it is expected that continued harvesting will decrease stocks.

Seed planting by the Potomac River Fisheries Commission is an important part of the effort to provide adequate stocks of oysters in the Potomac River since low levels of reproduction are characteristic of this superb growing area. A significant portion of total production in the Potomac is attributed to seed plantings which, because of high survival rates and good growth, are yielding excellent returns. Moreover, distribution of seed on several bars has helped scatter harvesting efforts, thereby easing overfishing on well-known bars.

The chief limitations of oyster production in the Potomac are irregular and inadequate spatfall, and scarcity of cultch resulting from many years of harvesting without replanting shell. According to Dr. Jay D. Andrews, head of the VIMS Department of Malacology, the most probable causes of low spatfall are (1) a low salinity gradient that indicates a weak system for transport of pelagic larvae upriver and permits tidal flushing of larval broods out of the river, and (2) widely-scattered distribution of scarce brood stock in a large open river. Only the latter of the two causes may be changed. This would require increased brood stock over large areas which still may not be effective.

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The river must be accepted as a prime growing area with little setting potential.

The general pattern of spatfall in the Potomac is one of light sets near the mouth of the river and particularly below the St. Marys River on the Maryland side; a very low level of sporadic setting exists over the remainder of the river which is by far the larger part of the oyster-producing area. Limited setting in the lower river is higher on the Maryland side than on the Virginia side because of salinity and current patterns.

The count of spat needed to justify moving shell stock as seed varies with circumstances, said Dr. Andrews. In the Potomac where hard bottoms and absence of predators favor high survival, a relatively low count is satisfactory for seed. In general, a count of 500 spat per bushel or one spat per shell is an index of adequate seed stock for transplanting within this favorable river, he added. However, a river-wide natural set of about 200 spat per bushel in 1963 has provided excellent harvests from 1965 to the present.

Most seed oysters for planting by the Potomac River Fisheries Commission have been purchased from Virginia in recent years, particularly from the Piankatank and Great Wicomico rivers. Seed is usually moved in late winter or early spring (April) in time to gain full advantage of warming waters and spring growth. Low planting rates of about 200 - 300 bushels per acre are utilized on bars of known quality to augment the natural supply.

"When seed oysters are not available, shell planting should be limited to those areas which from past records offer some hope of spatfall at levels useful as self-sustaining beds and seed-producing beds," said Dr. Andrews. "Annual or occasional sets of between 100 and 500 spat per bushel would produce moderate sustained crops of oysters without further activity other than planting shells. However, the Potomac has exhibited very limited potential for natural setting over a 25 year period. When set of a particular year-class promises to dominate the catch for a few years, the beds should be closed to protect these young oysters from destructive culling practices, until full market size has been reached. On exceptional spatfalls, a large proportion of spat and yearlings is often removed or killed to obtain old oysters which provided the cultch. From a standpoint of productivity, there is no need for this in the Potomac since the old oysters will live until culling is feasible."

"Unfortunately, there has been no repetition of the 1963 spatfall even during the years of relative abundance of brood stock when millions of bushels of market oysters were harvested," Dr. Andrews continued. "The Potomac River with its huge acreages of superior oyster bars seems to be mostly dependent upon transplantation of seed oysters from adjoining seed areas such as St. Marys River in Maryland and the seed rivers of Virginia. Since the Potomac River is entirely restricted to use as public oyster beds, the problems of obtaining money and seed oysters for replanting large areas of depleted and barren bars are difficult for the regulatory commission. Private planting is prohibited by laws established mutually by Maryland and Virginia."

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CERTIFIED CRAB MEAT PLANTS  
IN NORTH CAROLINA\*

The following crustacea meat plants have been added to the list published in the January 8, 1971 edition of the MRI BULLETIN. These plants have been certified for the 1971 calendar year by the North Carolina State Board of Health. Certificates expire December 31, 1971 unless revoked prior to that date.

<u>Name</u>	<u>Address</u>	<u>Plant No.</u>
Daniels Seafood Co.	Aurora	N.C. 429
J. D. Guthrie	Washington	N.C. 76
Harbor Packing Co.	Lowland	N.C. 11
Ted Day (Washington Seafood Co.)	Washington	N.C. 302

\*Prepared by members of the Tri-State Seafood Committee as an aid to seafood buyers in locating certified crab meat suppliers. Other plants will be listed as they are certified.

\* \* \* \* \*

OYSTER MEATS QUALITY INDEX  
JANUARY 1971

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 sampled, beginning at the mouth of each river and proceeding to the transition zone between fresh and salt water. (See map on page 5 for locations.)

The Index 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, 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.

Meat quality in January continued at a high level at all stations in the Rappahannock River and oysters are rated far above average.

In the James River, conditions were similar to those for December and oysters are rated from average in the lower river to above average in the upper river. Oysters at Point of Shoals continue to show the highest quality index for the entire river.

In the York River, meat quality index was the lowest for the three rivers.

Due to the fact that oysters have ceased to feed because of low water temperatures, no sudden change is expected during the winter. However, a slight downward trend in quality has been typical during previous winters and is expected in all three rivers through March 1971.

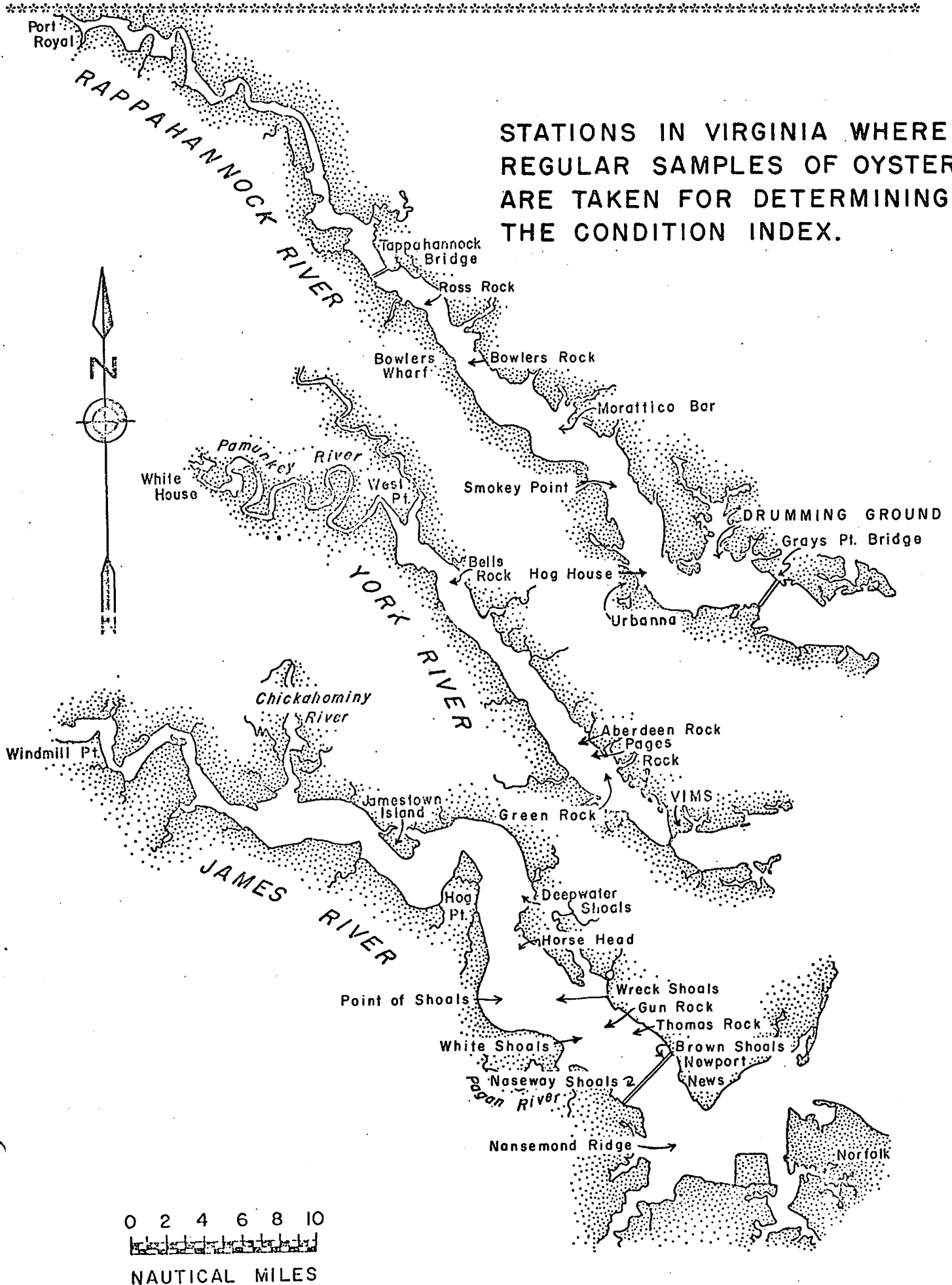
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OYSTER MEATS QUALITY INDEX

	October 1970	November 1970	December 1970	January 1971
<b>JAMES RIVER</b>				
Brown Shoals	5.6	5.1	---	5.9
White Shoals	6.8	6.0	---	6.5
Wreck Shoals				
shallow	6.6	6.2	6.7	6.8
deep	6.2	6.1	6.2	6.1
Point Shoals	9.3	9.1	9.7	8.9
Horsehead	6.8	6.7	6.9	7.2
Deepwater Shoals	8.6	8.2	8.6	8.8
<b>YORK RIVER</b>				
Green Rock	8.9	8.7	5.7	5.9
Pages Rock	7.8	7.7	5.4	6.1
Aberdeen Rock	7.9	7.9	6.1	5.6
Bells Rock				
deep	7.0	7.0	6.0	5.9
<b>RAPPAHANNOCK RIVER</b>				
Drumming Ground	---	---	8.5	---
Urbanna	12.9	12.9	12.5	12.0
Smokey Point				
shallow	9.8	10.8	10.6	10.7
deep	9.6	9.4	10.6	---
Morattico Bar				
deep	9.8	10.9	10.9	---
Bowlers Rock				
shallow	10.0	11.6	12.6	12.0
deep	10.2	11.4	11.2	11.7
Ross Rock	---	---	10.5	---

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.



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