A Classification of Baylor BOTTOMS IN Virginia

Dexter S. Haven

Virginia Institute of Marine Science

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By

Dexter S. Haven

Virginia Institute of Marine Science

and

College of William and Mary

October 1979

Virginia Marine Resources Report #79-2
THE NEED AND PURPOSE OF VIMS BAYLOR GROUND SURVEY

1. We understand that the purpose of this overall effort of the full Shellfish committee is to build the production of oysters so that the potential of Virginia oyster bottoms is fully utilized. It is our understanding that the purpose of this review (by the Baylor Ground Committee) is to determine which areas might be leased and developed by the private sector. We have done a survey of the Baylor Grounds in Chesapeake and tributaries in Virginia.

2. We have defined the characteristics which make an oyster ground productive, or potentially productive.

3. We have developed a scheme classifying oyster grounds on a scale from I to V. Class I is defined as oyster bottom which can be exploited with no investment of capital or intervention by man. Bottoms in this class require neither seeding nor shelling. These fit the definition of "natural beds." Oyster bottoms in classes II-V are potentially productive but will require the investment of money in shelling and/or seeding programs.

4. No matter who is responsible for producing oysters on these bottoms (i.e. classes II-V), time, effort and money will be required. As one moves from class II to
class V, the cost of maintaining and producing oysters increases. Obviously, class II would require the lowest investment and class V the highest. Some class V bottoms might not really be worth developing.

5. At present it is state policy to preserve natural rocks for public use to be managed by the VMRC on behalf of the public. Until this policy changes, if it ever does, you will most likely wish to reserve class I bottoms for public use alone.

6. If you want potentially productive grounds to be brought into production by private industry and private capital, you should seriously consider making the grounds in classes II, III and IV available for private leasing.

7. We have suggested above that you may wish to reserve class I for state management as long as you want a public oyster industry.
Map of Tidewater Virginia showing public oyster ground and public clam ground. From maps on file at the VMRC. The Baylor Bottoms are in black; public clam bottoms are shaded.
A SUMMARY OF THE FIVE CLASSES OF OYSTER BOTTOMS

<table>
<thead>
<tr>
<th>Class</th>
<th>Functional Set</th>
<th>Shells in Bottom</th>
<th>Predators &amp; Diseases Minimal</th>
<th>Depths O-K</th>
<th>Salinity Over 5/oo</th>
<th>Oxygen in Water</th>
<th>Bottom Firm</th>
<th>Assigned Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>6</td>
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<tr>
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<td>X</td>
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<td>X</td>
<td>X</td>
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<td>X</td>
<td>4</td>
</tr>
<tr>
<td>IV</td>
<td>X</td>
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<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X(-)</td>
<td>3</td>
</tr>
<tr>
<td>V</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td>X(-)</td>
<td>X(-)</td>
<td>0</td>
</tr>
</tbody>
</table>

CLASS I

These bottoms produce oysters with no assistance from man.

Characteristics

1. Set functional. The unique criterion of class I, is defined as a strike which will support a reasonable level of harvesting. A set may typically occur every year, but the annual interval between sets may be as long as 15 years.

2. Substantial volumes of shell in or on the bottom originating from previously existing populations.
3. Low incidences of diseases and predators which allows the establishment of a standing crop.
4. Depths ranging from intertidal to about 30 feet.
5. A salinity averaging 5 parts per thousand or higher.
6. Adequate levels of dissolved oxygen.

CLASS II

These bottoms exhibit a lack of functional setting because of the shortage or absence of naturally occurring shell. They will produce, however, if the bottoms are seeded and/or shelled.

Characteristics

1. Shell substrate sparse or sometimes lacking, or presently unsuitable (soft).
2. Functional set may be lacking.
3, 4, 5 & 6. Same as class I.

CLASS III

These bottoms have non-functional setting levels and lack shell substrate. Often the bottoms are soft mud or sand. They may produce commercial volumes of oysters if planted with seed oysters.

Characteristics

1. Shell substrate lacking.
2. Setting levels low or zero most years.
3, 4, 5, & 6. Same as class I.

CLASS IV

These bottoms have moderate to high levels of disease and/or predators. They must be planted with MSX resistant seed or must "grow" oysters set in a MSX area, or predators must be controlled. Bottoms are often mud which must be shelled prior to planting seed.

Characteristics
1. Shell substrate generally lacking or sparse.
2. Setting is non-functional.
3. High levels of disease and predators.
4, 5, & 6. Same as class I.

CLASS V

These bottoms have little potential for oyster production even with a major replenishment program. They typically have at least three of the following adverse characteristics.

Characteristics
1. Shell substrate lacking.
2. Set non-functional.
3. Depths in excess of 30 feet.
4. Moderate to high levels of diseases and predators.
5. Low salinity levels.
6. Low levels of dissolved oxygen during the summer.
7. Mud or shifting sand substrate.
The Bayside of the Eastern Shore
(CLASS II)

These tidal systems which include Onancock Creek, Pungoteague Creek and Nassawaddox Creek have been surveyed. However, small scale charts have not yet been completed. These areas are classed as II.
The Baylor bottoms on the Seaside of the Eastern Shore have not been surveyed. Work on these bottoms is expected to begin in April, 1980. However, our records of many years indicate that the bottoms receive a functional set each year. Therefore, the area is classed as I.
The Virginia Potomac River Tributaries

These tidal tributaries in Virginia have not been surveyed.
Pocomoke and Tangier Sounds
(CLASS I)

All field studies for this area has been completed, but small scale charts have not been prepared due to time constraints.

This area is poorly understood in respect to recruitment rates (setting). At present it is classed as I.
The James River
(CLASS I)

This system has been surveyed and systematically studied by VIMS since 1947. Setting has declined since 1960, but it still receives a functional set. However, small scale charts have not yet been completed. All Baylor bottoms in the James River are classed as I.