

1939

## Fortieth and Forty-first Annual Reports of the Commission of Fisheries of Virginia (1939)

Commission of Fisheries of Virginia

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Fortieth and Forty-first Annual Reports

OF THE

COMMISSION OF FISHERIES  
OF VIRGINIA

FOR THE

FISCAL YEARS ENDING JUNE 30, 1938 and JUNE 30, 1939



RICHMOND:  
DIVISION OF PURCHASE AND PRINTING  
1939



REPAIRING THE NETS FOR THE MENHADEN STEAMERS

# Fortieth and Forty-first Annual Reports

OF THE

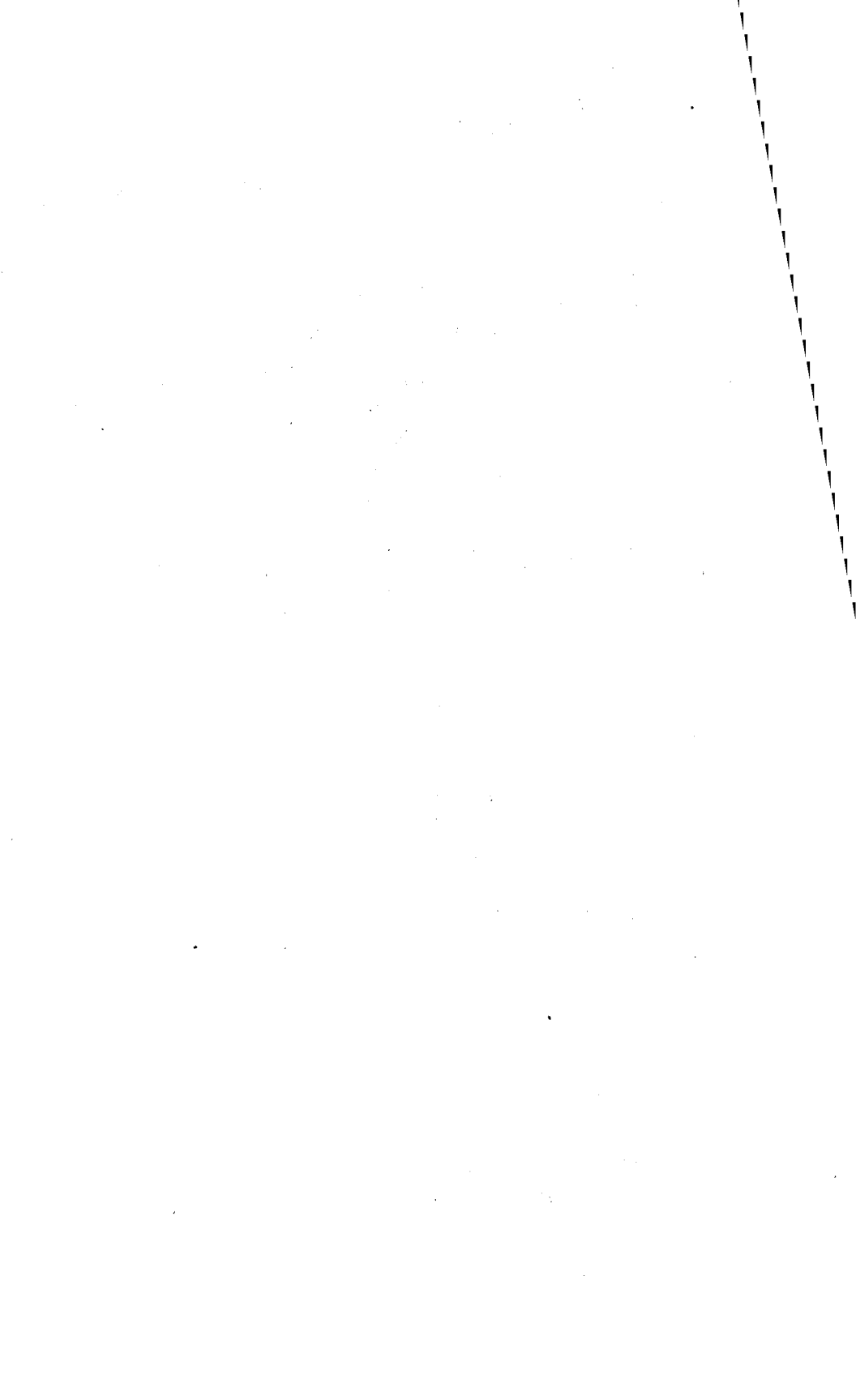
## COMMISSION OF FISHERIES OF VIRGINIA

FOR THE

FISCAL YEARS ENDING JUNE 30, 1938 and JUNE 30, 1939



RICHMOND:  
DIVISION OF PURCHASE AND PRINTING  
1939



COMMISSION OF FISHERIES

G. WALTER MAPP, *Commissioner*.....Accomac, Va.

ASSOCIATE MEMBERS

GEORGE W. LAYMAN.....New Castle, Va.  
 JUNIUS E. WEST.....Suffolk, Va.  
 CHARLES E. STUART.....Montross, Va.  
 GILBERT L. DIGGS.....Mathews, Va.

OFFICE

W. C. PARSONS, *Chief Clerk*.....Newport News, Va.  
 SHANN R. MORRIS, *Assistant Chief Clerk*.....Newport News, Va.  
 MARY SIMKINS TALIAFERRO, *Bookkeeping Machine Operator*.....Hampton, Va.  
 LENA E. SIMPSON, *Stenographer*.....Newport News, Va.  
 ELIZABETH M. CORSON, *Stenographer*.....Newport News, Va.  
 LOLA E. CHURN, *Secretary to Commissioner*.....Accomac, Va.

ADMINISTRATION

FRED E. RUEDIGER, *Civil Engineer*.....Newport News, Va.  
 L. SELDEN TAYLOR, *Superintendent of Boats and Conservation*.....Norfolk, Va.  
 W. W. ROWELL, *Superintendent of Pollution*.....Newport News, Va.  
 G. M. BRADSHAW, *Assistant Superintendent of Boats in Charge of Mechanism*.....Weems, Va.  
 J. T. MEYER, *Superintendent of Hatcheries*.....Richmond, Va.

B. DRUMMOND AYRES, *Attorney*.....Accomac, Va.

GENERAL OFFICE OF COMMISSION—NEWPORT NEWS, VA.

OYSTER INSPECTORS

DIST.	COUNTIES	NAME	ADDRESS
1	Westmoreland, King George, Prince William, Stafford, and Fairfax.....	J. G. Heflin.....	Colonial Beach, Va.
2	Westmoreland and Northumberland.....	M. T. Dawson....	Lodge, Va.
4	Northumberland.....	Evan S. Gough....	Sunnybank, Va.
5	Northumberland and Lancaster.....	W. S. Sanders....	Kilmarnock, Va.
6	Lancaster.....	W. N. Gresham...	Kilmarnock, Va.
7	Richmond, Essex, and Caroline.....	John Curlett.....	Bowlers Wharf, Va.
8	Gloucester.....	W. E. Shackelford.	Severn, Va.
9	Gloucester, King and Queen, and King William.....	M. H. Hogg.....	Wicomico, Va.
10	Mathews.....	R. J. Brooks.....	Onemo, Va.
11	Mathews and Middlesex.....	C. L. Thompson...	Cobbs Creek, Va.
12 & 14	Middlesex.....	R. L. Jones.....	Saluda, Va.
15 & 16	York, James City, and New Kent.....	L. M. Callis.....	Seaford, Va.
17	Elizabeth City.....	Joseph White.....	Hampton, Va.

## OYSTER INSPECTORS—CONTINUED

DIST.	COUNTIES	NAME	P. O. ADDRESS
18	Warwick and James City....	Frank Garrow.....	Denbeigh, Va.
19	Isle of Wight and Surry....	P. T. Martin.....	Rescue, Va.
19-A	Chesterfield, Henrico, Prince George, Charles City, King William, and New Kent...	J. T. Meyer.....	Richmond, Va.
20	Nansemond.....	J. B. Bush.....	Eclipse, Va.
21 & 22	Norfolk and Princess Anne...	A. E. Ewell.....	Norfolk, Va.
24	Accomac and Northampton..	B. B. Fitchett....	Franktown, Va.
25	Northampton.....	John G. Mears....	Willis Wharf, Va.
26	Accomac.....	J. C. Lewis.....	Saxis, Va.
28	Accomac.....	W. D. Steelman...	Chincoteague, Va.
29	Accomac.....	A. C. Johnson.....	Wachapreague, Va.

## DEPUTY OYSTER INSPECTORS

DIST.	COUNTIES	NAME	P. O. ADDRESS
1	Westmoreland, King George, Stafford, Prince William and Fairfax.....	W. B. Marchant...	Colonial Beach, Va.
6	Lancaster.....	W. S. James.....	Weems, Va.
24	Accomac and Northampton..	Geo. C. Bonniwell.	Harborton, Va.
28	Accomac.....	H. C. Ellis.....	Greenbackville, Va.
29	Accomac.....	Chas. D. Eichelberger.....	Quinby, Va.

## POLICE BOATS AND POLICE CAPTAINS

NAME OF BOAT	CAPTAIN	P. O. ADDRESS
"Sirene".....	L. Seldon Taylor.....	Norfolk, Va.
"Commodore Maury".....	B. R. Dameron.....	Mila, Va.
"Will F. Kellam".....	W. C. Allen.....	Onancock, Va.
"Marguerite".....	C. L. Thompson.....	Cobbs Creek, Va.
"Katie".....	H. B. Miller.....	Colonial Beach, Va.
"Agnes Hope".....	R. Carter Harrison.....	Eclipse, Va.
"Inquirer".....	W. B. Marchant.....	Colonial Beach, Va.
"Victor".....	W. S. Sanders.....	Kilmarnock, Va.
"Charmian".....	John T. Anderton.....	Newport News, Va.
"Jane".....	P. T. Martin.....	Rescue, Va.
"Cull Boy".....	John Curlett.....	Bowlers Wharf, Va.
"Willisett".....	A. C. Johnson.....	Wachapreague, Va.
"C. F. 12 Jane".....	J. T. Meyer.....	Richmond, Va.



# REPORT

COMMONWEALTH OF VIRGINIA,  
OFFICE OF THE COMMISSION OF FISHERIES,  
NEWPORT NEWS, VIRGINIA, *October 2, 1939.*

*To His Excellency,* HONORABLE JAMES H. PRICE,  
*Governor of Virginia*  
*and*  
THE GENERAL ASSEMBLY OF VIRGINIA:

In accordance with statutory requirements, I beg to submit herewith the annual report of the Commission of Fisheries for the two years ending June 30, 1938, and June 30, 1939. The two reports are combined for the reason that a change of administrations in March of 1938 was followed by an exhaustive audit of the affairs of the Commission from July 1, 1937, to March 19, 1938, on which date I qualified as Commissioner of Fisheries. This exhaustive audit, made by the Auditor of Public Accounts, involved the examination of all of the records in the Office of the Commission by a number of auditors and covered many weeks in time, the report thereof being filed on the 23rd day of June 1938, and a final and supplemental report dealing with the Conservation contracts and commitments not being filed until August 1938. Until this examination was completed, the office was in such confusion that the statistics for the year of 1938 were not readily obtainable and as said report covered the activities of the outgoing Commission and Commissioner, there was little for the new officials to report of policies for the short period of 1938 under their administration.

From the report of the Auditor there was to the credit of the Commission of Fisheries in its General Fund (Code 01) on March 21, 1938 \$18,161.33, and to the credit of the Oyster Repletion Fund (Code 99), the sum of \$11,449.41, and from the supplemental report filed, it appears that the Commission of Fisheries was committed under contracts to the purchase of 764,281 bushels of shells, et cetera, at a cost of \$30,888.79.

The first meeting of the new Commission of Fisheries was held at Newport News, Virginia, on March 28, 1938 and shortly thereafter the Commissioner announced the appointments of the new employees under his reorganization of the office and field set-up, the reorganization of the office not being completed and the new officials, pending the audit, not taking over until July 1, 1938.

On the preceding pages will be found a roster of the present employees of the Commission.

In order to meet the contractual engagements of the former Commission and for the reason that I deemed many of the salaries out of line for the services rendered and not justified by the revenue of the Commission and in order to put on an enlarged conservation and repletion program, the Commissioner made many reductions in the salaries of employees, as well as a re-arrangement of some of the districts, and a new assignment of duties for a number of official positions, likewise creating the position of Superintendent of Inspectors and Police. These and other economies in overhead expenses made it possible for the Commission in conjunction with the Works Progress Administration to expend the sum of \$74,478.66 in money and services, the Commission contributing to the 1938 Conservation Program



the sum of \$30,848.98 in cash, and the sum of \$13,889.02 in the services of its employees and boats, the Works Progress Administration expending the sum of \$29,740.66 in cash and work. This was the largest conservation program ever put on in the State.

There is likewise filed herewith a report of the Conservation work for the year 1939 to July 1st, marked Appendix B. From this report it will be seen that there has been expended during the last fiscal year by the Commission of Fisheries the sum of \$19,780.36 in cash, and the sum of \$19,838.00 in the services of its employees and boats, or a total of \$39,618.36 as against the sum of \$27,631.07 expended by the Works Progress Administration, of which the sum of \$4,419.07 was for material and other costs, and the sum of \$23,212.00 for labor of Works Progress Administration persons on relief, a grand total of \$67,249.43. The work for the present year is still in progress in many parts of the State, the details of which will have to be included in a future report.

The Commission of Fisheries wishes to make acknowledgment of the valuable assistance rendered the State in conjunction with the "Seafood Project" carried on by the Works Progress Administration. The officials of the Works Progress Administration have been uniformly considerate, helpful and cooperative and without their valuable contribution the Commission of Fisheries would have been without the means to have done so much helpful and worthwhile work in the conservation of seafood interests.

There is likewise filed with this report, marked Appendix C, (but in the interest of economy not to be printed), a detailed and exhaustive comparative statement by W. C. Parsons, Chief Clerk, covering all of the fiscal affairs of the Commission as shown by its records for the two years ending June 30, 1938, and June 30, 1939.

From the report of W. C. Parsons, Chief Clerk, which, after being summarized in the beginning under proper headings, is later broken down in great detail, it appears there was expended by the old and the new Commissions during the year ending June 30, 1938, the sum of \$136,641.33, of which \$1,261.47 was for unusual and extraordinary expenditures, or a net sum of \$135,379.86, and that for the year ending June 30, 1939 there was expended by the Commission \$142,207.13 less for unusual or capital investments (the boat "Sirene" \$10,000.00) or new activities \$16,662.30, or net \$125,544.83. This report shows that there was collected during the year ending June 30, 1938 by the two Commissions the sum of \$134,704.85 and for the year ending June 30, 1939 a total of \$139,729.98, or an increase of \$5,025.13. The unusual expenditures referred to can be found listed and itemized on page 5 of said report.

There was on hand on June 30, 1938 a balance in the General Fund (Code 01) \$303.38 and in the Conservation or Repletion Fund (Code 99) \$572.35, or a total of \$875.73.

The balance of June 30, 1939 in the General Fund (Code 01) was \$0.00, and in the Conservation or Repletion Fund (Code 99) \$8,154.17 or a total of \$8,154.17.

On said last named date there was due to the Treasurer of Virginia for "Bills Payable", a note for \$10,000.00 given for the purchase of the "Sirene" on June 20, 1939, authorized by the Governor; and on said date there was transferred from the Repletion Fund (Code 99) \$1,033.78 to the Special Revenue Fund by order of the Governor, Chief of Records and Control, and Director of the Budget.

A further breakdown of the fiscal report of W. C. Parsons, Chief Clerk, shows that there was expended for the manning, maintenance and operations of the fourteen boats owned by the Commission \$37,500.27 for the year 1938 and for the year 1939 \$49,961.72, which latter figure includes the purchase and equipping of the new boat "Sirene" in excess of \$10,000.00. These boats are in many instances old (the Maury being 46 years old), of slow speed, and expensive to maintain and operate. The Commission of

Fisheries is of the opinion that the policing program and operations need drastic revision, the old boats supplanted by a few faster boats of lighter draft and the Inspectors, to whom possibly some of the old boats could be turned over for use, required to give more time to the water operations and policing instead of confining their duties in the main to the collection of licenses and other revenues.

An investigation of the feasibility of performing certain types of patrolling and policing by small sea planes with photographic equipment is being made. It may be that it will be found to be economical and expedient to do a part of our policing in this manner. Of course, matters of cull law enforcements could not well be done in this manner.

By authority duly obtained from the Governor as required by law, the Commission of Fisheries availed themselves of an opportunity to purchase at a sacrifice price the best boat Virginia has ever had and one badly needed to prevent trawling violations and for other policing activities and a boat in keeping with the dignity and prosperity of the State, for which important needs the Commission had no suitable boat, the "Sirene", for which as a result of libel proceedings, we paid \$10,000.00, though the boat originally cost \$80,000.00 when it came off the ways. The purchase of this boat was financed by allowing the Commission to anticipate its revenues and is to be paid for before the end of the present fiscal year. Proper arrangements have been made to meet this obligation and the same will be met, but it is submitted that, in view of the use to which this boat can and should be made on occasions to maintain the dignity and for the benefit of the whole State, it should be paid for in whole or in part by direct appropriation from the State.

There are likewise filed herewith, under the caption Appendix, numbered from one to ten, inclusive, interesting tables compiled by the Assistant Chief Clerk showing the number of licenses issued for seafood operations for the years 1938 and 1939, et cetera, to-wit:

- Table No. 1. Receipts from Fish and Oyster Industry by Districts.
- Table No. 2. General Fund Disbursements.
- Table No. 3. Purchase and Repairs to Boats.
- Table No. 4. Oyster Repletion Fund, Receipts and Expenditures.
- Table No. 5. Recorded Planting Ground.
- Table No. 6. Color and Age of Tonger Licensees.
- Table No. 7. Number of Licenses.
- Table No. 8. Kind, number and amount collected from Fish Nets by Districts.
- Table No. 9. Itemized Statement of Collection from all Sources.
- Table No. 10. Recapitulation.
- Table No. 11. Comparative Statement by years of Expense from 1922 to 1939, inclusive.

#### APPENDIX E.

Report of L. Selden Taylor, Superintendent of Conservation covering conservation operations from March 1, 1939 to July 1, 1939. Operations for the remainder of the year 1939 will be included in the report for the succeeding year.

#### GENERAL CONDITIONS AFFECTING THE SEAFOOD INDUSTRY OF VIRGINIA

By a survey, made for the Commission of Fisheries at my request, of J. J. Dirzulaitis, District Engineer, Virginia Conservation Commission, there were found to be 5,872 miles of salt water tidal shore front in Virginia and 1,518,725 submerged acres and, of course, a like number of acres of salt water of varying depth covering said submerged acres. This constitutes an "Empire of Sea", more, I am advised, than that of any other state in the

union with the possible exception of North Carolina; and more valuable than that of any other state in the union for the reason that it seems to be practically agreed by all marine biologists that the Chesapeake Bay and its tributaries is the finest marine basin, certainly on the Atlantic Coast.

While this is true, the U. S. statistics for the years 1930 to 1937, inclusive, covering oysters, fish, crabs and clams, show a disastrous decline in these outstanding commercial seafoods, both in poundage and money return. The statistics are here given with the percentages supplied. (Statement attached, marked Exhibit X.)

Appended hereto as Exhibit E is a report of Fred E. Ruediger, who for many years has been the able, valued Engineer of the Commission, showing his operations during the two years covered by this report.

Virginia is undertaking to operate and develop its oyster business on a dual basis, that is, by state ownership, protection and development of its oyster rocks comprised in what is known as "The Baylor Survey", and by the leasing of its oyster bottoms and beds outside of said survey to private citizens and corporations for planting purposes. The Baylor Survey contains roughly 210,476.84 acres, the oyster grounds rented to individuals in 1938 contained 64,454.74 acres and in 1939, 65,064.87 acres.

Inevitably there are jealousies, conflicts and encroachments by certain individuals in both the public operations and in the private holdings. Some of these are inadvertent for the reason of confusion of territory and the destruction of lines from natural causes; some, however, cannot be so pleasantly explained away. It is very evident that in many sections there have been encroachments by the renters on the public domain by including in their staked up areas a larger acreage than they are paying rental for.

It is the purpose of the Commission as rapidly as can be done by said Engineer and his assistants to resurvey and have reestablished the various parcels of leased ground throughout Tidewater. This, however, is a large order, entailing considerable expense and involving no little time. It is thought, however, that it will be fully justified in establishing better relations between the two groups engaged in the oyster business and in the increased revenues from ground rentals that will result.

The original Fisheries Act of 1898, which created the Board of Fisheries, later changed to the Commission of Fisheries, set up this Department of Government on a revenue, policing and conservation basis, with little thought to promotional activities. It met very fairly and fully conditions then obtaining and resulted in paying into the State Treasury for a number of years considerable sums. But that was forty years ago and great changes in conditions and activities have come about since. Conservation of Virginia's great seafood interests should always command a large place in our activities. Otherwise, the thoughtless, the lawless and greedy may destroy "the goose that laid the golden egg". In the matter of certain species of fish, terrapin, scallops and other seafood products this has already happened. The sturgeon, sheepshead and other valuable varieties of fish, once plentiful, are now practically extinct. But in the case of our main seafoods,—oysters, fish (many varieties), crabs and clams, nature is so abundant, so prolific and so bountiful in her reproduction processes that under any reasonable conservation program an ample supply can always be grown and the volume of production maintained.

The real problem confronting the seafood industries in Virginia and elsewhere on the Atlantic Coast is not **production** but **consumption**. There are just not enough people eating seafoods. The official statistics, heretofore quoted, fully establish this fact, which is likewise the common knowledge of all persons engaged in these industries. The causes contributing to this unhappy result are many. The consumption of other articles of food, meats, cereals, canned goods, et cetera, have been greatly increased by high-powered sales methods,—little being done in this direction for seafoods. From the very nature of things the workers in the public domain are helpless and the planters, dealers and packers are poorly organized. It is suggested and re-



W. W. ROWELL PONDERING A SPECIMEN OF A BOUNTIFUL OYSTER CATCH



TONGING OYSTERS FROM THE ROCKS



SELLING TO A BUY BOAT THE DAY'S OYSTER CATCH

quested that a part of the monies appropriated for advertising the State's resources be expended for this badly needed purpose.

But the thing that is most seriously affecting our consumption in Virginia is the much publicized pollution conditions in Hampton Roads and other Virginia sections. Indeed, pollution is "the dead man of the sea" around the neck of our oyster industry and not any great improvement in conditions or demand can be expected in the oyster business until all of the existing conditions are remedied and sewage pollution cleaned up. The 1,518,725 acres of tidal salt water and bottoms constitute one of Virginia's greatest assets. They are held in common by the Commonwealth for the benefit of all of our people. Those citizens who live on or adjacent to our waters and streams should not be permitted to pollute and destroy these beautiful waters by pollution, sewage or industry.

Our present law should be revamped and greater stress should be laid upon marketing problems and promotional activities.

With scant authority your Commission and Commissioner have undertaken to stimulate and create interest in seafood subjects by the doing of many things, no one of which may be important but in the sum total are believed to be already producing beneficial results, among these promotional activities, without discussing them, the following are listed:

1. The circularizing of our State institutions as to the quantities and kinds of seafood being used and the sending to these institutions of an experienced seafood cook to show how seafoods could be best prepared and served.

2. The issuing of a booklet of "One Hundred and One Approved Recipes for Delicious Virginia Seafoods", a copy of which accompanies this report. These recipes were carefully selected from a large number submitted and have been highly praised and in great demand.

3. The putting on of seafood exhibits in 1938 at the Virginia State Fair, the Petersburg Fair and the Langley Field Charity Fair. In 1939 these exhibits, enlarged and improved, will be repeated at the Virginia State Fair and Petersburg Fair, and also exhibited at the Mecklenburg County Fair at Chase City. At these exhibits seafood curios, different specimens of oysters, models of fish pound nets, et cetera, and many varieties of fish are shown and explained, and during the present year it is expected to serve, at a minimum charge to cover costs, seafood sandwiches where same is not deemed to be in conflict with concession privileges.

We tried very hard to arrange for, first, a National seafood exhibit at the New York World's Fair and, failing in that, then jointly with Maryland for a Chesapeake Bay and tributaries seafood exhibit, and this likewise falling through, we then tried to put on a Virginia exhibit solely, but were unable to obtain the use of the room in connection with the Virginia State exhibit for more than ten days, which would not justify the expense and trouble that would have been involved. This seemed to the Commissioner a fine opportunity for a favorable presentation of seafood subjects in a manner calculated to increase interest, resulting in larger consumption.

4. We have called upon all of the fraternal organizations, that meet at stated periods and serve to their membership dinners, to serve seafood meals, certainly some seafood at every regular meeting, and many of these have responded splendidly and are doing so.

We have likewise called upon Virginia's great transportation companies for a larger use of seafoods in connection with their dining car and boat service and through hotels owned or operated by them and at reduced and more moderate prices. These, too, are showing a fine spirit of co-operation.

The great chain stores operating throughout Virginia have likewise been appealed to and these high-powered sales organizations are giving us splendid co-operation.

Hotels and restaurants have been urged directly and indirectly to increase their service of seafoods, particularly in Tidewater where many of them were found not to be serving seafoods to their up-country guests, with

an abundance of the best food in the world at their very doors. This did not make sense.

5. We are undertaking to increase knowledge and interest of seafood subjects throughout the Commonwealth, where lack of information is lamentable, by the four known admitted ways of reaching the public mind.

(a) Through the press by Associated Press service and through news letters to the Weeklies throughout the State.

(b) By weekly radio talks on seafood subjects over WTAR and other broadcasting stations who have generously donated a fifteen minute period for such talks weekly by the Commissioner or his representatives.

(c) By the screen where we are expecting shortly to exhibit "The Harvest of the Seas", shot by an expert Hollywood operator, depicting all manner of seafood operations in Tidewater Virginia, accompanied by an explanatory travelogue.

(d) By public addresses by the Commissioner to the watermen themselves and to various interested groups on invitation, including an address to the Joint Annual Convention of the Oyster Growers & Dealers Association of North America, The National Shellfisheries Association, and The Oyster Institute of North America at the Hotel Pennsylvania, New York City, July 12, 1939.

6. In order to inform the oncoming generations of the admitted value and importance of seafoods, not as luxuries but as daily diet, an arrangement has been made with the Department of Public Instruction of the State to include as a unit of instruction in all of the schools of the State the subject of seafoods and the text for this unit of instruction is now in the course of preparation by Professor Robert M. Newton, Superintendent of Schools of Elizabeth City County, who first suggested the idea, and Professor Henry A. Wise, Superintendent of Schools of Accomack County, who have been using as a basis in preparation for this study certain schools in their respective counties. It was hoped that this text would be ready for use at the beginning of the session 1939-40 but many delays have made this impractical and the publication of this text will probably make too great a demand upon the revenues of the Commission of Fisheries without the aid of the Legislature at its approaching session.

7. The last session of the Legislature appropriated the sum of \$5,000.00 to the Commission of Fisheries (being the only State appropriation to the Commission), conditioned upon the appropriation by the Federal Government of \$7,000.00, for the operation of the Marine Biological Laboratory at Yorktown, set up a few years ago by the Federal Government solely for the investigation of industrial pollution in the York River. The operation of this Laboratory is proving very helpful and its continued operation in an enlarged field is necessary for the preservation and development of our seafood interests in the State.

For lack of facilities at the Laboratory, the Chemical Department of William and Mary College, a State institution, was made available and the two have worked in conjunction during the present biennial.

An interesting and informative report of the Marine Biological Laboratory 1938-39 by Dr. Walter A. Chipman, Jr., Director, is herewith filed as Appendix F.

The University of Maryland operates, in conjunction with the Federal Government, the Chesapeake Biological Laboratory at College Park, Md., and Duke University of North Carolina operates a marine biological department at Beaufort, a distance of 178 miles from that university, in connection with the U. S. Biological Station there, both highly successful in spite of the distances between them and to the great advantage of the seafood industries in those two states.

The seafood industries of Virginia have reached the stage that many of the problems arising can only be met and solved by definite scientific knowledge and trained men are required for the successful operation of our



seafood industries. The Legislature of Virginia will be asked at its coming session to increase the appropriation of \$5,000.00 for this joint operation and for the establishment of a Department of Marine Biology at William and Mary College, about ten miles distant from Yorktown, to be operated in connection with the Federal Laboratory there.

8. Sports fishing, which is always popular, has been stimulated and promoted, both bottom and deep sea fishing for game fish. With a small expenditure in 1938 the Commission demonstrated that abreast of our shores on the Atlantic, marlin, dolphin and other game fish abound and in conjunction with the Deep Sea Fishing Association of Richmond further successful experiments have been made during 1939, fishing bottoms located and much valuable information accumulated by Captain John Cass, an expert fisherman from southern waters, who has made a systematic and scientific survey of our waters. It is submitted that the next big development in Tidewater Virginia will be in the nature of deep sea fishing, not only for sport but commercial fishing for blues and other fish that will follow in the wake of the sports fishing. The unknown treasures of the Atlantic Ocean, which is our eastern front yard, offer an interesting and intriguing field for development.

9. When the present Commissioner and Commission came into office there was one small shad hatchery in the State of Virginia on the Chickahominy River, which, under the intelligent management of J. T. Meyer, did excellent work in 1938, hatching 2,830,500 shad fry.

In 1939, Mr. Meyer was made Superintendent of Hatcheries and under his direction and management the plant on the Chickahominy was enlarged and improved, two new plants, one on the Mattaponi and one on the Pamunkey, established in the Indian Reservations on those two rivers, and, by an arrangement with the Federal Bureau of Fisheries, the State was permitted to use the facilities of the Federal Bureau at Belvoir Hatchery on the Potomac, contributing two boats and several men to the operation with splendid results.

In 1939, there were incubated at the four hatcheries approximately 45,000,000 shad eggs, from which it was estimated that there were hatched over 40,000,000 shad fry, about 300,000 of which were confined in one of the Federal ponds until they were fingerling size, the rest being turned into the rivers adjacent to the hatcheries in sheltered coves a short while after hatching.

The Commission has been tendered the use of ponds on the Pamunkey and Mattaponi which can be put in shape at a minimum expense for use of growing the young fry. It is believed by the Commissioner from the evidence before him that this is the practical and best way of growing shad, thereby saving the high rate of mortality that must result from turning the fry loose, even in protected waters, so soon after their hatching.

At a very reasonable cost Virginia, singly and in conjunction with the Federal activities at Belvoir, should turn into Virginia waters next year 100,000,000 shad fry. These baby shad in the fall of the year, when the waters become too chilly, make for deeper water down stream, through the Capes and at sea. Where they go no one knows, but when two or three years old and the biological urge to reproduce possesses them they are said by all scientists, unerringly, to return to the head waters of the stream on which they were hatched. If this be true (and it is not scientifically or practically disputed), it should be an easy matter to restock Virginia waters not only with shad but with herring and rock, with which we will experiment and attempt to hatch during the coming season.

Investigation is even being made with reference to the hatching of sturgeon and other species of fish once abounding but now practically extinct in Virginia waters.

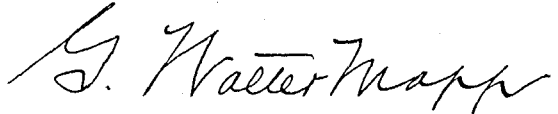
As has been indicated above, the present statutory set-up of the Commission of Fisheries is badly in need of revamping and recasting as the condition of the languishing seafood industries in Virginia precludes any

hope of revenues to the State from this source for the present. Indeed, in its present condition, the State could well afford for the betterment of its great natural resources in seafoods to do some "pump priming" by reasonable biennial appropriations in the direction of hatcheries, further exploiting of our deep sea fishing, in furtherance of an intelligent educational program and the equipment of the Commission with proper boats and instrumentalities for conservation enforcement and necessary policing.

The financial condition of the seafood workers (large numbers of whom are on Federal relief), likewise of the private producers, shuckers and packers, is such that they cannot stand any increase in licenses and taxes on the industry itself. Indeed, many of the licenses under existing conditions are so high as to be oppressive. It is, therefore, without State aid a difficult and slow process to restore and revive this languishing industry, in which the State has a large stake and is a large loser in general revenues by lack of prosperity in one of its former most prosperous sections.

At the coming session of the Legislature it is the purpose of the Commission and the Commissioner to present to the lawmakers of the State a program for the rehabilitation of our seafood industries and their restoration to their former prosperous condition.

Respectfully submitted,

A handwritten signature in cursive script, reading "G. Wattermann". The signature is written in dark ink and is positioned above the printed name of the Commissioner.

Commissioner.

TABLE No. 1  
 RECEIPTS FROM FISH AND OYSTER INDUSTRY BY DISTRICTS  
 For Year Ending June 30, 1939

DISTRICTS	Ground Rents	Oyster Licenses	Tax at 1½c from Public Rocks	Tax at 1½c from Leased Grounds	Tax at 2c for Carrying Out of State	Crab Licenses	Clam and Scallop Licenses	Fish Licenses	Fees	Fines	Miscellaneous	Total
District 1	\$ 482 58	\$ 1,890 00	\$ 1,282 65	\$ 134 19	\$ 107 08	\$ 545 50		\$ 1,606 90	\$ 216 00			\$ 6,264 90
District 2	1,915 39	639 50	1,120 89	57 67	9 00	493 75		547 50	97 00	\$ 50 00		4,930 70
District 4	1,971 40	186 00	160 43	748 05		365 50		4,084 00	45 00			7,560 38
District 5	1,172 63	974 00	480 57	269 77		760 00		3,130 00	120 50			6,907 47
District 6	1,455 31	955 50	1,767 45	64 04		417 50		268 50	97 00			5,035 30
District 7	1,770 81	603 50	63 48	673 45		53 50		385 90	69 50			3,625 14
District 8	3,116 64	321 50	1 81	96 90		267 00	\$ 183 00	402 00	51 00		\$ 93 15	4,533 00
District 9	2,736 44	472 50	4 50	132 72		84 00	40 00	115 00	70 50			3,778 16
District 10	2,556 88	52 00	23 08	433 91		302 00	22 00	1,252 00	21 00			4,635 37
District 11	1,443 62	286 50	14 13	43 82		535 50	7 50	711 80	59 00		171 95	3,278 82
Districts 12 and 14	1,143 39	1,952 00	1,209 54	338 71	79 28	253 50		399 50	187 00	10 00		5,574 92
Districts 15 and 16	5,526 63	544 00		257 43		816 00	90 00	900 00	79 00		58 75	8,271 86
District 17	3,960 20	169 50		771 21		814 50	125 50	542 50	49 50		39 00	6,471 91
District 18	1,832 17	957 00	211 50	41 62	282 00	54 50		274 26	329 50	10 00	6 50	4,049 05
District 19	2,217 37	1,230 00	374 76	471 55	499 68	209 00		371 50	522 50	30 00		5,926 66
District 19-A		20 00						1,303 30				1,328 30
District 20	3,471 12	565 00	15 00	125 83	22 40	88 00		95 50	44 00			4,426 85
Districts 21 and 22	5,880 64	402 00		9,378 00		448 50	2 50	508 50	62 00	10 00	32 70	16,724 84
District 24	4,265 70	52 50		171 35		677 00	82 00	808 00	24 00			6,074 55
District 25	3,555 98	637 00	6 15	2,871 83	\$ 20	379 00	327 00	113 50	29 50			7,919 16
District 26	914 49	56 00	171 55	41 11		306 50	8 00	400 76	22 50	60 00		1,981 21
District 27		252 00	48 14	1 50	3 78	682 50			20 00			1,007 33
District 28	4,330 04	472 00	355 13	2,998 35	473 50	132 50		84 50	85 00	10 00		9,562 02
District 29	2,970 85	498 50	47 51	420 53	35 88	189 00		111 50	18 00			4,402 07
Office									14 50	39 85	3,830 66	3,885 01
W. C. Allen*						534 00	7 50	157 50	22 50			857 00
W. T. Toleman†						28 50			12 50			222 50
E. T. Drummond‡								2 50	17 50			285 50
Total	\$58,822 28	\$14,871 00	\$ 7,358 87	\$20,543 59	\$ 1,520 80	\$9,442 25	\$1,628 50	\$18,573 72	\$2,357 00	\$ 239 85	\$4,327 71	\$139,685 57

\*Captain of Police Boat "Will F. Kellam."  
 †Captain of Police Boat "Marguerite."  
 ‡Boat Harbor.  
 §Fines to Literary Fund.

TABLE No. 1—CONTINUED  
 RECEIPTS FROM FISH AND OYSTER INDUSTRY BY DISTRICTS  
 For Year Ending June 30, 1933

DISTRICTS	Ground Rents	Oyster Licenses	Tax at 1½c from Public Rocks	Tax at 1½c from Leased Grounds	Tax at 2c for Carrying Out of State	Crab Licenses	Clam and Scallop Licenses	Fish Licenses	Fees	Fines	Miscellaneous	Total
District 1.....	\$ 499 51	\$ 1,668 50	\$ 1,245 41	\$ 8 45	\$ 106 60	\$ 562 50	.....	\$ 1,436 30	\$ 194 50	\$ 25 00	.....	\$ 5,746 77
District 2.....	1,917 70	737 00	654 19	224 17	23 00	461 00	.....	657 00	110 50	.....	.....	4,789 56
District 4.....	2,016 65	542 00	529 03	155 00	.....	711 65	.....	4,942 50	99 00	12 50	.....	9,008 33
District 5.....	1,263 27	656 00	217 59	652 31	9 44	393 50	.....	579 00	101 00	30 00	.....	3,902 11
District 6.....	1,626 14	943 50	405 36	709 24	4 00	669 00	.....	111 00	113 50	88 00	.....	4,669 74
District 7.....	1,725 78	550 00	53 82	569 22	.....	73 00	.....	450 50	67 50	10 00	.....	3,499 82
District 8.....	3,238 68	623 50	19 50	2 25	1 87	345 50	\$ 216 50	108 00	69 00	.....	\$ 124 25	4,749 05
District 9.....	2,405 42	526 00	39 22	147 22	.....	88 00	15 00	81 50	79 00	.....	41 00	3,422 36
District 10.....	2,412 64	85 00	62 31	272 00	.....	390 00	5 00	1,477 60	19 50	.....	9 00	4,733 05
District 11.....	1,067 10	312 00	6 67	27 95	3 00	330 00	2 50	1,006 00	43 50	.....	18 50	2,817 22
Districts 12 and 14.....	1,809 11	1,670 00	1,134 65	51 16	11 50	250 50	.....	378 00	163 00	5 00	.....	5,472 92
Districts 15 and 16.....	5,023 06	949 50	.....	100 00	.....	968 50	84 00	767 00	79 00	.....	28 95	8,000 01
District 17.....	4,208 14	99 00	.....	869 18	.....	1,050 50	40 00	873 50	40 00	145 00	25 25	7,350 57
District 18.....	1,877 51	1,000 00	8 79	64 20	8 62	94 00	21 50	57 30	191 50	18 00	36 50	3,377 62
District 19.....	2,071 00	1,479 00	481 71	301 52	383 20	188 50	.....	556 60	801 00	280 00	.....	6,542 53
District 19-A.....	.....	22 00	.....	.....	.....	.....	.....	1,141 60	.....	.....	03	1,163 63
District 20.....	3,652 67	637 50	.....	323 12	33 46	89 50	.....	65 50	43 00	20 00	19 50	4,884 25
Districts 21 and 22.....	5,632 32	323 00	.....	9,274 78	.....	253 00	8 00	651 00	49 00	25 00	.....	16,216 10
District 24.....	4,280 24	115 00	.....	240 01	.....	624 00	103 50	905 00	23 00	.....	.....	6,290 75
District 25.....	3,587 98	790 50	230 71	1,501 69	204 44	500 50	303 50	117 00	30 00	.....	.....	7,266 32
District 26.....	829 35	514 50	24 00	.....	5 00	806 00	5 50	543 00	61 00	.....	.....	2,788 35
District 27.....	.....	211 50	3 75	13 40	5 00	749 50	.....	145 00	23 00	.....	.....	1,150 15
District 28.....	4,132 57	612 50	172 41	1,778 93	229 88	100 00	257 00	129 00	48 50	.....	.....	7,460 79
District 29.....	2,845 76	791 00	181 54	844 55	52 00	250 00	33 00	96 50	29 50	.....	.....	5,123 85
M. V. "Victor".....	.....	.....	.....	.....	.....	56 00	.....	149 50	.....	.....	.....	205 50
Office of Commission.....	.....	.....	.....	.....	.....	.....	.....	.....	48 50	.....	4,025 00	4,073 50
Total.....	\$58,122 60	\$15,858 50	\$ 5,470 66	\$18,130 35	\$ 1,086 01	\$10,004 65	\$1,095 00	\$17,424 90	\$2,526 00	\$ 658 50*	\$4,327 68	\$134,704 85

\*This amount to Literary Fund.

TABLE No. 2  
GENERAL FUND DISBURSEMENTS  
For Years Ending June 30, 1938, and 1939

ADMINISTRATION		
	1938	1939
Salaries:		
Commissioner.....	\$ 5,500 01	\$ 5,500 08
Other members of Commission.....	795 00	620 00
Clerks and stenographers.....	8,095 84	7,032 85
Wages, extra office help and janitor work.....	133 11	332 41
Counsel and expert service.....	1,750 00	1,466 72
General repairs.....	11 07	54 59
Motor vehicle repairs.....	107 47	132 82
Light, heat, power and water.....	47 40	69 63
Traveling.....	1,335 04	1,023 68
Transportation (freight and express).....	12 52	6 19
Communication (telephone, telegraph and postage).....	1,006 11	780 34
Printing (contractual service not included elsewhere).....	34 94	103 35
Other expense.....	47 16	99 48
Food supplies.....	5 61	0
Office supplies.....	191 91	325 88
Laundry, cleaning and disinfecting supplies.....	1 50	2 69
Refrigerating supplies.....	2 60	0
Motor vehicle supplies.....	174 71	102 90
Other supplies.....	5 95	0
Other material.....	14 01	0
Office equipment.....	8 95	7 80
Rent.....	1,080 00	1,121 00
Insurance.....	146 22	66 21
Total for administration.....	<u>\$ 21,107 13</u>	<u>\$ 18,898 62</u>
INSPECTION AND POLICING		
Salaries:		
Boat crews.....	\$ 27,768 47	\$ 24,490 50
Inspectors and special police.....	35,591 67	32,418 33
Civil engineers.....	2,895 85	2,500 08
Wages.....	1,247 79	2,824 25
Counsel and expert service.....	7 00	114 55
General repairs.....	10 00	50 06
Motor vehicle repairs, including boats.....	3,912 15	4,707 18
Light, heat, power and water.....	22 00	10 00
Traveling.....	6,066 01	6,940 17
Transportation (freight and express).....	29 58	174 63
Communication (telephone, telegraph and postage).....	592 00	339 24
Printing (including license tags).....	1,030 90	1,663 14
Other expense.....	633 14	2,198 78
Food supplies.....	1,394 15	1,486 35
Fuel supplies.....	196 10	268 89
Office supplies.....	1 75	74 69
Laundry, cleaning and disinfecting supplies.....	145 70	93 11
Refrigerating supplies.....	174 30	177 27
Motor vehicle supplies.....	6,372 57	6,861 65
Wearing apparel.....	100 61	27 55
Other supplies.....	157 04	207 97
Other material.....	403 48	406 23
Household equipment.....	47 40	82 72
Motor vehicle equipment.....	1,526 93	387 34
Motor vehicle equipment (capital outlay).....	1,521 47	10,066 60
Other equipment.....	153 05	513 65
Rent.....	2,032 70	406 83
Insurance.....	3,025 22	4,236 49
Total for inspection and policing.....	<u>\$ 97,059 01</u>	<u>\$ 103,528 15</u>
Grand total for general fund disbursements.....	<u>\$ 118,166 14</u>	<u>\$ 122,426 77</u>

TABLE No. 3  
PURCHASE AND REPAIRS TO BOATS  
For Years Ending June 30, 1938, and June 30, 1939

	1938	1939
Agnes Hope.....	\$ 701 90	\$ 306 35
Anne.....	7 35	.....
*Ann Dell.....	366 79	.....
Charmian.....	208 91	379 03
Commodore Maury.....	1,015 92	1,920 41
Cull Boy.....	371 17	271 87
*Hilda M.....	46 00	.....
Inquirer.....	65 63	72 36
Katie.....	201 47	133 27
Jane.....	1,469 93	170 32
*Mary Virginia.....	26 25	.....
Marguerite.....	189 29	372 06
Richard Armstrong.....	161 26	244 62
Victor.....	108 91	89 45
Willisett.....	121 43	193 29
Will F. Kellam.....	1,766 63	335 46
‡Sirene.....	.....	10,010 20
Total.....	\$ 6,828 84	\$14,498 69

\*Boats owned by inspectors no longer in the employ of the Commission.  
‡Sirene not purchased until 1939.

TABLE No. 4  
OYSTER REPLETION FUND  
Receipts and Expenditures, Years Ending June 30, 1938, and 1939

	1938	1939
RECEIPTS		
Amount standing to the credit of the Repletion Fund at beginning of fiscal year		
July 1st.....	\$ 543 73	\$ 572 35
Receipts for:		
Tonging licenses.....	6,623 00	6,074 00
Tax on oysters from public rocks.....	4,376 52	5,887 09
Tax on oysters from leased ground.....	14,504 29	16,434 87
Donation from Northumberland County.....	500 00	0
Total.....	\$26,547 54	\$28,968 31
Less amount appropriated for Health Department.....	7,500 00	0
Transfer to Protection of Oyster Beds and Fish Fund.....	0	1,033 78
Net total for repletion.....	\$19,047 54	\$27,934 53
EXPENDITURES		
Wages, tallying shells and planting shells.....	\$ 610 05	\$ 626 30
Special payments.....	80 00	0
General repairs.....	0	6 80
Motor vehicle repairs.....	45 95	210 31
Traveling.....	441 32	578 38
Transportation.....	786 62	1,722 23
Communication.....	28 95	42 63
Printing.....	0	2 55
Other expense.....	15,846 32	16,044 20
Food supplies.....	31 94	40 76
Office supplies.....	3 00	0
Motor vehicle supplies.....	262 92	272 70
Other supplies.....	98 07	0
Motor vehicle equipment (capital outlay).....	18 00	0
Other equipment.....	12 00	117 00
Rent.....	210 05	116 50
Total expenditures.....	\$18,475 19	\$19,780 36
Balance in Oyster Repletion Fund.....	\$ 572 35	\$ 8,154 17



PUTTING OUT FISH TO THE "RUN BOAT"



"RUN BOATS" AWAITING THE DAY'S CATCH (HORN HARBOR)





CLAMMING ON THE EASTERN SHORE



FAMILIAR WATERFRONT SCENE

TABLE No. 5  
RECORDED PLANTING GROUND  
Years Ending June 30, 1938, and 1939

DISTRICTS	Number of Acres	Rent Past Due June 30, 1938	Number of Acres	Rent Past Due June 30, 1939
District 1	496.99		480.06	
District 2	1,994.50	\$ 42 86	2,001.15	\$ 129 12
District 4	1,982.55	0	1,971.97	32 41
District 5	1,152.63	51 74	1,179.38	57 03
District 6	1,514.56	3 49	1,488.06	17 05
District 7	1,746.67	64 33	1,736.09	8 85
District 8	5,146.58	570 19	5,089.34	343 98
District 9	2,584.43	612 97	2,547.37	394 57
District 10	3,083.06	423 48	3,262.49	432 11
District 11	1,370.28	24 25	1,596.41	98 26
District 12	168.36	14 06	188.66	35 85
District 14	1,045.92	3 73	1,051.68	76 57
District 15	4,248.66	549 54	4,167.30	308 29
District 16	2,527.66	32 24	2,687.52	51 62
District 17	3,954.99	114 34	4,016.63	484 18
District 18	2,013.79	202 15	2,069.41	490 30
District 19	2,165.77	510 16	2,127.31	429 61
District 20	3,641.22	19 98	3,461.39	83 73
District 21	5,640.34	115 30	5,748.20	82 91
District 22	2,213.05	53 41	2,383.96	220 74
District 24	4,298.70	74 35	4,319.72	3 78
District 25	3,912.88	526 79	3,510.61	250 42
District 26	834.93	233 95	813.58	94 52
District 28	3,863.40	784 58	4,206.43	599 23
District 29	2,852.82	130 36	2,960.15	172 99
Totals	64,454.74	\$ 5,158 25	65,064.87	\$ 4,898 12

NOTE.—The rental year closes August 31, which gives two months more to collect the past due rent.

TABLE No. 6  
TABLE OF COLOR AND AGE OF TONGERS WHO PROCURED A LICENSE  
TO TONG OYSTERS, CLAMS AND SCALLOPS  
For Year Ending June 30, 1938

	AGES IN YEARS										Total
	20 or Under	21 to 25	26 to 30	31 to 35	36 to 40	41 to 45	46 to 50	51 to 55	56 to 60	Over 60	
White.....	174	313	276	223	229	212	246	222	167	192	2,254
Colored.....	75	151	114	88	114	133	172	145	102	144	1,238
Totals.....	249	464	390	311	343	345	418	367	269	336	3,492

TABLE No. 6—CONTINUED  
TABLE OF COLOR AND AGE OF TONGERS WHO PROCURED A LICENSE  
TO TONG OYSTERS, CLAMS AND SCALLOPS  
For Year Ending June 30, 1939

	AGES IN YEARS										Total
	20 or Under	21 to 25	26 to 30	31 to 35	36 to 40	41 to 45	46 to 50	51 to 55	56 to 60	Over 60	
White.....	170	258	255	230	222	184	219	200	163	202	2,103
Colored.....	64	125	131	98	117	130	160	128	123	125	1,201
Totals.....	234	383	386	328	339	314	379	328	286	327	3,304

TABLE No. 7  
NUMBER OF LICENSES  
Years Ending June 30, 1938, and June 30, 1939

	1938	1939
Patent oyster tongers.....	39	76
Ordinary oyster tongers.....	3,214	2,847
Oyster barrel shippers.....	15	10
Oyster shucking houses.....	117	140
Crabbers.....	1,779	1,907
Crab dredging.....	213	228
Crab picking and crating houses.....	88	66
Crab buyers.....	120	115
Taking clams and scallops by hand or ordinary tongs.....	205	327
Taking clams and scallops by patent tongs.....	34	54
Clam and scallop buyers.....	33	38
Food fish nets.....	4,134	4,125
Menhaden nets.....	27	35
Fish and roe packers.....	13	13
Totals.....	10,031	9,981
Amount collected.....	\$44,383 05	\$ 44,515 47

TABLE No. 8  
KIND, NUMBER AND AMOUNT COLLECTED FROM FISH NETS BY DISTRICTS  
Year Ending June 30, 1939

DISTRICTS	POUND*		FLOAT		GILL		FYKE		HAUL SEINE		MISCELLANEOUS FISHING DEVICE		MENHADEN		FISH AND ROE PACKING		TOTALS
	No. Lic.	Amount Received	No. Lic.	Amount Received	No. Lic.	Amount Received	No. Lic.	Amount Received	No. Lic.	Amount Received	No. Lic.	Amount Received	No. Lic.	Amount Received	No. Lic.	Amount Received	
District 1	83	\$ 290 50			94	\$ 218 40	519	\$ 778 50	36	\$ 231 00	12	\$ 80 50			1	\$ 8 00	\$ 1,606 90
District 2	142	497 00							3	15 00	1	3 50			4	32 00	547 50
District 4	115	402 50			1	2 00	7	10 50	1	5 00			20	\$3,656 00	1	8 00	4,084 00
District 5	192	672 00			1	2 00	31	46 50	9	70 50	1	1 00	13	2,306 00	4	32 00	3,130 00
District 6	70	245 00			1	2 00	11	16 50	1	5 00							268 50
District 7	45	157 50	4	\$ 8 00	57	114 40	32	48 00	11	55 00	2	3 00					335 90
District 8	114	399 00					2	3 00									402 00
District 9	3	10 50	3	6 00	31	62 00	21	31 50	1	5 00							115 00
District 10	348	1,218 00			1	2 00	1	1 50	1	30 50							1,252 00
District 11	193	539 50			5	10 30	1	1 50	5	152 50					1	8 00	711 80
Districts 12 and 14	39	136 50			1	2 00	8	12 00	9	249 00							399 50
Districts 15 and 16	96	336 00			50	102 00	18	27 00	14	427 00					1	8 00	900 00
District 17	155	542 50															542 50
District 18	15	52 50			40	127 26	51	76 50	2	10 00	2	8 00					274 26
District 19	8	28 00			52	161 80	106	159 00	3	15 00	4	8 00					371 80
District 19-A			390	780 00	21	68 00	42	63 00	35	175 00	185	222 30					1,308 30
District 20	5	17 50			5	10 00	44	66 00			2	2 00					95 50
Districts 21 and 22	92	322 00			32	64 00	11	16 50	11	106 00							508 50
District 24	143	500 50			17	46 50			6	30 00			2	225 00			802 00
District 25	31	108 50			1	5 00											113 50
District 26	53	185 50			3	6 76	7	10 50	9	198 00							400 76
District 27																	
District 28	17	59 50							5	25 00							84 50
District 29	22	77 00					1	1 50	5	25 00					1	8 00	111 50
Kellam	45	157 50															157 50
Totals.....	2,027	\$6,955 00	397	\$ 794 00	413	\$1,006 42	913	\$1,369 50	167	\$1,829 50	209	\$ 328 30	35	\$6,187 00	13	\$ 104 00	\$18,573 72

\*Amount collected for pound nets will not agree with number of licenses issued, as Commission reduced the price of crab pound licenses and refund of the difference was made to the licensees.

## REPORT OF THE COMMISSION OF FISHERIES

TABLE No. 8—CONTINUED  
KIND, NUMBER AND AMOUNT COLLECTED FROM FISH NETS BY DISTRICTS  
Year Ending June 30, 1938

DISTRICTS	POUND		FLOAT		GILL		FYKE		HAUL SEINE \$5.00	
	No. Lic.	Amount Received	No. Lic.	Amount Received	No. Lic.	Amount Received	No. Lic.	Amount Received	No. Lic.	Amount Received
District 1	129	\$ 420 00			106	\$ 234 80	331	\$ 496 50	39	\$ 195 00
District 2	177	619 50					3	4 50	5	25 00
District 4	153	535 50					161	241 50	12	60 00
District 5	143	500 50			1	2 00	11	16 50	4	20 00
District 6	15	52 50					39	58 50		
District 7	60	210 00	3	\$ 6 00	54	107 00	34	51 00	15	75 00
District 8	29	101 50					1	1 50	1	5 00
District 9			4	8 00	29	58 00	7	10 50	1	5 00
District 10	382	1,337 00			9	18 60				
District 11	257	899 50			1	2 00	2	3 00	2	10 00
Districts 12 and 14	54	189 00			3	6 00				
Districts 15 and 16	35	122 50			44	104 00	8	12 00	2	10 00
District 17	156	546 00			1	2 50				
District 18	4	14 00			6	22 30	14	21 00		
District 19	9	31 50	7	14 00	73	254 60	131	196 50	6	30 00
District 19-A	1	3 50	292	584 00	25	81 10	54	81 00	35	175 00
District 20	4	14 00			1	2 00	33	49 50		
Districts 21 and 22	110	385 00			44	90 00			23	115 00
District 24	142	497 00			18	40 00			5	25 00
District 25	32	112 00							1	5 00
District 26	76	266 00			5	10 00	12	18 00	1	5 00
District 27	41	143 50					1	1 50		
District 28	28	98 00			4	8 00	2	3 00	4	20 00
District 29	21	73 50							3	15 00
Victor	11	38 50					74	111 00		
Totals	2,060	\$7,210 00	306	\$ 612 00	424	\$1,042 90	918	\$1,377 00	159	\$ 795 00

TABLE No. 8—CONTINUED

DISTRICTS	HAUL SEINE \$30.50		MISCEL- LANEOUS FISH- ING DEVICE		MENHADEN		FISH AND ROE PACKING		TOTALS
	No. Lic.	Amount Received	No. Lic.	Amount Received	No. Lic.	Amount Received	No. Lic.	Amount Received	
District 1			19	\$ 90 00					\$ 1,436 30
District 2							1	\$ 8 00	657 00
District 4			1	1 50	24	\$4,056 00	6	48 00	4,942 50
District 5							5	40 00	579 00
District 6									111 00
District 7			1	1 50					450 50
District 8									108 00
District 9									81 50
District 10	4	\$ 122 00							1,477 60
District 11	3	91 50							1,006 00
Districts 12 and 14	6	183 00							378 00
Districts 15 and 16	17	518 50							767 00
District 17			13	325 00					873 50
District 18									57 30
District 19			8	30 00					556 60
District 19-A			185	217 00					1,141 60
District 20									65 50
Districts 21 and 22	2	61 00							651 00
District 24					3	343 00			905 00
District 25									117 00
District 26	8	244 00							543 00
District 27									145 00
District 28									129 00
District 29							1	8 00	96 50
Victor									149 50
Totals	40	\$1,220 00	227	\$ 665 00	27	\$4,399 00	13	\$ 104 00	\$17,424 90

TABLE No. 9  
ITEMIZED STATEMENT OF COLLECTIONS FROM ALL SOURCES  
For the Year Ending June 30

	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939
<b>RENT</b>										
Planting ground at 25c per acre.....		\$ 1,917 22	\$ 1,375 38	\$ 1,929 13	\$ 1,987 16	\$ 2,131 33	\$ 2,054 63	\$ 2,587 37	\$ 2,019 45	\$ 2,255 85
Planting ground at \$1.00 per acre.....	\$ 57,594 52	55,062 64	51,224 76	48,731 90	52,718 42	58,498 64	59,756 65	60,171 96	55,079 42	55,429 46
Bathing ground at \$5.00 per acre.....		956 31	850 03	493 92	399 15	798 00	648 50	923 19	422 65	462 83
Assignment fees.....		279 50	322 00	198 50	205 00	274 50	226 00	244 35	276 00	310 00
5% penalty.....	608 56	739 99	670 57	711 86	1,048 12	1,101 35	1,052 80	948 38	601 08	674 14
<b>Total rents.....</b>	<b>\$ 58,203 08</b>	<b>\$ 58,955 66</b>	<b>\$ 54,442 74</b>	<b>\$ 52,065 31</b>	<b>\$ 56,357 85</b>	<b>\$ 62,803 82</b>	<b>\$ 63,738 58</b>	<b>\$ 64,880 25</b>	<b>\$ 58,398 60</b>	<b>\$ 59,132 28</b>
<b>OYSTERS</b>										
Tongers' licenses—Patent.....	\$ 1,925 00	\$ 3,330 00	\$ 4,790 00	\$ 3,240 00	\$ 1,455 00	\$ 1,440 00	\$ 1,800 00	\$ 514 50	\$ 409 50	\$ 798 00
Tongers' licenses—Ordinary.....	8,299 40	16,536 00	14,436 00	12,048 00	6,776 00	14,278 00	13,828 00	14,679 00	14,463 00	12,811 50
Barrel shippers' licenses.....	139 00	101 00	69 00	92 00	51 00	48 00	67 00	63 50	82 00	49 00
Shucking house licenses.....	1,096 00	921 50	724 50	631 50	945 75	990 50	1,131 50	1,156 50	904 00	1,212 50
Dredging licenses.....	653 00	848 00	83 00	37 00						
Tax from public rocks.....		9,016 92	10,479 64	8,665 67	12,384 14	8,393 58	5,818 93	4,635 66	5,470 66	7,358 87
Tax from leased grounds.....		24,721 35	19,169 38	18,998 00	31,331 73	29,844 26	26,626 56	15,828 19	18,130 35	20,543 59
Inspection tax.....	23,111 34									
Carried out of State tax.....	5,271 51	9,230 45	6,183 33	2,333 30	3,305 79	2,736 45	1,437 12	942 23	1,086 01	1,520 80
Fees for issuing licenses.....		2,341 50	2,105 50	1,729 00	900 25	1,934 75	1,917 00			
Fees for registering boats.....		1,490 00	1,356 00	1,094 50	704 00	1,133 50	1,093 00	970 50	983 50	944 50
Fees for issuing permits.....		1,376 50	1,071 00	799 00	1,277 50	1,470 50	1,446 50	1,260 50	1,266 50	1,122 50
<b>Total oysters.....</b>	<b>\$ 40,495 45</b>	<b>\$ 69,913 22</b>	<b>\$ 60,467 35</b>	<b>\$ 49,667 97</b>	<b>\$ 59,221 16</b>	<b>\$ 62,269 54</b>	<b>\$ 55,165 61</b>	<b>\$ 40,050 58</b>	<b>\$ 42,795 52</b>	<b>\$ 46,361 26</b>
<b>CRABS</b>										
Ordinary trot lines.....	\$ 5,976 40	\$ 2,544 00	\$ 2,052 00	\$ 2,134 00	\$ 1,984 00	\$ 3,376 00	\$ 3,028 30	\$ 4,677 50	\$ 4,540 00	\$ 4,037 50
Patent trot lines.....		490 00	690 00	505 00	360 00	730 00	440 00	913 50	714 00	787 50
Scrape or dredge with boat.....		1,495 00	1,475 00	1,376 00	2,095 00	2,590 00	2,200 00	2,784 00	2,893 50	2,586 50
Picking or crating license.....	1,215 00	590 00	400 00	380 00	650 00	670 00	610 00	935 00	957 00	726 00
Canning or packing license.....		50 00	50 00	50 00	25 00		25 00	26 00	26 00	
Buying and shipping license.....	580 00	545 00	530 00	500 00	525 00	590 00	720 00	720 50	660 00	632 50
Fees for issuing licenses.....		827 00	709 50	714 25	741 25	1,134 75	1,008 50			
Miscellaneous devices.....								128 10	214 15	672 25
<b>Total crabs.....</b>	<b>\$ 7,771 40</b>	<b>\$ 6,541 00</b>	<b>\$ 5,906 50</b>	<b>\$ 5,659 25</b>	<b>\$ 6,380 25</b>	<b>\$ 9,090 75</b>	<b>\$ 8,031 80</b>	<b>\$ 10,184 60</b>	<b>\$ 10,004 65</b>	<b>\$ 9,442 25</b>

TABLE No. 9—CONTINUED

	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939
CLAMS										
Tongers' license—Patent.....		\$ 75 00	\$ 25 00	\$ 10 00	\$ 35 00	\$ 35 00	\$ 65 00	\$ 341 00	\$ 187 00	\$ 297 00
Tongers' license—Ordinary.....	\$ 814 00	1,038 00	1,176 00	426 00	274 00	424 00	508 00	720 00	512 50	817 50
Buyers' and shippers' licenses..	1,105 00	1,074 50	934 00	690 00	536 00	697 00	650 00	630 00	395 50	514 00
Fees for issuing licenses.....		305 00	350 00	132 00	91 25	133 00	155 00			
Total clams.....	\$ 1,919 00	\$ 2,492 50	\$ 2,485 00	\$ 1,258 00	\$ 936 25	\$ 1,289 00	\$ 1,378 00	\$ 1,691 00	\$ 1,095 00	\$ 1,628 50
FISH										
Pound nets.....					\$ 6,830 50	\$ 6,375 00	\$ 6,244 00	\$ 7,773 50	\$ 7,210 00	\$ 6,955 00
Float nets.....					587 00	577 12	501 00	654 00	612 00	794 00
Gill nets.....					865 01	1,089 20	955 40	1,299 15	1,042 90	1,006 42
Fyke nets.....					441 50	753 50	686 00	1,390 50	1,377 00	1,369 50
Haul seine nets.....					901 50	1,155 50	1,003 50	1,828 50	2,015 00	1,829 50
Menhaden nets.....	\$ 5,100 00	\$ 3,000 00	\$ 1,650 00	\$ 3,750 00	5,250 00	3,200 00	3,400 00	8,575 00	4,399 00	6,187 00
Herring and roe houses.....	135 00	257 50	122 50	127 50	90 00	112 50	150 00	168 00	104 00	104 00
Fees for issuing licenses.....		2,533 50	2,154 50	1,666 00	1,678 00	2,037 00	1,912 00			
Miscellaneous fish licenses.....					210 25	167 85	139 00	815 40	665 00	328 30
Total fish.....	\$ 19,212 91	\$ 22,922 86	\$ 18,156 98	\$ 16,561 53	\$ 16,853 76	\$ 15,467 67	\$ 14,990 90	\$ 22,504 05	\$ 17,424 90	\$ 18,573 72
Miscellaneous.....		\$ 125 50	\$ 4 00	\$ 9 90	\$ 2,705 35	\$ 749 15	\$ 268 90	\$ 1,223 20	\$ 4,327 68	\$ 4,347 56
Fines.....	\$ 1,805 00	1,065 00	135 00		65 00	125 00	355 00	960 00	658 50	200 00
Total collected for year...	\$129,406 64	\$162,015 74	\$141,597 57	\$125,221 96	\$142,519 62	\$151,794 93	\$143,958 79	\$141,493 68	\$134,704 85	\$139,685 57

NOTE.—In certain cases the detail of the collections of the various classifications was not available.



TABLE No. 10  
RECAPITULATION

<i>General Fund</i>		1937	1938
Amount to the credit of the General Fund at the beginning of the fiscal years July 1st.....		\$ 10,426 98	\$ 303 38
Receipts:			
Ground rents.....	\$ 58,122 60		\$ 58,822 28
Oyster tongsers' licenses.....	8,249 50		7,535 50
Other oyster licenses.....	986 00		1,261 50
20% oyster tax from public rock.....	1,094 14		1,471 78
20% oyster tax from leased grounds.....	3,626 06		4,108 72
Tax on oysters carried out of State.....	1,086 01		1,520 80
Crabbing licenses.....	10,010 65		9,442 25
Clam and scallop licenses.....	1,005 00		1,492 50
Food fish licenses.....	13,025 90		12,522 72
Menhaden fish licenses.....	4,399 00		6,187 00
Fees and permits.....	2,520 00		2,377 00
Rent of "Commodore Maury".....	3,225 00		3,830 66
Miscellaneous.....	602 68		514 90
Loan for purchase of "Sirene".....	0		10,000 00
Refund to Treasurer of Virginia.....	0		2 00
		108,042 54	121,039 61
Amount transferred from Repletion Fund.....		0	1,033 78
Total revenue.....		\$ 118,469 52	\$ 122,426 77
Expenditures:			
Administration.....	\$ 21,107 13		\$ 18,898 62
Protection of oyster beds and fish.....	97,039 01		103,528 15
		118,166 14	122,426 77
Total to credit of General Fund for the fiscal years ending June 30th.....		\$ 303 38	0
<i>Repletion Fund</i>			
Amount to the credit of the Repletion Fund at the beginning of the fiscal years July 1st.....		\$ 543 73	\$ 572 35
Receipts:			
Patent tongsers' licenses.....	\$ 195 00		\$ 380 00
Ordinary tongsers' licenses.....	6,428 00		5,694 00
Tax from public rocks.....	4,376 52		5,887 09
Tax from leased grounds.....	14,504 29		16,434 87
		25,503 81	28,395 96
Donation from Northumberland County.....		500 00	0
Total revenue.....		\$ 26,547 54	\$ 28,968 31
Expenditures:			
Amount spent in planting shells and oysters.....	\$ 18,475 19		\$ 19,780 36
Appropriated to the Health Department.....	7,500 00		0
Transferred to General Fund.....	0		1,033 78
		25,975 19	20,814 14
Total to the credit of the Repletion Fund for the fiscal years ending June 30th.....		\$ 572 35	\$ 8,154 17

TABLE No. 11  
COMPARATIVE STATEMENT BY YEARS OF EXPENSES  
From 1922 to 1939, Inclusive

	Office and Admin- istration	Field Inspection	Total Ex- penses
Expenses Oct. 1, 1921, to Sept. 30, 1922.....	\$ 16,148 85	\$ 44,093 09	\$ 60,241 94
Expenses Oct. 1, 1922, to Sept. 30, 1923.....	16,293 61	60,596 21	77,249 82
Expenses Oct. 1, 1923, to June 30, 1924*.....	14,610 30	43,493 62	58,103 92
Expenses July 1, 1924, to June 30, 1925.....	21,045 74	48,539 17	69,584 91
Expenses July 1, 1925, to June 30, 1926.....	17,227 05	48,341 31	65,568 36
Expenses July 1, 1926, to June 30, 1927.....	15,988 91	48,543 97	64,532 88
Expenses July 1, 1927, to June 30, 1928.....	18,625 58	57,708 20	76,333 78
Expenses July 1, 1928, to June 30, 1929.....	16,304 02	55,982 12	72,286 14
Expenses July 1, 1929, to June 30, 1930.....	16,990 69	52,572 33	69,563 02
Expenses July 1, 1930, to June 30, 1931.....	23,382 50†	90,242 06	113,624 56
Expenses July 1, 1931, to June 30, 1932.....	21,057 67‡	86,300 06	107,357 73
Expenses July 1, 1932, to June 30, 1933.....	21,114 27	79,100 03	100,214 30
Expenses July 1, 1933, to June 30, 1934.....	17,565 07§	68,227 49	85,792 56
Expenses July 1, 1934, to June 30, 1935.....	29,247 96¶	86,636 60	115,884 56
Expenses July 1, 1935, to June 30, 1936.....	22,733 34	96,572 91#	119,306 25
Expenses July 1, 1936, to June 30, 1937.....	20,120 38	91,345 77	111,466 15
Expenses July 1, 1937, to June 30, 1938.....	21,107 13	97,059 01	118,166 14
Expenses July 1, 1938, to June 30, 1939.....	18,898 62	103,528 15°	122,426 77

\*This period covers nine months only.

†The salary of the Commissioner was \$7,500.00 during this period.

‡The salary of the Commissioner was \$7,500.00 per annum during five months of this period.

§At this period there was a 30% cut in salaries in effect.

¶Vault constructed and bookkeeping machine purchased during this period.

#New boat built this year.

°New boat purchased this year.

#### APPENDIX E

#### STATEMENT OF OYSTERS AND SHELLS PLANTED

Beginning March 1, 1939, and Ending June 30, 1939

RAPPAHANNOCK RIVER		
10,000 Bushels shells planted Millenbeck Bar.....		\$ 450 00
6,000 Bushels shells planted Parrotts Rock.....		240 00
4,657 Bushels shells planted Parrotts Rock.....		186 28
8,964 Bushels shells planted Drumming Ground.....		358 56
8,000 Bushels shells planted Towles Flats.....		320 00
3,000 Bushels shells planted Towles Flats.....		120 00
10,000 Bushels shells planted Sturgeon Bar.....		400 00
3,000 Bushels shells planted Sanders Bar.....		120 00
5,000 Bushels shells planted Smokey Point.....		200 00
5,000 Bushels shells planted Smokey Point.....		200 00
3,351 Bushels shells planted Little Middleground.....		134 04
4,000 Bushels shells planted Little Middleground.....		160 00
18,000 Bushels shells planted Hog House Bar.....		720 00
88,972 Bushels	Total amount.....	\$ 3,608 88

#### LITTLE RIVER

14,128 Bushels shells planted Little River.		
(\$635.76—Bought and paid for by W. W. Rowell.)		
2,000 Bushels shells planted Dunaways Bay.		
(\$90.00—Bought and paid for by W. W. Rowell.)		
8,000 Bushels shells bought from Weems Oyster Co., Tidwells, Virginia, and paid for by W. W. Rowell; only 729 bushels shells available for delivery. Planted Currioman.		
16,000 Bushels shells bought from Marsh Seafood Co., Tidwells, Virginia, and paid for by W. W. Rowell; only 11,631 available. Planted Currioman.		

#### PIANKATANK RIVER

4,000 Bushels shells planted Palace Bar.....		\$ 160 00
6,000 Bushels shells planted Palace Bar.....		240 00
6,000 Bushels shells planted Palace Bar.....		240 00
10,000 Bushels shells planted Palace Bar.....		400 00
4,000 Bushels shells planted Palace Bar.....		160 00
30,000 Bushels	Total amount.....	\$ 1,200 00

STATEMENT OF OYSTERS AND SHELLS PLANTED—CONTINUED

EASTERN SHORE

13,000 Bushels shells planted Nassawadox Creek.....	\$ 252 20
15,000 Bushels shells planted Pocomoke Sound.....	600 00
<b>23,000 Bushels</b> Total amount.....	<b>\$ 852 20</b>

Clams dredged from polluted area in lower James River Channel, W. P. A. furnishing dredge boat and labor; Commission furnishing Inspector for Health Department. 50 working days; 177,000 clams.

- 177,000 Clams planted Horn Harbor and Winter Harbor.
- 139,000 Clams planted Bennetts Creek and Back Creek.
- 234,000 Clams planted Back River.
- 69,000 Clams planted Sedges Creek.

619,000—Total number of clams. Expense to Commission, \$150.00.

Seed oysters purchased from James River at 20c per bushel, freight and labor furnished by W. P. A. and planted in the following locations:

1,000 Bushels planted Wormleys Creek Rock #8, off Bennett's Creek, Poquoson River....	\$ 200 00
1,000 Bushels planted Green Point Rock, York River.....	200 00
1,000 Bushels planted Brown's Bay Rock #26.....	200 00
1,000 Bushels planted Palace Bar, Piankatank.....	200 00
1,000 Bushels planted Wicks Bay, Rappahannock River.....	200 00
1,000 Bushels planted Piney Island Bar, Rappahannock.....	200 00
1,000 Bushels planted Morattico Bar, Rappahannock River.....	200 00
1,000 Bushels planted Bowlers Rock, Rappahannock River.....	200 00
<b>8,000 Bushels</b> Total cost.....	<b>\$ 1,600 00</b>

5,600 Seed oysters were moved from Palace Bar with W. P. A. labor, Commission paying for boat hire and stakes amounting to \$129.50. Seed oysters from the above 5,600 were planted as follows:

- 2,500 Bushels planted different parts of Palace Bar.
- 700 Bushels planted Marchant's Ferry Landing.
- 450 Bushels planted Cherry Point.
- 850 Bushels planted Milford Haven.
- 1,100 Bushels planted Middle Rock.

5,600 Bushels.

All of the above in the Piankatank River district.

4,500 Seed oysters were transplanted in the York River with W. P. A. labor from the following Rocks:

- 2,500 Bushels from Page's Rock.
- 2,000 Bushels from Aberdeen Rock.

4,500 Bushels.

3,000 bushels of the above were planted at Green Point Rock, and 1,500 bushels planted at Cedar Bush Rock.

OYSTER REPLETION FUND

Expenditures for the Period March 1, 1939, through June 30, 1939

Wages (planting and tallying shells).....	\$ 179 00
General repairs.....	4 00
Traveling.....	492 63
Transportation (hauling workers).....	338 54
Communication.....	7 18
Printing (tally sheets).....	2 55
Motor vehicle supplies (gas, oil, grease, etc.).....	103 39
Equipment (stakes, pliers, shovels, etc.).....	46 00
Shells planted on the Eastern Shore.....	852 20
Shells planted in the Piankatank River.....	1,200 00
Shells planted in the Rappahannock River.....	3,608 88
Seed oysters from the James River.....	1,600 00
Miscellaneous shell planting.....	340 45
<b>Total.....</b>	<b>\$ 8,774 82</b>

Equipment in possession of:

Inspector W. N. Gresham.....	20 Wheelbarrows
Inspector W. N. Gresham.....	20 Shovels
Inspector W. N. Gresham.....	20 Forks
Inspector C. L. Thompson.....	2 Wheelbarrows
Inspector C. L. Thompson.....	3 Forks
Inspector C. L. Thompson.....	6 Pairs oyster tongs

## REPORT OF CIVIL ENGINEER

TO THE HONORABLE G. WALTER MAPP,  
*Commissioner of Fisheries of Virginia.*

DEAR SIR:

The Engineer of the Commission of Fisheries, after completing the resurvey of oyster planting grounds in the James River, on the Isle of Wight side, in the early part of the month of August, 1938, was engaged during most of the fall and early winter in surveying individual assignments of oyster planting ground in the York, Severn, Ware, Piankatank and Back Rivers, Milford Haven and Willoughby Bay.

With the Engineer of the Maryland Conservation Commission we relocated some points and placed new buoys and other markers on the line between the States in Pocomoke Sound.

In only one case did we have any trouble on account of encroachment on the public area and a few points on the line of Baylor Survey in the Piankatank River were relocated at the request of the Inspector of that district.

During the first months of 1939 areas of oyster planting ground surveyed in the General Survey of 1938 in Isle of Wight County were computed and four maps of that area prepared and printed, including a sheet of the north side of the James River in Warwick County, extending from Mulberry Point to Blunt Point taking in Warwick River. A map showing the planting grounds assigned during 1938 in Lloyds Bay, York County, has also been prepared and a copy mailed to the Clerk of the court of that County to be filed by him at his office at Yorktown in accordance with Chapter 128, Section 3191, Acts of Assembly. Individual surveys of oyster planting grounds were made during winter and spring of 1939 in Horn Harbor, Piankatank, Ware, Severn, James, Back and York Rivers and Sarahs Creek, followed by a triangulation survey of Horn Harbor, Mathews County. On June 12 the Engineer met a Commission appointed by the Judge of the Circuit Court for Westmoreland County to locate and survey the public oyster grounds in Nomini and Currioman Bays. The findings of that Commission are embraced in a report to the Judge of the Circuit Court, filed at the Courthouse of Westmoreland County by the Commissioners as the Act of Assembly covering this matter directs.

In the resurvey of oyster planting ground in Isle of Wight County 1,930.94 acres of leased ground were surveyed and platted. Individual surveys amounting to 1,113.68 acres were made and platted in addition to above, making a total of 3,044.62 acres of planting ground surveyed during the fiscal year.

New triangulation stations in Isle of Wight and Warwick Counties and Horn Harbor, Mathews County, were properly marked by concrete monuments or galvanized iron pipe.

Our James River triangulation survey greatly aided a United States Coast survey party, who came along shortly after we had finished, by their taking advantage of our recovery of old triangulation stations, our new locations and signals built by us.

We found many contentions about the lines of individual assignments of oyster planting ground in Horn Harbor, all due to the fact that the older surveys had been made without reference to a triangulation system.

Most all reference points given in the older surveys have long since disappeared, making such assignments impossible or at least difficult and expensive of relocation.

It is very important, that, to preserve the triangulation points established by the Engineer of this Commission in his surveys, he should make

a trip, by boat fitted out for that purpose, once a year over all waters that have been surveyed by him, check on all triangulation markers and establish new ones when the old are in danger of being washed away.

Triangulation is expensive and while it is an easy matter to keep the stations up, if proper attention is paid to it in time, it is certain, that, if neglected, this work of relocation of new monuments in place of the lost ones will prove as expensive as the first survey.

FRED E. RUEDIGER,

*Engineer to Commission of Fisheries of Virginia.*

EXHIBIT X  
VIRGINIA CATCH EXPRESSED IN POUNDS AND VALUE

	1930	1931	1932	1933	1934	1935	1936	1937
OYSTERS:								
Pounds.....	27,664,797	23,561,001	15,005,270	13,467,772	21,868,800	15,121,800	15,229,300	10,986,000
Value.....	\$2,688,033	\$1,542,513	\$1,083,592	\$ 935,785	\$1,399,818	\$1,000,738	\$1,258,087	\$ 781,150
CRABS:								
Pounds.....	31,820,870	30,676,700	28,458,106	19,424,762	23,884,200	21,211,900	26,297,600	30,402,800
Value.....	\$ 738,061	\$ 491,204	\$ 281,768	\$ 315,939	\$ 560,012	\$ 518,221	\$ 591,992	\$ 789,967
CLAMS:								
Pounds.....	1,212,736	741,528	1,484,464	1,169,296	2,609,100	1,643,900	2,751,800	1,631,100
Value.....	\$ 391,771	\$ 252,929	\$ 347,647	\$ 375,531	\$ 328,370	\$ 370,647	\$ 317,023	\$ 270,782
FISH:								
Pounds.....	65,287,869	59,040,070	57,954,619	60,976,123	55,381,800	61,212,200	51,002,200	<del>100,118,200</del>
Value.....	\$2,841,047	\$1,993,026	\$1,433,459	\$1,303,635	\$1,254,067	\$1,100,472	\$ 797,630	<del>\$1,082,840</del>

77,153,509  
 \$1,497,945

1938

140,493  
 1,175,57  
 36,473.0  
 697,27  
 2812,5  
 376,04  
 93,688,16  
 1,791,3

## APPENDIX B.

October 6, 1939.

MR. G. WALTER MAPP,  
*Commissioner of Fisheries,*  
*Newport News, Virginia.*

DEAR MR. MAPP:

I hand you report of the activities on W. P. A. project 46531-2-76, rehabilitation of oyster rocks in the State of Virginia for the fiscal year July 1, 1938 to June 30, 1939. Expenditures have been made as follows:

7-1-38 to 7-1-39  
 Federal Funds

Labor . . . . .	\$23,212.00
Material and other costs . . . . .	4,419.07
Total . . . . .	<u>\$27,631.07</u>

## Commission of Fisheries

Cash, shells, seed oysters, etc. . . . .	\$19,780.36
Patrol Boat and Services of employees, value and seed oysters, total contribution, etc. . . . .	19,838.00
Total . . . . .	<u>\$39,618.36</u>
Grand Total . . . . .	<u>\$67,249.43</u>

NOTE: Approximately \$2,273.00 of the Commission's funds was for shells planted in 1938 and paid for in 1939 funds.

## WORK ACCOMPLISHED

187,100 bushels shells planted  
 519,000 clams planted  
 47,936 bushels seed oysters planted  
 193 acres of oyster rocks dredged and cleaned  
 709,950 screw borers caught and destroyed.

In addition, approximately 100 acres of tidal rocks were cleaned of new borer eggs and 10,000 dead shells thrown up on high rocks for new shell this year.

Approximately 12 acres were planted in brush for the production of seed oysters.

PAUL C. ROGERS,  
*Chief Field Supervisor, W. P. A.*



## APPENDIX F.

**Report of the Yorktown Marine Biological  
Laboratory—1938-1939**

Investigations at the Yorktown Marine Biological Laboratory, carried on by Dr. Walter A. Chipman, Jr., Dr. H. N. Calderwood, and their assistants, have been directed towards the study of the causes of the decline in oyster production in the York River with the hope that definite recommendations can be made to restore the industry to its former level. As a result of previous studies it has been clearly indicated that pollution of the river by pulp mill wastes has been the cause of the decline. The phase of the problem studied during the period covered by this report has been the search for the chemical or chemicals present in the effluents from pulp mills causing the observed altered physiology of oysters. When discovered, the problem of how to eliminate this form of pollution will be undertaken. Progress has been made during the years 1938-1939 in the elimination of some fractions as causative agents and in the knowledge of these physiologically active materials. The investigations have not as yet progressed to a point where the actual causative agents can be described. The work at the Yorktown Laboratory has been a cooperative endeavor of the Commission of Fisheries and the U. S. Bureau of Fisheries, carried on with the assistance of the College of William and Mary through the use of additional laboratory and office space provided by the college.

From studies made of the environmental conditions of the York River prior to 1938 it has been definitely shown that a condition exists in the upper York which is incompatible with good oyster production. The poor condition of oysters as regards growth and the storage of food has been observed, and experimental plantings of oysters have clearly demonstrated that oysters of this section do not "fatten" and grow as well as should normally be expected. Studies made of the water conditions which characterize good oyster producing areas failed to give reasons for the abnormal environment. The cycles of plankton production and the quantities available for food of oysters were not at all abnormal. Investigations of the possibilities of parasite infestation as a cause of the poor condition of oysters gave negative results. From all appearances the condition of the oysters indicated a metabolic upset. Since pulp mill wastes emptied into the York River appear to be the only abnormal water condition, and laboratory experiments show that an altered physiology of the oyster results when these effluents are present in the sea water, it seems clearly indicated that the failure of oyster production in the upper York River has been the result of the unfavorable environment brought about by the pulp mill wastes emptied into the stream.

In view of these findings the work of the years 1938-1939 has been directed into lines attempting to isolate and identify the causative agents of the altered physiology of oysters brought about by the presence of pulp mill effluents in the water.

From the results of experiments on the effectiveness of effluents in reducing the amount of water pumped by oysters it has been observed that of the various effluents entering the York River from the pulp and paper mill at West Point, only that arising from the pulping process has a marked physiological action. At this particular mill there are three main sewer ditches, one draining a sludge deposit, another receiving wastes from the paper mill and causticizing section, and the last carrying the wash waters from the diffuser and digester building and the evaporators. Some material enters this last sewer ditch from overflow of foam from the liquor storage tanks. From the tests on the effluent of this last ditch it appears that this material is chiefly a dilute form of the so-called "black liquor" resulting from the digestion of the wood chips with a possible addition of a small amount of soaps from the overflow of foam from the liquor storage tanks.

Further tests on the effectiveness of pulp mill effluent in reducing the rate of pumping of water by oysters after storage have shown that storage in air brings about a slow loss in potency. It seems that this change is chiefly an oxidation since agitation in the presence of pure oxygen under pressure rendered the material physiologically inactive for these tests, and storage of the effluent under an atmosphere of hydrogen held the potency of the effluent at a constant figure for periods of several months.

Frequent sampling of the discharges from the pulp mill sewers revealed wide fluctuations in the character and physiological activity of the effluents. These fluctuations were very irregular. At times considerable quantities of crude sulfate soap find their way into the effluents. These soaps have been found to have a marked physiological action in reducing the pumping activity of oysters. Frequently large volumes of foam were observed in the ditches leading to the river. The occurrence of this foam on the discharges from the mill was noted in the report of Skinner and Sale during the 1918 investigations and although the presence of saponins was suggested they were not identified.

On the basis of the foregoing observations on the character of the effluents leaving the mill, the investigations of 1938-1939 can be classed under three main divisions: tests with crude sulfate soap, tests on the foam of the mill sewer outlets, and tests on the weak black liquor.

Fractionation of crude sulfate soaps has yielded portions both physiologically inactive and physiologically active. Studies are being made for the purpose of isolating, if possible, the single constituent which causes this altered physiology. A future study will be the determination of the part these physiologically inactive materials play in the distribution of and duration of the potency of the active portions.

Examination of the foam indicates the likelihood of its being a soap rather than a saponin. Physiologically active fractions of this material have been prepared but have not been identified.

Chemical investigations are underway on black liquor samples with the purpose of finding if any correlation exists between the alkalinity and volatile sulfide content of the various black liquor samples. Fractionation of the black liquor is being carried on.

It is anticipated that the present studies of the causative agents of altered oyster physiology found in pulp mill wastes will be concluded in the near future and that a program leading to an increased yield of oysters, clams, and crabs in the lower Chesapeake and more efficient marketing of these seafood products will be instituted.

Respectfully submitted,

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Yorktown, Virginia, September, 1939.