

SH  
365  
M35A3  
MOLL

---

**THIRD REPORT**  
OF THE  
**SHELL FISH COMMISSION**  
OF MARYLAND  
1911

---

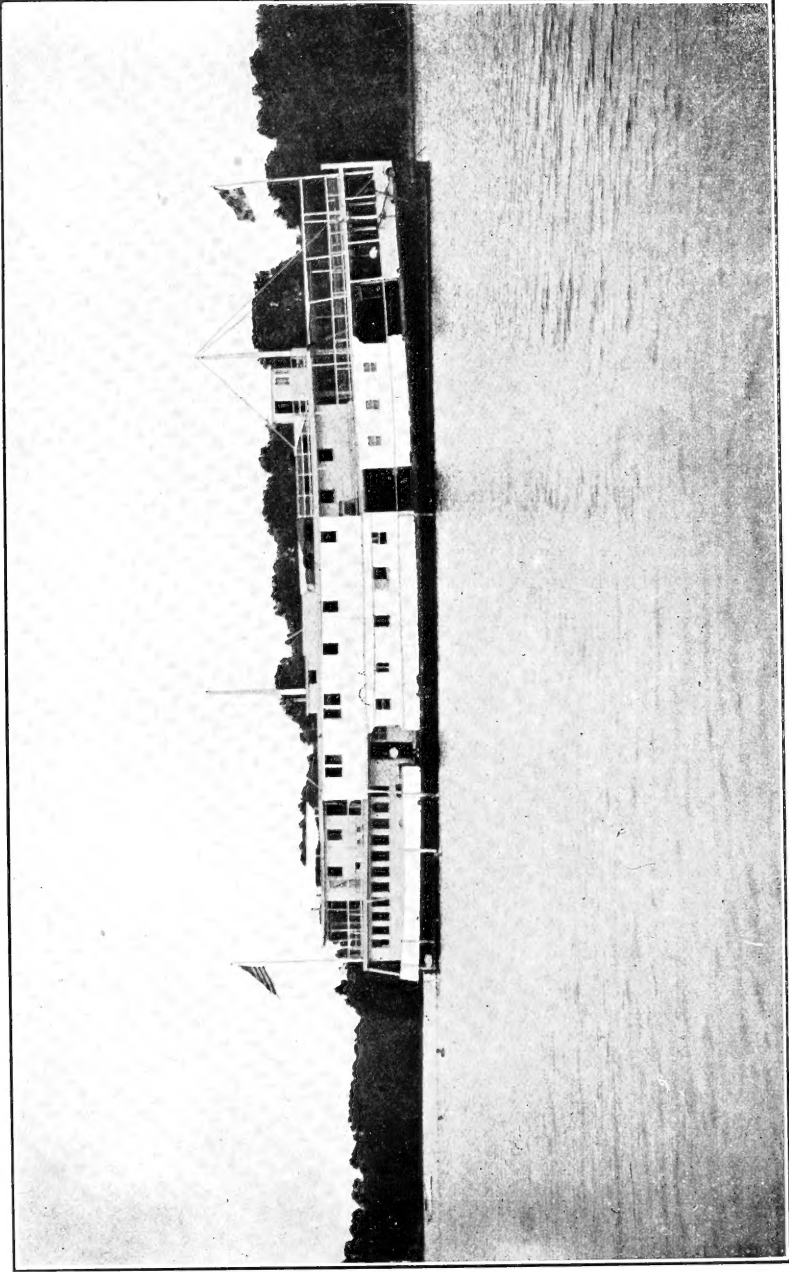


Moll Library









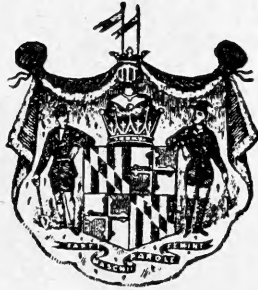
THE HOUSEBOAT "OYSTER"  
HEADQUARTERS OF STATE AND FEDERAL SURVEY FIELD PARTIES

SH  
365  
M35A3  
MOLL

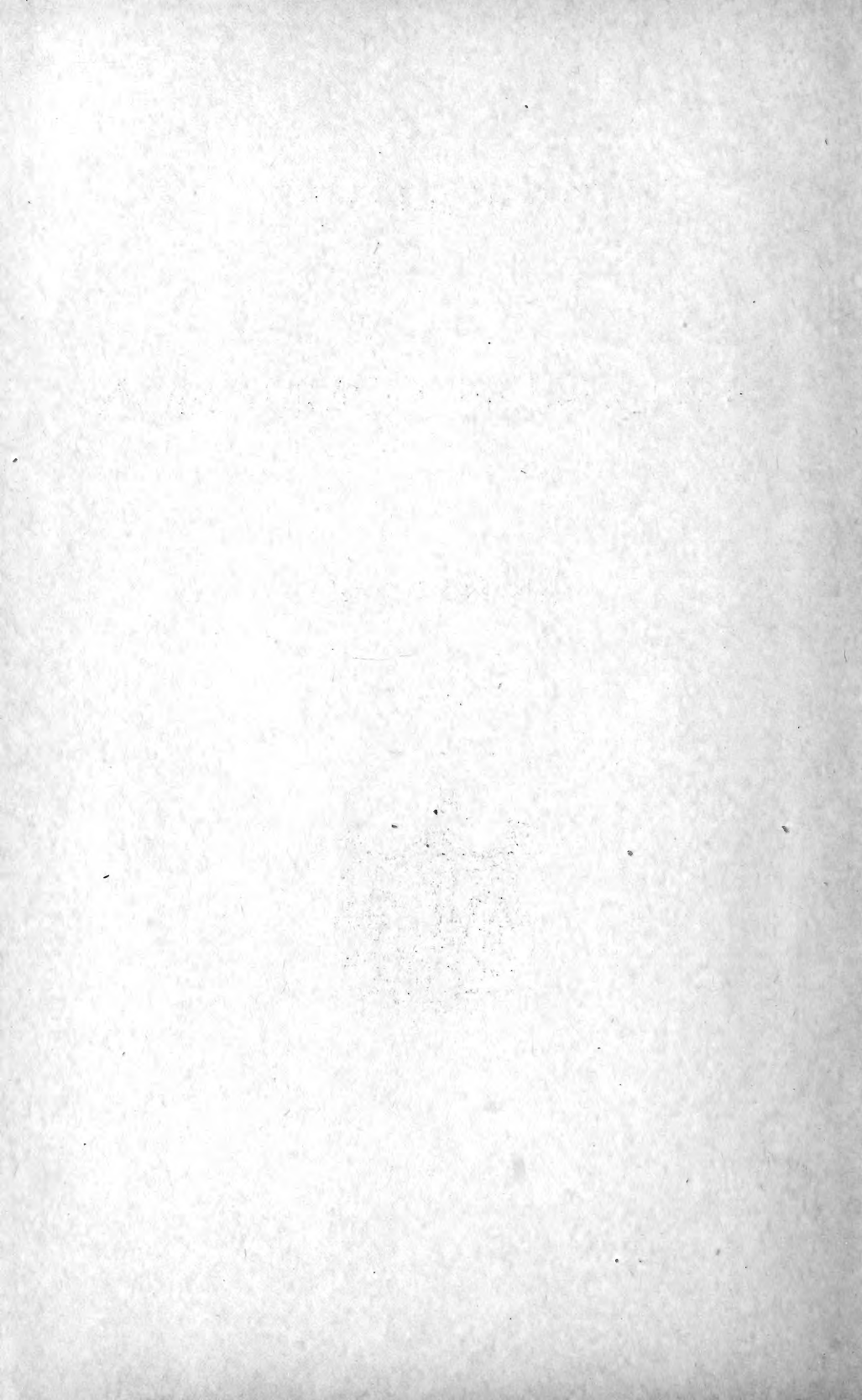
THIRD REPORT  
OF THE  
SHELL FISH COMMISSION

OF  
MARYLAND

1911



PRESS OF  
GEORGE W. KING PRINTING COMPANY  
31 S. HOWARD STREET  
BALTIMORE, MD.



SHELL FISH COMMISSIONERS.

WALTER J. MITCHELL, *Chairman*, La Plata.

CASWELL GRAVE, *Secretary*, Baltimore.

(Johns Hopkins University.)

BENJAMIN K. GREEN, *Treasurer*, Westover.

CHIEF CLERK.

J. D. GARDINER, Bryantown.

ASSISTANT CLERKS.

SAMUEL A. HARPER, St. Michaels.

DANIEL H. CARROLL, OF P., Bel Air.

HYDROGRAPHIC ENGINEER.

SWEPSON EARLE, Centreville.

## REPORT.

---

BALTIMORE, MD., December 31, 1910.

*To His Excellency Austin L. Crothers, Governor of the State of Maryland, and Members of the General Assembly of Maryland of 1912.*

In accordance with the requirements of Section 119 of Chapter 711 of the Acts of 1906, the Board of Shell Fish Commissioners respectfully submits its third report.

WALTER J. MITCHELL, *Chairman.*

CASWELL GRAVE, *Secretary.*

BENJAMIN K. GREEN, *Treasurer.*

## TABLE OF CONTENTS.

	<i>Page.</i>
Letter of submittal.....	4
Introduction—	
Publications: Reports and Charts.....	7
Co-Operation: U. S. Coast and Geodetic Survey, U. S. Bureau of Fisheries, State Fishery Force, County Commissioners, Hon. John Gill, and Baltimore City press.....	8
The Haman Oyster Culture Law: Object, Survey.....	9
Definition of a Natural Oyster Bar.....	10
Natural Bar Not Defined, Diversity of Opinion, The Goldsborough definition, Application of Definition.	
Factors of the Definition: The "Livelihood" Factor, Average Price of Oysters, Average Number of Oysters per Bushel, Length of Oyster Season, The <i>Unit</i> of Tonging Operations, Area of Bottom Covered by Oystermen, Minimum Number Oysters per Square Yard Required to Yield Livelihood.	
Methods of Oyster Survey—	
Information Furnished.....	15
Equipment .....	15
Boats, Houseboat "Oyster," Instruments.	
Organization .....	18
Methods .....	18
Lines of Soundings, Use of Chain-Wire Apparatus, Location on Charts of Position at Which Observations Taken, Records, Selection of Examination Stations.	
Report of Surveys and Examinations of Oyster Grounds—	
Foreword .....	26
Plan of Report, Distinguishing Features of Maryland Oyster Survey, Names of Practical Oystermen Employed to Conduct Examinations; Observations on: Rate of Flow of Currents, Density of Water, Food Value of Water; Plan for Estimating Condition of Oyster Grounds, Statistics Showing Number of Licenses Issued to Oystermen.	
Baltimore County .....	29
Description of Results and Conclusions from Work in Chesapeake Bay, Effects of Freshets on Oysters as Indicated by Per Cent. of Dead Oyster ("boxes") on the Bars, Statistical Table.	
Kent County .....	34
Introduction, Description of Results and Conclusions from Work in Chester River, Lankfords Bay, Grays Inn Creek, East Neck Bay, Swan Creek and Chesapeake Bay; Statistical Tables.	
The Upper Bay "Lumps" Problem and the Cull Law.....	48
Introduction; The Case as Reported; Public Attitude Toward Violations of the Cull Law; The Case as Developed by the Survey; Statistical Table; Discussion; A Proposed Solution.	



Queen Anne's County.....	54
Introduction; Description of Results and Conclusions from Work in the Wye Rivers, Miles River, Eastern Bay, Prospect Bay and Kent Island Narrows; Crab Alley Bay, Cox Creek, Chester River, Corsica River and Chesapeake Bay; Statistical Tables.	
Statement of Field and Office Work—	
Anchorage of the Houseboat "Oyster".....	74
Tabulated Statement of Operations of Field Party.....	75
Statistics of Results of Combined Operations of Federal Government and State .....	77
Report of Leasing Operations.....	78
General Statement; Blank Forms of Application for a Lease; Statistical Tables Showing the Number of Applications for Lease to Oyster Lands Received, the Number of Leases Granted, the Number of Oyster Lot Holders in Arrears with Rent, the Number of Leases Canceled, the Number of Leases Now in Force and the Names and Addressess of All Lessees and the Number of Acres of Land Held by Each.	
Recommendations .....	97
Foreword—	
Amendments of Fundamental Importance to Oyster Planters:	
1. Providing for Increase in Area of Lots Which May Be Leased.	
2. Providing for Privilege of Dredging on Leased Lots.	
3. Providing for Privilege of Securing Seed Oysters.	
Discussion—	
Letter of Approval from Dr. H. F. Moore.	
Amendment of Fundamental Importance to the State.	
4. Providing for Collection of Rents.	
Amendments Desirable, but Not Fundamental.	
5. Extension of Period for Payment of One-Dollar Rentals.	
6. Respecting Non-Residents of the State.	
7. Preventing Oyster Planting in Water Contaminated by Sewage.	
Financial Statements .....	109
For the Year Ending September 30, 1909 (reprinted).	
For the Year Ending September 30, 1910.	
Appendix .....	111
I. Text of the Haman Oyster Culture Law.	
II. Opinions Rendered by Hon. Thomas H. Robinson, Counsel to the Board of Shell Fish Commissioners, Concerning—	
1. Jurisdiction.	
2. Private Ownership and Riparian Rights.	
III. Rights of Lot-Holders to Take Up Planted Oysters.	
IV. An Act Setting Aside Clam Rocks in Pocomoke Sound.	
V. An Act Repealing Calvert County Cultivation Law.	
VI. An Act Increasing the Tax Upon Oysters Sold Within the State and Creating Therefrom a Natural Oyster Bed Reshelling Fund.	

## INTRODUCTION.

### PUBLICATIONS.

This report of the Board of Shell Fish Commissioners is intended to embrace an account of all work carried on by the Commission during the year ending December 31, 1909, and a statement of all receipts and disbursements by the Commission during the fiscal year ending September 30, 1910.

It contains descriptions of the methods and results of the surveys and examinations of the oyster grounds of Baltimore, Kent and Queen Anne's counties; a discussion of the problem of the application of the Cull law to areas overstocked with small oysters, in the light of the results of the survey of the upper section of the Bay, generally known as "The Lumps;" statements regarding the opening of the bottoms available for lease for oyster culture in Worcester and Calvert counties; lists of the names of citizens who have leased lots from the State for the purposes of oyster culture, with statements of the total area which has been leased under the Haman Oyster Culture Law, and of the number of lots on which rents are in arrears; and recommendations for such changes in the law as the Shell Fish Commission believes to be essential to the success of oyster culture in Maryland.

In an appendix to the report, the text of the Haman Oyster Culture Law is reprinted, together with that of other Acts of the General Assembly pertaining to Oyster Culture or to the work of the Board of Shell Fish Commissioners. The report also contains a reprint of the statement of the receipts and disbursements of the Commission during the fiscal year ending September 30, 1909.

During the year 1909 Captain C. C. Yates, for the United States Coast and Geodetic Survey, prepared and issued two publications,\* each consisting of a set of charts and a report.

The first was filed in the office of the Commission at Annapolis and with the Clerk of the Circuit Court of Worcester County, July 23, 1909, and contains all information necessary to make a perma-

---

\* These publications may be secured by applying to the Superintendent of the United States Coast and Geodetic Survey, Washington, D. C.

nent record of the work of the Commission and the Federal Government in Worcester County for all future requirements of the courts. The charts, three in number, show all legal boundaries of the oyster bars within the adopted boundaries of the waters opened for leasing with Worcester County, and the location of all landmarks used as a foundation for the delineation of these various boundaries. The report gives technical and legal descriptions of all oyster bar and other boundaries, and descriptions of all landmarks shown on the charts.

The second publication consists of a set of five charts and a technical report and forms a permanent record, similar in every way to that for Worcester County, of the work of the Commission and the Federal Government in Calvert County. It was filed in the office of the Commission in Annapolis and in the office of the Clerk of the Circuit Court for Calvert County, on December 14, 1909.

#### CO-OPERATION.

The Commission has continued to receive the same hearty cooperation in its field work from the U. S. Coast and Geodetic Survey, the U. S. Bureau of Fisheries, the State Fishery Force, and Boards of County Commissioners which it has hitherto received. A full statement of the extent of this co-operation and the Acts authorizing it may be found in the First Report of the Shell Fish Commission, pages 17 to 26. A statement concerning the assistance rendered by the Coast and Geodetic Survey and the Bureau of Fisheries may be found also in the reports published by the Coast and Geodetic Survey, entitled "Survey of Oyster Bars."

The names of the men appointed by the boards of County Commissioners to accompany the Chief Engineer during the survey of their respective counties and point out the approximate location of the oyster bars and select the stations on each ground at which examinations are made, are: Wilson F. Stevens, Bengies, Md., for Baltimore County; Samuel Collier, Rock Hall, Md, for Kent County; Charles W. Hopkins, Stevensville, for Queen Anne's County. From these gentlemen the Commission has received much information and help beyond that contemplated in the Act providing for their services, and it gladly acknowledges its appreciation of this and many courtesies.

To Hon. John Gill, the Commission desires to express its thanks for the attention he has given to the work of securing the continued co-operation of the Federal Government with the Maryland Shell Fish Commission in making the survey of the natural oyster grounds. Without the assistance of the U. S. Coast and Geodetic Survey and the U. S. Bureau of Fisheries it would be well nigh impossible to complete the survey within a reasonable period along the lines on which the work was begun.

To the daily press of Baltimore City the Commission hereby expresses its obligation for the encouragement and assistance the cause of oyster culture has received through the many editorials and reports, pertaining to the subject and to the preliminary survey work, which have appeared in its columns. Knowing that a general interest in oyster culture and a knowledge of the conditions under which oyster culture may be successfully carried on, is of prime necessity for the work of perfecting the scheme of legislation such as has been inaugurated by the State of Maryland for the development of the latent possibilities of the barren bottoms of her tide waters, the Commission takes this opportunity to solicit the continued support of the press for the law, and especially the advocacy of such amendments to the law as are clearly shown by experience to be necessary to its ultimate success.

## THE HAMAN OYSTER CULTURE LAW.

### OBJECT.

The Legislature in placing Chapter 711 of the Acts of 1906, better known as the Haman Oyster Culture Law, upon the statute books of Maryland, had a two-fold object in view:

1. To *encourage* an industry in oyster culture upon the *barren bottoms* beneath the tidewaters of the State.
2. To *prevent* the leasing of *natural oyster bars* for the purpose of oyster culture.

### SURVEY.

To make the leasing of barren bottoms possible and the leasing of natural bars impossible, provision was made for a survey of the natural bars for the purpose of accurately locating and marking the same. It was definitely provided that no barren bottoms should be

leased in any part of the State until the natural bars of that region had been surveyed, charted and marked with buoys.

## DEFINITION OF A NATURAL OYSTER BAR.

### NATURAL BAR NOT DEFINED.

The Shell Fish Commission is instructed by Section 90 of the Haman Oyster Culture Law to exercise its judgment liberally in favor of the natural bars when surveying, chartering and buoing the same, but other than this the Commission is uninstructed in this important matter. The responsibility of defining a natural bar is placed upon the Commission.

### DIVERSITY OF OPINION.

No definition of a natural oyster bar could be formulated by any man or body of men which would meet with the approval of all the parties concerned. Oystermen, as a rule, hold that all bottoms where oysters grow or have grown naturally, even though now practically barren of oysters should be considered natural bars. Other citizens of the State who are not directly interested in the oyster business, but interested in the oyster industry from the standpoint of revenue, hold, as a rule, that no bottoms should be excluded from leasing for oyster culture which, by methods known to oyster culturalists, may be made to yield a greater number of oysters than they now produce.

It should be evident to every one that neither of these definitions could be adopted by the Commission as a basis for determining which of the grounds surveyed are natural bars.

### THE GOLDSBOROUGH DEFINITION.

The definition of a natural oyster bar which very nearly approaches a reasonable and satisfactory compromise between the views of the subject held by *oystermen* on one hand and by *oyster culturalists* on the other is that contained in an opinion rendered by Judge Chas. F. Goldsborough in the Circuit Court for Dorchester County in the July term, 1881, in the case of William T. Windsor and George R. Todd vs. Job T. Moore.

This definition has been adopted by the Shell Fish Commission as the basis for the determination of the status of the various oyster bottoms surveyed, and is as follows:

"What then is a natural bar or bed of oysters? It would be a palpable absurdity for the State to attempt to promote the propagation and growth of oysters and to encourage its citizens, by grant of land, to engage in their culture, if the lands authorized to be taken up were only those upon which oysters do not and cannot be made to grow. That there may be lands covered by water in the State where no oysters can be found, but where, if planted, they could be cultivated successfully, may be possible, but, if so, I imagine that their extent must be too limited for them to be of much practical, general advantage for the purposes of such a law as the one under discussion; but there are thousands of acres of hard and shifting sands where oysters not only are not found, but where it would be folly to plant them; and these latter it can not be supposed that the State intended to offer to give away, for the simple reason that the State could not help knowing that nobody would have them.

"Upon the other hand there are large and numerous tracts where oysters of natural growth may be found in moderate numbers, but not in quantities sufficient to make it profitable to catch them; and yet where oysters may be successfully planted and propagated. In my opinion, these can not be called natural bars or beds of oysters, within the meaning of the Act of Assembly, and it is just such lands as these that the State meant to allow to be taken up under the provisions of the above-mentioned section of the Act.

"But there is still another class of lands where oysters grow naturally and in large quantities, and to which the public are now and have been for many years in the habit of resorting with a view to earning a livelihood by catching this natural growth; and here, I think, is the true test of the whole question. Land cannot be said to be a natural oyster bar or bed merely because oysters are scattered here and there upon it, and because if planted they will readily live and thrive there; but whenever the natural growth is so thick and abundant that the public resort to it for a livelihood, it is a natural oyster bar or bed, and comes within the above-quoted restriction in the law, and cannot be located or appropriated by any individual."

#### APPLICATION OF DEFINITION.

Before this definition may be of use in determining, accurately and scientifically, the status of an oyster ground, its central idea, "livelihood," must be expanded into accurately determinable factors and these factors must be combined into a practical scheme for investigating the condition of the grounds under consideration.

Stated briefly, a *livelihood* is represented by a *sum of money* obtained from the sale, at a fixed *price*, of a certain *quantity of oysters* gathered in a given *time* from an allotted *area* of ground.

Knowing the value of these factors it becomes possible to calculate the number of oysters an oyster ground must produce per acre or per square yard in order that oystermen may secure a livelihood by working upon it.

The factors into which the Commission resolved the livelihood problem; the value assigned to each factor and an outline of the scheme devised for use in examining oyster ground and applying the definition to the grounds examined, are given below.

For a detailed account of the investigations carried on to determine the value of each of the above factors and to develop methods of securing the information needed concerning the condition of oyster bottoms, reference should be made to the First Report of the Shell Fish Commission, pages 32 to 69.

Minimum livelihood of Tongman.....\$ 277.75  
 Minimum livelihood of Dredger..... 1,836.25

Average prices received for oysters per bushel.....\$ .60 to \$1.00

Minimum livelihood expressed in bushels of oysters:

Price.	Tongmen.	Dredgers.
\$ .60	462 bushels.	3,066 bushels.
.75	370 bushels.	2,448 bushels.
1.00	278 bushels.	1,836 bushels.

Number of marketable oysters, per bushel..... 329

Minimum livelihood expressed in number of marketable oysters:

Price.	Tongmen.	Dredgers.
\$ .60	151,998 oysters.	1,008,714 oysters.
.75	121,730 oysters.	805,392 oysters.
1.00	91,462 oysters.	604,044 oysters.

Number actual working days in tonging season..... 100

Number actual working days in dredging season..... 58

Unit of tonging operations.....the "grab" \*

Average area of oyster bottom covered, per "grab," with hand tongs:

Depth of Water.	Area Covered.	
1 to 5 feet.	.79 sq. yd.	} 14-foot shafts.
6 feet.	.66 sq. yd.	
7 feet.	.55 sq. yd.	
8 feet.	.46 sq. yd.	
9 feet.	.40 sq. yd.	
10 feet.	.35 sq. yd.	
11 feet.	.31 sq. yd.	
12 feet.	.40 sq. yd.	} 22-foot shafts.
13 feet.	.36 sq. yd.	
14 feet.	.33 sq. yd.	
15 feet.	.30 sq. yd.	
16 feet.	.28 sq. yd.	
17 feet.	.25 sq. yd.	
18 feet.	.23 sq. yd.	
19 feet.	.21 sq. yd.	
20 feet.	.19 sq. yd.	

Area covered, per "grab," with patented tongs:.....1 to 1.3 sq. yd.

\* A "grab" is made when the tongs are placed upon the bottom, with the heads open, and the shafts closed *once*.



Number of "grabs" made per hour by tongmen (average) :

Using Hand Tongs		Using Patented Tongs	
Depth of Water.	Number "Grabs."	Depth of Water.	Number "Grabs."
5 feet.	162	18 to 30 feet.	50
6 feet.	162	30 to 50 feet.	40
7 feet.	156	50 to 70 feet.	33
8 feet.	156	70 to 90 feet.	26
9 feet.	156	90 to 130 feet.	23
10 feet.	156		
11 feet.	156		
12 feet.	144		
13 feet.	132		
14 feet.	132		
15 feet.	120		
16 feet.	108		
17 feet.	108		
18 feet.	84		
19 feet.	84		
20 feet.	84		

Area covered by tongmen, per season (average) :

Using Hand Tongs		Using Patented Tongs	
Depth of Water.	Area Covered.	Depth of Water.	Area Covered.
1 to 5 feet.	21.1 acres.	18 to 30 feet.	10.7 acres.
6 feet.	17.6 acres.	30 to 50 feet.	8.7 acres.
7 feet.	14.1 acres.	50 to 70 feet.	7.1 acres.
8 feet.	11.8 acres.	70 to 90 feet.	5.5 acres.
9 feet.	10.3 acres.	90 to 130 feet.	5.0 acres.
10 feet.	9.0 acres.		
11 feet.	7.9 acres.		
12 feet.	9.5 acres.		
13 feet.	7.8 acres.		
14 feet.	7.2 acres.		
15 feet.	5.9 acres.		
16 feet.	5.0 acres.		
17 feet.	4.6 acres.		
18 feet.	3.1 acres.		
19 feet.	2.9 acres.		
20 feet.	2.6 acres.		

Area covered by a dredger (10-ton boat), per season..... 464 acres.

Area which must yield a livelihood to a dredger\*..... 140 acres.

---

\*The 90,000 acres of dredging ground (carefully estimated) belonging to the State must yield a livelihood to each of the 638 dredgers licensed to work on it (during the season of 1907 and 1908), hence 140 acres must yield *one* livelihood.

14 *Report of the Board of Shell Fish Commissioners.*

Number of oysters required per square yard to yield a livelihood to oystermen using hand tongs:

Depth of Water.	Oysters at \$ .60.	Oysters at \$ .75.	Oysters at \$1.00.
1 to 5 feet.	1.58	1.25	.95
6 feet.	1.86	1.50	1.12
7 feet.	2.16	1.75	1.30
8 feet.	2.50	2.00	1.50
9 feet.	2.83	2.25	1.70
10 feet.	3.16	2.50	1.90
11 feet.	3.50	2.75	2.10
12 feet.	3.83	3.00	2.30
13 feet.	4.25	3.35	2.55
14 feet.	4.66	3.70	2.80
15 feet.	5.16	4.10	3.10
16 feet.	5.83	4.60	3.50
17 feet.	6.66	5.25	4.00
18 feet.	7.50	6.00	4.50
19 feet.	8.66	6.75	5.20
20 feet.	10.00	7.60	6.00

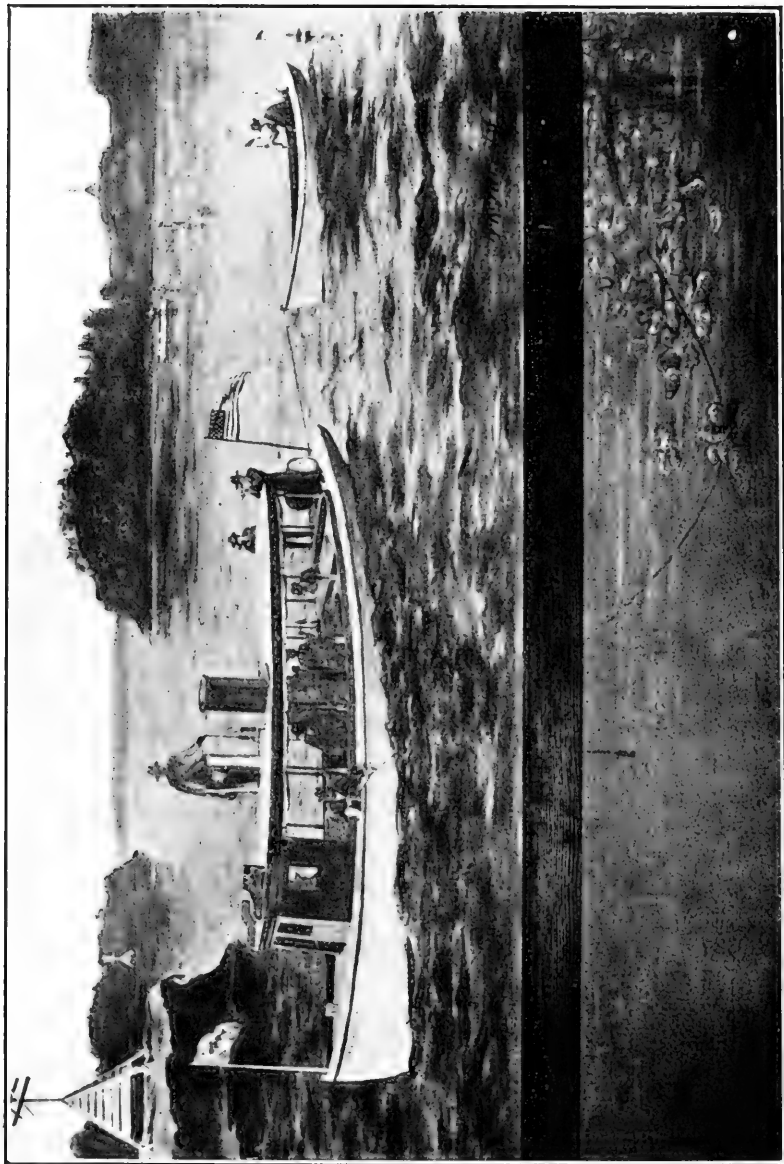
Number of oysters required, per square yard, to yield a livelihood to oystermen using patented tongs:

Depth of Water.	Oysters at \$ .75.	Oysters at \$1.00.
18 to 30 feet.	2.3	1.7
30 to 50 feet.	2.8	2.1
50 to 70 feet.	3.5	2.6
70 to 90 feet.	4.5	3.4
90 to 130 feet.	5.0	3.7

Number of oysters required, per square yard, to yield a livelihood to oystermen using a dredge:

	Oysters at \$ .60 per bu.	Oysters at \$ .75 per bu.
At all depths.....	1.44	1.18





SKETCH ILLUSTRATING METHODS OF CONDUCTING THE SURVEY OF THE OYSTER GROUNDS OF MARYLAND

## METHODS OF OYSTER SURVEY.\*

### INFORMATION FURNISHED.

Before beginning the actual survey of oyster grounds the Commission is furnished by the United States Coast and Geodetic Survey with projections, constructed on a scale of 1 part in 10,000 (approximately 6 1-3 inches to a statute mile), showing the shore line of the localities to be surveyed and the plotted positions of the triangulation stations. The Coast and Geodetic Survey has a party in the field to erect signals above, and determine the position of such triangulation stations as are needed by the hydrographic engineers for use in making the survey of the oyster grounds.

Prior also to making a survey of any section the local assistant, appointed by the County Commissioners, gives information as to the approximate location and extent of the oyster grounds of the section so they can be indicated in pencil on the boat sheets. This information greatly expedites survey operations in that it makes surveys of barren bottoms unnecessary, and saves cost of erecting unnecessary shore stations beyond the limits of the natural oyster bars.

### EQUIPMENT.

The equipment for conducting the survey of the oyster grounds and crabbing bottoms includes boats, instruments, etc., a brief list and description of which follows:

The launch "CANVASBACK,"<sup>2</sup> with a coxswain and machinist, is furnished by the United States Bureau of Fisheries. This launch, 42 feet long, 9-foot beam, has a draft of three feet and is hence well adapted for work on oyster grounds the boundaries of which extend into water as shallow as four feet.

The "ANGLE," a dead-rise bateau, 24 feet in length, belonging to the Commission, is used for surveying grounds situated in water too shallow for the advantageous use of the launch "CANVASBACK." Before beginning field work in 1909 this boat was equipped with a four horse-power gasoline engine.

---

\* Modified from former report, in conformity with changes in methods.

<sup>2</sup> For a detailed account of the work and equipment of the Investigator, see pages 37 and 116 of First Report.

The steamer "GOVERNOR R. M. McLANE," belonging to the State Fishery Force and placed at the disposal of the Commission in accordance with Section 97 of the Haman Oyster Culture Law, has been used for surveying oyster grounds situated in the bold waters of the Chesapeake bay. This steamer has also been used for placing buoys at the corners of the natural oyster bars; towing the houseboat "OYSTER" from one anchorage to another, and for transporting supplies (coal, water and provisions) to the houseboat.

The launch "INVESTIGATOR,"<sup>1</sup> a bay canoe, 34 feet long with 7.5-foot beam, purchased by the Commission and fitted with an eight horse power Fairbanks gasoline engine, has been used since 1906 for making examinations of oyster grounds and for collecting data and specimens for the physical and biological investigations. During the season of 1906 various boats were hired for this work, but the necessity for increasing the number of examinations of the grounds surveyed was later realized and a launch more perfectly adapted for the work was therefore fitted up.

A scow, the "MARYLAND," 32 feet long, 12 feet wide and 3 feet deep, has been built and equipped by the Commission for use in transporting buoys and sinkers and placing them at the corners of the natural oyster beds. The scow is towed from place to place either by the launches or by the steamer "GOVERNOR R. M. McLANE" and the sinkers and buoys are dropped from her deck.

The following description of the houseboat "OYSTER" is copied from the report prepared by Captain C. C. Yates and published by the United States Coast and Geodetic Survey:

#### HOUSEBOAT "OYSTER."<sup>2</sup>

While arranging to turn over the command of the steamer *Endeavor*, the representative of the Survey, acting under preliminary instructions from the Superintendent, was engaged in frequent consultation with the Shell Fish Commissioners in reference to the program of future work. In addition to these duties, he undertook for the Commissioners the planning and supervision necessary to convert the old side-wheel steamer *Thomas L. Worthley* into a houseboat for the surveying parties of both the Commission and the Government.

The *Worthley*, now called the houseboat *Oyster*, was in excellent condition when purchased by the Commission. The keelsons and timbers were sound, and the upper works strong. After the removal of the old engine and boiler, the houseboat was docked and her hull thoroughly examined. The outside planking below the water line was found in good condition, and, although it was recalled,

<sup>1</sup> See frontispiece.

<sup>2</sup> See illustration opposite page 16.

it was done as an additional precaution, the hull having been absolutely watertight from the day of purchase.

The *Oyster* is about 135 feet over all and 35 feet in beam. The main deck contains living quarters for 27 men, the officers' mess-room and the galley. The upper deck has 11 staterooms, 5 for the 3 Commissioners and their 2 hydrographic engineers, 4 for the Coast Survey officers, 1 for the representative of the United States Bureau of Fisheries and 1 for the local county oyster commissioner. Besides these rooms, there are located on this deck a large drafting room, a laboratory for oyster investigation and an office room. Coal for the two Government launches and the galley is stored in the hold, which also contains fresh-water tanks having a capacity of about 7,000 gallons. Signal lumber is carried on the main deck aft of the officers' mess-room.

As a whole, the *Oyster* is plainly and practically equipped for the work to be done. She has added much to the amount of the surveying accomplished during the season, and the Coast and Geodetic Survey representative greatly appreciates the practical advantages furnished to his party by their quarters on the houseboat. When the large party of the combined surveying forces is taken into consideration with the limited accommodations usually obtainable on shore, the attending difficulties of a scattered party, the uncertain location and supply of coal and water for launches and sufficient lumber for signals, it is easily seen that the amount of work accomplished would have been reduced greatly if there had been no such houseboat as the *Oyster* to supply all requirements of the surveying operations.

With reasonable care and repairs, the *Oyster* will be a valuable asset to the Commission at the completion of the oyster survey of the State, besides having paid her first cost several times over in both quality and quantity of work accomplished.

The steam launch "INSPECTOR" and coal-oil launch "BLAKE," although not used by the Commission or its engineers directly, have nevertheless been a part of the equipment for the work of the survey. They belong to and were used by the Coast and Geodetic Survey party in erecting signals, placing monuments to mark the triangulation stations and for making the triangulation necessary to determine the geographical positions of the permanent objects and triangulation stations.

A number of small boats, furnished by the United States Coast and Geodetic Survey and Bureau of Fisheries, were also available for any purpose for which they might be needed.

The instruments (sextants, protractors and drawing instruments) and record books needed by the hydrographic engineers for conducting the survey of the oyster grounds have been provided by the United States Coast and Geodetic Survey.<sup>1</sup> The uses to which the instruments are put are stated further on.

Such instruments as have been found necessary for constructing leasing charts, for computing areas and for conducting the physi-

---

<sup>1</sup> Authorized by the Act of Congress approved May 26, 1906.



cal and biographical investigations<sup>1</sup> have been purchased by the Commission.

#### ORGANIZATION.

The organization of the party for hydrographic field work when fully completed is as follows:<sup>2</sup>

1 Hydrographic Engineer.	2 Oarsmen.
2 Asst. Hydrographic Engineers.	1 Boatswain (houseboat).
1 Draftsman.	1 Nightwatchman (houseboat).
1 Clerk (on houseboat).	1 Coxswain (Investigator).
1 Recorder.	1 Machinist (Investigator).
1 Leadsman.	1 Tide Observer.
1 Local Assistant.	2 Cooks.
1 Expert Tongman.	2 Waiters.

Day laborers for buoy construction and oarsmen have been hired as the exigencies of the work required.

#### METHODS.

The methods employed by the Commission in making the hydrographic survey of the oyster grounds of Maryland, with slight modifications, are the same as those used by the United States Bureau of Fisheries in conducting surveys of oyster grounds in other States, and by the Coast and Geodetic Survey in making hydrographic surveys.

The approximate position of an oyster ground having been pointed out by the local assistant, a zigzag or parallel series of lines of soundings is run over it by the engineers and their assistants in the launch "CANVASBACK," in order to ascertain its exact limits, the depth of water over it and the general condition of the bottom.

A chart, known as a "boat sheet" (a copy of a polyconic projection) showing the shore line of the waters of the section being surveyed and the plotted positions of the triangulation stations above which signals have been erected, is spread on a chart board in the launch before the engineers and upon this boat sheet the positions of the launch at the end of intervals of two or three minutes while

---

<sup>1</sup> The apparatus used in ascertaining the density of the water over the oyster grounds is the property of the United States Coast and Geodetic Survey.

<sup>2</sup> Changes having been made in the personnel of the party as the survey progressed from one section of the State to another, the names of employees are omitted.

running lines of soundings, are plotted by one of the engineers using a *three-arm protractor*<sup>1</sup>, or position finder, for the purpose.

The position of the launch at each of these intervals is determined by two angles, formed between the launch and three shore signals, observed and measured simultaneously by the engineers with *setants*<sup>2</sup>.

By connecting consecutive positions of the launch as thus plotted on the boat sheet, with straight lines, the course and position of the lines of soundings on the oyster ground is shown.

The three-point problem, which is involved in locating each of the positions occupied during the survey, is illustrated by figure 7, in which X represents the launch and A, B and C the signals on shore. The angles AXB and BXC are those taken by the engineers with *sextants* to locate the position of the boat at X. The right-hand angle BXC ( $75^{\circ} 48'$ ) is transferred to the vernier between the middle and right arms of the *protractor*, and the left-hand angle AXB ( $58^{\circ} 16'$ ) is transferred to the vernier between the middle and left arms. When the protractor is thus set and laid on the chart in such position that the left arm passes through the plotted position of signal A, the middle arm through the plotted position of signal B and the right arm through the plotted position of signal C the point in which the three arms of the protractor meet, (the centre of the hub) is the point on the chart representing the position of the boat when the sextant angles were taken.

All angles taken during the survey are plotted on the boat sheets by one of the engineers, while the other records the angles in an angle record book.

During the progress of the launch over an oyster ground the leadsman, occupying a cage attached to the deck on the starboard side, forward, throws his lead line at intervals of 20-30 seconds, measuring the depth of water and testing the bottom at each cast. Having made a sounding the leadsman reports the depth of water,

---

<sup>1</sup> A three-arm protractor (figure 1) is an instrument used for plotting observations made with sextants, of two angles to three known points for the location of the point of the observer. The description of the theory of the sextant and protractor and their use in hydrography requires the use of language too technical to be of general interest.

<sup>2</sup> A sextant (figure 2) is an instrument constructed for measuring the angle between two objects (signals) from the position of the observer.

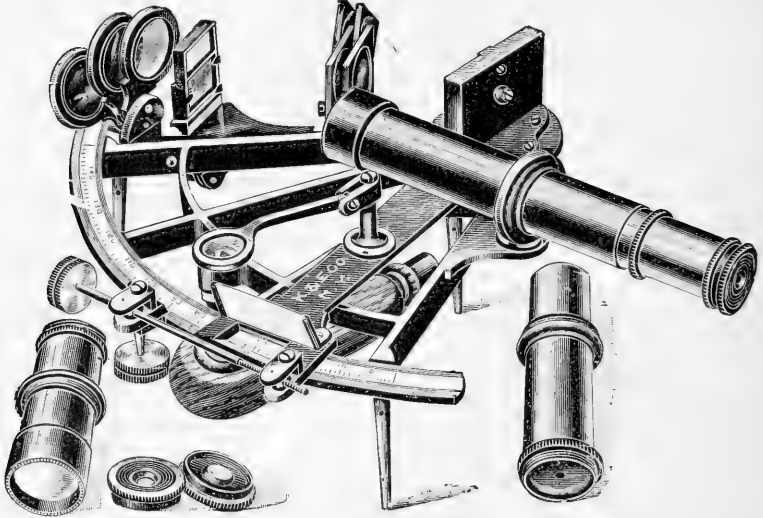


FIGURE 1

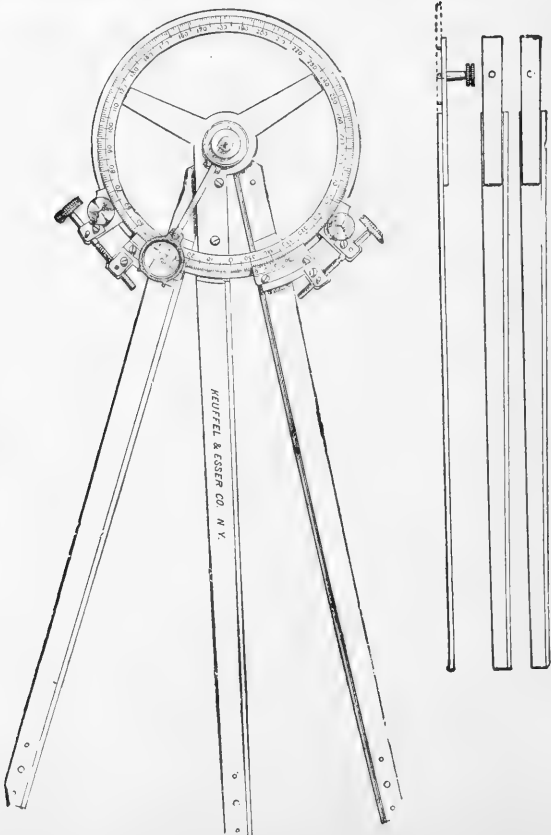


FIGURE 2

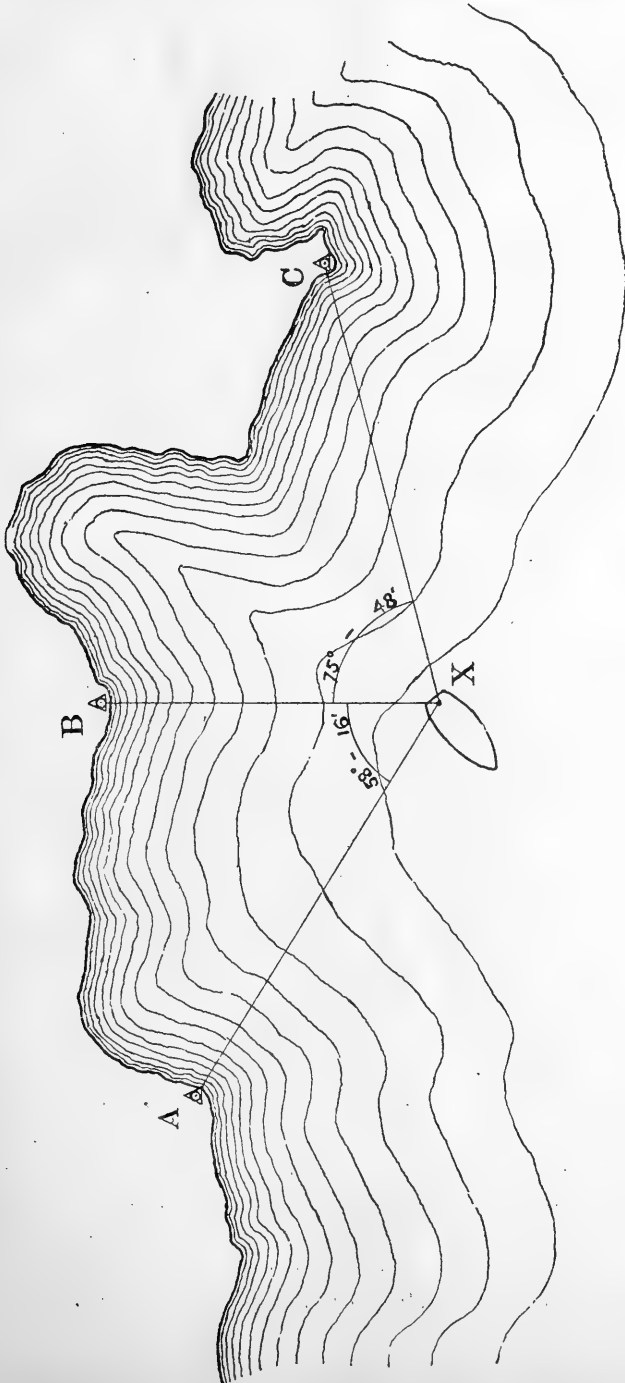


FIGURE 3

in fathoms and feet, and the character of the bottom in the following terms: soft, hard, sticky, rocky or grassy.

The recorder, seated in the after part of the launch with a clock before him, notifies the leadsman at the end of each 20-30 second interval, by means of an electric bell, that it is time for a sounding to be made, and in a sounding record book records the depth of water in fathoms and feet and character of the bottom as reported by the leadsman, in the following symbols: sft. (soft), stk. (sticky), hrd. (hard), rky. (rocky), or grs. (grassy).

The local assistant, operating the chain-wire apparatus from the forward port side of the launch, tests the oyster ground at the end of each 20-30 second interval and reports to the recorder his findings in the following terms: barren, very scattering, scattering, medium or dense. His report is given immediately following that of the leadsman and is recorded in the sounding record book with the initial letters of the terms used to describe the condition of the ground.

The chain-wire apparatus as it appears in operation is shown on the insert, opposite page 18 of this report. It consists in a piece of heavy chain to which a stout copper wire is attached. When running a line of soundings the chain at the end of the wire is towed over the bottom, and from the vibrations or lack of vibrations on the wire the condition of the ground is inferred. The vibrations are detected by holding the wire in the hand. When the drag is passing over barren bottoms the chain tows smoothly and evenly and no vibrations are transmitted to the wire, but when shells or oysters are struck by the chain the wire is made to jerk and vibrate. If the vibrations are infrequent the inference is that shells or oysters are very scattering, and when the vibrations become more frequent or constant, a scattering, medium or dense growth of oysters is inferred.

A small boat containing small buoys with 10-pound dumb-bells for sinkers, is towed behind the launch at a distance such that it remains above the position of the *chain drag* on the bottom. At points on each line of soundings small buoys are cast over to mark stations to be occupied and remains above the position of the chain drag on the bottom. At points on each line of soundings, small buoys are cast over to mark stations to be occupied and examined by the "INVESTIGATOR" which, with an expert tongman, follows the survey

launch (see illustration opposite page 18). The position of each buoy on the line of soundings and the number of each is recorded in both the angle record and sounding record books. Their positions, indicated by small flags, are also plotted on the boat sheets (see page 24).

Between consecutive plotted positions of the launch in a line of soundings, shown in figure 8 by the numerals above the lines (32-41), seven observations of the depth of water, character of the bottom and condition of the oyster ground have been made. The positions of these observation stations may be plotted on the lines of soundings by dividing the part of the plotted line between consecutive positions of the launch, into eight equal spaces, the points separating these spaces indicating the positions of the sounding stations. The findings of the local assistant with the chain apparatus at these stations are indicated by writing the symbols B, V, S, S, M or D below the lines as shown in figure 8.

The results of the use of the chain-wire apparatus having been thus plotted on the lines of soundings, the limits of the oyster or shell covered bottom are then shown upon the boat sheet by drawing a line (X-Y and M-N in figure 8) across the ends of the lines of soundings through the spaces which separate the soundings, indicating barren bottom, from those indicating the presence of shells or oysters.

This line, indicating the limit of the oyster-producing bottom, does not mark the official limits of the oyster ground, but it serves as a guide for enclosing the ground within a straight-sided figure (see figure 6 on page 73) such as is designated shall be used to define the limits of the natural bars by Section 90 of the Haman Oyster Culture Law.

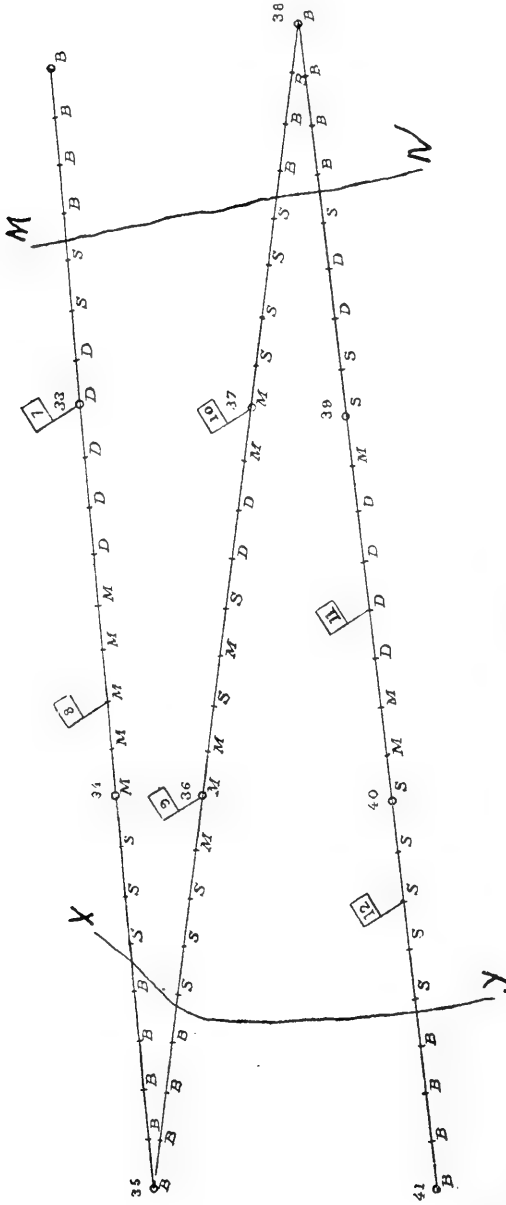


FIG. 4

THREE LINES OF SOUNDINGS PLOTTED TO SHOW:

- (A) POSITIONS LOCATED BY ENGINEERS: 33, 34-41.
- (B) CONDITION OF BOTTOM: B, S, M, D, ETC.
- (C) STATIONS MARKED FOR EXAMINATION: FLAGS 7, 8-12.
- (D) METHOD OF PLOTTING LIMITS OF OYSTER-PRODUCING AREA: CURVED LINES.



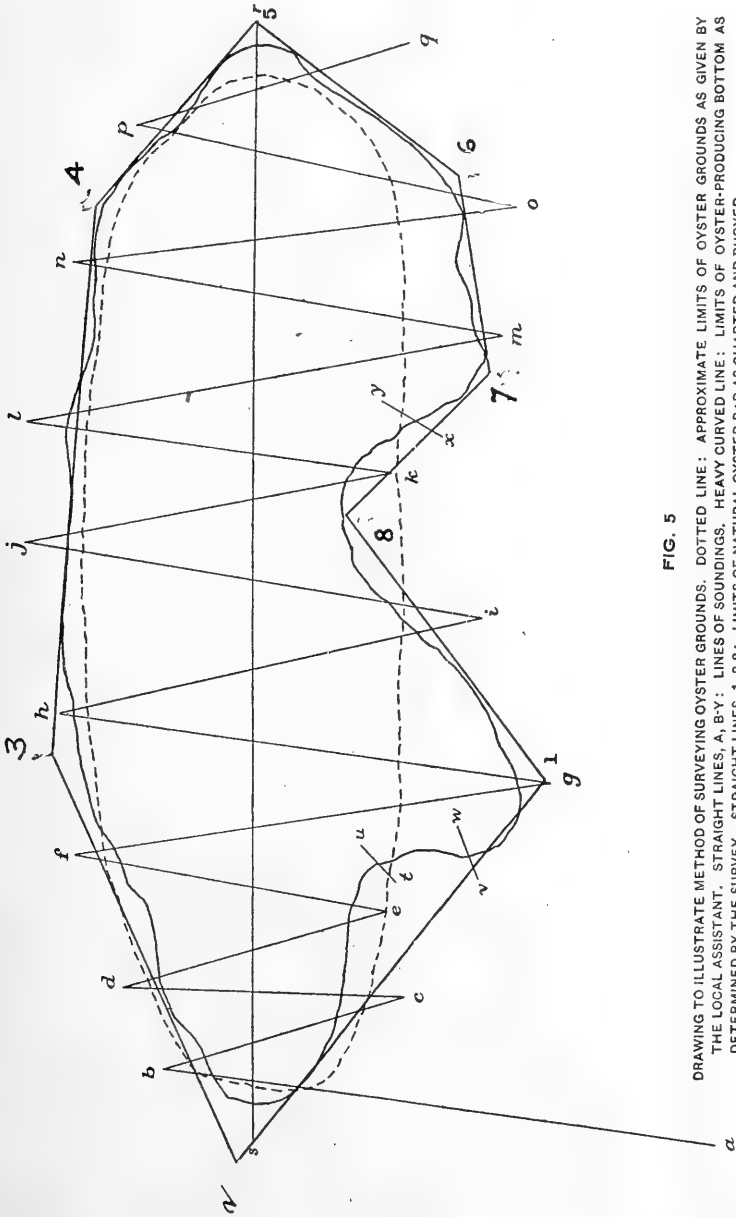


FIG. 5

DRAWING TO ILLUSTRATE METHOD OF SURVEYING OYSTER GROUNDS. DOTTED LINE: APPROXIMATE LIMITS OF OYSTER GROUNDS AS GIVEN BY THE LOCAL ASSISTANT. STRAIGHT LINES, A, B, Y: LINES OF SOUNDINGS. HEAVY CURVED LINE: LIMITS OF OYSTER-PRODUCING BOTTOM AS DETERMINED BY THE SURVEY. STRAIGHT LINES, 1, 2-8: LIMITS OF NATURAL OYSTER BAR AS CHARTED AND BUOYED.

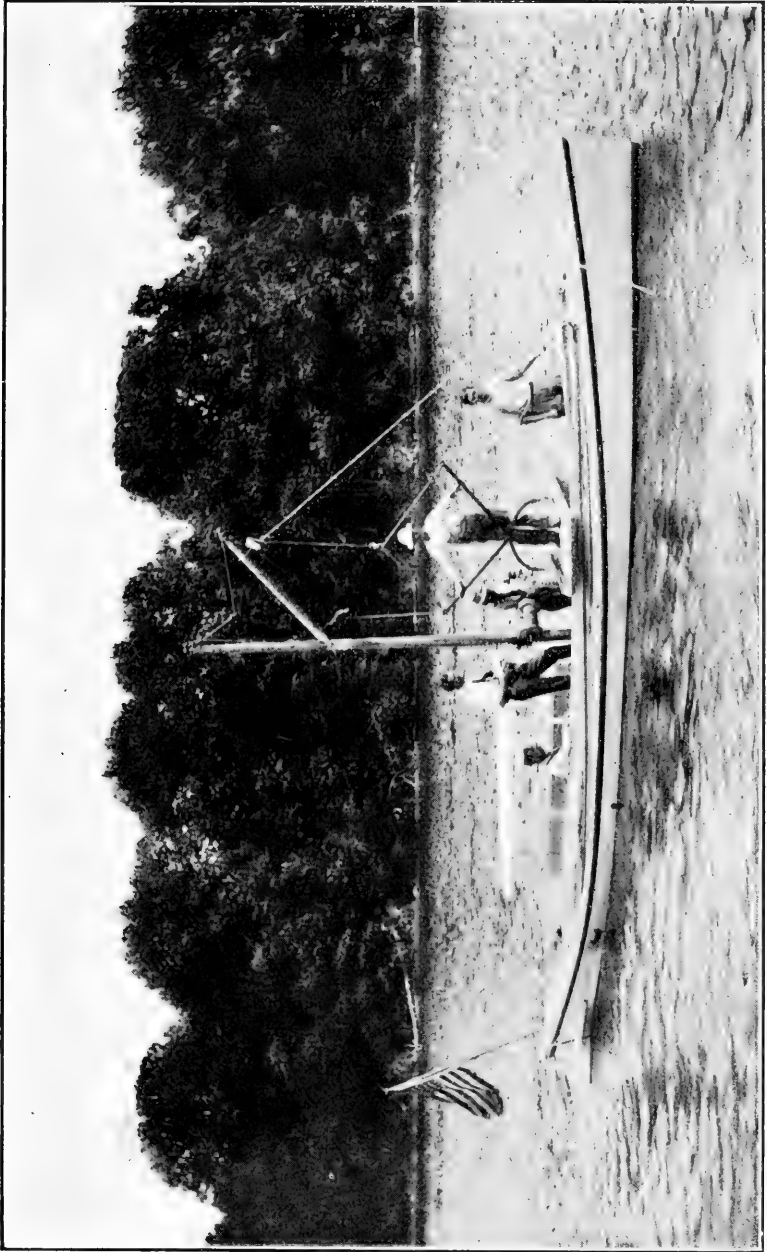
REPORT OF SURVEYS AND EXAMINATIONS OF  
OYSTER GROUNDS.

## FOREWORD.

As in the former report, the survey of the oyster grounds is described herein as having proceeded from north to south in the counties on the Western Shore, and from south to north in the counties on the Eastern Shore. Grounds located in sections designated by law for the exclusive use of tongmen in each county are described first, the descriptions of grounds on which scrapers or dredgers may work following.

All facts relating to natural oyster bars which lend themselves to a statistical form of presentation, such as names, dates, areas, numbers of corners, conditions as represented by number of oysters per square yard or bushels of oysters per acre, are included in tables, one set for each county, placed after the text in each case. Subject-matter which can not be satisfactorily reported by the statistical method is given in the text.

The feature of the Maryland Survey which distinguishes it from former surveys of oyster grounds, and which gives it its right to be considered a real investigation of the oyster grounds of Maryland, is that of the series of examinations carried on in connection with the lines of soundings and chain-wire readings. The results of these examinations constitute the basis upon which the status of the grounds, whether natural oyster bar or leasable bottoms, is determined by the Commission. It was very early realized that the accuracy of the final results of the survey depends not only upon the accuracy of the method by which the examinations of the oyster producing bottoms are carried on, but to a very large extent also upon the number and proper location of the stations at which examinations are made. The Commission has, therefore, endeavored to increase the number of these examinations to the fullest capacity of the equipment for this work and to perfect the methods by which the examinations are carried on. The following statement of the number of examinations of the surveyed bottoms made during the



"THE INVESTIGATOR"  
AS MANNED AND EQUIPPED FOR EXAMINING OYSTER GROUNDS



four seasons occupied by the oyster survey, shows to what extent this plan has been carried out:

Examinations made during 1906 (half season).....	440
Examinations made during 1907.....	988
Examinations made during 1908.....	2,252
Examinations made during 1909.....	3,164

The names of the practical oystermen engaged by the Commission to make the examinations of the bottoms surveyed during the period covered by this report, are given in the list which follows:

Harry Neavitt, Baltimore county.....	64	Examinations.
George R. Scoone, Kent county.....	990	Examinations.
H. S. Scoone, Kent county.....	59	Examinations.
H. L. French, Kent county.....	102	Examinations.
L. E. Jones, Queen Anne's county.....	579	Examinations.
A. W. Marshall, Queen Anne's county.....	1,351	Examinations.
H. L. French, Queen Anne's county.....	19	Examinations.
Total.....	3,164	Examinations.

Observations on the rate of flow of currents over the grounds at the examination stations have been largely discontinued because the time required for making them has been needed for multiplying the number of examinations of the oyster grounds and also because of the availability of the extensive series of current observations made in the bay by the Coast and Geodetic Survey. The results of these observations can be supplemented in any particular locality when needed.

Observations on the density of the water in each locality at the time of the survey, and on the character of the bottom upon which the oyster bars are found, have been continued and samples of water have been regularly taken from the oyster bars for a study of the quantity and quality of the available oyster food, as this work in no way retards the progress of the survey.

No attempt is made either in the text of this report or on the published charts to give information with regard to the limits or extent of the various kinds of bottom on which the oyster bars were found to extend, but such information may be secured for any of the grounds covered by the survey by reference to the records of the surveys and examinations which are filed in the office of the Commission at Baltimore.

In making the estimates of the quantity of marketable oysters each natural bar may be expected to yield during the season following that of the survey, it is estimated that *one-third* of the market-

able oysters available on the bottom one season, will remain on the bar at the end of the season, and that *one-half* of the oysters which are less than two and one-half inches in length (culls) one season, will have grown to marketable size before the opening of the next. These estimates are intended to show whether the bars are tending toward depletion or toward continued productivity. They are thought to be fairly accurate for such natural bars as have a hard foundation, for on such bars, oysters and shells are usually fairly continuously distributed. For bars which cover bottoms composed of soft mud the estimates are not to be considered accurate, because on such bottoms oysters grow in dense patches or lumps, the bottom between being entirely barren.

The quantities of oysters taken by the tongmen at the examination stations are made the basis for the estimates of the yield of the natural bars, and the estimated yield is therefore in excess of the actual, for the stations selected by the local assistants for examination are usually those which the chain-wire apparatus indicated to be better stocked with oysters than the adjacent areas.

The number of licenses issued to oystermen during successive oyster seasons afford an index to the general condition of the public oyster grounds in the various parts of the State and supplies a fairly satisfactory basis upon which to estimate the total quantity of oysters yielded by the public oyster grounds of the State during any particular season. For this reason the following table is introduced:

TABLE SHOWING ALL LICENSES ISSUED TO OYSTERMEN IN MARYLAND DURING THE OYSTER SEASONS SINCE 1906.

County.	To Tongmen.				To Scrapers.				To Dredgers.			
	1906	1907	1908	1909	1906	1907	1908	1909	1906	1907	1908	1909
Anne Arundel	847	770	1211	1198	.....	.....	.....	.....	13	6	6	5
Calvert.....	733	754	790	719	.....	.....	.....	.....	23	24	34	27
Charles.....	197	260	222	179	.....	.....	.....	.....	1	.....	2	2
Dorchester..	1168	1054	1039	951	401	412	412	400	83	72	65	28
Kent.....	449	541	666	593	.....	.....	.....	.....	.....	.....	.....	.....
Queen Anne's	429	497	519	468	.....	.....	.....	.....	.....	.....	.....	.....
Somerset....	513	376	364	351	428	324	442	303	320	371	388	356
St. Mary's..	1015	1044	878	755	.....	.....	.....	.....	50	78	91	90
Talbot.....	632	706	625	457	101	104	115	206	18	21	39	26
Wicomico...	756	435	496	409	.....	.....	.....	.....	4	5	10	6
Worcester...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Balto. City..	.....	.....	.....	.....	.....	.....	.....	.....	32	61	49	38
Total.....	6559	6437	6810	6080	930	840	969	909	544	638	684	578

An approximately correct estimate of the total number of bushels of oysters taken from the public oyster grounds during any oyster season may be secured by multiplying the total number of licenses issued that season to *tongmen*, *scrapers* and *dredgers*, by 450, 1,500 and 3,500 respectively, these numbers representing the quantity of oysters a tongman, scraper or dredger must catch during an oyster season in order to have secured a livelihood.

It often happens during seasons when oysters are scarce or are poor in quantity or when the price of oysters is abnormally low, that oystermen do not continue to work throughout the entire season and for such seasons the *estimated* total yield of the oyster grounds, made on the proposed basis, would likely be very considerably greater than the *actual* yield.

## BALTIMORE COUNTY.

### CHESAPEAKE BAY.

(Maryland Oyster Chart No. 28.)

The waters lying within the territorial limits of Baltimore County are too fresh to support the growth of oysters, but the section of the Chesapeake bay contiguous to Baltimore County and hence, under provision of the law, to be opened for lease for oyster culture with Baltimore County, contains a considerable portion of those bottoms, very prolific in small oysters, collectively known as "The Lumps."

The section may be roughly described as that portion of the bay situated west of a line marking the mid-bay channel between the mouths of the Gunpowder and Patapsco rivers. Its boundary lines, established by the Maryland Shell Fish Commission for the purposes of carrying out the provisions of the law, are delineated on Maryland Oyster Chart No. 28, and are technically described and defined in the U. S. Coast and Geodetic Survey report entitled "Survey of Oyster Bars—Baltimore County."

The oyster bars of the section are designated for the use of dredgers, and their output, frequently of very considerable quantity, is eagerly taken by the packers of Baltimore.

Formerly the bottoms in this section on which oysters "set" and grew, were much greater in area and had a much more general dis-

tribution than now. The bottoms which were stocked with living oysters at the time of the survey, September and October, 1909, were confined to the open part of the bay near mid-channel and they have been reserved for the public oyster fishery within the limits of three natural bars<sup>1</sup> aggregating an area of 3010 acres.

Several shelly bottoms, aggregating an area of about 2000 acres, which have been more or less productive within recent years, were found to be entirely barren of living oysters at the time of the survey and were not included within the limits of natural bars. Boxes<sup>2</sup> were occasionally found at some of the examination stations on these exhausted bottoms near the lower end of Hart Island, but none on the bottoms off Millers Island.

Observations made at Tolchester wharf from August 6 to 11, 1909 indicate a maximum range of the tide for the section of 1.8 feet—a mean range of 1.01 feet.

Specimens of water collected at the examination stations during the period occupied by the survey (the dry season) showed a density of 1.0082 at low tide and 1.0108 at high water, a condition very favorable at that time, for the attachment of spat and growth of oysters, being thereby indicated. No exact measurement of the density of the water in this section during the early spring (wet season) has been made,<sup>3</sup> but it is a well known fact that at this season the water becomes so fresh from the inflow of the Susquehannah River and other head water tributaries, that the oysters are stunted in their growth, and that spring freshets are sometimes so heavy and so long in duration as to kill practically all of the oysters. The quantity of sediment brought down during these freshets is enormous, and when deposited on the oyster beds, adds to the injury done by the fresh water by smothering the oysters and burying the shells. That conditions had been severe over this section during the spring of 1909 is shown by the large number of "boxes" taken at the examination stations.<sup>4</sup>

---

<sup>1</sup> See table of oyster bars, on page 33.

<sup>2</sup> A "box" is an oyster shell in which the hinge has not been broken. The inference from such a shell is that the oyster is but recently dead.

<sup>3</sup> Arrangements have been completed for making a series of simultaneous observations of the density of the water at several stations throughout the Chesapeake Bay from the Capes to Poole's Island Light during the months of April and September, 1911.

<sup>4</sup> See page 32.



The boundary line between the contiguous waters of Baltimore and Kent Counties passes through the oyster grounds generally known as *Tea Tables* and *Gales Lump*, and for convenience in description, charting and buoying, the parts of both grounds lying on the Baltimore County side, have been placed together and charted as one bar and given the name *Tea Table*, the name *Gales Lump* being given to the parts of these grounds situated on the Kent County side.

*Tea Table* bar as laid down on the oyster chart includes the numerous small oyster lumps situated on the soft muddy bottoms at the lower end and on the eastern bank of the blind channel, or slough, west of the "middle ground" upon which *Gales Lump* bar has been developed. It also includes a large area of more or less continuous oyster bar on the hard, sandy and sticky bottoms on the western part of the middle ground. The general level of the channel bottom upon which the lumps at the lower end of the bar are situated, is 19 to 22 feet below the level of mean low water. The oyster-bearing lumps rise several feet above the surrounding bottom, however, the depths over the lumps varying from 9 to 12 feet, hence the appropriate name of *Tea tables* for the whole area. The depth of water over the high sandy middle ground is about 11 feet, grading off to depths of 13 to 21 feet over the sticky and soft bottom west of the middle ground.

The results of the examinations made on this bar indicate that 55 per cent. of the oysters with which it was stocked during the Fall and Winter of 1908 were killed during the Spring of 1909, and that 48 per cent. of the oysters with which it was stocked at the time of the survey had attached to the shells during the Summer of 1909. They afforded evidence also that the destructive effects of the Spring freshets had not been equally severe over the whole area, for at some of the stations no dead oysters (boxes) were found, at others a small percentage only were dead, and at others the percentage of dead oysters among the living was as high as 50 and 75.

The natural oyster bar to which the name *Millers Island* has been given includes the lumps of the soft muddy bottom on the west bank of the slough opposite *Tea Table* bar and the adjacent sandy bottom upon which oysters and shells were found. It is covered with water 10 to 19 feet in depth. All of the oysters and "boxes" taken at the examination stations were small, none being 2½ inches

in length. The results of the examinations indicated that 57% of the oysters on the bar were killed during the Spring of 1909, and that 37% of the living oysters on the bar at the time of the survey were the "set" of 1909. The "cultch" on the sandy parts of the bar consisted in worn fragments of shells.

*Man O' War Shoals* bar occupies the sand bar of that name and also includes the lumps which have been developed on the soft muddy bottoms in the deeper water surrounding it. The Front Range Light for Craighill channel is situated near the north-west corner of the bar. The depth of water over the high central ridge of the sandy shoal is from 4 to 8 feet, but oysters were taken in water 17 feet deep. In the arms of the slough into which the eastern end of the bar extends, much greater depths were observed. At 10 examination stations on *Man O' War Shoals* bar 6 bushels of shells were taken from 18.5 square yards of bottom. From this material 16 oysters more than 2½ inches in length (marketable) and 99 oysters less than 2½ inches long (culls) and 187 recently dead oysters (boxes) were culled. These findings are taken to indicate that 62% of the oysters on *Man O' War Shoals* bar were killed during the Spring of 1909 (10 of the culls were "spat" caught since the Spring). They also show that an average square yard of the bottom on the oyster producing part of the bar was stocked with 1.2 pecks of shells, 10 dead oysters, 5.3 small oysters and .8 marketable oysters. The stock on the bar is not equally distributed, however, as is shown by the following table giving the findings at each station:

FINDINGS AT EXAMINATION STATIONS ON MAN-O-WAR SHOALS BAR.

Stations.	Depth. Feet.	Area Covered. Sq. Ft.	Culls.	Material Taken. Counts.	Boxes.	Shells.
1.....	15	2	1	..	8	1.5 Pecks.
2.....	16	2	6	2	16	1.5 Pecks.
3.....	14	2	1	..	12	1.5 Pecks.
4.....	12	1.75	3	..	22	4 Pecks.
5.....	17	1.4	8	..	55	4 Pecks.
6.....	11	2.3	16	..	9	4 Pecks.
7.....	7	3.7	2	..	..	2 Pecks.
8.....	13	1.1	38	14	13	1 Peck.
9.....	12	.75	20	..	41	3 Pecks.
10.....	11	1.5	4	..	11	1.5 Pecks.
Total.....	..	18.5	99	16	187	24 Pecks.
Average.....	..	..	5.3	.8	10	1.2 Pecks.



## KENT COUNTY.

## INTRODUCTION.

The waters within the territorial limits of Kent County and the waters contiguous to the county, in which natural oyster bars were surveyed and examined in 1909, include the part of Chester river above its deep water channel (the Kent-Queen Anne County boundary line\*); the tributaries of the Chester river which enter it from the north; the waters designated in this report as East Neck bay; Swan creek, and that section of the Chesapeake bay adjacent to Kent County which lies east of the line\* marking the mid-bay channel between the Kent-Queen Anne's County boundary line, extended,\* and a line connecting Hardys Point, at the mouth of Wor-ton creek, with the northernmost point of Pooles Island.

Within these waters sixty-four natural oyster bars, aggregating a total area of 12,809 acres, have been charted and buoyed and reserved to the public oyster fishery of the State.

The oyster bars lying within the section of the bay contiguous to Kent County, exclusive of Swan point bar,† are designated for the use of dredgers. They are eight in number and cover 2,880 acres.

The oyster bars in all other waters in Kent County, including Swan point bar, are reserved for the exclusive use of tongmen. They are fifty-six in number and cover 9,920 acres.

Statistical tables are printed on pages 44-47, in which may be found the name, date of survey, area and condition of each bar at the time it was examined and the quantity of oysters each bar may be expected to yield during the season of 1910-1911.

In none of the localities in which conditions favorable to the growth of oysters are constant, were the oyster grounds found to be seriously depleted from over-fishing, but in those localities where certain natural conditions are adverse to the growth of oysters

---

\* The exact locations of these lines are shown on Charts of Natural Oyster Bars, Nos. 28, 29 and 30, and their technical descriptions are given in a report entitled "Survey of Oyster Bars of Kent County," to be published by the U. S. Coast and Geodetic Survey and filed in the office of the Board of Shell Fish Commissioners and with the Clerk of the Court of Kent County.

† Section 19 of Article 72 of the Code of Public General Laws prohibits the use of dredges within one and one-half miles of Swan Point bar.

during all or a part of the year, such as the head waters of Chester river and its tributaries and the Chesapeake bay, some oyster grounds were surveyed and examined which failed to come up to the adopted standard of a natural oyster bar and were not reserved to the public oyster fishery.

The exhausted and barren bottoms located in parts of Chester river and its tributaries are valuable for growing and fattening a limited quantity of oysters; the quantity they will support per acre depending upon the area of productive oyster grounds in their immediate vicinity and depending also upon the rate with which the water flows over them. If too many oysters are planted on these bottoms none will fatten and many will die.

The depleted and barren bottoms located in the part of the bay adjacent to Kent County will become of very great value for oyster culture when the planting industry in the State shall have grown sufficiently to create a demand for large quantities of *seed oysters*, for there is every reason to believe that a good catch of spat will be the usual result of exposing cultch during the late summer season in this section.

In determining the status of the oyster grounds surveyed in Kent County, a price of sixty cents per bushel was adopted as a maximum value for the oysters produced. The table by which determinations were made is printed on page 14.

Four applications were received by the Commission in 1906 from persons desiring to continue to hold the oyster lots under the present law which they had leased in Kent County under former law, but in one case only has a lease been perfected.

#### CHESTER RIVER.

(Shown on charts of natural oyster bars Nos. 29 and 30.)

Natural oyster bars are found in Chester river proper, from the mouth of the river to a point about five miles below Chestertown. The mouth of the river is considered by the Commission to be marked by a line about three and one-half miles in length, connecting the northernmost point on Kent island with the nearest point on Wickes beach. The oyster bars in the half of the river lying within the territorial limits of Kent County (the part north of the line marking the mid-river channel) are 27 in number and

aggregate an area of 3,734 acres. They form an almost continuous chain from the mouth of the river to Melton point; the few interruptions to the chain being due, in some cases, to the presence of sand bars and muddy channels, in others to overworked and exhausted oyster grounds. The exhausted areas, however, more often involve the parts of bars only which are situated on the hard bottom in the shallower waters near shore, the deeper lying parts of such bars, situated on soft bottoms off shore, not having been depleted to exhaustion.

The oyster bars are confined to the shelf of bottoms between the shore and the edge of the deep mid-river channel. The channel in the Chester river usually presents abruptly sloping sides and very soft, muddy bottoms, and forms a barrier beyond which the oyster bars do not extend, although they have spread over much of the muddy and sticky bottoms in the deep water near, and sometimes quite to, the channel edge. The parts of the bars located on the bottoms of soft mud beyond the harder borders of the shelf are not uniformly oyster-bearing, but present the usual lump formation peculiar to all oyster-bearing muds. None of the oyster bars belonging to the Kent County half of the river extend into the waters of Queen Anne County, but parts of four of the Queen Anne County bars extend across the boundary line into Kent County; viz., *Northwest*, *Hollyday*, *Sheep* and *Piney Point* bars. This is due to the fact that the boundary line is intended to divide the river as equally as possible and at some places does not follow the main channel.

Oysters begin to be found near shore at about the 5 or 6-foot depth curve and end in depths varying from about 40 feet, in the lower part of the river, to about 10 feet in the upper part.

The density of the water of the river, according to frequent tests made at examination stations on the oyster bars, during June and part of July, was 1.004-1.0064 in the upper part; 1.0042-1.008 in the central part and 1.0062-1.0089 in the lower part.

A very few observations were made on the velocity with which the water flows near the mid-river channel. These indicate a maximum velocity at points in the vicinity of Piney Point, of .85 mile per hour; .5 mile per hour over Chester river middleground and .9 mile per hour off Melton point.

The record of daily observations on the rise and fall of the tide at Cliffs wharf from June 2d to 30th shows a maximum range of

the tide for the period of 3.10 feet and a mean range of 1.4 feet. The maximum range at Love Point Light, indicated by observations made from July 9th to August 4th is 2.4 feet, the mean range, .88 foot.

The oyster bottoms in Chester river proper which were surveyed, but which, upon examination, failed to measure up to the adopted standard of a natural oyster bar, aggregate a total area of about 850 acres. These exhausted oyster bottoms, varying in size from 3 to about 200 acres, are distributed at numerous places along the entire river shore beginning at a point about two miles above *Melton Point* oyster bar. In addition to this exhausted bottom there are barren bottoms thought to be suitable for oyster culture aggregating an area of about 150 acres in the immediate vicinity of the exhausted bottoms, making in all about 1,000 acres of bottom on the Kent County side of the Chester river on which oyster culture could be carried on with profit.

#### LANKFORDS BAY.

(Shown on chart of Natural oyster bars, No. 30.)

Lankfords bay, at the point where it joins Chester river, is about three-fourths mile in width. Two miles above its mouth where it has a width of about half a mile, it divides into an east fork and a west fork, each of which is productive of oysters, the former to a distance of about three miles, the latter to a distance of two miles. Five oyster bars are located in the part of the bay below its fork, three in the east fork and four in the west fork, all of which were charted to contain 493 acres.

In practically all localities where the bottoms are formed by either soft mud or bald sand, oyster bars were either absent or had been exhausted.

With the exception of *Drum Point* bar, the productive oyster grounds in the part of the bay below the fork are confined to the sticky mud bottoms on either side of the mid-channel over which the depth of water varies from 8 to 23 feet. The part of the channel included within the limits of *Drum Point* bar, although 38 feet in depth, was stocked with oysters. The channel at other places is deep, soft and barren, but as it is narrow and not suitably located for oyster culture it was thought proper to include it with the

oyster-bearing bottoms on either side, thus reducing the number of natural bars and simplifying the work of charting and buoying the same. In both the east and west forks of the bay the productive oyster grounds occupy the soft sandy, muddy bottoms in and near the middle of the stream where the depths of water vary from 9 to 19 feet.

In June the water over the oyster bars at the head waters of the forks had a density of 1.0015-1.0034, and 1.0028-1.004 in the part of the bay below the forks.

The bottoms in Lankfords bay available and suitable for the purposes of oyster culture aggregate an area of about 275 acres and are distributed as follows: about 100 acres in east fork, 90 acres in west fork and 85 acres in the bay proper. About 200 acres of this planting bottom was once covered with productive oyster bars.

#### GRAYS INN CREEK.

(Shown on chart of natural oyster bars No. 30.)

Grays Inn creek is a small inlet from Chester river having a width at its mouth of half a mile and a length of about three miles. It is nowhere deep, the depths found over the oyster grounds ranging from 18 to 5 feet. The supply of fresh water is very small compared with the amount of brackish water brought into it from Chester river by the tide, and until recent years it has been productive of oysters to a point two miles above its mouth. Bottoms of soft and sticky mud prevail throughout the channel, and in many places extend quite to the shore. The bottoms near shore are sandy or gravelly and stony, and in some localities they were covered with grass.

At the time of the survey the water over the oyster grounds had a density of 1.0046 to 1.006.

One large oyster bar containing 93 acres occupies the bottoms of the lower part of the creek and extends into Chester river where it joins *Willow Bottom* bar. The four small grounds surveyed in the upper part of the creek did not measure up to the adopted standard of a natural oyster bar either in condition or in area and were not charted.

The amount of barren bottom in Grays Inn creek available and suitable for the purposes of oyster culture is about 100 acres, one-



half of which is known to have been productive of oysters in former time.

EAST NECK BAY.

(Shown on chart of natural oyster bars No. 29.)

East Neck bay is the name given by the Commission to those waters situated between the mouths of Chester river and Swan creek, east of Swan Point bar and the line which separates the waters of the Chesapeake bay in which dredging may be carried on, from the waters along the Kent County shore where oysters may be taken with tongs only.

Within these waters eight natural oyster bars charted to contain 2,238 acres have been reserved to the public oyster fishery. Bottoms were pointed out by the local assistant for survey and examination, however, which cover not less than 3,000 acres, and it was evident that the entire strip of bottoms, five and one-half miles in length and averaging more than three-fourths of a mile in width, situated along the shore between the mouths of Chester river and Swan creek, has been productive of oysters until quite recently. At four places on the surveyed area, grounds aggregating about 600 acres were found on which the stock of oysters and cultch had been practically exhausted.

Soft and sticky mud bottoms are confined to a very narrow strip bordering the channel south of Swan Point sand bar, and to the middle and edges of the channel between Swan Point sand bar and the Kent County shore. At other places the area surveyed has a bottom of hard sand. The soft bottoms of the channel north of Huntingfield point were stocked here and there with oysters, but below this point the channel is barren.

The water over the oyster grounds had a density of 1.005-1.007 during the latter part of July, 1909. The maximum range of the tide at Love Point Light from July 9th to August 4th was 2.4 feet, the mean range, .88 foot.

SWAN CREEK.

(Shown on charts of natural oyster bars Nos. 28 and 29.)

The waters of Swan creek are considered by the Commission to enter East Neck bay along a line connecting Wind Mill point and Swan point. It has a wide, bay-like entrance into which Tavern

creek empties. This tributary is less than one hundred yards in width at its mouth and its bottoms do not therefore come within the jurisdiction of the Haman Oyster Culture Law. The oyster producing part of Swan creek proper is also small, being little more than two miles in length and averaging about one-fourth of a mile in width. The value of its 70 acres of natural oyster bar is due to the fact that a large community of oystermen is settled in its vicinity. These oystermen resort to the extensive oyster bars in East Neck bay and to *Swan Point* bar for the greater part of their livelihood and pay very little attention to the oysters on the Swan creek grounds except at times when rough weather prevents work in open waters. That the small bars in Swan creek are regularly worked to their fullest capacity, however, is shown by the condition in which they were found at the time of the survey.

Two oyster bars were found on the sandy bottoms of the wide, bay-like entrance to the creek, one situated in and beyond the mouth of Tavern creek, covering 12.5 acres and charted under the name *Tavern Creek* bar, the other, *Little Neck* bar, is situated west of the channel and includes a part of the soft muddy bottom near the channel on the north. It contains 27 acres and is covered by water having a depth from five to fourteen feet. The grounds in Swan creek proper which measured up to the adopted standard of a natural oyster bar cover 30.5 acres and have been charted within the limits of five small bars.

*Deep Point* bar, situated in the narrow muddy channel just above the steamboat landing, is the only bar in the creek which can be said to be well stocked. Its fine condition is due partly to the deep water with which it is covered and protected, but mainly to the swift currents by which its oysters are fed. The bars in the upper part of the creek are all situated near shore, in shallow water, on bottoms the greater area of which are composed of hard sand, but some are stony and gravelly and some are soft. *Swan Creek Upper* bar as charted contains two very small bars, one on either side of the stream, and the part of the barren channel between.

The water over the oyster grounds in the lower part of the creek had a density of 1.0052-1.006 and 1.0044-1.005 in the upper part. Observations from the houseboat "OYSTER" at the Rock Hall anchorage from August 1 to 5, inclusive, show that the density varied with the tides from 1.0046-1.007.

Barren and exhausted bottoms suitable for oyster culture covering about 40 acres will be available for lease when the county is opened.

CHESAPEAKE BAY.

(Shown on charts of natural oyster bars Nos. 28 and 29.)

The lines bounding the section of the Chesapeake bay adjacent to Kent County, to be opened with the territorial waters of Kent County, which have been established by the Shell Fish Commission for the purpose of leasing the underlying barren bottoms for the purpose of oyster culture, are described in this report on page 34, and they will be technically described and defined in a report entitled "Survey of Oyster Bars of Kent County," prepared by Captain C. C. Yates in co-operation with the Shell Fish Commission, and published by the U. S. Coast and Geodetic Survey.\*

In this section of the bay nine natural oyster bars which have been charted to contain 6,172 acres, have been reserved to the Public Oyster Fishery of the State. From eight of these bars oysters may be taken with dredges, but, as stated on page 34, *Swan Point* bar has been set aside for the exclusive use of tongmen.

*East Neck Bay* bar as charted appears to be continuous with *Love Point* bar, the two being separated by the Kent-Queen Anne boundary line. The oyster producing part of the reserved bottom, however, is confined to the hard sandy area situated northeast of the deep, muddy channel at the end of *Love Point* sandbar. The water over the bar varies in depth from 20 to 30 feet. As a whole the bar was found to be very much depleted and about 90 acres of the bottoms pointed out for survey and examination failed to measure up to the adopted standard of a natural bar, and was not included within the limits of the reserved area.

*Swan Point* bar, which constitutes a very considerable part of the ground on which the tongmen of Rock Hall and vicinity secure their livelihood, does not include the sand bar of that name, but lies west of it. Something more than one-half of the bar, the part south of *Swan point*, is situated upon bottoms composed almost entirely of sand, but with sufficient sediment intermixed to produce

---

\* Copies of this report, and the accompanying charts, can be secured by applying to the Superintendent of the U. S. Coast and Geodetic Survey, Washington, D. C.

an ideal oyster bottom, and it supports a practically continuous growth of oysters. The depths of water over this part of the bar vary from 8 feet to 25 feet. The bottoms upon which the northern half of the bar is situated are mostly soft or sticky and the oysters grow in lumps and patches. The depth of water over the inshore limits of this part of the bar averages about 13 feet except at the extreme northern end where the depth is about 5 feet and the bottom hard and stony. The depths over the outer limits vary from 28 feet to 45 feet.

The seven bars which remain, lie within the area generally known as the Lumps, and a considerable portion of their bottoms is soft and unproductive. Each bar, *Mitchell's Bluff Buoy* bar excepted, contains one or more hard, sandy shoals, however, on which a continuous growth of oysters or a good stock of cultch is found. It is probable that oysters became established first on these shoals and that they have been spread to the adjacent sticky and soft bottoms as a result of the work of dredgers.

*Hodges* and *Tolchester Lump* bars are found on the sloping, sandy beach along the Kent County shore, and their soft, lumpy bottoms are confined to their off-shore borders, which extend to the edge of the deep mid-bay channel. The in-shore borders of both bars are situated on very hard bottoms on which stones are abundant at places. Oysters begin to be found at depths of 5 to 8 feet on each bar and were taken on each at depths of 40 to 50 feet. About three-fourths of the area included within the limits of *Hodges* bar and one-half that of *Tolchester Lump*, is productive.

Fully one-half of *Gales Lump* bar is situated on an extensive sandy shoal over which the depth of water varies from 7 to 12 feet. The bottom on the greater part of the remaining area is composed of sticky, sandy mud on which oysters or cultch are practically continuous. The bar as charted takes in a portion of the productive bottoms generally known as the "*Tea Tables*" and a considerable area of the barren bottom between *Gales Lump* and the lower part of the *Tea Tables*. It also contains a small amount of soft, muddy bottom on the east where it extends to the mid-bay channel. The depths of water over the parts of the bar beyond the hard, sandy shoal vary from 12 to 21 feet. About three-fourths of the bar as charted is productive.

The bottoms included within the limits of *Mitchell's Bluff Buoy* bar are all muddy and soft and oyster lumps cover about one-tenth of the reserved area.

*Deep Shoal*, *Coal Lump* and *Phoenix* bars are all found on and around elevated sandy shoals and about one-half the area of each as charted is oyster-bearing. At the highest points on the shoals the recorded depths of water are 9 feet, 10 feet and 9 feet respectively, and their outer limits extend upon soft bottoms over which the greatest recorded depths are 29 feet, 32 feet and 24 feet respectively.

The survey of the grounds in this section covers two periods, part being done in July and August and part during October. During the first period the water over the grounds in the upper part of the section had a density of 1.0036-1.004 at low tide and 1.004-1.0056 at high tide. The density in the lower part varied from 1.0048-1.006. During October the density of the water over the whole section had increased to 1.008 and 1.0108. The density of the water at the anchorage of the houseboat "*Oyster*" in Worton creek, from August 6 to 12, inclusive, varied from 1.002-1.0036.

A few observations were made on the rate of flow of the currents over the grounds situated in and near the mid-bay channel which indicate a maximum rate of 1.8 miles per hour.

The maximum range of the tide, as indicated by the records kept at Tolchester wharf from August 6 to 11, 1909, is 1.8 feet. the mean range 1.01 feet.

The bottoms pointed out for survey as having been productive within recent years which failed to measure up to the adopted standard of a natural bar, aggregate an area of about 1,000 acres. These bottoms, if strewn with cultch, possess a very great value for the production of seed oysters.

NATURAL OYSTER BARS OF KENT COUNTY.

Number of Bar.	Name of Oyster Bar.	Date of Survey and Examination.	Area of Bar in Acres		No. of Corners	No. of Buoys.	Average No. Oysters Per Sq. Yd. as Calculated from Records of Examination.		Estimate of Average No. Bushels Marketable Oysters per Acre.		Estimate of Total No. Bushels Marketable Oysters on Bar.	
			as Buoyed.	as Surveyed.			Culls.	Counts.	Season of 1909-10.	Season of 1910-11.	Season of 1909-10.	Season of 1910-11.
<b>CHESTER RIVER.</b>												
1	Northwest*	June 18 and 22, 1909.	12	10	3	2	2.1	3.7	54.4	33.8	544	338
2	Melton Point.	June 18.....	8	8	3	2	5	5.8	85.3	65.2	682	522
3	Hollyday	June 18.....	14.5	31	3	2	1.8	5.5	80.9	40.1	1,335	662
4	Haddaway	June 18.....	6.5	10	4	4	2.9	4.1	60.3	41.1	392	267
5	Shuppen Creek.	June 17.....	10	14	4	4	13.2	7.9	116.2	135.3	1,162	1,353
6	Deep Point.....	June 17.....	16	15	3	3	3.1	9.3	136.8	69.1	2,052	1,036
7	Sheep*	June 17.....	6.5	15	3	2	18.7	12	176.5	197	1,147	1,280
8	Commeqys Bight.....	June 11, 14 and 15.....	173	229	4	3	5.2	5.6	82.3	66.1	14,238	11,435
9	Cliff	June 11.....	115.5	112	5	3	10.9	10.8	158.9	133.9	17,786	14,997
10	Ebb Point.....	June 10 and 11.....	116	126	4	3	5.6	6.8	100	74.4	11,600	8,030
11	Nichols	June 12, 14 and 29.....	58	51	3	2	2.5	6.5	95.6	50	4,876	2,550
12	Willow Bottom.....	June 12, 14 and 29.....	181	247	3	2	2.5	6.5	95.6	50	17,304	9,050
13	Chester River Middle Ground.	June 6, 12 and 14.....	235	164	4	2	4.4	9.7	142.7	94.1	23,403	15,432
14	Bluff Point.....	June 6 and 14.....	443	319	6	3	8.5	15.9	233.8	141.2	74,582	45,043
15	Bay Bush Point.....	June 6.....	188	249	5	3	10.7	10.4	153	129.4	28,764	24,327
16	Belts	June 3 and 6.....	139	145	7	5	28.7	28	411.9	348.6	57,254	48,455

NATURAL OYSTER BARS OF KENT COUNTY—Continued.

17	Piney Point*	June 2, 3 and 6.	112	87	3	2	27.9	27	397.2	338.3	34,556	29,432
18	Durdin	June 2.	307	348	4	3	13.6	14.9	219.1	172.2	67,263	52,865
19	Black Buoy.	July 8.	60	107	3	3	.9	7.5	110.3	44.1	6,618	2,646
20	Hail Point.	July 8 and 13.	115	264	4	4	13.2	9.3	136.8	142.7	15,732	16,410
21	Hail Creek.	July 13.	26	52	4	4	1.6	3.3	48.5	27.9	1,261	725
22	Buoy Rock.	July 7, 9 and 13.	321	426	5	5	21.7	13	191.2	222.1	61,375	71,294
23	Mud	July 18.	228	216	5	3	6.2	5.6	82.3	73.5	17,777	15,876
24	Side Shoal.	July 13.	46	72	3	2	4.5	1.2	17.6	27.9	809	1,283
25	Ferry*	July 9 and 10.	134	52	3	2	12.5	6.4	94.1	123.5	4,893	6,422
26	Dredge Rock.	July 14.	189	337	4	3	5.9	7.5	110.3	81.9	20,847	15,479
27	Wickes Beach.	July 14.	472	469	4	4	24.1	14.1	207.4	247.1	97,271	115,890
LANKFORDS BAY.			3734	4173								
28	Hudson	June 14 and 28.	116	93	5	3	2.9	7.2	105.9	57.4	9,848	5,338
29	Sand Thistle.	June 28.	66	72	3	1	5.1	7.5	110.3	75	7,279	4,950
30	Boat House.	June 28.	79	76	4	2	7	9.6	141.2	98.5	10,731	7,486
31	Drum Point.	June 28.	45	44	4	2	5.5	8	117.7	79.4	5,178	3,493
32	Davis' Creek.	June 26 and 29.	64	49	5	4	4.1	6.8	100	63.2	4,900	3,097
33	Kings Creek.	June 29.	15	27	4	4	1.7	5	73.5	36.7	1,102	550
34	Bailley	June 29.	18	50	4	4	.8	6.9	101.5	39.7	1,827	715
35	Phillips	June 29.	26	34	4	4	1.6	4.4	64.7	33.8	1,628	879
36	Ware	June 29.	8.5	13	4	4	1.4	6.1	89.7	39.7	762	337
37	Island Point.	June 26.	17.5	21	6	6	1.1	3.5	51.4	25	899	437
38	Eagle Point.	June 26.	25	36	4	4	1.9	6.9	101.5	48.5	2,537	1,212
39	Wilson Point.	June 26.	13	21	4	4	3.4	13.8	202.9	92.7	2,637	1,205
GRAYS INN CREEK.			493	540								
40	Limekiln	June 21	93	117	4	3	2.3	4.5	66.1	39.7	6,147	3,692

\* Part of bar extends beyond the county boundary line into Queen Anne's County waters.

NATURAL OYSTER BARS OF KENT COUNTY—Continued.

Number of Bar.	Name of Oyster Bar.	Date of Survey and Examination.	Area of Bar in Acres as Buoyed.	Area of Bar in Acres as Surveyed.	No. of Corners.	No. of Buoys.	Average No. Oysters Per Sq. Yd. as Calculated from Records of Examination.		Estimate of Average No. Bushels Marketable Oysters per Acre.		Estimate of Total No. of Bushels of Marketable Oysters on Bar.	
							Culls.	Counts.	Season of 1909-10.	Season of 1910-11.	Season of 1909-10.	Season of 1910-11.
<b>EAST NECK BAY.</b>												
41	Entrance Lump.....	July 28.....	248	300	4	3	39.3	3.7	54.4	304.5	13,491	75,516
42	Hickory Thicket.....	July 28.....	413	658	5	3	26.1	3.2	47.1	207.4	19,452	85,656
43	White Marsh.....	July 26 and 28.....	612	532	6	4	32.1	4.6	67.6	258.8	35,903	137,682
44	Under the Bar.....	July 26.....	164	305	3	2	6.7	1.1	16.1	54.4	2,640	8,942
45	Gum Spring.....	July 26.....	86	149	3	2	26	3.2	47.1	207.4	4,050	17,836
46	Huntingfield.....	July 26.....	400	397	6	4	12.4	4.4	64.7	113.3	25,686	44,990
47	Muddy Drain.....	July 23 and 26.....	196	220	5	3	15.8	5.1	75	141.3	14,700	27,695
48	Windmill Flats.....	July 23 and 26.....	119	117	4	2	11.9	5.4	79.4	114.7	9,290	13,420
			2238	2678								
<b>SWAN CREEK.</b>												
49	Little Neck.....	July 23.....	27	48	4	4	4.9	4.5	66.2	57.4	1,786	1,550
50	Deep Point.....	July 23.....	5	17	..	..	11.9	7	102.9	122.1	515	610
51	White House.....	July 23.....	7	7	..	..	.6	1.8	26.5	13.2	185	92
52	The Haven.....	July 27.....	6	4.5	4	4	1.1	1.7	25	16.2	113	73
53	Swan Creek.....	July 27.....	5.5	9	..	..	1.6	1.2	17.7	17.7	97	97



NATURAL OYSTER BARS OF KENT COUNTY—Concluded.

54	Swan Creek, Upper.....	July 27.....	7	9	..	1	2.1	30.9	17.7	216	124
55	Tavern Creek.....	July 31.....	12.5	8	4	1.7	1.3	19.1	19.1	153	153
	CHESAPEAKE BAY.*		70	102.5							
56	Swan Point.....	July 29, 30, Aug. 3..	3292	2952	11	31	16.2	237.2	307.4	600,214	907,445
57	East Neck Bay.....	July 28.....	176	197	4	3	1.6	17.7	17.7	3,115	3,115
58	Hodges.....	August 3 and 11.....	298	208	5	4	62.8	57.3	481	15,356	128,908
59	Gales Lump.....	Aug. 10, 11, Oct. 4..	1927	1204	5	4	12.6	4	5.8	6,983	113,296
60	Mitchell's Bluff Buoy.....	August 10.....	94	89	4	4	80.9	21.3	698.7	27,883	62,184
61	Tolchester Lump.....	August 11.....	39	20	4	4	56.2	392.7	544	7,854	10,880
62	Coal Lump.....	August 5 and 6.....	210	188	4	4	11.5	4	86.5	1,090	16,262
63	Deep Shoal.....	August 5 and 11.....	90	112	4	4	24	25	184.5	2,250	16,605
64	Phoenix Shoal.....	August 11.....	46	89	4	4	1.6	..	11.7	....	538
			6172	5119							

\* All bars designated for the use of dredgers except "Swan Point."

## THE UPPER BAY "LUMPS" PROBLEM AND THE CULL LAW.

### INTRODUCTION.

On account of frequent controversies and discussions in which the "Lumps," situated in the upper part of the Chesapeake bay, are the subject, the results of the examinations of these oyster bottoms which were carried on by the Shell Fish Commission will be received with more than usual interest by those who take an active interest in problems connected with the oyster fishery because great difficulty has been experienced in securing accurate and unbiased information concerning the conditions which prevail in this section.

The object in stating and briefly discussing the problem presented by the lumps in this connection, however, is that the General Assembly may see how the problem involves not only the relatively unimportant oyster grounds known collectively as "the lumps," but that it presents a condition which may involve and threaten the welfare of the entire oyster industry of the State, and one therefore that calls for consideration and solution.

### THE CASE AS REPORTED.

The belief seems to be general that an enormous area of natural oyster beds exists in the part of the bay situated above a line connecting Bodkin point, on the Western Shore, with Swan point, on the Eastern Shore, on which young oysters become attached in extraordinary abundance each spawning season only to stunted in their growth or possibly killed in the spring by the floods of fresh water which are poured into the headwaters of the Chesapeake by the Susquehanna river and other tributaries following the spring rains and thaws. It is said that on account of the many vicissitudes which attend the lives of these oysters they seldom attain marketable size, but that fully 90% of the stock on the beds even at the end of the oystering season is made up of oysters measuring less than  $2\frac{1}{2}$  inches in length, hence not marketable under the Cull Law, and that it is not profitable to cull out the large quantity of undersized oysters in order to secure the 10% of salable stock.

It is known that the canning houses of Baltimore are in a position to handle enormous quantities of oysters and that their demand

covers *small* as well as larger stock, and it is stated that they have a decided preference for the stock grown on the Lumps on account of the plumpness of these oysters and their peculiar ability to retain their plumpness after having passed through the canning processes.

PUBLIC ATTITUDE TOWARD VIOLATIONS OF THE CULL LAW.

Coupling this demand of the packers for the stock on the Lumps, with the belief that all oysters which may be left on these grounds at the end of the oystering season will almost surely be killed by the Spring freshets and thus entirely lost to the trade, and also with the further idea that *none* of the oysters will be gathered unless the dredgers are assured that violations of the Cull Law will be winked at or at least that the law will be very leniently enforced; in view of these reports and beliefs, there is a growing willingness on the part of the public to look with favor upon the nonenforcement of the Cull Law, *as far as the oysters taken from the Lumps are concerned*, in order that the greatest possible quantity of these oysters may be saved to the trade before the end of the oystering season. As evidence of this attitude we have only to recall the apparent unconcern with which the frequent reports of wholesale violations of the Cull Law on the Lumps and of an extensive traffic in uncultured oysters from the Lumps, have been received.

The desire of the public that these oysters should not be lost is a commendable one, but *is it not possible that the public is somewhat misinformed both as to the conditions which prevail on the Lumps and also as to the possibility of restricting the traffic in uncultured oysters to the stock from the Lumps?* Is it not possible that the reports which have been given out as to the *area* covered by the oyster-producing grounds in the upper part of the bay and as to the *quantity* of small oysters annually produced on these grounds, have been greatly exaggerated *purposely* in order to create a sentiment in favor of a lax enforcement of the Cull Law for *these* oysters, under the cover of which cargoes of uncultured oysters from the natural bars in *other* sections of the bay and tributaries might be successfully marketed.

THE CASE AS DEVELOPED BY THE SURVEY.

The results of the survey of the oyster grounds in question show that the area covered by the Lumps is not nearly so extensive as has

been reported, and the examinations which were made, indicate that the reported quantity of small oysters which the Lumps annually produce, is excessive.

The productive oyster grounds situated above a line connecting Bodkin point with Swan point, exclusive of Swan point bar, include the following natural oyster bars:

Name of Bar.	Area	Area	Quantity
	Reserved.	Actually Productive.	Oysters on Bar* When Surveyed.
	Acres.	Acres.	Bushels.
<i>Anne Arundel County.</i>			
Bodkin Point, north.....	547	275	14,300
"Lumps," east of Craighill Channel..	2,048	650	161,850
<i>Baltimore County.</i>			
Miller's Island Lump.....	140	50	2,650
Tea Tables .....	2,136	1,050	130,200
Man O'War Shoals.....	734	370	15,910
<i>Kent County.</i>			
Hodges .....	298	225	96,075
Gale's Lump .....	1,927	1,500	120,000
Mitchell's Bluff Buoy.....	94	10	7,910
Tolchester Lump .....	39	20	14,460
Coal Lump .....	210	105	7,665
Deep Shoal .....	90	45	7,470
Phoenix .....	46	25	225
Total .....	8,309	5,325	578,715

From these figures it is seen that the total area of natural oyster grounds reserved to the Public Oyster Fishery of the State in this section, where oysters fail to grow and mature properly, is but 8,309 acres. If from this total area we eliminate the unusually large amount of barren bottom which has been necessarily included within the limits of the natural bars in bounding them by straight lines, the area of *actually* productive bottoms will be reduced to about 5,325 acres, which is  $2\frac{1}{2}\%$  only of the entire natural oyster resources of the State.

On these two points then—the *area* and the *output* of the Lumps, there is a wide variance between the *reports*, given out by parties who are materially interested in exaggerating the importance of this section, and the *results* of actual examinations but, with respect to the accuracy of the reports of the great damage annually sustained by these oysters on account of floods of fresh water and deposition of sediment in the Spring, the Commission found evidence that

\* Based upon the estimate of 329 marketable oysters per bushel and 821 culls per bushel.

these reports have not been greatly overdrawn. The findings indicate, however, that the grounds do not *all* suffer to the same extent, but that the location of the grounds with reference to the mid-bay channel has much to do with the damage done. The oyster bars located in or near channels were found to be in better condition in every way than those located near shore in shallow water. This is probably due to the fact that the fresh water *remains* on the beds in the deeper channels for shorter periods than on the grounds distant from channels, the effect of the swift currents of rising tides being such as to replace the fresh water with brackish or salt water for a time, thus affording short breathing times for the oysters. The rapidly moving water in the channels also prevents the deposition of sediment and carries away any sediment which may have been deposited during periods of slack water, while the shallow sluggish water near shore presents conditions favorable to the deposition of sediment.

For a detailed account of the actual findings at the examination stations on the oyster grounds under consideration, reference may be made to the text of the reports of the survey of Baltimore and Kent Counties and to the statistical tables immediately preceding this chapter. These findings indicate that the loss of oysters, as a result of the Spring freshets of 1909, on Millers island bar was 57%; Tea Tables bar, 55%, and Man O'War Shoal bar, 61%.

#### DISCUSSION.

It may be seen, by reference to the last column of figures of the table on page —, that the available product on the Lumps during the periods when the survey was made was not large, and it is probable that these grounds were not below their average in productiveness at these times. Even if they had been found to be more productive of small oysters than the bars in other sections of the State, would this fact furnish any convincing argument in favor of a lax enforcement of the Cull Law in order that the oysters on the Lumps might be marketed, when, by such failure to enforce the provisions of the law for the Lumps, the welfare of the whole public oyster fishery is thereby jeopardized? *Who can know and decide which of the cargoes of uncultured oysters presented for sale in Baltimore have come from the Lumps and which have come from the natural oyster bars in other parts of the State waters?*

Those who are familiar with the conditions on the natural oyster bars and are concerned for their conservation and for the development of the oyster trade of the State, are almost unanimous in the opinion that *the Cull Law is the most important and efficient instrument which has yet been conceived and enacted for the protection and conservation of the public oyster fishery.* They realize the great difficulties met with by the State Fishery Force in enforcing the Cull Law, even when none of the oyster grounds are exempt from its provisions, and they must therefore look with disfavor upon any change in jurisdiction which would render the enforcement of the law even more difficult.

There are sections of the bay and tributaries, other than the Lumps, in which the strict enforcement of the Cull Law *at times* works a hardship upon the local oystermen and an injury to the natural bars over-crowded for the time with cysters, and these sections might also profit at such times by a repeal of the Cull Law *as applied to them*, but without an enormous increase in the police force and the corps of inspectors, such a course would amount to a repeal of the Cull Law for the *entire* State.

#### A PROPOSED SOLUTION.

It is neither necessary to repeal the Cull Law or so to modify it as to make it ineffective, nor to lose the product from the Lumps and other sections where small oysters over-crowd the natural bars.

Should the general oyster fishing season be made to extend from October 1st, to April 1st., then short seasons of one month each could be provided, one immediately *before* the beginning of the general season, the other at its *close*, during which uncultured oysters might be taken from the Lumps and such other sections of the bay and tributaries which, *in the judgment of the Commander of the State Fishery Force and the Board of Public Works*, would be improved thereby.

By an adjustment such as this the Cull Law would be made to apply to *all sections alike during the general oyster fishing season* and no one would be the loser or would suffer hardship from its rigid enforcement. During the short seasons *before and after* the general season, it would be quite possible to so station the fleet of police boats that fishing for uncultured oysters would be restricted to

the Lumps and other sections where such fishing had been provided for.

Two short seasons have been proposed because the oyster *canners* will probably demand *one* in the Spring at the close of the general season in order that the oysters shall have had all the time possible, before the Spring freshets set in, in which to grow. Oyster *planters*, on the other hand, will profit most by a short season in the Fall for reasons set forth in the concluding paragraphs.

The best results from oyster planting operations are obtained when the transplanted oysters are secured from localities in which the water is not greatly different in its density, or salinity, from that of the locality to which they are transplanted.

The water over the various widely distributed oyster producing grounds of Maryland is much more uniform in its salinity during the Fall, just at the close of the long dry Summer season, than it is in the Spring; hence it follows that the work of transplanting seed oysters from one locality to another should, as a rule, be carried on in Maryland during the late Fall.

The localities in which the greatest fluctuations in the salinity of the water take place between Fall and Spring are just those where the oyster bars become overcrowded with undersized oysters because of the presence of conditions under which oysters fail to grow rapidly. These are the localities from which the overstock of oysters should be removed and to which planters should therefore be permitted to go in the Fall for their supply of seed oysters.

The oysters of the Upper Bay Lumps section are much less valuable for planting purposes if transplanted to other growing grounds *in the Spring* after they have been subjected to severe freshets, but they are very valuable for planting purposes if transplanted in the Fall; hence the advisability of setting aside a short period in the Fall when unculled oysters may be transplanted from the Lumps and from other sections in which the bars become overstocked with small oysters.

## QUEEN ANNE'S COUNTY.

The oyster-producing waters of Maryland situated within the territorial limits of, and adjacent to, Queen Anne's County which will be opened with Queen Anne's County with the object of leasing the underlying barren bottoms for the purposes of oyster culture, include those of that part of the Wye river and Eastern bay situated above the boundary line between Queen Anne's and Talbot Counties; Prospect bay and Kent Island Narrows; Crab Alley creek; Cox creek; the section of the Chesapeake bay adjacent to Kent Island; Corsica river and the part of Chester river situated below the boundary line between Queen Anne's and Kent Counties.

The natural oyster bars of the section of Chesapeake bay adjacent to Queen Anne's County have been designated for the use of dredgers, but those in all other waters of the county have been set aside for the exclusive use of tongmen.

The tongmen of Queen Anne's and Talbot Counties have equal fishery rights on all of the grounds reserved to the public oyster fishery of the State in Wye river proper, and its branch south of Wye Island, and the tongmen of Queen Anne's and Kent Counties have equal fishery rights on all of the natural oyster bars in Chester river.

The bottoms beneath all of these waters which were claimed by the local assistant for Queen Anne's County to be productive of oysters, aggregating a total area of about 27,922 acres, were surveyed and examined. The bottoms found to be sufficiently well stocked with oysters and cultch to justify their reservation to the public oyster fishery of the State, have been charted within the limits of 98 natural oyster bars, covering 24,721 acres.

The name, date of survey, area, number of corners, present condition and prospective future yield of each oyster bar, is given in statistical tables on pages

The grounds which failed to measure up to the adopted standard of a natural oyster bar together with other barren bottoms suited for the purposes of oyster culture, aggregating a total area of about 6,000 acres, will soon be opened for lease.

The table, or rule by which the status of the surveyed and examined areas was automatically determined is the one printed on page



14, in which the value of oysters is considered to be sixty cents per bushel.

Seven of the lots leased in Queen Anne's County waters under former law for the purpose of oyster culture were retained by their respective lessees under the Haman Oyster Culture Law. The lease to one of these lots has been declared void, and rents for two others, amounting to \$53.76, are in arrears.

The following table shows the maximum and mean ranges of the tides as calculated from observations made during the period occupied by the survey in Queen Anne's County at the various tide observation stations. The circulation of water over an oyster ground and the availability of the oyster food supply to the oysters upon it is largely dependent upon the rise and fall of the tide and these observations therefore indicate to some extent the value, for oyster production, of the various grounds which will be opened for lease.

Locality.	Period of Observation.	Maximum Range.	Minimum Range.
Cliffs Wharf.....	June 2-30, 1909.....	3.10 feet	1.40 feet
Love Point Light.....	June 9—Aug. 4.....	2.40 feet	.88 feet
Bloody Point Light...	Aug. 30—Oct. 5.....	2.70 feet	1.01 feet
Claiborne Wharf.....	Aug. 17-31, Oct. 19, Nov. 29..	3.55 feet	1.29 feet
St. Michaels.....	Dec. 3-17.....	3.57 feet	1.12 feet

THE WYE RIVER AND MILES RIVER.

(Shown on chart of natural oyster bars No. 32.)

A line about two-thirds of a mile in length, connecting Bennett Point on the north with the nearest point on the opposite shore, is considered in this report to mark the mouth of Wye river and to divide the oyster bottoms of the Wye, from those of Miles river. Something more than one mile above this line the Wye river divides into two branches of about equal size, which, on account of the existing controversy and confusion which has arisen from the use of *Back Wye* and *Front Wye* to designate these branches, it is proposed to call "Branch South of Wye Island" and "Branch West of Wye Island."

Oysters grow in the waters of the Wye river and its branch south of Wye Island to a point about five miles above the mouth of Wye river proper, and in the branch west of Wye Island to a point about two and one-half miles above a line connecting the southernmost point on Wye Island with the nearest point on the

opposite shore, along which line the waters of this branch are considered to enter those of the Wye river proper.

At the time of the survey of this section, November and December, the prevailing conditions were such that oysters might have been grown and fattened on the bottoms situated far above the limits mentioned above, but the dry period of Fall and early Winter is the one when the waters of Maryland are nearest ideal for oyster production. With the inflow of fresh water due to rain fall and melting snow and ice in the Spring, the upper waters of the tributaries and the bay become too fresh for oysters. The observations made at the examination stations during the survey showed the density of the water to be from 1.0142 to 1.0138 at the mouth of the Wye river, and about 1.0128 over the oyster bars situated farthest up its branches.

The part of the Miles river situated within the territorial limits of Queen Anne's County is so small and its waters are so closely associated with those of the Wye river that its oyster grounds are considered in this report with those of the Wye. The line along which the waters of Miles river enter those of Eastern bay is considered by the Commission to be that connecting Bennett Point, at the mouth of Wye river, with Tilghman's Point on the Talbot County shore. Between this line and the line marking the mouth of Wye river, the course of the Queen Anne's-Talbot County boundary line is such that something less than a square mile of Miles river bottom is thrown within the limits of Queen Anne County, practically all of which is occupied by *Persimmon Tree* and *Coffee oyster* bars.

In the part of Wye river and its branch south of Wye Island situated above the Queen Anne's-Talbot County boundary line, the area of oyster ground which was surveyed and examined and found to be sufficiently well stocked with oysters and cultch to justify its reservation to the Public Oyster Fishery of the State, aggregates 327 acres, and it has been charted and reserved within the limits of 9 natural oyster bars. In the branch of the Wye river west and north of Wye Island eight natural oyster bars covering 393 acres were charted and reserved.

Oyster bars were nowhere found to extend upon the soft bottoms and precipitous sides of the very deep and very narrow channels which occupy the central portion of Wye river proper; the oyster-

producing part of its branch south of Wye Island, and the lower part of its branch west and north of Wye Island. Almost the entire area of bottoms on either side of the main channels, however, was found to be occupied or to have been occupied until recently, with oyster bars. Two small areas only were conceded by the local assistant to be entirely barren: one on the hard sandy bottom between *Stone Wharf* and *Hess* bars, the other between *Hess* and *Wye River Middle Ground* bars.

Bottoms composed of hard sand nearly everywhere skirt the shores of the rivers and the oyster bars do not therefore extend nearer to the shore line than the six-foot depth curve. In one locality only were oysters found to grow quite to the low-water mark, that along the southern end of Wye Island. A border of soft and sticky bottoms of varying width is present on either side of the mid-river channels, and bottoms of similar character prevail also in the coves and in the upper parts of both branches of the Wye. The observed depths of water over the off-shore limits of the oyster bars in the Wye river proper and its two branches, vary from 48 feet to 15 feet.

Barren and exhausted bottoms suitable for oyster culture aggregating about 65 acres, are available for lease in the branch of the Wye river south of Wye Island, and about 75 acres in the branch west and north of Wye Island. In Wye river proper and the part of Miles river situated within the territorial limits of Queen Anne County, there are probably no bottoms suitable for growing oysters which are not occupied by natural oyster bars.

#### EASTERN BAY

(Shown on charts of natural oyster bars Nos. 31 and 32.)

The part of Eastern bay which lies within the territorial limits of Queen Anne's County, *i. e.*, the part situated above or north of a line established by statute in or near the deep water channel to form the boundary between Queen Anne's and Talbot Counties, is all designated for the exclusive use of the tongmen who reside in Queen Anne's County. The line along which the waters of this part of Eastern bay enter those of the Chesapeake is considered by the Commission to be that connecting Kent point, on the Queen Anne's County shore, with Wade point, on the Talbot County shore. The lines laid down by the Commission for its own use in distinguish-

ing the waters of Eastern bay from those of its four large tributaries, namely, Miles river, Prospect bay, Crab Alley bay and Cox creek, are described in the parts of this report dealing with the survey of the oyster grounds of these tributaries.

In this section of Eastern bay twelve natural oyster bars, charted to contain 4,680 acres, have been reserved to the Public Oyster Fishery. Parts of two other bars extend into Eastern bay, namely, *Bald Eagle* and *Parsons Island*, but they are credited to Prospect bay and Crab Alley bay, in which parts of their areas lie. The two largest bars of the section, *Bugby* and *Bodkin Shoals*, extend to the County boundary line in the mid-channel and on account of the large supply of food made available by the swift tidal currents which regularly sweep over them, they are most favorably situated, and examinations showed both bars to be unusually well stocked with oysters in excellent condition, although they have been subject to frequent raids by the serapers from the Talbot County side. The first named bar occupies the greater part of the extensive sandy shoal formed between the mouths of Miles river and Prospect bay, while the latter, together with three other large oyster bars, from which it has been distinguished arbitrarily by name only, has been developed upon a similar and more extensive sandy shoal situated between the mouths of Crab Alley bay and Cox creek. Each of these shoals is penetrated by a deep slough, the beds and sides of which are soft or sticky, and on which oysters are not continuous. The bars on which soft bottoms predominate are *Prospect Point* and *Greenwood*, in the Greenwood creek channel, and *Pine Tree*, *Bunker Hill* and *Brick House Hill bars*, in the channel to Cox creek. Patches of hard bottom in each of these cases form the more prolific parts, however, and are probably the centers from which the bars have originated. *Long Point* bar occupies the narrow strip of bottom situated above the mouth of Long Point creek, between Kent Island and the Cox creek channel, of which the part next to the channel at the lower end only is soft. The bottoms in this section on which oysters were found as a continuous bar, were seldom covered by water to depths greater than 18 feet, but oysters were found in lumps beyond the edges of the shoals on the muddy bottoms at depths as great as 35 feet.

Observations on the density of the water at examination stations indicate that it varied between 1.0136 and 1.0144 during the Fall and early Winter months.

The following table gives the results of observations of the tides made during the survey :

Locality.	Period of Observation.	Maximum Range.	Mean Range.
Claiborne Wharf.....	Aug. 17-31, Oct. 19, Nov. 29..	3.55 feet	1.29 feet
Bloody Point L. H.....	Aug. 30 to Oct. 5.....	2.70 feet	1.01 feet
St. Michaels.....	Dec. 3-17.....	3.57 feet	1.12 feet

The results of the survey indicate that about all of the bottoms suited to the production of oysters in this section are, or have been until recently, occupied by natural oyster bars. The bottoms not reserved to the public fishery which are or can be made valuable for oyster culture, aggregate about 550 acres. They are located along the Kent Island shore at three places and along the inner edge of *Coffee* bar.

PROSPECT BAY AND KENT ISLAND NARROWS.

(Shown on charts of natural oyster bars, Nos. 29 and 32.)

The waters of Prospect bay and Kent Island Narrows separate the mainland of Queen Anne's County from Kent Island and connect the waters of Eastern bay with those of Chester river. The limits of Prospect bay on the south are considered in this report to be formed by a line connecting the southernmost part of Piney Neck at the mouth of Greenwood creek, with the southernmost point of Parsons Island. The line then continues across Parsons Island Narrows to the Kent Island Shore, where it ends at Normans Point. Kent Island Narrows is the name in general use for the short narrow channel which runs through the marsh between the waters of Prospect bay and Chester river. Within these waters seventeen natural oyster bars, covering 4,041 acres of bottom, have been charted and reserved to the Public Oyster Fishery, fifteen of which are credited to Prospect bay and two to the narrows. Oysters were found during the survey on almost the entire area of the section, the exceptions being the narrow beach of hard, shifting sand found along the greater part of the shore line; patches of the same material which cap a few shoals and sand bars, and the small areas occupied by the short mid-stream channels in which the bottoms are too soft to support oysters. In some localities the character of the bottom is such that oysters grow entirely to low water mark, and at such places mean low-water mark has been made the limit of the natural bars. Continuous deep water channels

are absent from the upper part of Prospect bay. The bottom is undulating and the water over it varies in depth from 2 to 18 feet. In the lower part, the oyster-producing bottoms were found to be rather closely confined to the hard and sticky areas situated between the 6 foot and 18 foot depth curves, although the deep water limits of the bars were often found to extend to and upon the soft bottoms at the edge of the channels over which depths as great as 27 feet were noted.

The bottoms in Kent Island Narrows are everywhere hard and, from the railroad bridge to the point about three-fourths mile above the opening of the narrows into Chester river, they are well stocked with oysters. The depth of water over the oyster-producing bottoms varies from 3 to 15 feet and currents having a velocity of nearly two miles per hour were observed.

The position of barren bottoms with reference to productive areas is such in some cases that it was considered advisable to include all or a part of the former within the limits of natural bars, thus the barren channel below Saw Mill creek has been included within *Saw Mill Creek* bar, the upper part of Cabin creek channel has been charted with *Cabin Creek* bar and the upper part of the main channel forms a part of the area reserved within *Prospect* bar.

During the period occupied by the survey of this section (the latter part of August) observations showed the water over the oyster grounds to have a density varying from 1.0078 to 1.0090. The waters of the section of Chester river which is in immediate connection with Prospect bay through the narrows, had a density varying from 1.0062 to 1.0089 during June and July, and in November and December a density as high as 1.014 was observed in the waters of the part of Eastern bay which is in wide communication with the lower part of Prospect bay. Observations are lacking, but it is probable that, on account of the Spring freshets, the density of these waters may be reduced to 1.005 or perhaps lower during the month of April. The indications are therefore that the waters in Prospect bay vary in their density during the year from 1.005 to 1.014.

The area of bottoms not included within the limits of the natural oyster bars of the section which is thought to be suitable, and will soon be available for lease, for oyster culture aggregates about 475 acres.

CRAB ALLEY BAY.

(Shown on charts of natural oyster bars Nos. 31 and 32.)

Crab Alley bay occupies the broad waters included between Crab Alley neck and Cox neck. Its waters are considered in this report to be further limited on the east by the line connecting Norman point with the southernmost point on Parsons Island, and to be separated from Eastern bay by lines connecting the southernmost point on Parsons Island, the northernmost point of Bodkin Island and the southeastern extremity of Cox neck.

Seven natural oyster bars covering 2,165 acres, have been charted and reserved to the Public Oyster Fishery. *Parsons Island* bar as charted has about one-half its area within the limits of Eastern bay, but the entire bar is credited in this report to Crab Alley bay.

Bottoms of hard sand underlie about half of the reserved area. They are found along the eastern and western shores of the bay and in extensive flats above Bodkin Island and south and east of Johnsons Islands. Continuous oyster rocks were found only in connection with these hard bottoms, the most extensive and prolific being the one situated west of the sand bar and the wide beach around Norman point. This rock forms a part of the area included within the limits of the oyster bars charted as *Norman's Fine Eyes* and *Crab Alley Lumps*. Probably more than three-fourths of the soft and sticky bottoms which are found in the off shore or channel portion of the bay are barren, but the distribution of numerous well stocked oyster lumps upon these bottoms is such that it was considered proper to include practically the whole within the limits of the adjacent oyster bars. At one place only, that between *Bodkin Island* bar and *Parsons Island* bar, was the channel found to be entirely barren.

The depths of water over the oyster bars on the hard bottoms vary from 3 feet to 18 feet, and over the soft areas from 12 feet to 27 feet. The density of the water at examination stations during August varied from 1.0084 to 1.0087, and during November from 1.0128 to 1.014.

About 30 acres of the grounds pointed out for survey and examination were found to be exhausted or badly depleted of oysters and cultch. In addition to this area a few acres of barren bottom suited to the requirements of oyster culture may be found in

the lower part of Crab Alley creek and in the small cove above Johnson's Islands.

## COX CREEK.

(Shown on chart of natural oyster bars No. 31.)

All of the waters situated north of the broken line connecting the following points are considered to belong to Cox creek, namely, Turkey Point, at the southeastern end of Cox Neck, the points forming the northwestern and southeastern extremities of the chain of small islands in the vicinity of Turkey point, the points at the northeastern and southwestern ends of the small island at the entrance of the small unnamed creek south of Shipping creek, and the point on Kent Island at the mouth of this creek on the south. As thus defined, the creek expands abruptly at its mouth into a wide bay into which three small creeks empty from the west and north, through a common mouth, none of which are productive of oysters. Into the upper part of Cox creek two other tributaries enter also from the west, Warehouse and Thompsons creeks, the lower portions of which contain natural oyster grounds.

The wide and almost direct connection of these waters with those of the Chesapeake bay through Eastern bay, gives to them a salinity favorable for the growth of oysters to a point nearly four miles above the mouth of the creek, and productive oyster beds were found to occupy practically all of the underlying bottoms. These productive oyster grounds, aggregating a total area of 1,730 acres, have been charted and reserved to the Public Oyster Fishery of the State within the limits of fourteen natural bars.

The muddy bottom in the middle of the channel of the wide lower part of Cox creek is too soft to support oysters, but this barren area is not extensive and it has been included within the limits of *Ringold Middleground* and *Batts Neck* bars. In this region the hard, sandy beaches along the shores are wide and constitute the greater part of the bottoms upon which oysters were found to grow. The strips of soft, sticky oyster-bearing bottoms which are sandwiched between the sandy bottoms and the soft barren channel are here very narrow, but in the upper narrower part of the creek they unite (the channel itself becoming productive of oysters) and toward the shore they expand until practically all of the area occupied by natural bars is thus constituted. In the upper part of the creek the beaches of sand become very narrow and at some places they are



entirely displaced by soft bottoms. At a few points oysters were found to grow quite to the low-water mark, but usually the productive grounds ended at the 3 to 5 foot depth curve. The greatest depths of water observed over the oyster bars varied from 18 feet, near the mouth of the creek, to 10 feet in the upper part. A channel practically disappears from the creek opposite the mouth of Warehouse creek, and depths of water greater than 8 feet were not observed at the examination stations on *Pond Marsh* bar. The bottoms in the lower portions of Thompsons and Warehouse creeks which have been included within the limits of *Thompsons* and *Island Cove* bars are practically all sticky or soft, and considerable portions of them are barren, the oysters growing chiefly in lumps. In the part of Cox creek just south and west of Batts Neck a considerable area of hard, sandy bottom is found, but the part along the Kent Island shore where oysters were found is sticky.

During the period occupied by the survey of these grounds, October and November, very little if any fresh water was finding its way into Cox creek from the land and the density of the water over the oyster beds was uniform and the variation in density due to the rise and fall of the tide was small—1.0136-1.0144.

By reference to the table of oyster bars on page 71 it may be seen that the bars found to be in the most productive condition are those over which the best circulation of water is maintained, and that the bars situated on bottoms where good currents are not present were invariably poorly stocked.

Two pieces of bottom suitable for the purposes of oyster culture of about 50 acres each will be subject to lease.

#### CHESTER RIVER.

(Shown on charts of natural oyster bars Nos. 29 and 30.)

Practically all of the bottoms situated between the 6-foot depth curve and the edge of the deep water channel on the Queen Anne's County side of Chester river, from Love Point to the mouth of Southeast creek, a stretch of nearly twenty-five miles, were pointed out to the Commission by the local assistant for survey and examination. Two breaks only were conceded by oystermen to exist in this long belt of oyster bottoms; one near the Kent Island Narrows, the other near the head of the river. The average width of this belt from Love Point to the mouth of Corsica river is fully one-

third of a mile. Above this point its width varies from one-fourth to one-eighth mile.

Almost the entire river shore is skirted by very hard, sandy bottoms, and at no place were oysters found to grow at the low-water mark and usually not nearer to the shore than the six-foot depth curve. The spread of oysters to the hard bottoms in shallow water is probably prevented by the shifting of sand caused by breaking waves. Beginning usually near the six-foot depth curve, the oyster grounds, unless depleted or exhausted, were found to extend as continuous bars to the soft muddy bottom near the edge of the mid-river channel. Many of the bars were found to extend for some distance upon very soft bottoms, in which cases the bars were not continuous, but the oysters were found in lumps.

The area of the bottoms which were found in a condition such as to justify its reservation to the Public Oyster Fishery of the State, has been charted within the limits of 21 natural bars and aggregates 4,723 acres. Between adjacent bars in several cases no natural dividing line was apparent, and the lines by which they are divided on the charts have been arbitrarily drawn. The names given to the bars usually were those in use among oystermen to designate some parts at least of the grounds so designated on the charts. In five cases oyster bars which nominally belong on the Queen Anne's County side of the river, extend more than halfway across and are cut by the Queen Anne's-Kent County boundary line into two parts, namely, *Ferry Point, Piney Point, Sheep, Hollyday* and *Northeast* bars.

The observations made during the survey upon some of the physical conditions known to affect the production of oysters have been recorded in the report covering the Kent County section of the river.

The area of bottoms in Chester river suitable for the purposes of oyster culture which will be opened for lease with Queen Anne's County, is about 1,500 acres, of which 1,375 acres have been productive within recent years. This bottom is well distributed along the shore in parcels varying in size from 3 acres to 400 acres.

#### CORSICA RIVER.

(Shown on chart of natural oyster bars No. 30.)

In Corsica river, productive oyster grounds were not found above the mouth of Emory's creek, and this seems to be the limit beyond

which it would be unwise to attempt to grow oysters. In the part of the river below the mouth of Emory's creek, which is two miles in length and about one-half mile in width, five natural oyster bars covering 153 acres were charted and reserved to the Public Oyster Fishery. *Holton Point* bar also is situated partly on bottoms in the mouth of Corsica river, but as more than two-thirds of the bar lies in Chester river waters, it was credited to Chester river. The three small bars in the upper part of the river, *Possum Point*, *Ship Point* and *Earl's Cove* bar, are badly depleted, as may be seen by reference to the table on page 73, and it is a question of a short time only when they will be exhausted and fit only for the purposes of oyster culture. The cultch with which they are poorly stocked is not in a condition to collect spat and very few small oysters were to be found. The stock on these bars consisted mainly in very old oysters, deeply embedded in the bottom. Soft bottoms prevail on *Possum Point* bar, but the greater part of the areas covered by *Ship Point* and *Earl's Cove* bars are sandy. Grass grows on the in-shore part of *Earl's Cove* bar. The two larger bars situated in the lower half of the river were found in good condition, both as to their stock of cultch and small oysters. Their bottoms are composed mainly of sticky and soft, sandy mud.

On June 16, 1909, the water over the bars varied in density from 1.0046 to 1.006.

The bottoms suitable and available for oyster culture in Corsica river cover about thirty acres.

#### CHESAPEAKE BAY.

##### GROUNDS DESIGNATED FOR THE USE OF DREDGERS.

(Shown on charts of natural oyster bars Nos. 29 and 31.)

The section of the Chesapeake bay situated adjacent to Queen Anne's County, which will be opened with the territorial waters of Queen Anne's County for the purpose of leasing underlying barren bottoms for oyster culture, is included between the Kent Island shore line and the line marking the mid-bay channel from the Talbot-Queen Anne's County boundary line in Eastern bay, extended, to the Queen Anne's-Kent County boundary line in Chester river,

extended. It is technically described and defined in the report\* entitled "Survey of Oyster Bars of Queen Anne's County," prepared by Captain C. C. Yates in co-operation with the Shell Fish Commission and published by the U. S. Coast and Geodetic Survey.

This portion of the bay contains 6,056 acres of productive oyster grounds, all of which have been charted and reserved to the Public Oyster Fishery within the limits of five natural bars. The area claimed by the local assistant to be oyster-producing and accordingly surveyed and examined, covers an uninterrupted strip of bottom having an average width of more than a half-mile, beginning at Bloody Point Bar Light House and extending to the edge of the sand bar one mile N. E. of Love Point Light House, a distance of nearly eighteen miles.

Almost the entire area of this oyster ground was found to be confined to the hard bottoms of the very wide sandy beach which everywhere skirts the bay shore of Kent Island. Oysters grow quite near to the shore at Bloody Point and in the vicinity of Broad creek, but the in-shore limits of the productive bottoms at other places do not approach nearer low-water mark than about one-fourth mile, and often not nearer than a half mile. The depth of water seems to have much to do with the spread of oysters upon hard, sandy bottoms in exposed areas, such as that along the Kent Island shore, and the depth limit of the oysters in this, as in many other sections, was found to be near the 5 to 8-foot depth curves. In waters shallower than this, sandy bottoms are frequently shifted and disturbed by breaking waves, and the formation of oyster communities is thereby prevented. The off-shore limits of the oyster bars extend a short distance beyond the hard, sandy beach, upon the sticky and soft muddy bottom of the bay channel and are covered by water varying in depth from 25 to 50 feet, but the greater part of the bottoms on which oysters grow (perhaps 80%) is hard.

The bottoms found to be entirely exhausted or not sufficiently productive to justify their reservation to the public oyster fishery, aggregate an area of about 3,200 acres. At some places the outer

---

\* Copies of this report, which includes a set of charts showing the location and extent of the natural oyster bars and the boundary lines of county waters and waters adjacent to Queen Anne's county, may be secured from the Superintendent of the U. S. Coast and Geodetic Survey.

border only of the surveyed area failed to measure up to the natural oyster-bar standard of productiveness, at other places it was the in-shore border, and in three localities entire sections of the surveyed strip were rejected.

The water over the oyster grounds varied in density during the period occupied by the survey (parts of August and September) from 1.0098 to 1.0108. Observations made at other times and in other places indicate that the water over this section probably fluctuates in density during years of ordinary rainfall from about 1.005 to 1.012.

Observations made at Bloody Point Bar Light House on the rise and fall of the tides, from August 3 to October 5, 1909, indicate a maximum range of the tide in this locality to be 2.7 feet and a mean range of 1.01 foot. At Love Point Light House the maximum range between July 9th and August 4th was 2.4 feet, the mean range, .88 foot.

NATURAL OYSTER BARS OF QUEEN ANNE'S COUNTY.

Number of Bar.	Name of Oyster Bar.	Date of Survey and Examination.	Area of Bar in Acres as Buoyed.	Area of Bar in Acres as Surveyed.	No. of Corners	No. of Buoys.	Average		Estimate of Average No. Bushels Marketable Oysters per Acre.	Estimate of Total No. of Bushels Marketable Oysters on Bar.		
							No. Oysters Per Sq. Yd. as Calculated from Records of Examination.	Counts.		Season of 1909-10.	Season of 1910-11.	
<b>WYE RIVERS—</b>												
<i>1. Branch South of Wye Island.</i>												
1	Granary Point.....	December 8, 1909.....	5	7	4	4	5.8	10.7	157.4	94.1	787	470
2	Shaw's Wharf.....	December 7.....	30	29	6	5	2.2	18.1	266.2	104.4	7,720	3,028
3	Dividing.....	December 7.....	37	33	6	3	4	9.2	136.7	75	4,511	2,475
4	Melvin.....	December 7.....	30	20	5	2	11.3	8.8	129.4	126.5	2,588	2,530
5	Whetstone.....	Nov. 19, Dec. 4 and 7.....	40	53	8	7	3.7	5.6	82.3	54.4	3,292	2,176
6	Stone Wharf.....	Nov. 19, Dec. 8.....	18	16	4	4	9	6.8	100	39.7	1,600	635
7	Race Horse.....	November 19.....	15	15	4	4	6.5	11.5	169.1	104.4	2,536	1,566
			175	173								
<i>2. Branch West of Wye Island.</i>												
8	Hess.....	November 6 and 19.....	57	76	5	5	19.8	19.6	288.2	241.2	16,139	13,507
9	Wye River Middle Ground.....	November 13.....	52	58	6	5	7	18.6	273.5	142.6	14,222	7,415
10	Drum Point.....	November 13 and 17.....	24	26	5	4	6.5	8.6	126.5	89.7	3,036	2,153
11	Wye Island.....	November 17 and 20.....	57	113*	7	5	1.2	5.2	76.5	33.8	4,360	1,927
12	Bryan.....	November 20.....	52	38	6	4	6.4	7.2	105.9	82.3	4,024	3,127
13	Paca.....	November 17 and 20.....	75		5	3	9	4.9	72	27.9	3,960	1,534

\* In. Indes Paca.



NATURAL OYSTER BARS OF QUEEN ANNE'S COUNTY—Continued.

Number of Bar.	Name of Oyster Bar.	Date of Survey and Examination.	Area of Bar in Acres		No. of Corners	No. of Buoys.	Average No. Oysters Per Sq. Yd. as Calculated from Records of Examination.		Estimate of Average No. Bushels Marketable Oysters per Acre.		Estimate of Total No. of Bushels of Marketable Oysters on Bar.	
			as Buoyed.	as Surveyed.			Chills.	Counts.	Season of 1909-10.	Season of 1910-11.	Season of 1909-10.	Season of 1910-11.
<b>PROSPECT BAY AND KENT ISL'D NAR.</b>												
31	Mill Hill.....	Aug. 26 and Nov. 12.	357	197	4	4.2	12.4	182.4	91.2	35,933	17,966	
32	Saw Mill Creek.....	Aug. 20, 24, Nov. 12.	924	1038	6	24.9	13.3	195.6	245.6	180,734	226,934	
33	Cabin Creek.....	Aug. 19, 20 and 24.	508	493	11	8.6	5.2	76.5	88.2	37,714	43,482	
34	Hood.....	Aug. 19, 20 and 24.	570	533	8	6	20.5	97	179.4	51,701	95,620	
35	Prospect.....	August 18.....	114	110	4	3	18	6.4	163.3	10,351	17,963	
36	Well Cove.....	August 18 and 25.....	145	105	9	7	11.2	4.9	105.9	7,560	11,120	
37	Kent Island Narrows.....	August 23 and 25.....	42	67	4	4	7.7	2.8	70.6	1,730	2,965	
38	Flood Point.....	August 23 and 25.....	20	39	5	5	51.3	12	176.5	3,530	8,708	
39	Buck Horn.....	August 21 and 25.....	36	59	5	4	6.4	5.7	83.8	3,017	2,700	
40	Sandy Point.....	August 21.....	88	62	8	5	2.7	2.4	35.3	2,189	1,916	
41	Hog Island.....	August 18.....	60	121	4	2	5.1	3.4	50	3,000	3,174	
42	Walter White.....	August 18.....	267	223	8	4	20.2	5.3	77.9	17,372	38,713	
43	Long Point.....	August 19 and 23.....	181	210	5	3	21.6	6.7	98.5	17,828	34,607	
44	Bibby.....	August 19 and 23.....	106	114	5	3	10.2	2.6	38.2	4,049	9,349	
45	Norman's Marsh.....	Aug. 19, 20 and 24.....	269	212	7	5	17.9	6.9	101.5	21,213	31,350	
46	Parson's Island Narrows.....	Aug. 20, 26, Nov. 10.....	133	185	6	3	2.9	3.9	57.4	7,634	4,280	
47	Bald Eagle.....	November 11.....	281	556	6	6	11.7	36	529.6	148,818	77,695	
			4041	4324								



NATURAL OYSTER BARS OF QUEEN ANNE'S COUNTY—Continued.

CRAB ALLEY BAY.		394	7	6	4.9	12.8	188.3	95.6	63,834	32,408
48	Parson's Island.....	339	7	4	26.4	11.5	169.1	250	59,016	87,250
49	Norman's Fine Eyes.....	*606	5	3	20.7	11.7	172.1	207.4	67,979	81,923
50	Crab Alley Lumps.....	395	5	3	8.7	7.8	114.7	102.9	11,241	10,084
51	Johnson Island.....	124	5	3	16.1	8.3	122.1	158.9	51,892	67,532
52	Cedar Island.....	425	6	3	3.2	4.5	66.2	45.6	25,421	17,510
53	Cox Neck.....	404	4	2	9.4	17.9	263.2	157.4	33,923	20,305
54	Bodkin Island.....	129								
	* Includes Bodkin Island.	2165								
	COX CREEK.	2452								
55	Ringold Middle Ground.....	258	7	5	5.2	8.3	122.1	79.4	31,501	20,485
56	Erickson Sand.....	130	4	2	2	3.5	51.5	32.2	6,695	4,186
57	Pea Hill.....	116	5	3	5.3	9.4	138.2	85.3	16,031	2,894
58	Jones Hole.....	72	6	4	11.7	21.1	310.4	189.7	22,328	13,658
59	Pond Marsh.....	153	8	6	10.4	10.8	158.9	129.4	24,311	19,798
60	Rooks.....	117	9	6	5.3	4.8	70.6	63.2	8,260	9,394
61	Thompsons.....	122	9	7	4.9	4.8	70.6	60.3	8,613	7,356
62	Island Cove.....	99	125	6	4	2.1	4.1	35.3	5,969	3,494
63	Stevens.....	68	6	4	12.1	18.1	266.2	178	18,101	12,104
64	Batts Neck.....	304	6	4	11.7	15.1	222.1	160.3	67,518	48,711
65	Shipping Creek.....	106	5	3	2.1	11	161.8	69.3	17,150	7,324
66	Mattapex.....	132	8	5	3.3	5.7	83.8	51.4	11,061	6,784
67	Greaves Cove.....	53	7	6	1.8	2.9	42.6	27.9	2,257	1,478
	CHESTER RIVER.	1730								
68	Strong Bay.....	276	4	4	24.1	7.7	113.3	214.7	31,270	59,257
69	Carvel.....	124	3	3	18.7	2.8	41.2	151.5	5,108	18,786





## FIELD AND OFFICE WORK.

In the tables which follow a detailed report is made of the work carried on during the year 1909 by the field party of the Shell Fish Commission, and statistics are compiled to show the results of the combined operations of Federal Bureaus and the State Commission.

## ANCHORAGES OF HOUSEBOAT "OYST9R" FROM JANUARY 1 TO DECEMBER 31, 1909.

*Baltimore—*

At Spedden's Wharf.....January 1 to April 13, 1909.

*Kent County—*

Rock Hall, Swan Creek.....April 14 to May 25, 1909.  
Cliffs Wharf, Chester River.....May 26 to June 30, 1909.

*Baltimore—*

Spedden's Wharf.....July 1 to July 5, 1909.

*Queen Anne's County—*

Kent Narrows.....July 6 to July 21, 1909.

*Kent County—*

Rock Hall, Swan Creek.....July 22 to August 4, 1909.  
Worton Creek.....August 5 to August 12, 1909.

*Queen Anne's County.*

Kent Narrows.....August 13 to August 27, 1909.

*Talbot County—*

Haddoway's Cove, Poplar Island Narrows.....August 28 to August 30, 1909.  
Poplar Island Harbor.....August 31 to September 21, 1909.  
Dunn's Cove, Harris Creek.....September 22 to October 15, 1909.  
Claiborne, Eastern Bay.....October 16 to October 28, 1909.  
Tilghman's Creek.....October 29 to November 30, 1909.  
St. Michaels, Miles River.....December 1 to December 20, 1909.

*Baltimore—*

Spedden's Wharf.....December 21 to December 31, 1909.

TABULATED STATEMENT OF OPERATIONS OF FIELD PARTY, JAN. 1 TO DEC. 31, 1909.

	1909											
	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Months engaged—												
Days engaged in surveying natural oyster bars.....	..	..	..	..	..	17	17	18	15	18	15	11
Days engaged in surveying and charting old oyster lots.....	..	..	..	..	..	..	..	..	..	..	..	1
Days engaged in office work at Annapolis and Baltimore....	25	22	27	12	5	..	1	1	2	..	..	6
Days when weather conditions were unfit for outside work, office work (duplicating records, platting, clerics and office correspondence) carried on.....	..	..	..	2	4	8	4	5	5	5	6	5
Days engaged in establishing buoys to mark corners of nat- ural bars .....	..	..	..	10	16	..	..	..	..	..	..	..
*Days engaged surveying oyster lots under Haman Oyster Culture law (see note).....	..	..	..	1	..	..	..	2	3	2	..	1
Days engaged moving field party.....	..	..	..	..	..	..	1	2	3	2	..	1
Miscellaneous work (preparing for hydrography, establish- ing tide gauges, etc.).....	..	..	..	1	1	1	1	..	..	..	..	1
Sundays and holidays.....	6	6	4	4	5	4	7	5	5	6	8	7
Total.....	31	28	31	30	31	30	31	31	31	30	31	30

\* Assistant engineer in charge of Branch office at Crisfield, Md.

Dec., 1908, 14 days, 14 lots; Jan., 1909, 8 days, 10 lots; Feb., 1 day, 1 lot; March, 4 days, 5 lots; April, 2 days; 2 lots; May, 5 days, 7 lots; June 5, days, 8 lots; July, 4 days, 5 lots; Aug., 6 days, 7 lots; Sept., 8 days, 14 lots; Oct., 5 days, 7 lots; Nov., 3 days, 3 lots.



STATISTICS OF RESULTS OF THE COMBINED OPERATIONS OF GOVERNMENT AND STATE FROM JUNE,  
1906, TO DECEMBER 31, 1909.

	Anne Arundel.	Somerset.	Wicomico.	Worcester.	Calvert.	St. Mary's.	Charles.	Kent.	Baltimore.	Queen Anne's.	Total.
Number of oyster bars surveyed and delineated.	92	37	15	28	49	125	15	64	3	98	526
Acres of oyster bars surveyed and delineated.	33,765	27,482	2,038	1,655	12,412.5	25,780	2,285	12,809	3,010	24,721	145,957
Crab bottoms surveyed and delineated.	54	54	.....	.....	.....	.....	.....	.....	.....	.....	54
Acres of crab bottoms.	32,108	32,108	.....	.....	.....	.....	.....	.....	.....	.....	32,108
Number of clam beds surveyed and delineated.	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	3
Acres of clam beds.	.....	506	.....	.....	.....	.....	.....	.....	.....	.....	506
State oyster buoys located and placed.	302	154	53	104	149	375	51	78	12	.....	1,338
Miles of soundings lines over shell bottoms (stat.)	424.5	340.4	59.0	62.9	249.8	399.9	38.2	163.6	32.5	.....	2,058.9
Number soundings and chain wire readings over shell bottoms.	37,049	17,904	3,387	3,649	11,292	19,344	1,631	8,123	1,080	13,880	117,339
Square miles covered by soundings.	58	55	3.18	2.54	30.35	56,988	4.37	20,996	5.59	47.07	284.04
Triangulation land marks established.	123	86	30	48	78	238	42	130	50	.....	.....
Square miles of water covered by triangulation	220	375	44	110	157	180	20	110	12	.....	.....
Miles of shore line covered by triangulation.	110	125	46	95	95	160	32	147	15	.....	.....
Oyster investigation stations occupied.	440	679	162	147	667	1,472	113	1,151	64	1,949	6,844
Projections prepared and platted.	9	13	2	5	8	15	3	.....	4	12	.....
Leasing charts prepared.	13	12	2	2	5	10	2	4	1	11	62
Oyster charts published.	4	6	2	3	5	.....	.....	.....	.....	.....	20
Number of tide stations established.	4	3	1	1	2	4	1	2	.....	3	21
Number of old oyster lots checked.	15	300	71	.....	81	58	10	5	.....	25	575
Number of oyster lots surveyed under new law.	71	72	16	.....	.....	.....	.....	.....	.....	.....	159

\* Until open for leasing complete statistics for St. Mary's, Kent, Baltimore and Queen Anne's counties will be incomplete.  
 † The oyster bars of Kent county not all buoyed; Chester River bars will be buoyed in the spring of 1911.

## REPORT OF OPERATIONS FOR THE PROMOTION OF OYSTER CULTURE.

The oyster lands in the following counties and in the sections of the Chesapeake bay adjacent thereto, not reserved by the State as public oyster or crab fisheries, have been opened by the Board of Shell Fish Commissioners for lease for the purposes of oyster culture on the dates which appear in the table below:

County.	Date of Filing Charts of Oyster Bars.	End of Period of Right of Appeal From Result of Survey.	End of Period of Priority in Leas- ing for Owners of Land.	End of Period of Priority in Leas- ing for Oystermen and Date When All Citizens May Lease Lands.
Anne Arundel	June 20, 1907.	Oct. 20, 1907..	Feb. 20, 1908..	Aug. 20, 1908.
Somerset ....	July 1, 1908...	Nov. 1, 1908..	March 1, 1909.	Sept. 1, 1909.
Wicomico ....	Dec. 1, 1908..	April 1, 1909..	Aug. 1, 1909..	Feb. 1, 1910.
Worcester ...	April 12, 1909.	Aug. 12, 1909.	Dec. 12, 1909..	June 12, 1910.
Calvert .....	Dec. 14, 1909..	April 14, 1910.	Aug. 14, 1910.	Feb. 14, 1911.

The bottoms available for oyster culture in the remaining seven tide-water counties will be opened for lease as soon as the result of the surveys of the oyster grounds can be tabulated and the charts of the natural oyster bars constructed and printed, the last probably not later than December 31, 1911.

The number of applications which have been received for leases to lands for the purposes of oyster culture; the number of leases which have been granted; the area and location of each leased lot; the number and location of leased lots on which rents have not been paid; the number and location of lots to which the leases have been cancelled; the number, area and location of the lots to which leases are now valid and the name and address of each lessee, are given in a series of statistical tables on pages 79 to 92.

The number of lessees of oyster lands and the area leased for the purposes of oyster culture reported herein, is clearly no indication of the interest in oyster culture which exists in Maryland nor a measure of the success which may be attained through the present plan of developing the industry. The opportunity to lease lands for oyster culture has been offered to all classes of citizens in four



counties only and in one of these counties, Worcester, no lands have been leased, although it is a well known fact that oyster culture is being successfully carried on in Worcester County waters on a fairly extensive scale. The Oyster Culture Law, in its present form, fails to provide means of compelling compliance with its leasing provisions on the part of individuals who use oyster lands belonging to the State, and the oyster planters of Worcester County and many planters in other counties, are taking advantage of this imperfection in the law. The Commission has recommended\* that the law be so amended as to make it impossible for a citizen to appropriate and use oyster lands belonging to the State without full compliance with all the provisions of the law.

Many citizens of the State have been deterred from entering the field of oyster culture also because of the failure of the law to grant privileges to oyster planters known to be essential to success in oyster culture, and not until these privileges have been granted and all of the lands of the State suitable and available for the purposes of oyster culture have been opened for lease, will it be time to judge of the possibilities of oyster culture in Maryland.

APPLICATIONS FOR LEASES. \* \*

TO LANDS FOR THE PURPOSES OF OYSTER CULTURE RECEIVED BY THE BOARD OF SHELL FISH COMMISSIONERS TO SEPTEMBER 30, 1910, FROM:

Counties.	Lessees Under Former Law.		Residents Under Present Law to Dec. 15, 1908.		Residents Under Present Law Since Last Report.		No.	Acres.
	No.	Acres.	No.	Acres.	No.	Acres.		
Anne Arundel.....	26	112.20	63	358.75	25	170.00	114	640.95
Baltimore .....	..	.....	..	.....	..	.....	..	.....
Calvert .....	93	323.46	..	.....	23	192.70	116	516.16
Charles.....	23	105.65	..	.....	1	10.00	24	115.65
Dorchester .....	163	776.35	..	.....	..	.....	163	776.35
Kent .....	4	17.75	1	3.00	..	.....	5	20.75
Queen Anne's.....	15	61.87	..	.....	..	.....	15	61.87
Somerset .....	301	1526.37	40	350.00	45	437.00	386	2313.37
St. Mary's.....	73	250.46	3	13.00	3	23.00	79	286.46
Talbot .....	84	365.35	2	10.00	..	.....	86	375.35
Wicomico .....	71	346.70	..	.....	16	160.00	87	506.70
Worcester .....	..	.....	..	.....	..	.....	..	.....
Total.....	853	3885.16	109	734.75	113	992.70	1075	5613.61

\* See page 105.

\*\* When, in 1906, opportunity was given to the 4009 holders of oyster lots under former law to retain their lands under the present law, 853 only made application and 472 finally executed new leases with the State.

## LEASES GRANTED.\*\*

## TO LANDS FOR THE PURPOSES OF OYSTER CULTURE BY THE BOARD OF SHELL FISH COMMISSIONERS TO SEPTEMBER 30, 1910.

Counties.	Lessees Under Former Law.		Residents Under Present Law to Dec. 15, 19 8.		Residents Under Present Law Since Last Report.			
	No.	Acres	No.	Acres.	No.	Acres.	No.	Acres.
Anne Arundel.....	18	70.95	27	139.13	19	57.50	54	267.58
Baltimore*								
Calvert .....	59	226.61			2	6.00	61	232.61
Charles*	15	58.65					15	58.65
Dorchester*	80	372.52					80	372.52
Kent *	1	5.00					1	5.00
Queen Anne's*.....	7	27.39					7	27.39
Somerset .....	190	946.88			53	494.00	243	1440.88
St. Mary's*.....	35	124.41					35	124.41
Talbot*.....	48	195.77					48	195.77
Wicomico .....	19	89.12			17	165.00	36	254.12
Worcester .....								
* Totals.....	472	2117.30	27	139.13	81	722.50	580	2978.93

\*\* Five leases, in addition to the above, have been granted under the present law—two in Anne Arundel County and three in Somerset County—which have not been signed by the applicant and returned to the office to be recorded.

\*Barren bottoms not opened for lease for the purposes of oyster culture.

## LESSEES IN ARREARS WITH RENT \*

## FOR THE USE OF OYSTER LANDS, SEPTEMBER 30, 1910.

Counties.	4 Years in Arrears.		3 Years in Arrears.		2 Years in Arrears.		Total.	
	No.	Amount.	No.	Amount.	No.	Amount.	No.	Amount.
Anne Arundel .....			1	\$60.00	6	\$282.32	7	\$342.32
Baltimore .....								
Calvert .....	3	89.00	4	145.71	17	474.30	24	709.01
Charles .....			4	180.00	5	151.44	9	331.55
Dorchester .....	11	560.00	20	922.50	17	601.00	48	2083.50
Kent .....								
Queen Anne's .....					2	53.76	2	53.76
Somerset .....	16	772.10	40	1845.00	78	2726.25	134	5343.35
St. Mary's.....	1	50.00	4	113.40	3	85.40	8	248.80
Talbot .....	5	203.30	1	19.62	13	393.12	19	616.04
Wicomico .....	3	150.00	3	135.00	6	210.00	12	495.00
Worcester .....								
Total.....	39	\$1824.40	77	\$3421.23	147	\$4977.70	263	\$10223.33

\* The leases held by all of these lessees might have been canceled by the Board of Shell Fish Commissioners, in accordance with provisions of Section 98, but since the cancellation of a lease under existing law does not prevent the lessee from continuing to use the land for the purposes of oyster culture, and since the law in its present form withholds from lessees certain rights and privileges the exercise of which are recognized to be essential to success in oyster culture, the Board of Shell Fish Commissioners has refrained from exercising its power to cancel leases, believing that the Oyster Culture Law will ultimately be so perfected as to encourage oyster culture, and that many of the lessees now in arrears with rents will then remit the same and continue to co-operate with the State in developing an industry in oyster culture on our unproductive oyster lands.

LEASES CANCELED\* TO SEPTEMBER 30, 1910.

Counties.	Number.	Acres.
Anne Arundel .....	6	22.75
Baltimore .....	..	.....
Calvert .....	2	8.07
Charles .....	3	10
Dorchester .....	8	38
Kent .....	..	.....
Queen Anne's .....	1	5
Somerset .....	23	115
St. Mary's .....	5	16.10
Talbot .....	8	29.77
Wicomico .....	..	.....
Worcester .....	..	.....
Total.....	56	244.69

..\* The leases in all of these cases were canceled at the request of the lessees themselves.

LEASES IN FORCE SEPTEMBER 30, 1910.

Counties.	Number.	Acres.
Anne Arundel .....	48	234.37
Baltimore .....	..	.....
Calvert .....	59	224.54
Charles .....	12	48.65
Dorchester .....	71	340.92
Kent .....	1	5
Queen Anne's .....	6	22.39
Somerset .....	220	1332.5
St. Mary's .....	30	104.31
Talbot .....	40	166.09
Wicomico .....	36	254.12
Worcester .....	..	.....
Total.....	424	2732.89

## NAMES AND ADDRESSES OF LESSEES.

## ANNE ARUNDEL COUNTY.

Name.	Address.	Acres.
Barnes, Mrs. M. C.	Eastport	1
Bellis, Jos. H.	Annapolis	10
Clark, Geo. M.	Annapolis	10
Clark, Walter R.	Annapolis	10
Dawson, J. W.	Mayo	4.75
Friemel, Maggie A.	Annapolis	5
Friemel, Charles A.	Annapolis	2
Friemel, Maggie A.	Annapolis	1
Frazier, S. R.	Eastport	1
Friemel, Maggie A.	Annapolis	1.25
Fitzhugh, Mary A.	Westminster	10
Fitzhugh, Dr. Henry	Westminster	10
Giddings, Elizabeth.	Annapolis	5
Gott, Winson G.	Annapolis	1
Hartge, Edmund L.	Shady Side.	2.95
Hopkins, Oswald B.	Shady Side.	10
Hartge, Chas. F.	Shady Side.	4.9
Heller, Wilhelm.	Eastport	1
Hooper, Eugene F.	Baltimore	1.25
Keidel, Adelina L.	Baltimore	3
Keidel, Henry	Baltimore	5
Koch, Chas. G.	Eastport	1
Kipper, Frederick M.	Annapolis	1
Larson, Charles.	Shady Side.	3.33
Larson, Charles.	Shady Side.	2
Larson, Charles.	Shady Side.	3.5
Lerch, F. J.	Baltimore	5
Lowman, James E.	Annapolis	10
Mason, Randolph B.	Eastport	4.75
Martin, Chas. E.	Annapolis	5
Martin, Jno. W.	Annapolis	5
Melvin, Geo. T.	Annapolis	4
Melvin, Geo. T.	Annapolis	6
Murray, Mary H.	Cumberstone	5
Nowell, Wm. G.	Shady Side.	2.58
Nowell, Wm. G.	Shady Side.	31.33
Pitcher, Matilda C.	Annapolis	3.75
Saunders, Wm. H.	Annapolis	5
Smith, Samuel P.	Shady Side.	5.5
Stevens, Lester L.	Baltimore	10
Wilde, William.	Shady Side	3.33
Wilde, Ferdinand.	Shady Side	2
Wilde, Ferdinand.	Shady Side	1
Williams, Chas. H.	Annapolis	3.7
Wilde, F. F.	Shady Side	2
Williams, Jno. F.	Annapolis	7.5
Womble, P. M.	Baltimore	6.25
Zang, William	Gallaway	4
Total		234.37

CALVERT COUNTY.

Name.	Address.	Acres.
Anderson, Charles	Solomons	5
Barrett, Daniel	Sollers	5
Barrett, Christian	Frazier	5
Blackburn, Wm. C.	Wallville	5
Bowen, Isaac P.	Wallville	5
Bowen, Helen O. M.	Wallville	5
Bowen, Wise	Solomons	5
Breeden, Laura V.	Prince Frederick	3.5
Breeden, Geo. L.	Sollers	5
Breeden, Jno. W.	Sollers	5
Breeden, Jake E.	Sollers	3
Breeden, Wm. E.	Sollers	5
Breeden, Jno. E.	Sollers	4
Breeden, B. E.	Sollers	5
Brome, W. W.	Wallville	5
Brome, E. R.	Wallville	5
Dodson, Wm. I.	Solomons	1.9
Evans, T. P.	Solomons	3.73
Gantt, Wm. Warren	Frazier	1.25
Gantt, Jno. B.	Lusby	2
George, J. F.	Solomons	4.5
George, Mary J.	Solomons	2.5
Glover, Jno. M.	Solomons	2.85
Glover, R. M.	Solomons	3.2
Gurley, Thos. B.	Baltimore	3.75
Hance, Young D.	Prince Frederick	5
Jones, Jno. M.	Solomons	1.25
Joy, Jno. B.	Solomons	2.75
Johnson, Isaac	Solomons	1.6
Ketcham, M. A.	Solomons	5
Ketcham, Asa C.	Solomons	5
Kopp, Jno. C.	Solomons	5
Lore, Jos. C.	Solomons	2.5
Marburg, Geo. E.	Fort Morris, N. J.	2.25
Mister, Jno. R.	Solomons	1.87
Northam, Wm. E.	Solomons	5
Oberry, Jno. H.	Solomons	2
Overton, S. P.	Solomons	5
Overton, M. E.	Solomons	5
Overton, Daisy M.	Solomons	*1.29
Parran, Jno.	Prince Frederick	5
Parran, N. D. S.	Prince Frederick	5
Parran, M. B.	Prince Frederick	5
Parran, Benjamin	Prince Frederick	5
Ralley, John	Solomons	†2.25
Sullivan, P. J.	Solomons	.75
Seipp, William	Solomons	4.75
Sollers, K. T.	Sollers	5
Sollers, Jno. F.	Sollers	2.25
Sollers, Jas. G.	Sollers	5
Tongue, T. O.	Solomons	5
Tongue Frank	Solomons	†2.75
Tongue, F. H.	Solomons	1.75

Name.	Address.	Acres.
Tongue, G. Gideon.....	Solomons .....	4.75
Tucker, Jas. T.....	Solomons .....	2.33
Tucker, Lemuel J.....	Solomons .....	2.25
Turner, Geo. D.....	Prince Frederick.....	5
True, Thos. H.....	Solomons .....	5
Weems, Clarence .....	Solomons .....	4.75
Total.....		224.54

\* P. † 34 F. ‡ 8 P.

## CHARLES COUNTY.

Name.	Address.	Acres.
Alvey, Wm. H.....	Hughesville .....	5
Bowling, Frederick T.....	Hughesville .....	5
Collison, George H.....	Rock Point.....	3
Henderson, A. H.....	Benedict .....	5
Hayden, Henry A.....	Tompkinsville .....	5
Jackson, John C.....	Tompkinsville .....	5
Jackson, Walter L.....	Tompkinsville .....	5
Lancaster, S. S.....	Rock Point.....	5
Norris, James N.....	Rock Point.....	3.65
Norris, J. Walter.....	Hollywood .....	1
Norris, James J.....	Hollywood .....	1
Thomas, James E.....	Benedict .....	5
Total.....		48.65

## DORCHESTER COUNTY.

Name.	Address.	Acres.
Bond, Maria L.....	Cambridge .....	1.75
Booze, Robert G.....	Hoopersville .....	5
Brannock, Annie L.....	Cambridge .....	2.25
Brannock, Edgar .....	Cambridge .....	4.15
Bloodsworth, R. E.....	Cambridge .....	5
Clayton, John W.....	Hoopersville .....	5
Collier, Effie M.....	Nanticoke .....	5
Creighton, T. H.....	Fishing Creek.....	5
Creighton, E. O.....	Fishing Creek.....	5
Conway, Harvey H.....	Cambridge .....	*3.5
Dashiell, Ed., Jr.....	Cambridge .....	5
Dashiell, Ed., Jr.....	Cambridge .....	5
Elliott, Wm. E.....	Nanticoke .....	5
Ewell, Wm. T.....	Elliott .....	5
Evans, Jno. W. T.....	Elliott .....	5
Foxwell, Wm. W.....	Elliott .....	5
Gray, James W.....	Elliott .....	5
Gray, Martha .....	Elliott .....	5
Gray, Bessie .....	Elliott .....	3.75
Gray, James P.....	Elliott .....	5
Gray, Cornelius .....	Elliott .....	5
Gray, Clara E.....	Elliott .....	5
Hayward, Eliza E.....	Cambridge .....	.9

Name.	Address.	Aeres.
Hurseman, Charles W.....	Elliott .....	5
Hurley, Levin .....	Vienna .....	5
Hurley, Celia E.....	Vienna .....	5
Hurley, Elijah .....	Vienna .....	5
Hooper, Adelbert .....	Hoopersville .....	5
Jones, James W.....	Elliott .....	5
Jackson, Thomas J.....	Baltimore .....	5
Jones, Harvey .....	Wingate .....	5
Jones, William C.....	Bishop's Head.....	5
Kenley, Mary A.....	Baltimore .....	5
Kinnamon, W. T.....	Elliott .....	5
Lewis, Thomas .....	Hoopersville .....	5
Moore, Alonza M.....	Elliott .....	5
Moore, Alberry H.....	Elliott .....	5
Moore, Mary J.....	Elliott .....	2.25
Moore, Pheby .....	Elliott .....	1.75
Moore, Herman W.....	Elliott .....	5
Moore, Delma A.....	Elliott .....	2.5
Muse, Col. W. S.....	Cambridge .....	5
Muse, Col. W. S.....	Cambridge .....	5
Mace, John .....	Cambridge .....	5
Mitchell, Robert H.....	Cambridge .....	5
Phillips, Luther .....	Cambridge .....	5
Phillips, Albanus .....	Cambridge .....	5
Phillips, J. R.....	Fishing Creek.....	2.50
Robinson, William F.....	Toddsville .....	5
Rippon, Thomas L.....	Hoopersville .....	5
Robinson, W.....	Toddsville .....	5
Simmons, Maggie L.....	Hoopersville .....	5
Simmons, Samuel M.....	Hoopersville .....	5
Simmons, Dorinda .....	Hoopersville .....	5
Simmons, Rufus .....	Hoopersville .....	5
Simmons, Avalon .....	Hoopersville .....	5
Spicer, James K.....	Taylors .....	5
Tyler, Mrs. Kate.....	Hoopersville .....	5
Travers, John E.....	Baltimore .....	5
Tyler, W. B.....	Hoopersville .....	5
Tyler, James F.....	Hoopersville .....	5
Tyler, Samuel M.....	Hoopersville .....	5
Travers, Levin F.....	Hoopersville .....	5
Travers, Henry R.....	Hoopersville .....	5
Travers, Benj. F.....	Fishing Creek .....	5
Vickers, Thomas H.....	Taylors .....	5
Wingate, C. C.....	Bishop's Head.....	5
Willey, Sallie E.....	Bishop's Head.....	5
Wroten, Levin A.....	Cambridge .....	5
Williams, Albert .....	Nanticoke .....	5
Woodland, Harrison .....	Bishops .....	5
Total.....		340.92

\* 25 P.    † 15 P.    ‡ 20 P.

KENT COUNTY.

Name.	Address.	Aeres.
Stevens, R. N.....	Baltimore .....	5

## QUEEN ANNE'S COUNTY.

Name.	Address.	Acres.
Golt, Elmer	Kent Island	2.88
Henry, William T.	Stevensville	5
Johnson, William E.	Kent Island	5
Marvel, James W.	Stevensville	*2.5
Tull, Thomas H.	Kent Island	3
Tull, George T.	Kent Island	4
Total		22.39

\* 2 P.

## ST. MARY'S COUNTY.

Name.	Address.	Acres.
Abell, George F.	Leonardtown	5
Abell, George C.	Leonardtown	1
Adams, Benj. F.	Compton	3.2
Burch, James	Oakley	3.75
Buhrman, H. J.	Porto Bello	3
Burch, John C.	Leonardtown	5
Cheseldine, A. F.	River Springs	4.75
Coad, Edwin J.	Drayden	5
Dunbar, William W.	Ridge	3.25
Dunbar, William W.	Ridge	3.75
Dean, John C.	Leonardtown	3.5
Ewell, Harrison	Leonardtown	5
Forehall, John T.	Wynne	5
Farr & Grave	Chaptico	7
Ford, Edwin H.	Baltimore	4
Gibson, Jos. E.	Abell	3.25
Hyatt, Alpheus	Porto Bello	5
Johnson, L. B.	Morganza	5
Kennedy, Alex.	St. Mary's City	5
Morris, Mrs. L. A.	St. Inigoes	4.98
Shorter, Charles E.	Drayden	2.33
Swann, J. Thomas	Piney Point	1
Smith, Umphrey	Leonardtown	4.2
Smith, J. Winfield	Leonardtown	1.6
Smith, James F.	Porto Bello	2.4
Sheehand, John F.	Drayden	2
Shorter, William	Drayden	1.9
Taylor, Jesse	Park Hall	.7
Wood, Charles D.	Wynne	2
Williar, Harry D.	Baltimore	4.75
Total		104.31

## SOMERSET COUNTY.

Name.	Address.	Acres.
Adams, W. J.	Crisfield	5
Baker, Louise T.	Baltimore	5
Beauchamp, Vaughn	Upper Fairmount	5
Beauchamp, Wm. T.	Inverness	5
Beauchamp, Samuel	Marion Station	10
Bennett, Chas. O.	Inverness	5
Bennett, Garnett E.	Inverness	5



Name.	Address.	Acres.
Bennett, E. S.....	Inverness	5
Bennett, Ada G.....	Inverness	5
Bennett, Geo. W.....	Inverness	5
Bennett, Fred. T.....	Inverness	5
Bennett, W. F.....	Inverness	5
Bennett, Geo. W.....	Inverness	10
Blades, T. C.....	Crisfield	5
Blair, L. W.....	Crisfield	4
Blake, W. C.....	Marion Station	10
Bowen, Edw. A. S.....	Crisfield	5
Bozman, Mary A.....	Champ	5
Bozman, Thos. A.....	Champ	5
Bozman, Adelina.....	Oriole	5
Bradshaw, Jacob T.....	Crisfield	5
Byrd, Ruby E.....	Crisfield	5
Byrd, Wm. E.....	Crisfield	5
Byrd, Elizabeth.....	Crisfield	5
Coulbourne, Jos. E.....	Crisfield	5
Coulbourne, Annie M.....	Marion Station	5
Coulbourne, Clark.....	Marion Station	5
Coulbourne, Julia.....	Crisfield	5
Croswell, Julia A.....	Crisfield	5
Coulbourne, Luca V.....	Crisfield	5
Clayton, Sarah A.....	Marion Station	5
Conner, Elza J.....	Tulls Corner	5
Conner, N. T.....	Tulls Corner	5
Conner, Nathan S.....	Tulls Corner	5
Coulbourne, Mary E.....	Crisfield	5
Cox, Maggie.....	Fairmount	5
Cox, Jno. H.....	Fairmount	5
Cox, Lloyd W.....	Fairmount	5
Cox, Rena B.....	Fairmount	5
Cox, Algie B.....	Marumsc	5
Crockett, Sallie.....	Crisfield	5
Cullen, Arintha J.....	Crisfield	5
Cullen, Jas. H.....	Crisfield	5
Cullen, Mamie A.....	Crisfield	5
Chelton, Mary E.....	Crisfield	5
Chelton W. S.....	Landonville	5
Coulbourn, B. Car.....	Crisfield	5
Coulbourn, Wm. H.....	Crisfield	5
Coulbourn, Jennie E.....	Crisfield	5
Crockett, Lillian J.....		
Crockett, Ananias.....	Crisfield	5
Crockett, Marion.....	Crisfield	5
Crockett, Abdengo.....	Crisfield	5
Coulbourn, Isaac.....	Crisfield	5
Cox, William H.....	Marumsc	5
Cox, Henrietta.....	Marumsc	5
Cox, Elsie M.....	Upper Fairmount	10
Cox, Effie K.....	Upper Fairmount	10
Cox, W. Ernest.....	Upper Fairmount	10
Cox, R. Alfred.....	Upper Fairmount	10
Cox, Susie E.....	Upper Fairmount	10
Cox, Mervin.....	Upper Fairmount	10
Cox, Geo. A.....	Fairmount	10
Costen, Julius.....	Marion Station	10

Name.	Address.	Acres.
Cullen, W. E.	Crisfield	10
Colbourn, Augusta	Marion Station	10
Colbourn, Lottie	Marion Station	10
Cox, Effie	Upper Fairmount	10
Dayton, Cora	Mt. Vernon	5
Dayton, Millard F.	Mt. Vernon	5
Daugherty, E. T.	Crisfield	5
Dorman, Geo. E.	Crisfield	5
Daugherty, G. L.	Crisfield	5
Daugherty, Grace	Crisfield	5
Dize, John M.	Crisfield	4
Dize, Wm. W.	Crisfield	10
Daugherty, Eijah T.	Marion Station	10
Evans, Wm. W.	Crisfield	5
Evans, Maggie S.	Crisfield	5
Ford, Herschel	Upper Fairmount	5
Fisher, William	Mt. Vernon	5
Ford, Wm. W.	Upper Fairmount	10
Ford, Sherman	Crisfield	5
Ford, John H.	Upper Fairmount	10
Gillis, Joshua	Upper Fairmount	5
Gillis, Sarah A.	Upper Fairmount	5
Gibson, Benj. F.	Crisfield	5
Gibson, Wm. E.	Crisfield	5
Gray, James M.	Marumsc	5
Gunby, Emma	Marion Station	5
Gunby, Paul	Marion Station	5
Hall, I. Henry	Marion Station	5
Holland, Mary E.	Crisfield	5
Hall, W. J.	Upper Fairmount	10
Hickman, W. P.	Crisfield	5
Hopkins, Jno. H.	Upper Fairmount	10
Howard, Clarence	Crisfield	10
Horsey, Ephraim	Marion Station	10
Jones, Robert H.	Upper Fairmount	5
Johnson, John	Crisfield	5
Jackson, Wesley	Marion Station	5
Jones, Amanda	Marion Station	5
Jones, Geo.	Marion Station	5
Justice, Sidney J.	Crisfield	10
Justice, Wm. B.	Crisfield	10
Justice, James	Crisfield	10
Justice, Chas. T.	Crisfield	10
Landon, Virginia	Upper Fairmount	5
Long, A. A.	Marumsc	5
Landon, Walter G.	Baltimore	5
Landon, Wm. R.	Upper Fairmount	5
La Vallette, Annie	Crisfield	5
Lawson, Elijah S.	Crisfield	5
Layfield, Mary P.	Upper Fairmount	5
Layfield, Geo. W.	Upper Fairmount	5
Long, Warren B.	Crisfield	5
Long, Susa O.	Crisfield	5
Long, Frank P.	Crisfield	5
Long, Marion H.	Crisfield	5
Lawson, John H.	Lawsonia	5
Long, Geo. W.	Crisfield	5

Name.	Address.	Acres.
Lockerman, C. A.	Crisfield	5
Love, John Q.	Crisfield	10
Lankford, Jno. E.	Crisfield	10
Muir, Wm. L.	Oriole	5
Mister, Lawson	Shelltown	5
Miles, Edwin E.	Marion	5
McDaniel, Mathias J.	Oriole	5
Miles, Southey F.	Marion Station	5
Miles, Luther T., Sr.	Marion Station	5
Miles, Wm. S.	Marion Station	5
Muir, Mary E.	Crisfield	5
Mills, Chas. O.	Crisfield	5
Mahoney, Sallie	Hopewell	5
Morris, Frank H.	Marion Station	5
Milbourn, Elizabeth	Marion Station	5
Milbourn, Arthur	Marion Station	5
Merrill, Samuel	Marumsc	5
Maddox, Fred. S.	Marumsc	5
Mason, Jno. E.	Crisfield	10
Miles, Thomas J.	Baltimore	10
Nelson, Elijah W.	Crisfield	5
Nelson, Geo. T., Sr.	Crisfield	10
Nelson, Geo. T., Jr.	Crisfield	10
Pruitt, Jno. E.	Crisfield	5
Peyton, Eva B.	Lawsonia	5
Peyton, Orrie F.	Lawsonia	5
Pruitt, J. E.	Crisfield	5
Purnell, Isaac	Marion Station	10
Pusey, Wm. C.	Upper Fairmount	10
Purnell, Geo. T.	Crisfield	5
Pusey, W. H.	Marion Station	10
Quinn, Clara H.	Crisfield	5
Quinn, Egbert T.	Crisfield	5
Quinn, Katie E.	Crisfield	5
Quinn, Lorie C.	Crisfield	5
Riggin, Horace	Crisfield	*4.30
Riggin, Elisha T.	Crisfield	†4.75
Robertson, S. H., Jr.	Westover	5
Riggin, Chas. E.	Crisfield	5
Riggin, Geo. C.	Crisfield	5
Riggin, Laura V.	Crisfield	5
Sterling, Wm. C.	Crisfield	5
Scott, Vida A.	Mt. Vernon	5
Scott, Lucy V.	Mt. Vernon	5
Sommers, Henry	Inverness	5
Sterling, Ida	Crisfield	5
Sterling, Lillie	Crisfield	5
Sterling, Roy	Crisfield	5
Sterling, Lenore	Crisfield	5
Sterling, I. T.	Crisfield	5
Sterling, Martin L.	Baltimore	5
Somers, E. W.	Champ	5
Somers, G. A.	Champ	5
Somers, W. J.	Champ	5
Somers, C. N.	Champ	5
Smith, Loretta	Oriole	5
Shockley, Leslie	Oriole	5

Name.	Address.	Acres.
Smith, John W.	Oriole	5
Sterling, Arthur	Crisfield	5
Sterling, Adelia	Crisfield	5
Sterling, C. C.	Crisfield	5
Stevens, F. J.	Crisfield	5
Sterling, Elwood	Crisfield	5
Sterling, Daisy	Crisfield	5
Stevens, Isaac S.	Crisfield	5
Seltzer, Edw. L.	Shelltown	5
Sterling, W. T.	Crisfield	10
Sterling, James	Crisfield	10
Tull, Washington L.	Crisfield	5
Travers, Isaac H.	Crisfield	5
Taylor, Emma I.	Tulls Corner	5
Tyler, Geo.	Crisfield	5
Tull, Ira R.	Crisfield	4.75
Tyler, Grace	Crisfield	5
Tawes, Addie B.	Crisfield	5
Tawes, Grace	Crisfield	5
Tawes, Isaac H.	Crisfield	5
Tull, E. W.	Nanticoke	5
Tull, Carrie E.	Nanticoke	5
Tull, Robert J.	Crisfield	5
Taylor, Rose	Marion Station	5
Tawes, J. M.	Crisfield	7
Tull, S. A.	Marion Station	10
Tull, A. E.	Marion Station	10
Tull, F. H.	Marion Station	10
Taylor, Geo. F.	Marion Station	10
Ward, Alitha A.	Marion Station	5
Williams, Benj. F.	Tulls Corner	5
Ward, Geo. F.	Marion Station	5
Whittington, Mary	Marion Station	5
Whittington, A. A.	Marion Station	5
Whittington, C. A.	Marion Station	5
Whittington, S. F.	Marion Station	5
Wharton, Sallie J.	Crisfield	5
Washington, Lewis J.	Upper Fairmount	10
Wharton, Jno. S., Jr.	Crisfield	10
Whittington, W. S.	Marion Station	10
Whittington, A. A.	Marion Station	4
Total		*1,322.5

\* P. † 11 P.

#### TALBOT COUNTY.

Name.	Address.	Acres.
Anderson, Charles H.	Easton	5
Bringman, Herman	Oxford	5
Bayard, G. Oscar.	St. Michaels	5
Burrows, Mary E.	Royal Oak	1
Bratt, Samuel W.	Easton	*3.4
Collins, Herbert E.	Oxford	4.87
Callahan, Geo. E.	Easton	*1.27

Name.	Address.	Acres.
Dawson, L. G.	Oxford	5
Easter, Mrs. M. W.	Royal Oak	†2.35
Frampton, Charles L.	Royal Oak	5
Fairbanks, Charles E.	Easton	5
Glasscock, Dr. A. B.	St. Michaels	5
Glasscock, Anna L.	St. Michaels	5
Howeth, C. E.	Tilghman	5
Howeth, Charles J.	Tilghman	5
Henderson, Charles E.	Easton	†3.25
Henderson, C. E., Jr.	Easton	*3.32
Henderson, Ida M.	Easton	3.25
Haddaway, Alex.	Claiborne	§1.25
Harrison, C. H. H.	Valliant	5
Leonard, D. B.	Royal Oak	5
McConnell, Rev. S. D.	Easton	5
Martin, Francis S.	Easton	¶2.75
Mister, Albert T.	Tilghman	5
Neuman, Bessie E.	Bellevue	x2.5
Fepper, P.	Bellevue	y1.25
Plummer, M. T.	Oxford	2.25
Pastorfield, W. T.	Royal Oak	5
Pearson, H. H., Jr.	Baltimore	5
Pearson, H. H., Jr.	Baltimore	z4.5
Rivers, Arthur D.	Baltimore	5
Rivers, Janet B.	Baltimore	5
Rivers, L. Lucas	Baltimore	5
Sinclair, E. W.	Tilghman	4.17
Smith, W. I., Sr.	Easton	5
Valliant, Hugh B.	Valliant	5
Valliant, Anetta	Bellevue	5
Valliant, Lloyd N.	Bellevue	5
Valliant, W. H.	Valliant	5
Warfield, Frank	Easton	5
Total.		166.09

\* P. † 100 P. ‡ 19 P. § 33 P. ¶ 9 P. x 21 P. y 37 P. z 27 P.

WICOMICO COUNTY.

Name.	Address.	Acres.
Adkins, Fred. P.	Salisbury	5
Adkins, Elijah S.	Salisbury	5
Bradshaw, Geo. B.	Nanticoke	10
Collins, Lambertine	White Haven	5
Covington, Jas. K.	Tyaskin	2.12
Cox, Wm. B.	Nanticoke	5
Dickerson, S. T.	Jesterville	5
Evans, Robert G.	Salisbury	5
Evans, Geo. W.	Nanticoke	10
Evans, W. F.	Nanticoke	10
Evans, Minnie H.	Nanticoke	10
Hopkins, Jno. T.	Victor	5
Hopkins, Geo. M.	Victor	5
Hopkins, Geo. J. C.	Victor	5

Name.	Address.	Acres.
Leatherbury, W. K.	Salisbury	5
Messick, Thos. E.	Nanticoke	10
Nutter, Maurice G.	Nanticoke	5
Nutter, Jno. W.	Nanticoke	10
Parks, Chas.	Nanticoke	10
Robinson, Edgar	Nanticoke	10
Robertson, Harry C.	White Haven	5
Streett, Geo. W.	Nanticoke	10
Turner, Alice P.	Nanticoke	3
White, Samuel M.	White Haven	5
Williams, Elmer C.	Salisbury	5
White, Samuel E.	White Haven	4
White, Matilda E.	White Haven	5
Williams, L. E.	Salisbury	5
Williams, Thos. H.	Salisbury	5
Willey, Minos J.	Nanticoke	10
Willey, Hobert J.	Nanticoke	10
Willey, Jno. T.	Nanticoke	10
Walter, Robert F.	Nanticoke	10
Walter, Annie L.	Nanticoke	10
Walter, Lucy J.	Nanticoke	10
Williams, Jennie E.	Nanticoke	10
Total		<hr/> 254.12

FORMS OF APPLICATION.

It is deemed expedient to reproduce herewith the several forms of application adopted by the Board of Shell Fish Commissioners, with reference to the various classes of applicants, to wit: Riparian Owners, Boatmen and Applicants Without Priority, under the Haman Oyster Culture Law.

FORM B.

APPLICATION FOR A LEASE

TO THE BOARD OF SHELL FISH COMMISSIONERS OF MARYLAND.

BALTIMORE, MARYLAND.

The application of....., a resident of....., in the State of Maryland, respectfully shows:

1st. That this applicant is a citizen of said State of Maryland, residing in....., in the State aforesaid.

2nd. That he wishes and intends to use the grounds hereinafter described for planting or cultivating oysters.

3rd. That at the time of the opening for oyster culture of the areas of said....., and at the present time,....., he was, and is, the owner of a certain lot, tract, piece or parcel of land, situate, lying and being on the waters of the....., in said State, having a water front of at least.....yards; and that the area adjacent to the riparian lands of this applicant was opened for oyster culture as aforesaid within four months from date hereof.

The undersigned, therefore, requests hereby, that said Board lease to....., in the name and on behalf of the State of Maryland,..... acres of ground located under the waters of the State of Maryland, which ground is adjacent to the aforesaid land, as aforesaid, and is more particularly described as follows, to wit:

.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....

Dated at....., Maryland, this.....day of....., in the year one thousand nine hundred and.....

Applicant.

FORM C.

APPLICATION FOR A LEASE

TO THE BOARD OF SHELL FISH COMMISSIONERS OF MARYLAND.

BALTIMORE, MARYLAND.

The application of....., a resident of....., in the State of Maryland, respectfully shows:

1st. That this applicant is a citizen of said State of Maryland, residing in....., in the State aforesaid.

2nd. That upon the date of opening for oyster culture of the areas of said....., or upon the closing date of the last dredging, scraping or tonging season, in said....., said date being not less than four months, and not more than ten months from date hereof, he was a boatman engaged in the business of dredging, scraping or tonging for oysters within the areas of said State.

3rd. That he wishes and intends to use the grounds adjacent to a certain lot, tract, piece or parcel of land situate, lying and being in said..... County, having a water frontage of at least.....yards; the title to which said land is vested in a certain..... of.....

The undersigned, therefore, requests hereby, that said Board lease to him, in the name and on behalf of the State of Maryland, .....acres of ground, located under the waters of the State of Maryland, which ground is adjacent to the aforesaid land, as aforesaid, and is more particularly described as follows, to wit:

.....  
.....  
.....  
.....  
.....  
.....  
.....

Dated at....., Maryland, this.....day of....., in the year one thousand nine hundred and.....

Applicant.





FORM OF LEASE.

For the information of those interested in Oyster Culture in Maryland, the form of lease adopted by the Board is published herewith.

FORM B.

LEASE.

The Board of Shell Fish Commissioners of Maryland, pursuant to the provisions of Chapter 711, of the Acts of 1906, does hereby lease, in the name of the State of Maryland, this.....day of....., in the year nineteen hundred and....., unto....., for a term of twenty years, beginning on the.....day of....., nineteen hundred and....., and ending on the.....day of....., nineteen hundred and.....

Said.....hereby accepts the above Lease, subject to all the provisions of the said Chapter 711, of the Acts of 1906, and especially subject to the payment of the rentals provided for in said Act.

BOARD OF SHELL FISH COMMISSIONERS OF MARYLYAND,

By.....,

President.

.....(SEAL.)

Signed, sealed and delivered in the presence of

.....

## RECOMMENDATIONS.

### FOREWORD.

As viewed and recommended by the Board of Shell Fish Commissioners, the chief aim of future oyster legislation in Maryland should be to conserve and develop all of our oyster resources in ways calculated to restore the State eventually to the pre-eminent position in oyster production it formerly held among the Atlantic Coast States; and to so manage and administer these resources that a great revenue shall be returned by them to the State treasury for the benefit of the entire State.

Th necessity for adequate legislation looking toward these two results has been increasingly felt for more than thirty years. During this period, however, the aim of practically all oyster legislation has been directed toward preventing the depletion and destruction of the natural oyster beds through over-fishing, by placing limits and restrictions of one kind or another upon the methods and instruments which may be employed in gathering the natural product from the public fishery grounds. These measures have done nothing more than make the destructive processes less rapid, and in spite of all the work that has been carried on under them, the output from the public oyster fishery of the State has gradually declined both in quantity and quality, and, as a result, our oyster packers have been unable to compete successfully for the oyster trade with the packers and growers of other more progressive States, and, greatly to the discredit of our administrative capacity, our oyster resources have become an expense to the State instead of a source of great revenue.

Practically nothing has been done to extend the area or increase the yield of the natural oyster bars, and, for many years, almost no provision was made whereby that enormous area of hard bottom, situated outside the limits of the natural oyster beds, could be subjected to practical tests to determine and develop its value for oyster production.

After years of discussion the State finally decided in 1906 to try what can be done for the oyster industry by an industry in real oyster culture to be established and conducted by private citizens upon the grounds not now occupied by the public oyster fishery.

At this time Chapter 711, generally known as the Haman Oyster Culture Law, was added to the Public General Laws of the State, and it was intended that this law should provide the legal basis upon which to found such an industry and grant such rights and privileges as are necessary to the success of those who lease lots for the purposes of oyster culture and engage in the enterprise.

This law provided, however, that before any bottoms should be leased for oyster culture purposes, a careful and accurate survey of the natural oyster beds should be made to determine the position and limits of the grounds reserved as a public oyster fishery, and, in its provisions for this oyster survey, the law is a most satisfactory instrument. The survey has been so conducted, and its results have been so satisfactory to those who have been hitherto bitterly opposed to oyster culture, that much of the opposition to perfecting the oyster culture features of the law has been thereby removed. More than 200,000 acres of the best oyster-producing bottoms of the State have, as a result of the survey, been charted and reserved to the public oyster fishery, an area which greatly exceeds any estimate of the area of the natural bars of the State which had previously been made. Such a result could not fail to convince those who derive their livelihood from the natural oyster bars that the State has no thought of sacrificing in any way the public oyster fishery rights and interests to oyster culture.

It has been ascertained during the survey also that the State owns more than 300,000 acres of bottoms now barren and exhausted, situated outside the limits of the natural oyster bars, which are valuable for oyster production, and that about 100,000 acres of this area is so situated and constituted that, by the application of modern methods of oyster culture, it can be made as productive of oysters as the bottoms now occupied by the natural oyster bars.

The results of the work carried on under the Haman Oyster Culture Law for the establishment of an oyster culture industry such as was intended, on the other hand, have been far from satisfactory, and it has been clearly demonstrated that the law in its present form fails to provide the necessary legal basis upon which to build up an industry in oyster culture. It withholds from lessees of oyster lots certain rights and privileges which are absolutely essential to success in oyster planting operations.

A study of the conditions under which thriving industries in oyster culture have been established in other Atlantic Coast States, where natural conditions are less favorable to the production of oysters than in Maryland, also shows that Maryland has stopped short of offering sufficient inducements to her citizens to lease the available oyster lands and plant and cultivate oysters upon them. Lessees have not been assured that success in such an enterprise will depend solely upon their having successfully overcome the *natural* difficulties and run the *ordinary* risks inherent in all oyster planting operations.

It is the hope and belief of the advocates of oyster culture for Maryland that the selected product from cultivated grounds will supplement and give greater value to, and greater demand for, the "run-of-the-rock" product which is put upon the market from the natural oyster beds and, until the proposed scheme of oyster culture has been given a fair trial, the State should see that it is not abandoned.

It is folly to expect and wrong to urge our citizens to lease the waste oyster bottoms and attempt to develop them until the law is so amended as to provide the rights and privileges demonstrated to be, and universally accepted to be, essential to success in oyster culture and, to the end that the restrictions imposed upon oyster planters in their operations upon bottoms leased from the State for the purposes of oyster culture may be as few and as limited as is consistent with the rights pertaining to the public oyster fishery, the Board of Shell Fish Commissioners therefore recommends the following amendments, which it considers to be of fundamental importance to oyster planters.

#### AMENDMENTS OF FUNDAMENTAL IMPORTANCE TO OYSTER PLANTERS.

1. *Providing for Increase in Area of Lots which may be leased.*

It is essential that the area which may be leased by the State to an individual for the purposes of oyster culture be increased to not less than thirty acres, if situated in sections where the method of taking oysters from the natural oyster bars is limited to tonging, and to not less than five hundred acres when situated in sections where oysters may be taken from the natural bars with dredges or

scrapes. For the protection of the natural oyster bars, however, provision may be made that no bottoms situated within one-eighth mile of any natural oyster bar may be leased for the purposes of oyster culture.

2. *Providing for Privilege of Dredging on Leased Lots.*

Section 112 should be changed to read as follows: "It shall not be necessary for any holder of oyster land under this Act to take out any license for dredging, scraping or tonging oysters on any land so held by him, and oysters on such land may be taken in any manner and at such times between sunrise and sunset of any week day between the fifteen day of September, in any year, and the fifteenth day of June in the following year, as may be desired by the holder of such land; provided, however, oysters on leased lands can not be taken up with dredges or scrapes either in the tributaries or bay when situated within tonging limits at a distance of less than one-eighth of a mile from the legal boundary of any natural oyster bar; and provided further, that oysters on the said leased lands can not be taken up with dredges or scrapes during those seasons in which tonging, scraping or dredging, as the case may be, are not allowed on the legally established natural oyster bars within the districts in which said lands are located, except on such days and at such times as heretofore provided, after written notification from one or more lessees, as may have been previously arranged by said lessees, together with a total fee of four dollars per day for each day covered by said notification, has been delivered forty-eight hours in advance to the Commander or Deputy Commander of the State Fishery Force of the oyster district in which said lands are located; and still further provided, that the period of policing service of said Commander or Deputy Commander of said oyster districts, together with all the powers of arresting and prosecuting violators of the law under the terms of this Act, shall be extended so as to include the entire season within which lessees of oyster lands are permitted to use scrapes and dredges, and that said fee of four dollars per day shall be paid to said Commander or Deputy Commander in lieu of all compensation and expenses of the extra policing duty entailed by this Act which are not otherwise provided by law."

3. *Providing for Privilege of Securing Seed Oysters.*

Section III should be amended to read as follows: "It shall be lawful for any tongman during the month of September in any year, to take oysters of any size from such natural beds or bars in any part of the tonging districts of the State, within the tributaries of the Chesapeake bay, that the Commission may mark out for that purpose, and under such regulations as said Commission may from time to time prescribe; provided, however, that said Commission shall not prescribe any area other than the following: Broad creek, Harris creek and that part of the Potomac river from and above a line from Lower Cedar Point wharf, on the Maryland shore, to Persimmon Point, on the Virginia shore; but dredge boats may not take any oysters from any of the beds or bars situated in the tonging districts of the State; and it is further provided that said oysters may be sold only, during the month of the year above mentioned, to persons engaged in the industry of planting and cultivating oysters within the area designated by this Act, the same to be delivered only upon lands which have been leased under the provisions of this Act for such purpose of planting or cultivating oysters. Further, it shall be lawful for any licensed dredge boat, during the month of September in any year, to take oysters of any size from the natural beds or bars within that part of the Chesapeake bay situated north of a straight line between Bodkin Point, on the Western Shore, and Swan Point, on the Eastern Shore, excluding, however, the whole of Swan Point Oyster bar, said oysters to be taken and disposed of only for the same purpose and under the same regulations as are prescribed, in the foregoing part of this section, for the oysters taken by tongmen from Broad creek, Harris creek and that part of Potomac river above a line from Lower Cedar Point wharf, on the Maryland shore, to Persimmon Point, on the Virginia shore; but tongmen may not take any oysters from any of the beds or bars in this part of the Chesapeake bay during the month of the year above mentioned, Swan Point Oyster bar excepted."

DISCUSSION.

The three changes in the Haman Oyster Culture Law outlined in the foregoing recommendations are considered by the Board of Shell Fish Commissioners to be the *minimum* from which nothing

can be omitted without thereby failing to provide a basis in law such as is required for the development of a great industry in oyster culture upon our unproductive oyster lands.

By their enactment oyster planters will be permitted to lease areas sufficiently large to justify them in the purchase of an equipment adequate to the work of properly cultivating and policing oyster grounds; the restrictions which now prevent the use of such an equipment by planters will be removed and oyster planters will be permitted to secure seed oysters small enough so that the anticipated increase through growth will be sufficient to induce citizens of the State to lease the bottoms available for oyster culture and attempt to develop their possibilities for oyster production.

Although these privileges are considered by oyster planters everywhere to be essential to success in oyster culture and are enjoyed by oyster planters in all those States in which oyster culture is carried on successfully, they are withheld from planters in Maryland. Under our law in its present form it is not possible for a citizen to lease more than ten acres of bottom for the purposes of oyster culture in those localities where dredging on the natural oyster beds is prohibited, and hence where conditions are most favorable to the establishment and development of oyster culture. The greatest possible profits from planting on ten acres of bottom are too small to warrant a lessee of such a lot in the purchase of the expensive equipment required for its cultivation and protection. On these most valuable bottoms, also, lessees are restricted by the present law to the use of tongs for cultivating and gathering their planted oysters. The use of dredges from power boats is prohibited. The use of tongs for gathering oysters is a slow and expensive method at best, and can be profitably employed only in case the bottom is closely stocked with oysters; hence lessees of oyster lots in localities where dredging is prohibited are compelled to plant their oysters so thickly upon the bottom that the available supply of oyster food in the water is insufficient to provide for their proper nourishment and growth. The numerous failures in oyster culture which are due to such overplanting can be largely avoided when the right to gather planted oysters with a dredge from a power boat has been granted. Planters will then be able to take into account the oyster food supply and distribute their oysters accordingly, for no matter how scatteringly oysters may be distributed over the bot-



tom, they can be rapidly and economically gathered with such an equipment. The law in its present form has been construed to withhold from oyster planters the right to secure a supply of small oysters from overstocked natural oyster bars for planting purposes, thus forcing lessees of oyster lots to plant oysters already grown to marketable size, for which the price of marketable stock must be paid. The amendments recommended by the Commission not only enable lessees of oyster lots to secure small seed oysters, but also to secure them at the time of year when physical conditions in the Chesapeake bay and its tributaries are such that oysters may be transplanted from one locality to another with the least possible risk of injury to the oysters. The argument in favor of the plan to change the time of transplanting oysters in Maryland from Spring to Fall is discussed and explained in another part of this report, but, in further support of the plan, it may be stated that the "set" which attaches to the natural oyster beds in Connecticut is annually transplanted to the planted grounds in the Fall, and, in Virginia, the small oysters produced on the seed beds in the upper part of the James river are transplanted to the bay in the Fall also.

Any change in the law which contemplates the granting of one of these privileges and withholding the others, will be futile so far as the establishment of oyster culture is concerned. Planters can make no use of greater areas in the absence of the privilege of using dredges on such areas for cultivating and gathering the oysters planted upon them, and it would be just as futile to provide for rapid and improved means of cultivation without at the same time providing for areas sufficiently large to warrant the expense of employing such means. Without large areas and the right to employ up-to-date and economical means of cultivating them, there can be no great demand for seed oysters, and, on the other hand, in the absence of the possibility of obtaining a supply of small oysters for planting purposes, there can be no very great demand for large oyster farms and no inducement for planters to provide themselves with the expensive equipment required for large oyster planting operations.

The Shell Fish Commission has been subjected to criticism because of its firm stand against any compromise by which it might have been possible to have secured *one* of the above mentioned changes in the law by abandoning its fight for the *other two*. The

Commission is convinced that any one of these three fundamental privileges is valuable to the oyster culture scheme *only* when supplemented by the others, and it is fully justified in the position it takes with reference to them—ALL or NONE.

In support of this contention, the following carefully prepared statement from Dr. H. F. Moore, the oyster expert of the U. S. Bureau of Fisheries, is hereto added:

*“Mr. Walter J. Mitchell, Chairman of the Maryland Shell Fish Commission, Annapolis, Md.:*

“My Dear Mr. Mitchell—I have just returned to Washington after an absence of six weeks, and am glad to be again in touch with the Maryland oyster situation, though I regret to learn that there is but a remote probability that the amendments asked for by your Commission will be favorably acted on by the present Legislature.

“In view of the complexity of the issue, I am apprehensive that there may be some attempt to compromise the matter by passing some of the amendments, perhaps in a modified form, and rejecting the others, a course against which I venture to strongly advise.

“As I view the case, the amendments asked for represent the irreducible minimum necessary to perfect the law and make it effective. The elimination of any part of the amendments will be against the interests of the State, oyster culture and the oyster industry as a whole, and will seriously retard the assumption of the position to which Maryland’s natural advantages entitle her. The amendments were proposed after careful consideration, all not absolutely essential was eliminated, and there was nothing inserted for the purpose of trading or compromise.

“I do not believe that your Commission can afford to acquiesce, even under stress, to measures which will militate against the interests entrusted to your care. I do not understand that you even contemplate such action, but feel that my connection with the Maryland survey makes it obligatory, in justice to myself, to express myself frankly. Should an unsatisfactory compromise be accomplished, the odium of its failure as a practical measure must fall on all who acquiesced in its perpetration. If the recommendations of the Commission be rejected, the responsibility will lie on those who opposed them, and we who have endeavored to give the subject our best study will be absolved.

"I have returned from the oyster-producing States of the Gulf Coast more than ever convinced that the States on the Chesapeake bay must give the oyster question the calmest, widest and broadest consideration if they hope to successfully withstand the competition which they are yearly feeling more keenly. It is not necessary to point out to you that Maryland has already lost trade to Louisiana and Mississippi. There have recently been developments in oyster culture in Texas which will soon make themselves felt in the market, while Alabama and Mississippi have latent possibilities to which they are just awakening.

"In Louisiana alone the product has grown from 1,200,000 bushels in 1902 to 3,600,000 bushels in 1908 under the stimulus of excellent laws passed since the former date. The product of the planted beds in 1908 was equal to the entire production of the State in 1902, while the yield of the natural beds, instead of decreasing, as the opponents of oyster culture predict would be the case in Maryland, has actually doubled during the same period.

"As you well know, my interest in the oyster industry is national. There is room for development in all oyster-producing States, and I do not regard it as necessary for one section to develop at the expense of another.

"Sincerely yours,

"H. F. MOORE."

## AMENDMENT OF FUNDAMENTAL IMPORTANCE TO THE STATE.

### 4. *Collection of Rents.*

From the standpoint of the State there is one serious defect in the law as originally drafted and enacted whereby it has been found to be impossible to collect the rents due for the use of lots leased from the State for the purpose of oyster culture or to prevent individuals from appropriating and using oyster lands for oyster planting operations without having first leased them from the State.

It was supposed by the framers and advocates of the oyster culture law that the demand for oyster lots would be so great and the need by oyster planters for the protection afforded by the State would be so pressing that little difficulty would be found in leasing the grounds open for lease or in collecting rents for the use of the

same. The only provision, therefore, made in the law by which the Commission may enforce the payment of rent is that contained in Section 98, which reads as follows:

“If any part of the rent reserved under such leases shall remain unpaid for more than six months, after the same becomes due, *such lease or leases shall be declared void*, and the land shall revert to the State, and may be leased again in accordance with the provisions of this Act. \* \* \*”

A very considerable number of lots are now held and used for oyster planting purposes by planters who pay no rent to the State. Some of these lots have been surveyed, records have been made of the surveys, and leases have been issued to the holders, but others are being held and used without any formality having been entered into between the holders and the State. The opposition to oyster culture is not sufficiently strong in certain communities to compel planters to secure the protection of the State by complying with the provisions of the law.

The State, having expended a considerable sum in perfecting the conditions under which oyster culture may be successfully carried on, should now take the necessary steps to prohibit the use of ground for oyster culture by persons who do not hold leases to the ground or who are delinquent in the payment of rent, and the Commission recommends that the following be added as a section of the law under which all of the provisions of Section 98 may be enforced.

“It shall be unlawful for any person other than a lessee under this Act, or for any lessee under this Act, while he shall be in default in payment of rent, to appropriate to himself for any purpose, any of the barren bottoms under the waters of this State, which are, by the provisions of this Act, subject to lease, or to use such barren bottoms in any way for the purpose of bedding, planting or cultivating oysters; and any person violating any of the provisions of this section shall be deemed guilty of a misdemeanor, and upon indictment and conviction in any circuit court for any county in this State, or in the Criminal Court of Baltimore, before which such case is tried, shall be fined the sum of fifty dollars for each violation thereof. Each day during which, or in which any of the acts prohibited by this section may be performed, shall constitute a separate violation of its provisions. It shall be the duty of the State’s Attorney of the county having jurisdiction, at the request of the Board of Shell

Fish Commissioners, to prosecute any one violating the provisions of this section. The net proceeds of fines collected under this section shall be applied as follows: One-half of the same shall be paid to the informer, if any, and the remainder shall be applied according to the provisions of Section 118 of this Article."

OTHER AMENDMENTS DESIRABLE BUT NOT  
FUNDAMENTAL.

5. *Extension of Period for Payment of One-Dollar Rentals.*

After a careful consideration of conditions which have attended the establishment of oyster culture in Maryland since the passage of the Haman Oyster Culture Law by the General Assembly of 1906, and in response to a demand among oyster planters for a reduction of rentals charged by the State for the use of barren bottoms, until, at least, a reasonable opportunity has been accorded those who have, or may hereafter become engaged in oyster culture, to demonstrate the wisdom of such a policy in Maryland, the Commission recommends that the provision of Section 98, under which the rate of rentals gradually increases until a maximum of five dollars per acre is reached on the sixth year of the lease, be suspended for a period of six years, dating from April 1, 1912, on all leases which have heretofore or which may hereafter be made, to the end that all rental charges to April 1, 1918, shall be fixed at the rate of one dollar per acre per annum.

6. *Respecting Non-Residents of the State.*

Under the provisions of the Haman Oyster Culture Law, *bona fide* residents of the State of Maryland only may lease grounds for oyster culture.

It is possible, however, that when citizens of the State shall have leased such bottoms as they desire to cultivate, some of the bottoms available and suitable for oyster culture will yet remain an open and unproductive common.

The Commission therefore recommends that such bottoms available for oyster culture as may not be leased to citizens of the State within two years from the date of opening such bottoms for lease, be opened for lease for oyster culture to non-residents of Maryland.

7. *Preventing Oyster Planting in Water Contaminated with Sewage.*

The Shell Fish Commission realizes that its most important duties are those of pointing out the defects in the scheme of oyster culture which has been adopted by Maryland and of assisting, in every way possible, in the removal of these defects. It hesitates, therefore, to recommend more than it is reasonable to expect can be carried out, or to suggest any thing which can be used in any way to cloud the issue.

For this reason the many important problems of the fishery interests of the State, with which the Commission has become more or less familiar, although closely and in some cases vitally connected with the oyster fishery, have been purposely avoided.

There is one situation, however, which is likely to develop in connection with oyster culture, and will have to be met sooner or later because of the very serious bearing it will have upon the whole oyster industry of the State, and which, therefore, demands some attention: that of the proximity of planted oyster grounds to water contaminated with sewage. At the present time this situation can hardly be said to exist in Maryland, and it is not now serious, but, as oyster culture becomes more and more developed, grounds are likely to be leased for the purposes of oyster culture in localities where conditions may not be as free from sewage as the oyster trade might desire, and, should the question as to the wholesomeness of our oyster be allowed to come up and be given publicity, the damage to the whole oyster industry of the State would be great.

It is an easy matter to deal with this situation now, but it will become more and more difficult if property rights are permitted to be developed in localities where unsanitary conditions exist. The Commission therefore suggests that the Oyster Culture law be so amended as to make the granting of leases to lots for the purposes of oyster culture by the Shell Fish Commission, subject to the approval of the State Board of Health.

FINANCIAL STATEMENT  
OF THE  
MARYLAND SHELL FISH COMMISSION  
FOR THE  
FISCAL YEAR ENDING SEPTEMBER 30, 1909.

FINANCIAL STATEMENT OCT. 1, 1909.

DISBURSEMENTS OCT. 1, 1909.

September 30, 1908 — Balance on hand.....	\$ 850.00
October 1, 1908 — General Appropriation under Chapter 253 of the Acts of 1908 for the year 1908 to 1909.	25,000.00
Salaries of Commissioners and Chief Clerk under Chapter 253 of the Acts of 1908.....	6,800.00
October 1, 1909 — Application Fee Fund.....	300.00
October 1, 1909 — Record Fee Fund.....	125.00
October 1, 1909—Rent Fund	3,568.50
October 1, 1909 — Survey Fund .....	24.30
<hr/>	
	<b>\$36,667.89</b>

Houseboat Oyster.....	\$ 1,507.35
Postage, Expressage and Incidentals .....	340.00
Buoys and Boats.....	760.00
Chesapeake & Potomac Telephone Co.....	95.65
Advertising, Printing and Office Supplies.....	507.07
Salaries of Commissioners	5,599.98
Swepton Earle's Salary....	2,500.00
Salaries of Assistant Clerks and Stenographer.....	2,461.67
Scientific and Engineering Supplies .....	178.33
Expense of Commission....	1,089.39
Labor .....	4,740.30
Subsistence .....	4,732.93
Thomas H. Robinson's Salary.....	1,575.00
Assistant Engineers Salary	3,435.00
Rent of Office at Crisfield...	30.00
Capt. James A. Turner.....	1,687.95
Samuel B. Collyer.....	170.00
Charles Hopkins.....	140.00
Rudolph Glaser.....	150.00
J. F. Robrecht.....	200.00
Z. T. Hayden.....	35.00
Samuel A. Harper—Money Advanced .....	375.00
Salary of Chief Clerk.....	1,175.00
	<hr/>
	\$33,485.82
BALANCE ON HAND.....	3,182.07
	<hr/>
	<b>\$36,667.89</b>

FINANCIAL STATEMENT  
OF THE  
MARYLAND SHELL FISH COMMISSION  
FOR THE  
FISCAL YEAR ENDING SEPTEMBER 30, 1910.

## FINANCIAL STATEMENT OCT. 1, 1910.

September 30, 1909 — Balance on Hand.....	\$ 3,182.07
October 1, 1909 — General Appropriation under Chapter 254 of the Acts of 1908 for year 1909 to 1910....	25,000.00
Salaries of Commissioners and Chief Clerk under Chapter 254 of the Acts of 1908 .....	6,800.00
October 1, 1910 — Application Fee Fund.....	155.00
October 1, 1910—Record Fee Fund .....	65.00
October 1, 1910—Rent Fund .....	1,571.54
October 1, 1910 — Survey Fund .....	5.00

## DISBURSEMENT OCT. 1, 1910.

Subsistence .....	\$ 3,816.19
Labor .....	4,066.52
Advertising, Printing and Office Supplies.....	638.75
Postage, Expressage and Incidentals .....	286.36
Buoys and Boats.....	880.34
Houseboat Oyster.....	707.09
Scientific and Engineering Supplies .....	98.31
Expense of Commission....	275.91
Salaries of Commissioners.	5,600.00
Salary of Chief Clerk.....	1,200.00
Salary of Engineer.....	2,500.00
Salaries of Assistant Clerks	2,500.00
Salaries of Assistant Engineers .....	3,441.68
Salary of Thos. H. Robinson, Counsel.....	975.00
Chas. Hopkins, Local Man, Queen Anne's County....	100.00
Rudolph Glaser, Biologist..	60.00
C. & P. Telephone Co.....	130.73
Office and Rent Crisfield...	65.00
Samuel A. Harper—Money Advanced .....	575.00
Capt. James A. Turner.....	2,173.20
National Marine Bank Rent	365.00
Swepson Earle—Money Advanced .....	101.40
E. T. Shookley, Local Man, Talbot County.....	25.00
W. H. Colbourne, Local Man, Dorchester County.....	120.00
Oliver P. Wroten, Local Man, Dorchester County.	95.00
W. T. Stevens, Local Man, Baltimore County.....	30.00
Edw. S. Nevitt, Local Man, Talbot County.....	320.00

---

\$31,146.48

BALANCE ON HAND..... 5,632.13

---

\$36,778.61

---

\$36,778.61



APPENDIX.

I.

AN ACT ESTABLISHING OYSTER CULTURE IN MARYLAND AND PROVIDING FOR THE SURVEY OF THE NATURAL OYSTER BARS AND THEIR RESERVATION AS A PUBLIC OYSTER FISHERY.

(Approved April 2nd, 1906).

Chapter 711.

*AN ACT to establish and promote the industry of oyster culture in Maryland, to define and mark natural oyster beds, bars and rocks lying under the waters of this State, to prescribe penalties for the infringement of the provisions of this Act, and to add new sections to Article 72 of the Code of Public General Laws, to follow Section 82, and to be designated respectively as Sections 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, and 119.*

SECTION 1. Be it enacted by the General Assembly of Maryland, That the following sections be and they are hereby added to Article 72 of the Code of Public General Laws, title "Oysters," to follow section 82, and to be designated respectively as sections 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, and 119.

SECTION 83. Any resident of Maryland shall have the right to plant and cultivate oysters in the waters of this State; such right shall be exercised in the manner prescribed in the following sections of this Act, and shall be subject to the regulations, provisions and limitations hereinafter set forth, but no corporation, or joint stock company, shall be permitted to lease or take up, or to acquire by assignment, or otherwise, any lands of the State for oyster planting or cultivation. All natural beds or bars shall be excluded from the

operation of this Act, and no person shall be permitted to plant or cultivate oysters thereupon or in any way appropriate the same to his own use.

SECTION 84. The Board of Shell Fish Commissioners of Maryland is hereby created. The said Board shall consist of three members, one of whom shall be a resident of one of the tidewater counties of the Eastern Shore of Maryland, another a resident of one of the tidewater counties of the Western Shore, and the third a resident of the City of Baltimore, and one of whom shall be a member of the minority party at the time of their appointment. The term of each of the members of said Board shall be two years from the first Monday in May after his appointment. They shall be appointed by the Board of Public Works of the State of Maryland. No member of said Board of Shell Fish Commissioners shall be in any manner interested in any land leased or taken up for bedding, planting or cultivating oysters. The acts and duties to be done and performed by said Board under this Act may be done and performed by two of said Commissioners, and in all cases, the decision of a majority of the Commissioners shall be binding. One of said Commissioners shall be designated by the Board of Public Works of the State of Maryland as president, and his salary shall be Two Thousand Dollars a year. The salary of the other Commissioners shall be Eighteen Hundred Dollars a year. The said Commissioners shall be allowed to employ a chief clerk upon a salary of Twelve Hundred Dollars a year, and such assistants, not exceeding three in number, and not more than be absolutely needed for the performance of the work of the Board, at graded salaries, to be paid by the Commissioners, not to exceed One Thousand Dollars a year for any such assistants, as it may deem necessary to aid it in the proper performance of its duties, as prescribed in this Act. The said Commissioners shall employ a competent surveyor, who shall also be a hydrographic engineer, upon a salary to be named by said Commissioners not exceeding Twenty-five Hundred Dollars a year. If the Commissioners deem it expedient to employ a hydrographic engineer, who is also a biologist, capable of investigating oyster propagation, an engineer of such qualification may, in their discretion, be employed. The sum of Five Hundred Dollars per annum shall be appropriated, to be expended under the direction of said engineer, if he be a

biologist, who shall, in that event, establish one or more stations for said investigation of oyster propagation. All salaries, outlays and disbursements authorized by this Act shall be paid out of the general treasury of the State of Maryland upon requisition made by the Board of Shell Fish Commissioners, endorsed by the Comptroller of the State, but the same shall be repaid out of the first revenues arising from the leasing of land for oyster culture contemplated by this Act. The Commissioners composing said Board shall, immediately after their appointment, file in the office of the Clerk of the Court of Appeals separate bonds, with a surety or sureties to be approved by the State Treasurer, in the sum of Ten Thousand Dollars, conditioned for the faithful performance of the duties imposed by this Act. The said Commissioners shall take and subscribe before the Governor of the State an official oath prescribed by the Constitution. The said Commissioners shall have an office in the City of Annapolis.

SECTION 85. The Commissioners shall keep, at its office in the City of Annapolis, books of record, in which shall be recorded all leases, assignments and other conveyances of land to be used for the planting or cultivation of oysters in accordance with this Act. A set of clear and simple forms, for all subsequent conveyances of any kind, shall be prepared by the Board, with the advice of the Attorney-General, and no title shall be vested in any lessee or transferee of any interest or estate acquired under this Act until the conveyance or conveyances evidencing such leases or transfers will have been recorded in the office of the Board of Shell Fish Commissioners.

SECTION 86. The Board of Shell Fish Commissioners shall, as soon as practicable, after the passage of this Act, cause to be made a true and accurate survey of the natural oyster beds, bars and rocks of this State, said survey to be made with reference to fixed and permanent objects on the shore, giving courses and distances, to be fully described and set out in a written report of said survey, as hereinafter required. A true and accurate delineation of the same shall be made on copies of published maps and charts of the United States Coast and Geodetic Survey, which said copies shall be filed in the office of the said Commissioners in the City of Annapolis; and the said Commissioners shall further cause to be

delineated upon copies of the published maps and charts of the United States Coast and Geodetic Survey, of the largest scale one copy for each of the counties of this State in the waters of which there are natural oyster beds, bars and rocks, all natural beds, bars and rocks lying within the waters of such county, which maps shall be filed in the office of the Clerks of the Circuit Court for the respective counties, wherein the grounds so designated may lie. The said survey shall be made by the hydrographic engineer employed by said Board, as provided in Section 84 of this Act, acting under the direction and control of the said Commissioners. The said natural beds, or bars, shall be marked by buoys, which shall be known as State buoys.

SECTION 87. The Governor of this State is hereby requested to ask the assistance of the United States Coast and Geodetic Survey, and of the United States Fish Commissioner, to aid in the carrying out of the provisions of the preceding section.

SECTION 88. The County Commissioners of each and every county in this State, in which there are natural oyster beds, bars or rocks, shall be authorized to appoint some resident of their said county, who is well acquainted with the situation and location of oyster beds, bars or rocks in the waters of such county, who shall aid the said Board by furnishing any information he may possess, concerning the situation and location of recognized oyster beds, bars and rocks in the waters of such county, and who shall accompany the said Commissioners and the hydrographic engineer appointed by said Board, but only within the limits of his county, in the making of the survey of the natural oyster beds, bars and rocks, as provided by this Act, the said appointee to receive a compensation of Five Dollars per day when actually so engaged.

SECTION 89. As soon as practicable after the first day of April, 1906, the said Commissioners shall organize and shall at once proceed, with the assistance of such person or persons as may be detailed by the United States Coast and Geodetic Survey, and the United States Fish Commissioner, to aid them in their work, and of such persons as may be appointed under the preceding section, to have laid out, surveyed and designated on the said charts, the natural beds, and bars, and shall cause to be marked and defined as accurately as practicable, the limits and boundaries of the natural

beds, bars and rocks, as established by said survey, and they shall take true and accurate notes of said survey in writing, and make an accurate report of said survey, setting forth such a description of land marks as may be necessary to enable the said Board, or their successors, to find and ascertain the boundary lines of the said natural oyster beds, bars and rocks, as shown by a delineation of the maps and charts provided in this Act; said report shall be completed and filed in the office of the Board in the City of Annapolis, within ninety days after the completion of the survey of any county. Said Commissioners shall cause the same to be published in pamphlet form, and transmit copies of the same to the Clerk of the Circuit Court for their respective counties, where the charts have been filed or directed to be filed, as herinafter provided; the said report to be filed by the Clerks of the several counties in a book kept for that purpose. And the said survey and report, when filed, subject to the right of appeal hereafter provided for in this Act, shall be taken in all of the Courts of this State as conclusive evidence of the boundaries and limits of all natural oyster beds, bars and rocks, lying within the waters of the county wherein such survey and report are filed, and shall be construed to mean in all of the said Courts that there are no natural oyster beds, bars or rocks lying within the waters of the counties wherein such report and survey are filed, other than those embraced in the survey authorized by this Act, and that all areas of the Chesapeake Bay and its tributaries within the State of Maryland, not shown in the survey to be natural oyster beds, bars or rocks, shall be construed in all the Courts of the State to be barren bottoms, and open for disposal by the State for the purpose of private planting or propagation of oysters thereon under the provisions of this Act; provided that the said survey and report shall not be so construed as to affect in any manner the holdings by citizens of this State in any lot which may have been appropriated or taken up under the laws of this State prior to the approval of this Act.

SECTION 90. The said Board, in defining the natural beds and bars, shall exercise its judgment liberally in favor of the natural beds and bars, and allow a reasonable margin of the barren bottoms, rather than encroach on a natural bed or bar. The natural beds or bars shall be bounded by straight lines, even though some

portions of barren bottoms may thus be necessarily included within such lines.

SECTION 91. If residents of any county, exceeding twenty-four in number, shall, within four months after the filing of said survey and report in such county, file in the Circuit Court for said county a petition, in writing, attested by the oath of some one or more of the petitioners, alleging that five or more adjacent acres of oyster beds, bars or rocks, in such county, have been omitted from such surveys, or that five or more acres of barren bottoms have been included in such survey and designating the location of same by a plat, or as near as may be with reasonable certainty by such land marks as will locate and designate the beds alleged to have been omitted or included, a Judge of the Circuit Court for the said county, after due notice given to the Board of Shell Fish Commissioners, shall proceed to hear testimony and decide the case, as provided in the succeeding section, but this section shall not apply where the ground claimed by the petitioners has been legally taken up prior to the approval of this Act.

SECTION 92. Upon hearing a case presented by petition under the preceding section, the Judge shall determine the question whether the ground referred to in said petition is a natural bed or barren bottom, and his finding on said question shall be final, and shall be entered upon the records of the Board of Shell Fish Commissioners in their office in the City of Annapolis, and properly marked on the copies of the plat as hereinbefore required.

SECTION 93. Such amended survey shall be filed in the offices of the Clerks of the Circuit Court for the counties in which the original surveys hereinbefore provided are required to be filed, and when so filed, shall be conclusive evidence in all the Courts of this State as to whether the area embraced therein is or is not a natural oyster bed, bar or rock.

SECTION 94. Whenever a petition is filed in the Circuit Court for any county, as authorized in Section 91 of this Act, the parties so petitioning shall deposit Twenty-five Dollars, to be returned to the petitioners if the Judge shall determine in favor of the petitioners, but if the Judge shall determine adversely to the petitioners, then said sum to be applied, so far as necessary, to the payment of

costs incurred in the proceedings under said petition, and the balance to be returned to said petitioners:

SECTION 95. The said Board shall be authorized to call to their assistance the County Surveyor of any county, whenever in their judgment his assistance is necessary, and shall pay him for his services such compensation as is authorized by law for his services in other proceedings.

SECTION 96. The Board of Shell Fish Commissioners shall cause an accurate survey of and delineation upon the maps and charts aforesaid of all bottoms of the tributaries of the Chesapeake Bay where grass grows and it is profitable to scrape for soft shell or shedder crabs, and shall have such bottoms properly designated by permanent objects on the shore, as provided hereinbefore for natural oyster beds, bars and rocks, which said crabbing sections shall be exempt from leasing for oyster culture.

SECTION 97. One of the steamers of the State Fishery Force shall be kept in commission under the command of the Deputy Commander and subject to the control and direction of the Commissioners from the first day of April in each year, until the first day of October following, to assist the Board in the performance of the duties imposed upon it by this Act, and the Deputy Commander in each of the several districts of this State shall also be subject to the control and direction of the said Commissioners during the closed season for the taking and catching of oysters with rakes and tongs, during the time the said Commissioners shall be engaged in the respective districts in locating natural oyster beds, bars and rocks, and shall give the said Commissioners every assistance in their power.

SECTION 98. After the survey provided for herein shall have been completed, it shall be the duty of the Board of Shell Fish Commissioners to lease, in the name of the State of Maryland, tracts, or parcels, of land beneath the waters of this State, whether within the limits of the counties, or elsewhere, in the area to be opened for oyster culture, according to the provisions of this Act, provided that no tract so leased, if situated within the territorial limits of any county in this State, shall contain less than one acre of land, and if situated in any other place, no tract so leased shall contain

less than five acres. It shall be the duty of said Commissioners to require that the tracts so leased shall be as nearly rectangular as is convenient. It shall be the duty of the said Commissioners to demand from each lessee payment of the rent each year in advance. No person shall be permitted, by lease, assignment, or in any other manner, to acquire a greater amount of land than ten acres situated within the territorial limits of any of the counties, or one hundred acres in any other place. Leases shall be made only to residents of Maryland. The term of such leases shall be twenty years, and the annual rent reserved to the State shall be one dollar per acre for each of the first two years of said term of twenty years; two dollars per acre for the third year; three dollars per acre for the fourth year; four dollars per acre for the fifth year; and five dollars per acre during the remainder of the term. If any part of the rent reserved under such leases shall remain unpaid for more than six months, after the same becomes due, such lease or leases shall be declared void, and the land shall revert to the State, and may be leased again in accordance with the provisions of this Act. The said Commissioners may at the request of any lessee, if it shall appear equitable so to do, upon the cause shown in writing, cancel his lease as to the whole or a part of the lands leased.

SECTION 99. In case the survey provided for by this Act shall not have been completed within one year from the passage of this Act, then it shall be the duty of the Board of Shell Fish Commissioners to begin the leasing of barren bottoms in the manner, and upon the terms provided in the preceding section, provided that such leasing shall then commence only in those areas in which the survey provided for in this Act shall have been completed.

SECTION 100. For a period of four months after the said survey shall have been completed, or after any area shall have been opened to leasing under the preceding sections, citizens of Maryland, residing in any part of the State, who, at the time of the completion of said survey, or at the respective times of the opening for oyster culture of several areas, as the case may be, may be owners of land having a water front upon any part of the said areas so opened to oyster culture, shall have the exclusive right to rent any land opened to oyster planting under the provisions of this Act, adjacent to their lands. And for an additional period of six



months, after the expiration of the said period of four months all boatmen, residents of this State, who shall be engaged in the business of dredging, scraping or tonging for oysters at the time of the completion of the said survey, or at the respective times of the opening for oyster culture of several areas, or if said survey shall be completed, or the said areas shall be opened to oyster culture during the closed season for dredging, scraping or tonging, as the case may be, then the persons so engaged at the end of the last dredging, scraping or tonging season, shall have the like exclusive right in the order of their respective application, as the same may be received and opened by the Commissioners, to rent any adjacent lands, provided that in no event shall any such land owner, boatman or any other person, be permitted to rent or acquire more than ten acres, or one hundred acres, as the case may be, dependent upon the situation of the land which is leased or acquired; and provided further, that no such riparian land owner, as is mentioned in this section, shall be entitled to rent the amount of ten acres, or one hundred acres, as the case may be, unless the water front of the land so owned by him, if fronting on water within the territorial limits of a county, be at least two hundred yards, or if fronting on waters in any other place, be at least seven hundred yards. The owners of land having a less water front than is mentioned above shall be entitled to rent a proportionately less amount of land, dependent upon the length of the front upon water within county limits or elsewhere.

SECTION 101. Blank forms of application shall be furnished upon reasonable charges, to be prescribed by the Board of Shell Fish Commissioners, to any person desiring the same. All such forms shall be printed and shall be substantially in the following languages: Application for a lease to the Board of Shell Fish Commissioners of Maryland. The Application of . . . . ., a resident of . . . . . County, in the State of Maryland, respectfully shows that he is a resident of said State; that he wishes and intends to use the grounds hereinafter described for planting or cultivating oysters. He therefore requests that said Board lease to him, in the name and on behalf of the State of Maryland . . . . . acres of ground located under the waters of the State of Maryland, which ground is more particularly described as follows, to-wit:

(Describe here). Dated at . . . . ., Maryland, this . . . . day of . . . . . A. D . . . . ., Applicant.

SECTION 102. When the period of ten months will have elapsed after said survey shall have been completed, or after the lands beneath the waters of any area shall have been opened to leasing under Section 99 of this Act, the Board of Shell Fish Commissioners shall endeavor to lease the remaining portions of land so open to oyster culture under the provisions of this Act to applicants who shall be residents of Maryland, in the order of their applications as received and opened by said Commissioners.

SECTION 103. Any person who may desire to plant and cultivate oysters in the area hereinbefore designated shall file with the Board of Shell Fish Commissioners an application substantially in the form prescribed in Section 101 of this Act. The applicant shall indicate plainly the location of the land he desires to lease. The application shall be sworn to before a Justice of the Peace of this State. A fee of five dollars shall be paid by the applicant to the Board of Shell Fish Commissioners at the time of filing the application, which fee shall be returned to the applicant if his application shall be for any reason declined.

SECTION 104. If such applicant be a resident of the State of Maryland, and if no objections to the issuing of the lease asked for in any such application be filed with the Commissioners within the period of thirty days after such application is made, or as soon as any objection that may have been filed to the granting of such lease will have been finally overruled by said Commissioners, the said Commissioners, upon payment by the applicant of a further fee of two dollars and a half, in addition to the fee of five dollars, which is to accompany his application, shall cause to be entered in a book or books to be known as "The Register of Title to Oyster Lands," the name of the applicant, with concise but clear description of the land applied for. A survey of such land at the expense of the applicant shall be made by the Board before the entry, if, in its opinion, said survey is necessary to an accurate description thereof. The payment of the proper fees due for the application and the record in the register required by this section to be kept, shall constitute between the State and the applicant the relation of landlord and tenant for the term of twenty

years, from the record of the lands so applied for as aforesaid, at the annual rentals provided in Section 98 of this Act.

SECTION 105. The relation of the landlord and tenant, stated in Section 104, shall have all the incidents attaching to that relation as the same exists under the laws of Maryland, excepting only the following particulars: First, the only remedy of the State for non-payment of the rent of oyster lands shall be the strict enforcement of the provisions set forth in Section 98 of this Act. Upon the non-payment of any rent for the time therein mentioned, it shall be the duty of the Board of Shell Fish Commissioners, after a written notice of not less than ten days to the lessee, to declare the lease vacated by stamping the word "Void" in distinct letters across the description in the register; second, land leased under this Act shall be used only for the purpose of planting and cultivating oysters; third, no right shall exist to redeem or purchase any land of the State so leased; fourth, any other modifications caused by the provisions of this Act.

SECTION 106. The Commissioners shall at once notify the lessee of the record in the register required by Section 104, and the lessee shall, as soon thereafter as practicable, not exceeding thirty days from the receipt of said notice, cause the ground designated as leased to him to be plainly marked out by stakes, buoys or monuments, under the supervision of the Commissioners. At least four of such stakes, buoys and monuments shall have the initials of the lessee plainly marked upon them, and such stakes, buoys or monuments shall be at all times during the existence of said lease continued by the said lessee or his legal representative.

SECTION 107. This Act is not intended to apply to any lands owned by private persons, the bounds of which extend below low water into or beneath the waters of this State. This Act shall not be so construed as to apply to any creek, cove or inlet, less than one hundred yards in width at its mouth at low tide.

SECTION 108. Any person who has, prior to the passage of this Act, lawfully appropriated or taken up any land in this State, for the purpose of planting, bedding or cultivating oysters thereon, may become a lessee of said land for the term of twenty years from the passage of this Act, with all the incidents, including the payment

of the rents of the lease contemplated by this Act, provided such person gives written notice to the Board of Shell Fish Commissioners of his intention to become such lessee within six months after the passage hereof. The holding of any person who may have appropriated any such land shall become void and of no effect in law, upon the expiration of the said period of six months from the passage hereof, if no such notice of intention will have been given within said period of six months.

SECTION 109. The lessee of any land leased for the purpose of planting and cultivating oysters shall have exclusive ownership of and title to all oysters planted by him or existing on the land leased.

SECTION 110. No assignment or transfer of any interest acquired by this Act shall be valid for any purpose if made to a non-resident of this State. If any such assignment is attempted to be made, all interest of the grantor, or assignor, shall revert to the State as if no lease had ever been made. If any assignment of any interest created by this Act is attempted to be made to any corporation or joint stock company, all the interest of the grantor or assignor shall revert to the State as if no lease had ever been made. If any assignment of any interest created by this Act is attempted to be made to any person in such a way that the assignee shall become the holder of more than ten acres, or one hundred acres, as the case may be, according to the location of land leased under this Act, all interest of the grantor or assignor, in case of such an assignment, shall revert to the State as if no lease had been made.

SECTION 111. It shall be lawful for any tonger, between the 15th day of April and the 15th day of May in any year to take oysters from such natural beds or bars in the tonging districts of the Chesapeake Bay and its tributaries, as the Commission may mark out for that purpose, and under such regulations as said Commission may from time to time prescribe; provided, however, that said oysters may be sold only for the purpose now permitted under existing laws of Maryland, during the season of the year above mentioned; and in addition thereto, to persons engaged in the industry of planting and cultivating oysters within the area designated by this Act, the same to be delivered only upon lands which may have been leased under the provisions of this Act for such purposes of planting or cultivating.

SECTION 112. It shall not be necessary for any holder of oyster land under this Act to take out any license for dredging, scraping or tonging oysters on any land so held by him, and oysters on such land may be taken in any manner and at such times as may be desired by the holder of such land as allowed by the existing laws of this State.

SECTION 113. Any person who shall wilfully and without authority take or remove oysters from any land leased under the provisions of this Act, or shall wilfully injure or interfere with the oysters of such land in any manner, or injure the oysters thereupon situated, or remove, alter or interfere with the stakes, buoys or monuments marking the same, shall, upon conviction thereof, for the first offense, be sentenced to imprisonment in jail or in the penitentiary, in the discretion of the Court, for not less than three months and not more than two years, and for the second, or any subsequent offense, be sentenced to imprisonment in the penitentiary for not less than two years and not more than five years.

SECTION 114. Any person who shall work a dredge, scrape or pair of tongs, or any other implement for the taking of oysters upon any land leased under the provisions of this Act without the consent of the lessee or owner, or who shall, while upon or sailing over any such ground or bed, cast, haul or have overboard any such dredge, scrape or pair of tongs, or other implement for the taking of oysters, under any pretense or for any purpose whatever, without the consent of such lessee or owner, upon conviction thereof, shall, for the first offense, be fined not less than fifty dollars, nor more than two hundred and fifty dollars, or in the discretion of the Court, be imprisoned in jail, or in the penitentiary for not less than three months, nor more than one year, or shall be both so fined and imprisoned, and for the second, or any subsequent offense, shall be sentenced to imprisonment in the penitentiary for not less than two years nor more than five years.

SECTION 115. Any person who shall make his boat fast to a State buoy, or remove the same, or in any manner interfere therewith, the same shall, in the discretion of the Court, upon conviction thereof, be sentenced to the penitentiary for a term of not less than one year or more than two years.

SECTION 116. In addition to other penalties herein provided, any person convicted of a violation of this Act under either of the three preceding sections, shall be, and is hereby, denied the right to take out any license to dredge, scrape or tong for oysters in any waters of this State, for the period of three years after said conviction.

SECTION 117. It shall be the duty of all officers and members of the State Fishery Force to arrest persons violating this Act, and to patrol such waters of the Chesapeake Bay and its tributaries as they may be directed by the Board of Public Works to patrol, for the purpose of preventing violations of this Act.

SECTION 118. The revenues arising from the operation of this Act shall be applied in the following manner: First, to the payment of all salaries, expenses, surveys, outlays and disbursements authorized by this Act; second, the balance, if any, to be paid at the end of each year into the Treasury of the State, leaving, however, a balance of Ten Thousand Dollars with the Board of Shell Fish Commissioners, to be applied to the current expenses of its office for the ensuing year. All moneys so paid as aforesaid into the Treasury of the State shall be placed to the credit of a special fund, called the "Special Road Fund."

SECTION 119. The Board of Shell Fish Commissioners shall annually prepare and publish in pamphlet form a full report of its transactions during the year prior thereto, as well as a statement of the operations of this Act, and an account of the receipts and disbursements hereunder. The said report shall also contain a detailed statement of the lands leased under this Act, with the names of the lessees. The said Commissioners shall also in its report make such recommendations as it may deem proper concerning further legislation or changes in the present oyster laws, and shall present the said report to the General Assembly of Maryland.

SEC. 2. And be it enacted, That this Act shall take effect from the date of its passage, and all laws of Maryland inconsistent with this Act shall be, and the same are hereby repealed.

II.

OPINIONS RENDERED BY HON. THOMAS H. ROBINSON, COUNSEL TO THE BOARD OF SHELL FISH COMMISSIONERS.

I. *Jurisdiction.*

Chapter 711 of the Acts of 1906 has no application to the natural oyster beds and bars located in the waters of the State of Maryland, except to provide for their survey and delineation upon maps and charts of the United States Coast and Geodetic Survey of the largest scale and providing a copy for each of the counties of this State in the waters of which natural beds, bars and rocks are located as set forth with great detail in said Act and subject to the right of appeal as therein provided, the action of the Shell Fish Commission shall be conclusive evidence of the boundaries of all natural oyster beds, bars and rocks. All the areas of the Chesapeake Bay and its tributaries and the waters of the State within the State of Maryland not shown in said survey to be natural oyster beds, bars or rocks shall be construed in all the courts of the State to be barren bottoms, and it is with this part of the land owned by the State and covered with water that the Act above referred to applies as well as to land lawfully appropriated or taken up for the purpose of planting, bedding or cultivating oysters thereon as provided in Section 108 of the Act.

2. *Private Ownership and Riparian Rights.*

One of the questions of considerable interest to land owners bordering on the waters of the State is as to the extent of their rights on the shore. Section 107 of this Act provides that it is not intended to apply to any lands owned by private persons the bounds of which extend below low water into and beneath the waters of the State, it being the intention of the Act to protect the rights of land owners under old grants from the State prior to 1862 who may have acquired the right from the State to any land covered by navigable water. It is believed that the extent of this private ownership is very small, but whenever it does exist and the title can be established, the rights of the owner are exempt from the operation of this Bill to the extent of their holdings. Chapter 129

of the Acts of 1862 expressly prohibits the right to issue any patent to land covered by navigable water, and the rights of land owners bordering on the shore of the navigable waters of the State, with the possible exception above referred to, extend to high-water mark and the land covered by water within the ebb and flow of tide to high-water mark belongs to the State and is the subject of lease under the provisions of this Act.

Another question of interest akin to this is where a tract of land lies adjacent or contiguous to a navigable river or water, as to the interest of the owner of the land in any change in the shore line, and the rule adopted by the Commission which is in conformity with the decision of the Courts is that any increase of soil gained from the sea either by alluvion, the washing up of sand and earth so as in time to make terra firma, or by dereliction, as where the sea shrinks back below the usual water mark, in these cases it is held that if this gain be little and little by small and imperceptible degrees it shall go to the owner of the land adjoining, and that the ownership of land may be lost by erosion or submergence, the one consisting of the gradual eating away of the soil by the operation of currents and tides and the other by its disappearance under the water and the formation of a navigable body over it, and the reason for the rule allowing the owner of the land to claim all that is acquired by aluvion or dereliction is to make up for the possible losses he may sustain by the sea encroaching upon his holdings. In one case brought to the attention of the Commission a grant of 2,000 acres of land under a patent issued in 1867 was found by a recent survey to contain only 1,850 acres, the waters on the shore of this property having by imperceptible degrees encroached on the owners during that long period until one hundred and fifty acres of land was apparently under the navigable waters of the State, and it was held that the owners' rights could not extend below high-water mark as it now exists.

### III.

#### RIGHT OF LOT HOLDERS TO TAKE UP PLANTED OYSTERS.

The rights granted by Section 112 of the Acts of 1906 to lessees of ground for the purposes of oyster culture, is a subject about which there is such wide difference of opinion and one of such





IV.

AN ACT SETTING ASIDE CLAM ROCKS IN  
POCOMOKE SOUND.

(Approved April 6th; 1908).

*AN ACT to prescribe additional duties to be performed by the Board of Shell Fish Commissioners, to the duties already prescribed to them by Chapter 711, of the Acts of the General Assembly of Maryland of 1906.*

SECTION 1. Be it enacted by the General Assembly of Maryland, that it shall be the duty of the Board of Shell Fish Commissioners, as soon after the passage of this Act as practicable to have laid out, surveyed, and designated on charts provided for such purpose, Grant Rock, Ware Rock, and Flat Rock, being clam rocks located in the waters of Pocomoke Sound, in Somerset County and State of Maryland, and shall cause to be marked and defined as accurately as practicable the limits and boundaries of each of the above named rocks, and they shall take true and accurate notes of said survey and make the report and perform all other duties connected with said survey as said duties are prescribed by Chapter 711 of the Acts of the General Assembly of Maryland of 1906, pertaining to natural oyster beds and bars.

SECTION 2. And be it enacted by the General Assembly of Maryland, that after said rocks shall have been surveyed, as provided in Section 1 of this Act, no part of them shall be leased to any person or persons for the purpose of planting, bedding or cultivating oysters *therein*, but they shall be reserved to the public in the State of Maryland for the sole purpose of taking clams therefrom and shall be treated in every particular as are the natural oyster beds or bars which have been or shall be surveyed by the Board of Shell Fish Commissioners, under Chapter 711 of the Acts of the General Assembly of Maryland of 1906.

SECTION 3. And be it further enacted, that this Act shall take effect from the date of its passage.

V.

ACT REPEALING CALVERT COUNTY  
CULTIVATION LAW.

(Approved April 8th, 1908).

*AN ACT to repeal Chapter 367 of the Acts of 1906.*

SECTION 1. Be it enacted by the General Assembly of Maryland, that Chapter 367 of the Acts of the General Assembly of Maryland, passed at the session of 1906, entitled "An Act to repeal and re-enact with amendments, Section 46 of Article 72 of the Code of Public General Laws, title 'Oysters,' as amended by the Acts of the General Assembly of Maryland of 1904, Chapter 598," so far as the same applies to the Patuxent River, be and the same is hereby repealed.

SECTION 2. And be it enacted that this Act shall take effect from the date of its passage.

VI.

AN ACT INCREASING THE TAX UPON OYSTERS SOLD  
WITHIN THE STATE AND CREATING A NATURAL  
OYSTER BED RESHELLING FUND.

Approved April 13th, 1910).

CHAPTER 735.

*AN ACT to increase the productivity of the natural oyster beds or bars of this State, and for that purpose to repeal Section 69 of Article 72 of the Code of Public General Laws, and to re-enact said section with amendments; and to add to said Article a new section to come in after Section 69, and to be known as Section 69A, and to add five other new sections to said Article, to come in after Section 119, and to be known as Sections 120, 121, 122, 123 and 124, respectively.*

SECTION 1. Be it enacted by the General Assembly of Maryland, That Article 72 of the Code of Public General Laws, title "Oysters," be and the same is hereby amended by repealing Section 69 of said Article and re-enacting the same with amendments by add-

ing thereto a new section, to be known as Section 69A, to come in after said Section 69 as re-enacted, and by adding thereto five other new sections, to come in after Section 119, and to be numbered Sections 120, 121, 122, 123 and 124, respectively; and that said Section 69 as re-enacted and said new Sections 69A, 120, 121, 122, 123 and 124 shall read as follows:

SECTION 69. It shall be the duty of the Commander of the State Fishery Force, at the commencement of or during the oyster season in each year, to appoint from the counties producing oysters for packing purposes in the State, not exceeding twenty special inspectors, to be appointed as follows: Two each from Anne Arundel, St. Mary's, Talbot and Wicomico Counties; three each from Dorchester, Somerset and Queen Anne's Counties, and one each from Kent, Calvert and Charles Counties, at a salary of forty-five dollars per month, during the oyster season, and they shall be stationed at such places as in the judgment of the Commander of the State Fishery Force their services may be needed. Before assuming the duties of their offices the said special inspectors shall take an oath, to be administered by said Commander, to diligently and faithfully discharge the duties of their said offices. The said special inspectors shall inspect all oysters in the district to which he is assigned; upon the inspection of any such oysters each special inspector shall make a certificate of the number of bushels in triplicate, one of which shall be given to the purchaser; one to the seller and the other daily to the general measurer and inspector of the district where such inspection occurred. A charge of two cents per bushel is hereby levied, one-half of which is to help defray the expense of such inspection, and the other expenses of the State Fishery Force, and the other half of which is to be expended in reselling and otherwise cultivating and improving the natural oyster beds and bars in the waters of the State, to be charged equally to the buyer and seller, but to be paid weekly to the Comptroller of the State Treasury, or his agent, by the buyers; the certificate given the General Measurer and Inspector shall be by him mailed weekly to the Comptroller, or his agent, and in case the amounts of money shown to be due, not paid in one week thereafter to the Comptroller, or his agent, which is hereby required to be done, the properties of the parties so indebted may be levied on and sold by the said Comptroller, or his agent, as in cases of taxes in default, without

other process of law. The tax of two cents per bushel hereby levied is also made a charge on oysters sold by commission merchants and others selling by less than the cargo, and also a tax of six cents per barrel, containing not more than three bushels; on oysters in bag, a tax of four cents per bag containing not more than two bushels, and all transportation companies carrying oysters in the shell consigned to Baltimore shall furnish to the oyster inspector or collector of oyster tax a copy of his manifest, showing the number of bushels on board on arrival of steamer, and to whom consigned, and the special inspectors are charged with the duty of seeing that proper returns are made for the purpose of this Act, by such commission merchants or retailers; and in the performance of their duty the said special inspectors are authorized and directed to visit the places where oysters less than cargoes are sold and get from such sellers a statement, under oath, as to the number of bushels sold from time to time and to return to the general measurers and inspectors a certificate thereof, to be forwarded to the Comptroller, as is required in the case of the certificates for cargoes, and the payments of the amounts so found to be due shall be similarly enforced. All such special inspectors may be removed at any time by the Commander for neglect or malfeasance in office, and said Commander shall report to the Governor any neglect of a general measurer or inspector. The Commander of the State Fishery Force shall furnish to each of said special inspectors certificates in book form, supplied with carbon paper, so that each of said triplicate certificates shall be exactly the same. The form of the certificate shall be as follows:

..... 19...

I hereby certify that I have this day inspected for Captain .....  
....., Schooner ....., a cargo of oysters sold  
to ....., and found the same to contain .....  
bushels of merchantable oysters.

Signed .....

SECTION 69A. The Comptroller of the State Treasury shall pass one-half of the amounts paid in by the buyers, as provided in Section 69, to the credit of a fund to be known as a "Natural Oyster Bed Reshelling Fund."

SECTION 120. It shall be the duty of the Board of Shell Fish Commissioners to take such measures as in their judgment shall seem best calculated to increase the productivity of the natural oyster beds or bars of the State, and the expense of so doing shall be paid out of the Natural Oyster Bed Reshelling Fund, upon requisition made by the Board of Shell Fish Commissioners, endorsed by the Comptroller of the State.

SECTION 121. For the purpose of performing the duties imposed upon the Board of Shell Fish Commissioners, by Section 120, they shall employ a superintendent of natural oyster beds, at a salary of \$100.00 per month, beginning April 1st and ending September 30th, payable monthly, and it shall be the duty of such superintendent, under the direction of the Board of Shell Fish Commissioners, to give personal supervision to the work of reshelling the natural oyster beds, done by the order of the Board of Shell Fish Commissioners.

SECTION 122. That the Board of Shell Fish Commissioners shall purchase from the lowest responsible bidder, shells at such places and in such quantities as they may need for the purpose of reshelling the natural beds, and in inviting proposals for such shells they may prescribe that the shells shall be delivered to the superintendent of natural beds, or to his order, at some convenient place for the shipment of the said shells, or they may require that the said shells be delivered by the sellers thereof on such particular natural bed or beds as the Commission may then be engaged in reshelling, and may require the seller of such shells to distribute them under the direction and control of the superintendent of natural beds. If they shall buy such shells to be delivered otherwise than on the natural beds the Board of Shell Fish Commissioners shall have the power to cause the said shells to be taken from the place at which they are delivered to the said superintendent of natural beds to the said natural beds, and to cause the said shells to be there, under the superintendent, or the superintendent of natural oyster beds, properly distributed on the bed or beds, which the Board of Shell Fish Commissioners may be engaged in reshelling.

SECTION 123. For the purpose of discharging the duties imposed upon them by this Act, the Board of Shell Fish Commissioners shall have the same control and direction and be to the same

extent over the State Fishery Force, as is given to the said Board of Shell Fish Commissioners by Section 97 of this article, for the purpose of performing the duties imposed upon the Board of Shell Fish Commissioners by Chapter 711 of the Acts of 1906.

SECTION 124. The said Board of Shell Fish Commissioners shall in no case contract any obligation or incur any indebtedness in excess of money at the time of the incurring of said obligation or contracting of said debt, in the State Treasury to the credit of the Natural Oyster Bed Reshelling Fund.

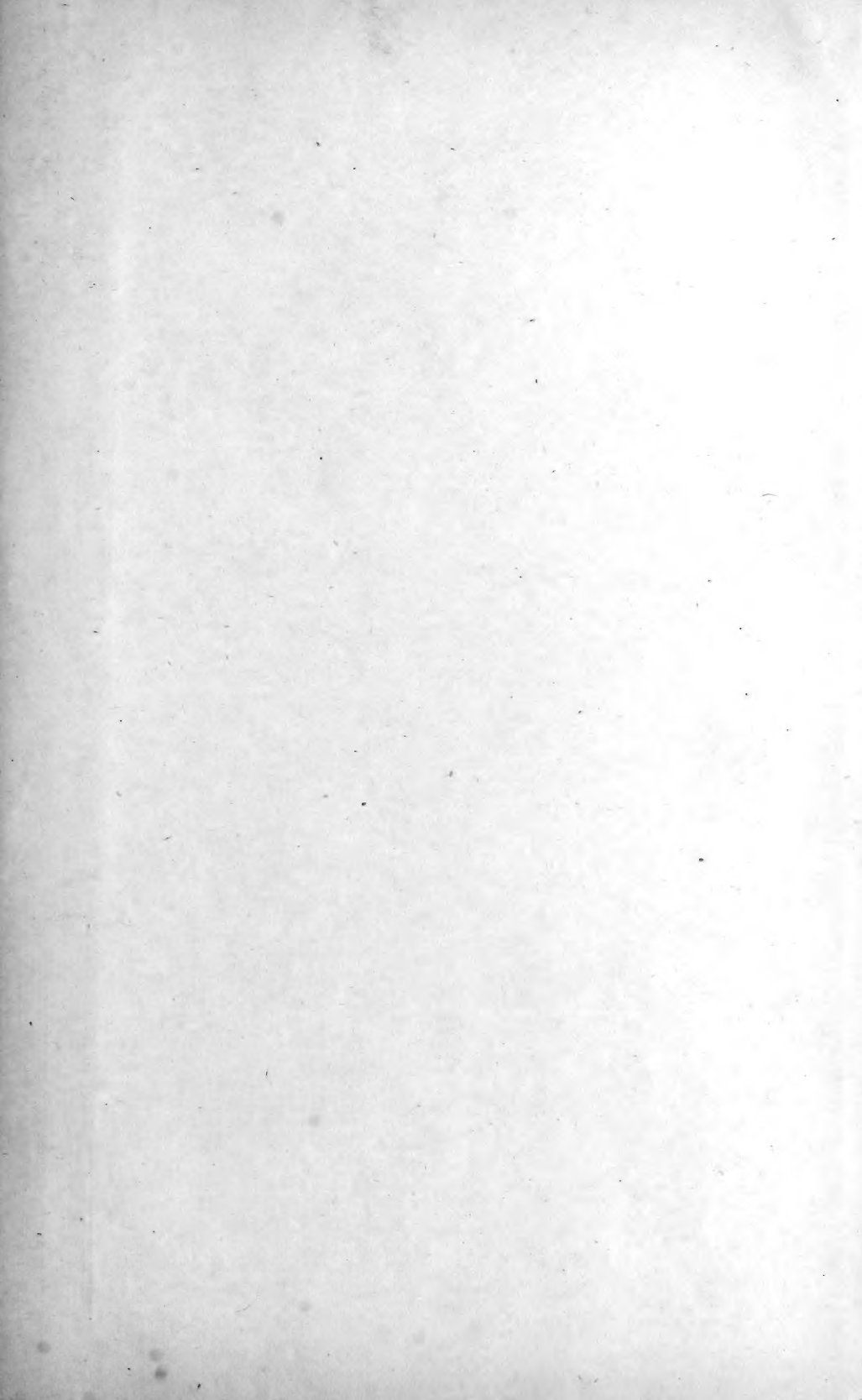
SECTION 2. And be it enacted, That this Act shall take effect from the date of its passage.

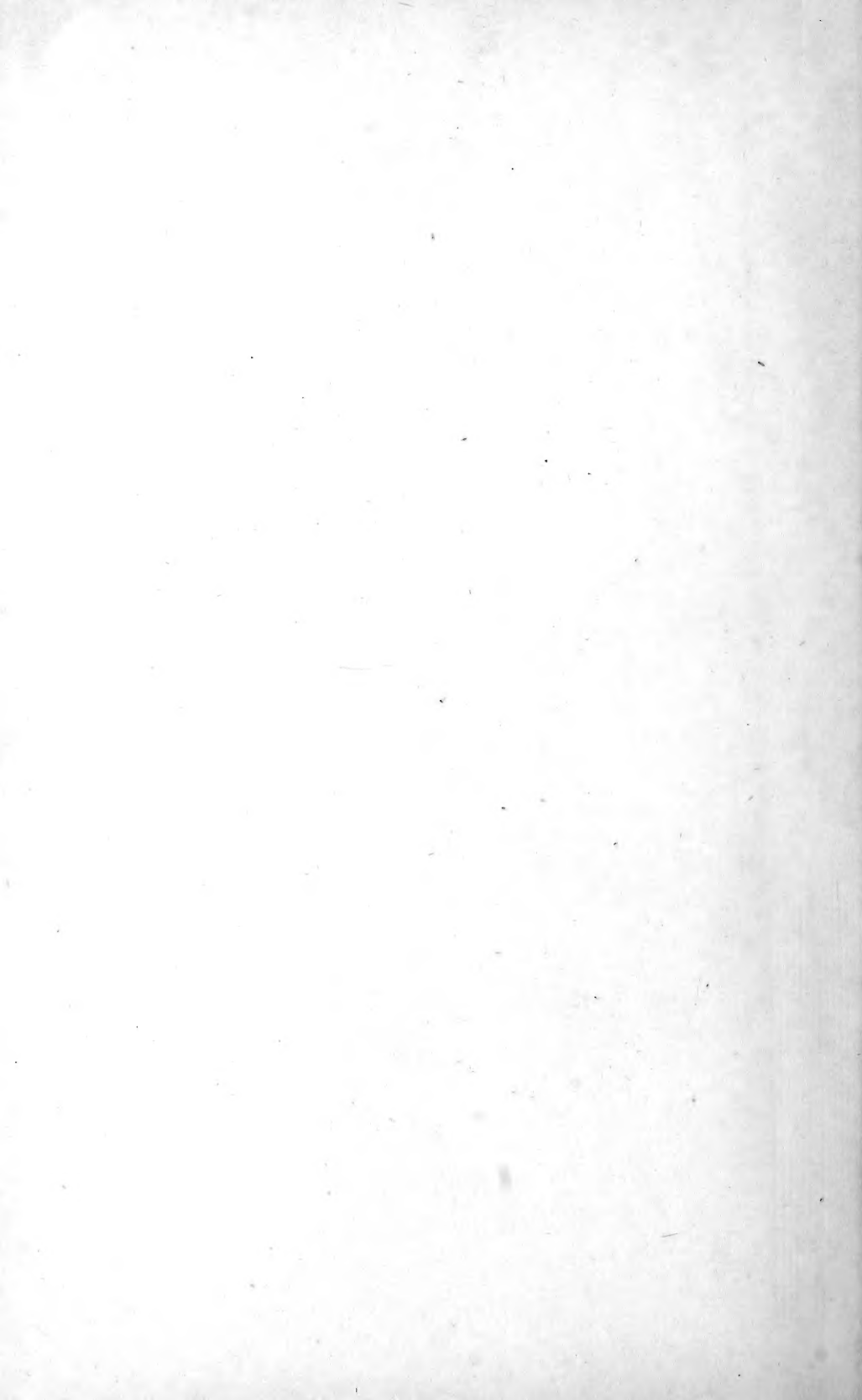














SMITHSONIAN INSTITUTION LIBRARIES



3 9088 01295 0226