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Virginia Sea Grant

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Virginia Institute of Marine Science

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MARINE RESOURCE INFORMATION

BULLETIN

VIRGINIA INSTITUTE of MARINE SCIENCE

Vol. 3, No. 12

July 15, 1971

FISH AND CRAB KILLS REPORTED IN RIVERS AND BAY

The Virginia Institute of Marine Science has been receiving numerous reports of localized fish and crab kills in several embayments off Chesapeake Bay and in rivers and creeks off the Bay. Dr. Morris L. Brehmer, head of the Division of Applied Marine Science and Ocean Engineering, said that in all cases except those in which dead fish resulted from illegal culling operations by commercial fishermen, the mortalities have resulted from natural low dissolved oxygen conditions in the water.

According to Brehmer, low dissolved oxygen conditions occur almost every year in August or early September but it is unusual to have crabs dying or crawling out of the water in early July. Local fish kills at this time of the year also are unusual.

The scientist reports that two natural factors have contributed to the conditions: water temperatures were below normal until the hot weather in June when temperatures rapidly increased to above normal; also, the heavy rainfall in the James, York and Rappahannock drainage basins produced very low salinities in the upper estuarine reaches and in the surface layer of the lower reaches. These two factors, coupled with relatively calm wind conditions, have prevented mixing of layers and caused deeper water to reach critical dissolved oxygen levels. Winds and tides occasionally "tilt" the water mass and water unfit for animal life flows into creeks, bays and over shallows causing the kills.

Crab potters notice this condition first when crabs in deeper pots are dead but those set in shallow waters are in good condition. Later, when the low oxygen mass is "tilted" over a shallows or into an embayment or creek, the crabs may crawl out of the water into the grass. Dead crabs also may be observed. Creeks may "go sour" with the water turning milky and giving off an odor similar to rotten eggs. This condition can develop in creeks after heavy local rains and oystermen are advised to be on the lookout for blackened shells and mortalities.

The low dissolved oxygen conditions which are producing the kills have resulted from a combination of natural conditions, Brehmer said. However, the institute is following the events in an effort to learn which areas are susceptible so that predictions can be made in the future.

Area watermen observing any of the described conditions are requested to call 642-2111, Extension 81, so that records can be updated.

WEEKLY OYSTER SPATFALL ON SHELLSTRINGS
 JUNE-JULY 1971

The Applied Biology Department, Division of Applied Marine Science and Ocean Engineering, conducts regular surveys of oyster bars to determine the potential areas for receiving a "strike." 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.

To obtain approximate number of sets on both sides of oyster shells on shellstrings, total and spat per shell counts should be doubled. Figures are presented here for one side only because it is difficult to accurately count spat on the rough side of an oyster shell.

The following table presents the current weekly spatfall on shellstrings. Please refer to charts on pages 4 and 5 for locations of stations where regular surveys are conducted.

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

	June 14 To June 21	June 21 to June 28	June 28 to July 6
JAMES RIVER			
Brown Shoals	--	.1	0
Wreck Shoals	.2	0	0
Horse Head	0	0	0
Point of Shoals	0	0	0
Deepwater Shoals	0	0	0
	June 15 to June 22	June 22 to June 29	June 29 to July 6
YORK RIVER			
VIMS Pier	0	0	0
Clay Bank	0	0	0
Foxes Creek	0	0	0

Continued on page 3

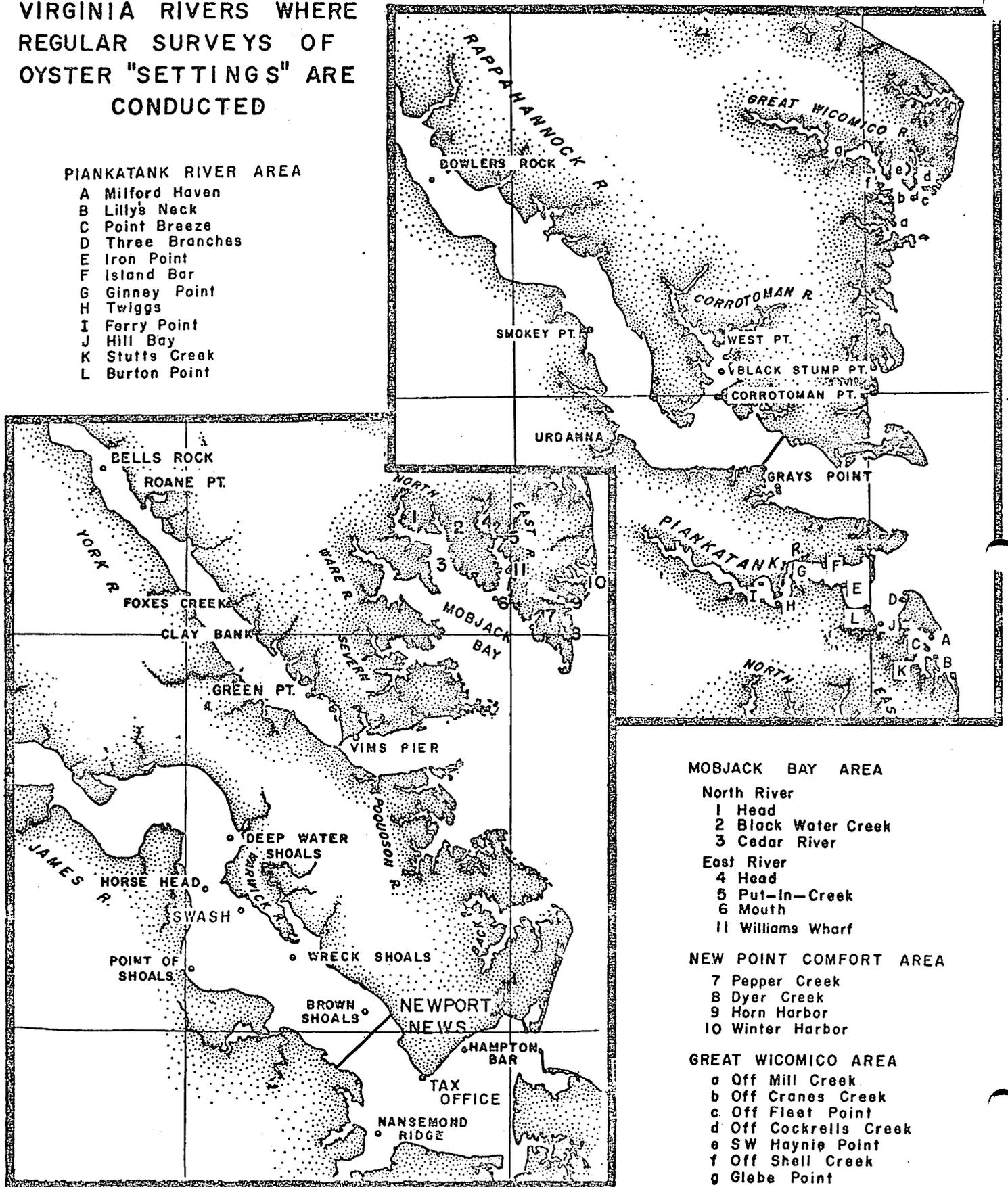
SPAT PER SHELL COUNTS - Continued

	June 15 to June 22	June 22 to June 29	June 29 to July 6
MOBJACK BAY AREA			
North River			
1 Head	3.2	9.8	0
2 Black Water Creek	.3	0	0
3 Cedar River	.6	0	0
East River			
4 Head	2.8	5.6	.5
5 Put-In-Creek	.5	6.6	.6
6 Mouth	--	.1	0
11 Williams Wharf	.4	1.8	.1
	June 15 to June 22	June 22 to June 29	June 29 to July 6
NEW POINT COMFORT			
7 Pepper Creek	.1	.2	.1
8 Dyer Creek	0	.3	.2
9 Horn Harbor	.7	.8	3.3
10 Winter Harbor	0	0	.6
	June 15 to June 17	June 21 to June 28	June 28 to July 6
PIANKATANK RIVER			
A Milford Haven	0	0	.7
B Lillys Neck	0	0	.3
C Point Breeze	0	0	.8
D Three Branches	0	0	--
E Iron Point	0	0	4.1
F Island Bar	0	0	.3
G Ginney Point	0	0	1.3
H Twiggs	0	0	--
I Ferry Point	0	0	.6
J Hill Bay	0	0	.4
K Stutts Creek	0	.1	.3
L Burton Point	0	0	.2
	June 14 to June 21	June 21 to June 28	June 28 to July 5
GREAT WICOMICO			
a Off Mill Creek	0	0	.5
b Off Cranes Creek	0	0	.2
c Off Fleet Point	0	0	0
d Off Cockrells Creek	0	0	0
e SW Haynie Point	0	.3	.2
f Off Shell Creek	0	0	5.3
g Glebe Point.	0	0	0
	June 15 to June 22	June 22 to June 29	June 30 to July 7
RAPPAHANNOCK RIVER			
Grays Point	0	0	0

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

PIANKATANK RIVER AREA

- A Milford Haven
- B Lillys Neck
- C Point Breeze
- D Three Branches
- E Iron Point
- F Island Bar
- G Ginney Point
- H Twiggs
- I Ferry Point
- J Hill Bay
- K Stutts Creek
- L Burton Point



MOBJACK BAY AREA

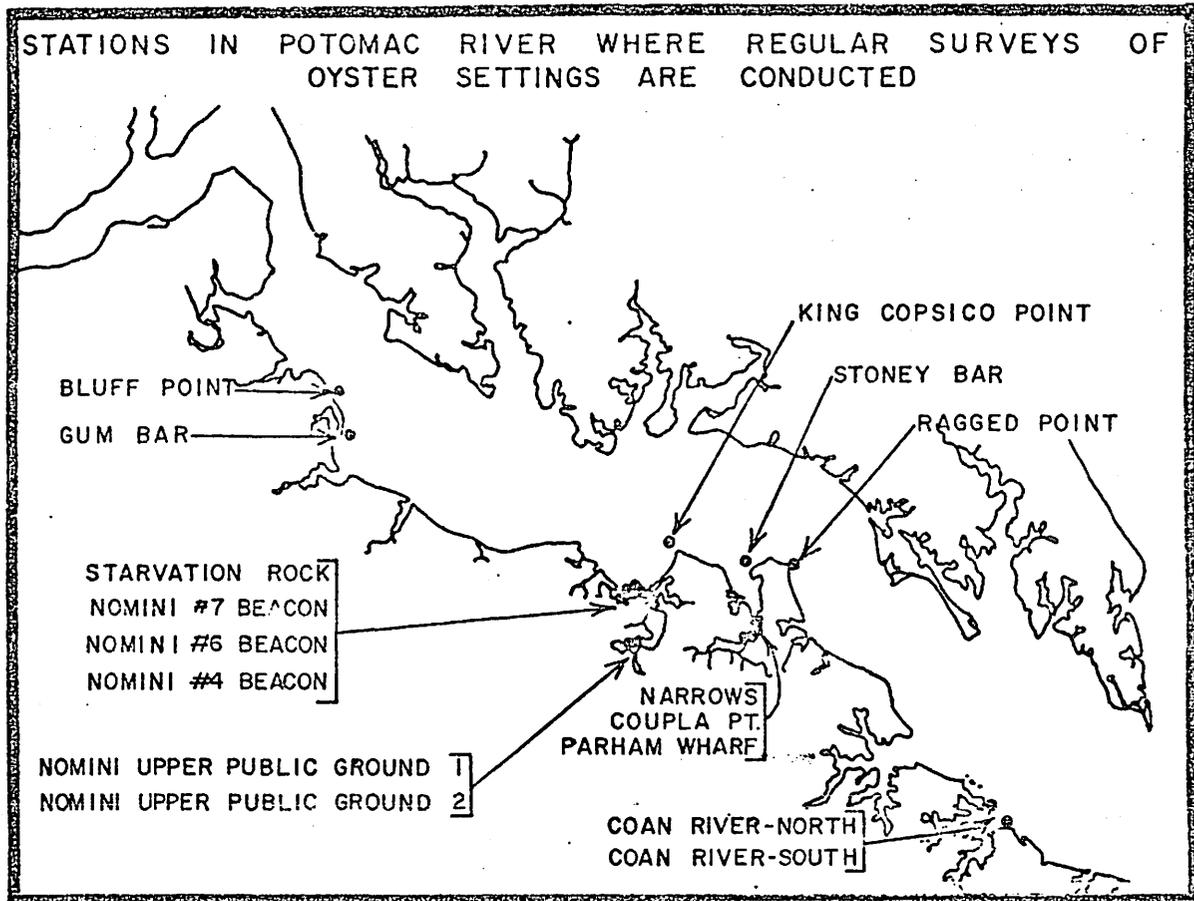
- North River
 - 1 Head
 - 2 Black Water Creek
 - 3 Cedar River
- East River
 - 4 Head
 - 5 Put-In-Creek
 - 6 Mouth
 - 11 Williams Wharf

NEW POINT COMFORT AREA

- 7 Pepper Creek
- 8 Dyer Creek
- 9 Horn Harbor
- 10 Winter Harbor

GREAT WICOMICO AREA

- a Off Mill Creek
- b Off Cranes Creek
- c Off Fleet Point
- d Off Cockrells Creek
- e SW Haynie Point
- f Off Shell Creek
- g Glebe Point



No spatfall was observed at stations in the Potomac River and tributaries during the period from June 7 through July 5, 1971.

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Dr. William J. Hargis, Jr., VIMS Director; David Garten, Editor