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Virginia Institute of Marine Science

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BULLETIN

VIRGINIA INSTITUTE of MARINE SCIENCE

Vol. 3, No. 16

September 10, 1971

ARTIFICIAL REEFS ATTRACT THE FISH

With the growing popularity of sport fishing, the construction of artificial fish reefs in marine waters has attracted much attention in recent years.

The purpose of artificial fishing reefs is to attract and concentrate fish populations. Nearly all submarine structures such as wrecks of ships and aircraft, bridges, docks, and other materials that will supply cover or a footing for the growth of crustacea, mollusks and seaweeds will produce a good sports fishing reef.

Artificial reefs have been built off San Francisco, Malibu Beach, Fire Island, N.Y., Ocean City, Md., and several other areas including Hawaii and Japan. These reefs have been made from various materials such as automobile bodies, pilings, concrete rubble, concrete pipes, beer cases, streetcars and even old refrigerators. The preferred characteristics are long life (resistance to rapid corrosion), low cost, availability, and cheap to handle, transport and anchor.

The Marine Game Fish Research Laboratory of the National Marine Service at Sandy Hook, N.J., began to construct and study artificial reefs in 1966 and old automobile tires proved to be a readily available suitable material for attracting fish that is inexpensive to assemble into high profile units and easy to handle.

Starting in 1969, the Sandy Hook Laboratory began to place increased emphasis on the use of scrap auto tires as reef-building materials. Marine scientists developed two tire-units which can be carried offshore in any size boat, enabling individual sportsman participation in reef building.

One unit is a single tire with a 15-pound concrete ballast weight wedged between the sidewalls. The second unit is a four-foot-high stack of seven or eight tires held together with two 4 1/2-foot lengths of 3/8-inch reinforcing rod (projecting through aligned holes drilled in each tire), firmly anchored in concrete ballast that completely fills the space between the sidewalls of the base tire.

The Tidewater Artificial Reef Association of Virginia (TARVA), a nonprofit corporation of concerned fishermen with headquarters in Norfolk, is looking into the construction of seven artificial reefs off the Virginia Capes.

Several advantages are listed for using auto tires. They are readily available material, they do not decompose, corrode, or rust, they do not give off toxic substances and therefore do not constitute a pollution threat. If properly placed, the tires will not be moved around or scattered by storms.

Unlike old car bodies which have previously been used to construct artificial reefs in Virginia waters, rapid corrosion is not a problem with concrete ballasted auto tires. Weighing the advantages, tires could be expected to make a good reef and this material has the added feature that a single man or small group, using only a small boat, could build a reef at very little cost.

Despite the choice of materials, financing is usually a problem in building reefs since private subscriptions are difficult to promote. The problem of marking or buoying the reefs also can be a great deal of trouble but it is difficult or impossible for anglers to find the reefs if unmarked by buoys.

VIMS' scientists and engineers have been involved in giving advice on projects to establish effective artificial fishing reefs for a number of years. The Institute believes that properly constructed and placed artificial reefs do enhance sport fishing but reminds those who seek advice on placement and construction of reefs that the Marine Resources Commission must give approval on use of state bottoms for such structures and similar clearance must be gained from the Corps of Engineers, the U.S. Coast Guard and, in some cases, the U.S. Navy since metallic reefs can cause problems with submarine detection.

* * * * *

WEEKLY OYSTER SPATFALL ON SHELLSTRINGS AUGUST 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.

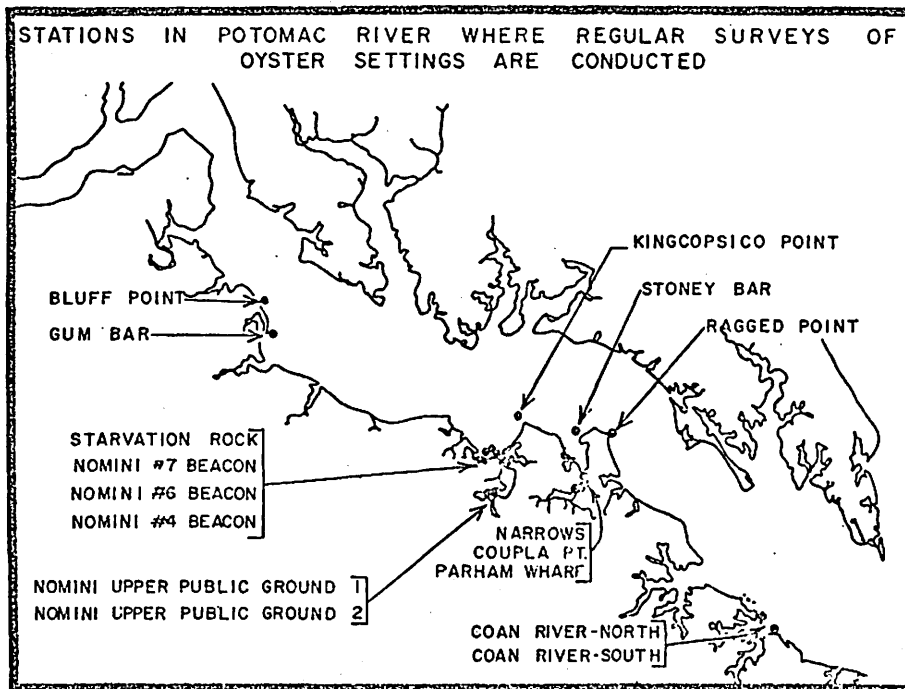
The following table presents the current weekly spatfall on shellstrings. Please refer to the chart on page 5 for locations of stations where regular surveys are conducted.

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

	Aug. 2 to Aug. 9	Aug. 9 to Aug. 16	Aug. 16 to Aug. 23	Aug. 23 to Aug. 30
JAMES RIVER				
Brown Shoals	0.7	2.0	2.7	17.0
Wreck Shoals	3.4	2.6	0.3	2.2
Horse Head	7.7	2.5	0.2	1.1
Point of Shoals	4.4	1.0	0.5	0.7
Deepwater Shoals	3.2	2.6	0.2	1.0
Hampton Flats	1.2	10.9	7.3	Lost
	Aug. 3 to Aug. 10	Aug. 3 to Aug. 10	Aug. 17 to Aug. 24	Aug. 24 to Aug. 31
YORK RIVER				
VIMS Pier	1.9	.6	0.9	3.9
Clay Bank	.3	.6	0.2	0.1
Foxes Creek	0	.1	0	0
	July 30 to Aug. 6	Aug. 6 to Aug. 16	Aug. 16 to Aug. 23	Aug. 23 to Aug. 30
NANSEMOND RIVER				
Nansemond Ridge	.6	11.2	2.9	2.9
Larken's Rock	9.2	7.5	1.5	1.9
Half Pone	6.2	22.7	2.0	7.5
	Aug. 3 to Aug. 10	Aug. 10 to Aug. 17	Aug. 17 to Aug. 24	Aug. 24 to Aug. 31
MOBJACK BAY AREA				
North River				
1 Head	1.0	.1	0	0
2 Black Water Creek	.9	Lost	Lost	Lost
3 Cedar River	.2	.1	0	0
East River				
4 Head	.2	.1	0	0
5 Put-In-Creek	.6	0	0	0
6 Mouth	.1	.1	0.4	0.8
11 Williams Wharf	.2	0	0	0
	Aug. 3 to Aug. 10	Aug. 10 to Aug. 17	Aug. 17 to Aug. 24	Aug. 24 to Aug. 31
NEW POINT COMFORT				
7 Pepper Creek	.6	.1	0.3	10.4
8 Dyer Creek	1.3	.2	0	0.1
9 Horn Harbor	1.3	0	0	0.3
10 Winter Harbor	1.0	.4	0.6	4.4

SPAT PER SHELL COUNTS - Continued

		Aug. 2 to Aug. 9	Aug. 9 to Aug. 16	Aug. 16 to Aug. 23	Aug. 23 to Aug. 30
PIANKATANK RIVER					
A	Milford Haven	0	0	0.1	2.4
B	Lillys Neck	0	0	0.1	6.3
C	Point Breeze	0	.3	0	0
D	Three Branches	0	.1	0	12.8
E	Iron Point	0	0	2.8	4.7
F	Island Bar	.1	5.8	0	4.5
G	Ginney Point	.1	13.5	12.2	1.1
H	Twiggs	.1	19.6	7.9	11.9
I	Ferry Point	0	8.9	3.9	10.4
J	Hill Bay	0	0	0	0.1
K	Stutts Creek	0	0	0.1	0.3
L	Burton Point	.1	.3	0.8	2.1
GREAT WICOMICO					
		Aug. 2 to Aug. 9	Aug. 9 to Aug. 16	Aug. 16 to Aug. 23	Aug. 23 to Aug. 30
a	Off Mill Creek	0	.2	0.5	1.4
b	Off Cranes Creek	0	.9	1.0	1.4
c	Off Fleet Point	Lost	.1	0.3	0.6
d	Off Cockrells Creek	0	0	1.3	Lost
e	SW Haynie Point	0	2.3	1.2	3.5
f	Off Shell Creek	.1	.8	1.3	1.0
g	Glebe Point	Lost	.4	18.8	3.3
RAPPAHANNOCK RIVER					
		Aug. 4 to Aug. 11	Aug. 11 to Aug. 18	Aug. 18 to Aug. 25	Aug. 25 to Sept. 1
	Grays Point	1.7	.9	0	.9

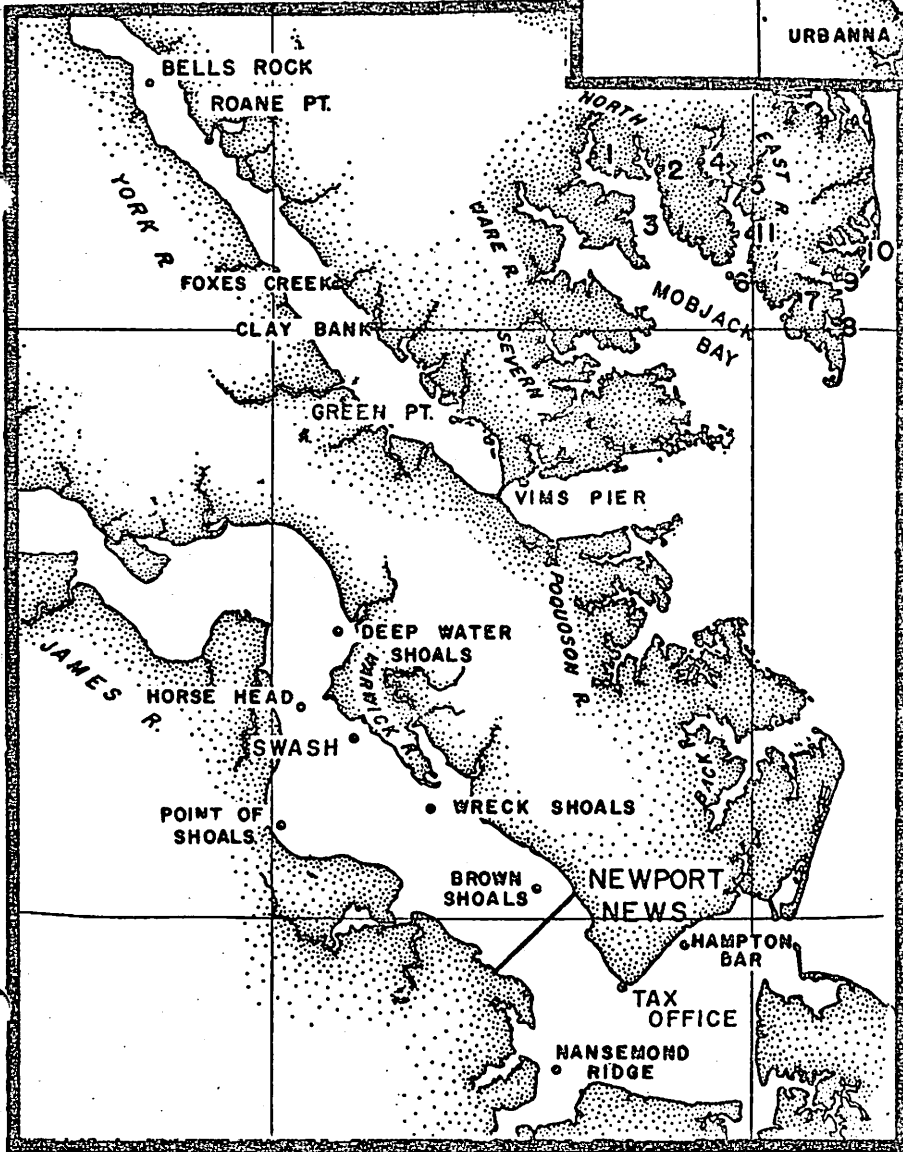
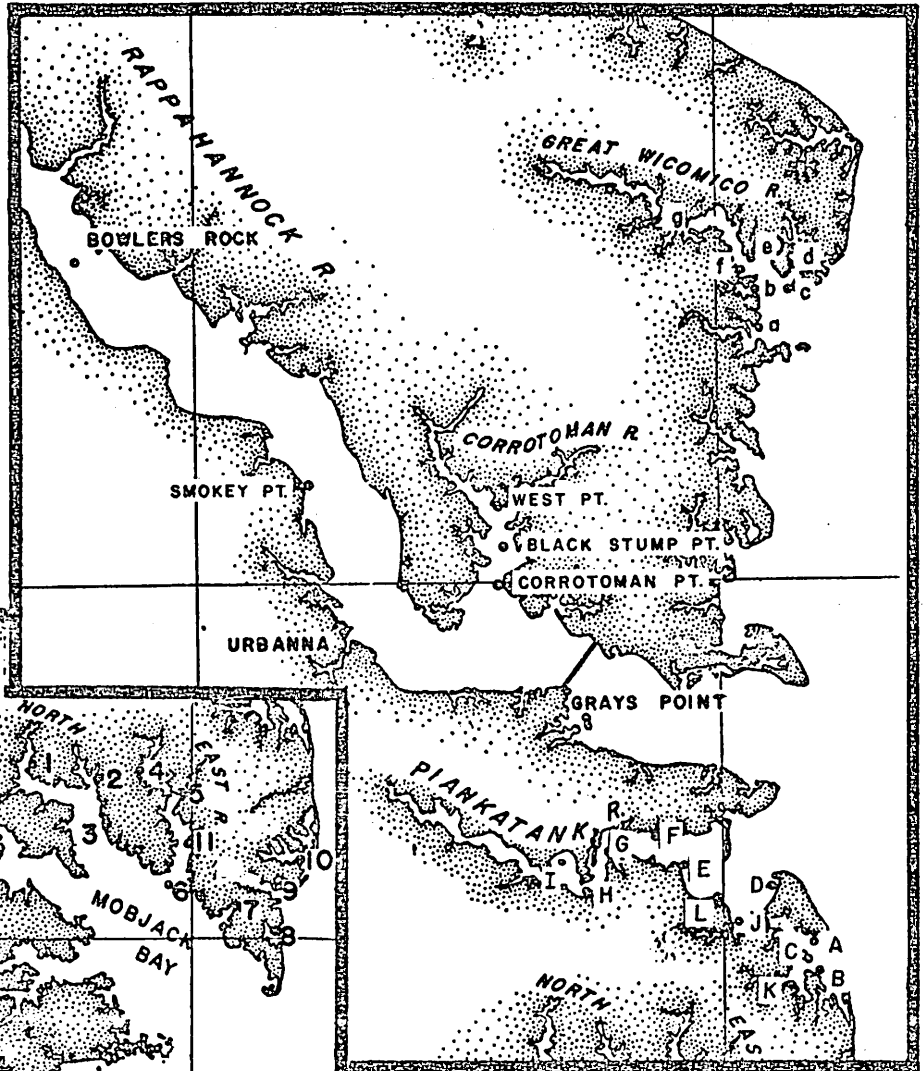


No spatfall was observed in the Potomac during the period from August 16 to August 30.

**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

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