REPORT OF THE

SHELLFISH INDUSTRY SUBCOMMITTEE

TO

THE GOVERNOR

AND

THE GENERAL ASSEMBLY OF VIRGINIA

HOUSE DOCUMENT NO. 25

COMMONWEALTH OF VIRGINIA
Richmond, Virginia
1980

MEMBERS OF COMMITTEE

Evelyn M. Hailey, Chairman
S. Wallace Stieffen, Vice Chairman
Bernard G. Barrow
Harvey Bowen
Elmo G. Cross, Jr.
John DeMaria
Joseph T. Fitzpatrick
Bruce W. Keeling, III
Wiley F. Mitchell, Jr.
Cranston Morgan
George Washington
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Shellfish Industry Subcommittee
To
The Governor and the General Assembly of Virginia
Richmond, Virginia
January, 1980

To: Honorable John N. Dalton, Governor of Virginia

and

The General Assembly of Virginia

I. INTRODUCTION

During the 1978 General Assembly House Joint Resolution No. 35 was introduced by Delegate Hailey creating a Subcommmittee to study the shellfish industry in the Commonwealth. After the legislation passed a Subcommittee was formed with Delegate Hailey as Chairman and with a membership consisting of Delegate Bernard G. Barrow, Mr. Harvey Bowen, Senator Elmo G. Cross, Jr., Mr. John DeMaria, Senator Joseph T. Fitzpatrick, Mr. Bruce W. Keeling, III, Senator Wiley F. Mitchell, Jr., Mr. Cranston Morgan, Delegate S. Wallace Stieffen, Mr. George Washington, and Mr. Thomas Winstead. Susan G. Dull from the Division of Legislative Services served as staff to the Subcommittee.

HOUSE JOINT RESOLUTION NO. 35

Requesting the House Chesapeake and Its Tributaries Committee and the Senate Agriculture, Conservation and Natural Resources Committee to study various problems relating to shellfish industry management in Virginia and related problems.

WHEREAS, the shellfish industry represents a renewable, manageable natural resource of significant economic value to the Commonwealth; and

WHEREAS, Virginia's shellfish resources and the shellfish industry in general have experienced a state of decline in recent years due to a variety of otherwise solvable problems; and

WHEREAS, the shellfish industry depends on a high quality unpolluted environment and primary and secondary sources of water pollution such as septic tank failures, solid waste disposal activities, agricultural practices and activities associated with intensive development and land utilization have caused a significant loss in productive shellfish grounds through condemnation proceedings instituted by the Health Department; and

WHEREAS, the general oyster planting ground lease, the number of which have steadily declined in recent years, should also be changed to maximize general fund revenues and eliminate inefficient and unfair leasing practices; and

WHEREAS, the refined management techniques are absolutely essential to increase shellfish population and harvests; and

WHEREAS, the combination of the aforementioned factors have crippled the average waterman and endangered the entire shellfish industry; now, therefore, be it

RESOLVED by the House of Delegates, the Senate concurring, That the Chesapeake and its Tributaries Committee of the House of Delegates and the Agriculture, Conservation and Natural Resources Committee of the Senate are hereby requested to designate a subcommittee to study and review the effectiveness and efficiency of present oyster fishery management and administrative practice and to examine means and methods which will allevieate the serious problems facing the shellfish industry and increase State revenues through leases, taxes or other means. Such study shall include but not limited to the following:

1. Raising the annual lease fee to discourage nonproductive holding of privately leased grounds;

2. Requiring proof of oyster production to stimulate harvesting on private grounds;

3. Finding ways to increase productivity of oyster grounds consistent with sound conservation practices;

4. Centralizing and automating the revenue collection procedures of the Marine Resources Commission; and

5. Delegating to the Marine Resources Commission broader management and planning flexibility to strengthen and develop Virginia's shellfish industry.

Each committee participating in the study shall appoint three of its members to the subcommittee to conduct the study. The subcommittee shall elects its own chairman, and may elect no more than six citizen advisors as members of the subcommittee.

The Virginia Institute of Marine Science, the Virginia Marine Resources Commission and the State Department of Health shall assist the subcommittee upon request. The Division of Legislative Services shall furnish staff to the subcommittee.

The subcommittee shall complete its study and make such recommendations as it deems necessary to the committees and to the Governor and the General Assembly no later than October one, nineteen hundred seventy eight

The Subcommittee concluded that it needed to continue its work for one additional year in order to complete successfully its mission. Therefore, during the 1979 General Assembly House Joint Resolution No. 216 was passed continuing the Subcommittee.

HOUSE JOINT RESOLUTION NO. 216

Continuing the Shellfish Industry Management Subcommittee.

WHEREAS, the Shellfish Industry Management Subcommittee was created pursuant to House Joint Resolution No. 35, passed during the nineteen hundred seventy-eight Session of the General Assembly; and

WHEREAS, the Subcommittee has worked diligently during the last year in an effort to comprehend the many problems contronting the Commonwealth's shellfish industry and formulate solutions to these problems which might be addressed by the General Assembly; and

WHEREAS, the Subcommittee has received extensive public comment and assistance from numerous executive branch agencies; and

WHEREAS, the spite of much process made during the last year, the Subcommittee feels that it needs an additional year to complete its work, particularly in areas regarding the issue of leases in the Baylor Grounds, [dredging by public bodies or private persons or organizations in the public oyster rocks of the Commonwealth,] the Virginia Institute of Marine Science seed hatchery project, transplanting of seed oysters from the James River, increased productivity and current State and federal laws affecting the shellfish industry in the Commonwealth; now, therefore, be it

RESOLVED by the House of Delegates, the Senate concurring, That the Shellfish Industry Management Subcommittee shall be continued.

It. is the sense of the General Assembly that any study of dredging oysters on public rocks, be as restricted and limited as practical to the purposes of the study, and especially as relates to dredging public oyster rocks in the James River and its tributaries, and that unless it is determined by the Joint Subcommittee that is is impractical to do so, fifty percent of any seed oysters dredged

in connection with this study should be transplanted in the James River or its tributaries.

The current membership of the Subcommittee shall continue to serve. If any legislative member shall be unable to serve, his replacement shall be appointed by either the Chairman of the Chesapeake and its Tributaries Committee of the House of Delegates or the Chairman of the Agriculture, Conservation and Natural Resources Committee of the Senate, as appropriate. If any citizen member shall be unable to serve, the members of the Subcommittee shall elect his replacement.

The Subcommittee shall complete its work and make any recommendation it deems necessary to the Governor and the General Assembly prior to the nineteen hundred eighty Session.

II. BACKGROUND

"Because of its economic significance, interest in the protection and conservation of the oyster industry has been of long standing in Virginia. Numerous study commissions have been created to assess oyster fishery problems, and oyster legislation has been considered by nearly every session of the General Assembly since 1880. Nevertheless, commercial landings have declined sharply (Figure 1). This decline has been attributed to several factors including natural disasters, man-induced environmental changes, declining oyster fishery profits, and inefficient management practices. However, in the face of these problems, the national demand for oysters has been gradually rising. Additional market opportuniti but future growth may well depend on the development of improved oyster fishery management practices and on the state's commitment to protect shellfish growing areas from environmental degradation." (Joint Legislative Audit & Review Commission, *Program Evaluation Marine Resource Management in Virginia,* June 28, 1977).

Technical efforts to increase oyster production can be dated as early as the late 1880's when Lt. J. B. Baylor of the U. S. Coast and Geodetic Survey designated "public rocks, beds and shoals" that were set aside for public harvesting of oysters. It must be noted that upon completion of that survey, which still bears his name, Lt. Baylor urged the state to encourage leasing and private planting activity. "The future of the oyster industry of Virginia..... must rest on its planting interests" (Baylor, 1894).

Various agencies and institutions have done some study on the Chesapeake Bay, but it was not until the 1930's that the U. S. Fish and Wildlife Service together with the College of William and Mary joined forces to determine the effects of estuarine pollution and diseases on oysters in the York River and the lower Chesapeake.

We are reminded by the Virginia Institute of Marine Science that even though the early findings are in accord with later studies, and that similar recommendations are being made, the brief time period (1930 through today) is too short to allow "development of an understanding of the complex natural and economic problems involved in the many fisheries important to the lower Chesapeake.....especially is an understanding of the impacts upon the fisheries by environmental factors and by other users." *The Oyster Industry in Virginia: Its Status, Problems, and Promise,* VIMS, 1977.

Only in recent years have research and development techniques been developed for the oyster industry. VIMS assures us that there are capabilities and technologies in existence to increase yields and economic benefit through improved management practices.

The decline of the oyster industry has been steady since the 1880's when oyster landings amounted to 45 million pounds and the Virginia oyster was found on the dining tables in all parts of the nation and most parts of Europe. In 1892 production fell to 24 million pounds, partly due to over-fishing, and the General Assembly passed the Act to protect the Oyster Industry of the Commonwealth. The industry responded and landed 47 million pounds in 1897. But once again production declined, this time rapidly, due to sewage pollution. Only 20 million pounds were landed in 1925. (See Figure 1) The Hampton Roads Sewage Disposal Commission was created in 1927 to find ways to curb the effects of industrial and municipal waste on shellfish producing areas.

In 1959, when the oyster industry seemed to be recovering, an outbreak of *minchinia nelsoni* (MSX) caused high mortality rates in seed market and young oyster. Production dropped to 7

million pounds. Tropical Storm Agnes, 1972, destroyed many oyster beds when vast quantities of fresh water invaded the Chesapeake Bay. In 1977, economic devastation was a result of ice due to record cold temperatures. Again oyster production dropped. Less than 5 million pounds were harvested in 1972. Based on past production trend, it is conceivable that the occurrence of another major disaster – either natural or man-induced – could deal a diastrous blow to the oyster industry.

With the decline of oyster production, there has been a corresponding decline in watermen. From an estimated high of 6000 tongers in the 1880's, only 4000 hand tongers were licensed from 1958 through 1960, and today only half that number. More than 300 patent tong licenses were issued during the late 1950's, and less than 200 watermen work as patent tongers today.

At this time there are 240,000 acres of bay and estuarine bottom which make up the Baylor Grounds, all of which have been set aside by constitutional provision and may not be leased:

Virginia Constitution, Article XI (Conservation), Section 3 (Natural Oyster Beds):

"The natural oyster beds, rocks, and shoals in the waters of the Commonwealth shall not be leased, rented, or sold but shall be held in trust for the benefit of the people of the Commonwealth; subject to such regulations and restrictions as the General Assemably may prescribe, but the General Assembly may, from time to time, define and determine such natural beds, rocks, or shoals by surveys or otherwise."

Another survey, commissioned by the governor in 1909, was the only survey of oyster bottom in relation to the charted plots by Lt. Baylor until a current VIMS study was undertaken. Dr. H. F. Moore directed the work begun in 1909. Oyster density was determined by hand tonging in 590 selected places. Moore found that from his methods about 73% of the total acreage in the Baylor Survey was either barren or depleted.

The practice of growing on "private" bottoms has existed since the mid 1880's. Today over 100,000 acres are leased for costs ranging from 75¢ to $1.50 per acre. Since the rent is low, lease holders are able to retain large tracts at a comparatively small expense. However, considerable investment is required to make these grounds productive and there are few State imposed restrictions governing the use of private leased grounds.

Although leased grounds are half as large as the public grounds, commercial oyster production from private leases has traditionally exceed public ground production, in some years by as much as 300 to 400 percent. (See Figure 2.) In view of recent disasters already mentioned: MSX, Tropical Storm Agnes, chlorine discharges, and kepone contamination, private investors are reluctant to continue to invest in the oyster industry. In 1977 private commercial oyster production was out-produced by public grounds.

Throughout this study and at the public hearing, several consistencies from the producers, packers, and planters emerged. Oyster production can be increased, they all agree, through improved water quality and an increased State-supported replenishment program. The strength of this position is evident from the voluntary tax imposed on the industry by the General Assembly in 1977, which increased the tax from 30¢ to 50¢ on a bushel of oysters harvested from the public rocks.

The harvesting oysters from the public rocks, beds and shoals needs reexamination. (See Figure 3) Hand tonging has been the traditional method of harvesting oysters since the beginning of the industry. Hand tongs severely limit the amount of catch. Culling laws require additional effort to separate shell from the seed oyster. Oystermen argue that these controls are necessary to protect the public oyster grounds from depletion; but another view is that of State regulation forcing inefficiency to maximize employment and to preserve an antiquated system of traditional public oyster fishery. It is also worth noting that privately leased grounds, which have no gear restrictions, until very recently have out-produced public grounds.

VMRC is permitted by law to use dredging for the purpose of replenishment. During the 1979 Session this subcommittee recommended a pilot dredging project in the James River to determine the effects of such technique on the river bottom. The project was 1) limited to a specified area in the James, 2) was for a specific season, 3) was not to exceed one year, and 4) was to be monitored by VIMS. The James River watermen objected, and the bill was not introduced. Their objection was

based on the fear of further encroachment of public oyster grounds by man-induced factors. These same watermen were told that the proliferation of chemical plants would not harm their fishing; that the siting of sewerage treatment plants along the James would not harm the shellfish, and that effects of oil spills from a refinery and oil storage tank farms would have no long-term effects. In each instance they have learned otherwise. In each instance they have suffered further economic hardship. However, it cannot be argued that the traditional methods of harvesting shellfish have helped the industry.

A statement by Thomas C. Winstead, a waterman and member of the subcommittee, clarified the situation:

> "We are being led to believe that hand tonging built the oyster industry as the mule built the farm industry; that may be, but I don't see anyone buying mules anymore. There are many acres in the James that cannot be worked by hand tongs. The oysters on those bottoms are lost until we find a way to get them out. A total of $200,000 in taxes has been collected from the watermen and packers, and now we pay more but get less. We need to get into the James and harvest the seed and put down more shell for strikes. Until we do that we can hold hearing after hearing, and we will be right where we are now, nowhere."

The purpose of this subcommittee was to find ways to revitalize the oyster industry. Besides the areas of agreement already addressed, we found that the planters would like to be able to procure seed for less than $2.00 per bushel. The packers need increased harvests to keep their workers employed. The James River watermen want protection to the seed beds and have improved water quality. The Eastern Shore watermen have special problems with clam dredging, an area of shellfishing this subcommittee has not studied and cannot address. And there is a deep concern from all sectors that the oyster industry must be improved.

As a result of this study and from scientific, governmental agency, and public comments the subcommittee makes the following recommendations:

III. RECOMMENDATIONS

A. Extend the seed oyster harvesting season in the James River until July 1.

The spawning season in Virginia is variable, but generally spans the period from very late June through early September. Extension of the oyster season would interfere little if at all with reproduction. Extension could also serve the watermen as a means of employment until the crabbing season becomes profitable.

B. Pilot Project for Dredging Seed Oysters in James River

For a number of years, both the oyster industry and the working watermen have been planning and working together with VMRC to increase oyster production from public bottoms. If market oyster production is to be increased, seed production must also increase. Seed oysters are moved from the James River to other State-owned public bottoms, and privately owned grounds, in order that they may grow to market size, be harvested, and sold by watermen.

In 1977 the General Assembly raised the tax on a bushel of oysters taken from the public grounds from 30¢ to 50¢. Some members of the shellfish industry understood that the replenishment program would be increased.

VMRC contracts for the seed oysters used in the replenishment program. In 1976, it purchased seed oysters at a dockside price of $1.50 per bushel. The following year, the Commission etablished a price of $1.00 per bushel for "tonged in" seed (unculled). That year some dredged seed was purchased from the Piankatank River at the $1.00 per bushel price.

If seed could be harvested by mechanical methods at an estimated 25% reduction in cost, a 25% increase in production could be expected two years later. Approximately 65,000 bushel of seeds are planted annually. If that amount could be increased to 80,000 bushels, the harvest value would be approximately $2,400,000, an increase of nearly a half million dollars.

Virginia will lose potential income and employment opportunity by not exploring methods to increase production on both public and private grounds with a rising oyster market.

This Resolution Calls for a pilot program for dredging seed oysters in certain areas of the James River in an area or areas not to exceed 500 acres per year for a period not to exceed three years.

Seed obtained in the VMRC replenishment program on public rocks should be utilized and the area should be reshelled. VIMS should monitor the operation for its duration to determine its effectiveness. The resulting information could lead to increased harvests and better management procedures.

C. Immediate notification of sewage spills to both the State Water Control Board and the State Health Department

Under present law sewage discharges are to be reported to the State Water Control Board which in turn reports the spill to the State Health Department because it is responsible for the determination of water pollution's effects on shellfish.

The quality of oysters is directly related to the waters in which they grow and feed. Because oysters feed by pumping water through their bodies, they accumulate microorganisms, chemicals, and toxic substances from marine waters. Oysters cannot be improved by transplanting to a clean site when certain chemical levels have been accumulated. Consumers frequently eat partially cooked or raw oysters so that a health hazard is encountered if they are harvested from a contaminated area.

Recently it has been noted that the sewage treatment plant at Langley Field had a sewage discharge that was reported to the SWCB and the report to the Health Department delayed by many hours. Shellfish in the area of the spill were harvested and marketed before the producers were aware of the contamination. Some of the shellfish was recalled, some of it was not. The seafood industry in Virginia cannot survive risks of contaminated products being presented to the public and the public should not be exposed to such risks.

It is imperative that sewage spills or other industrial spills be reported simultaneously and immediately to both the State Water Control Board and the State Health Department in order to protect both the public and the seafood producer.

D. Modernization of Method of Measurement.

According to § 28.1-136 of the Code of Virginia an oyster catch must be measured in a metallic tub, 18" wide at the top, and 16.5" wide at the bottom and with a depth of 21" before it can be transferred from a waterman's boat to a buyer's vehicle (either boat or truck). Oysters may not be bought or sold lawfully in Virginia unless measured in such a fashion.

The method of measurement varies from state to state along the East Coast. In fact, Maryland and Virginia have different size bushels for measuring. The Subcommittee recommends that VMRC be allowed to certify containers larger than the Virginia bushel for use in measuring oyster catches so that a larger container may be utilized in order to make the process more efficient if an arrangement is made between the buyer and the seller.

E. Funding for VIMS Hatchery Project

The decline in spatfall in the James and in several other regions of the State seem to have no common denominator. The basic reason for lowered numbers of spat is largely due to a decline in the total seasonal spatfall. However, a decline in the survival of spat shortly after they set may also be involved. The decline may be attributed to the absence of brood stock in the lower James caused by MSX mortalities in the Hampton Roads area. Also, the added impact of cholorine associated with the discharge of sewerage from treatment plants may be involved in the James and in other areas. Industrial or agricultural products discharged into rivers may kill developing oyster larvae prior to their setting.

There is some evidence today that MSX is declining in intensity in the lower most section of the James and in other areas due to the acquired resistance of seed. However, the disease is still

responsible for major mortalities when James River seed is planted in high salinity regions of the bay.

Statewide production of seed oysters was fairly stable between 1931 and 1936 with 1.5 to 2 million bushels landed annually. From 1937 through 1944 the record is incomplete, but a decline of 700,000 to 900,000 bushels is shown. In 1945, when data were again accurate, 1,628,352 bushels were recorded. Production fluctuated erratically from 1945 to 1960 from 1,628,352 to 2,588,469 bushels per year with no definite trends. Beginning in 1961 production turned downward sharply, and in 1975 only 392,504 bushels were landed, an 88 % reduction from 1955.

VIMS is presently capable of producing up to 1,000,000 cultchless spat per year in a small prototype hatchery system located in the Marine Culture Department. The Institute has developed, during the past eight years, a hatchery system which can produce at least 40 to 60 million spat each year. This system has been tested and made operational in Maryland.

The cost of producing hatchery seed oysters is competitive with James River seed. The 1979 cost of James River seed was .42¢ per seed. The calculated cost of hatchery seed now being produced on the West Coast, based on 100 million seed produced, is .42¢ per seed with ammortization of capital investment, and .33¢ per seed when the capital investment is excluded. (See Appendix A.)

The capital outlay needed to begin hatchery production is estimated at $1.3 million to be spread over a three year period. The VIMS program intends to produce disease resistant, low slinity tolerant, fast growing, and uniformly shaped seed for planters not only in the high salinity areas of the Bay where MSX is still a major threat, but also to test the seed in other valuable oyster growing estuarine areas. The pilot operation will also be used as a model for future commercial activities as well as a center to train those in the Virginia oyster industry to operate other hatcheries. Estimated production figures would be 60 million seed oysters in the first year and 100 million by the third year. In the third year, the estimated cost of production should be 0.2¢ per seed.

As Figure 4 shows, there is a direct correlation between bushels of seed oysters planted and bushels harvested. Every effort should be made to restore productivity to bottoms depleted by MSC, and to increase plantings generally.

There is also a national demand for oysters of uniform size and shape to be used for serving on the half-shell. Such oysters now command a bushel price of over $30.00. That market demand should be met.

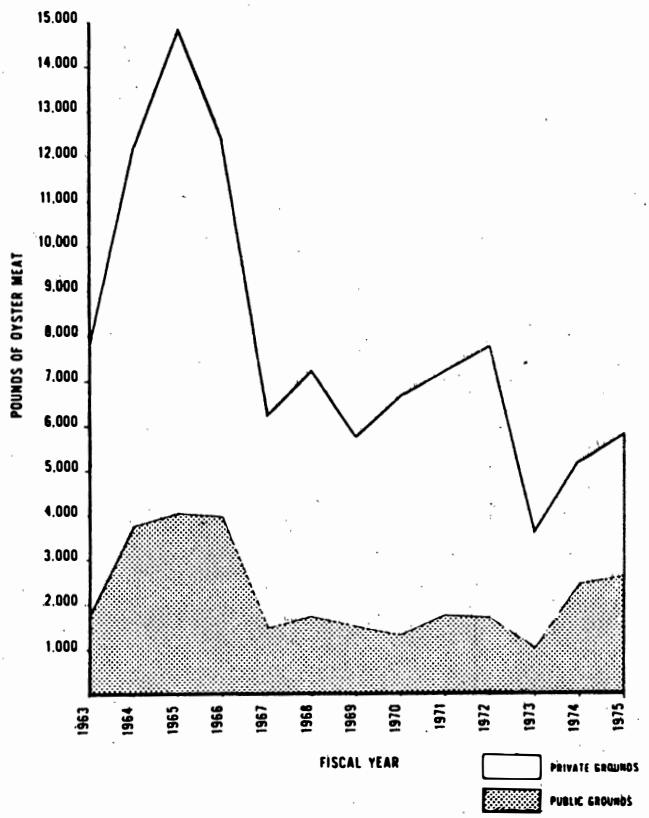
Respectfully submitted,

Evelyn M. Hailey, Chairman
S. Wallace Stieffen, Vice-Chairman
Bernard G. Barrow
Harvey Bowen
Elmo G. Cross, Jr.
John DeMaria
* Joseph T. Fitzpatrick
Bruce W. Keelings, III
Wiley F. Mitchell, Jr.
Cranston Morgan
George Washington
Thomas C. Winstead

* Statement of Joseph T. Fitzpatrick - I approve this Report with certain reservations.

FIGURE I

COMPARISON OF OYSTER PRODUCTION FROM PUBLIC AND PRIVATE GROUNDS IN VIRGINIA, FISCAL YEARS 1963-1975
(Thousands of Pounds)



Source: Marine Resources Commission.

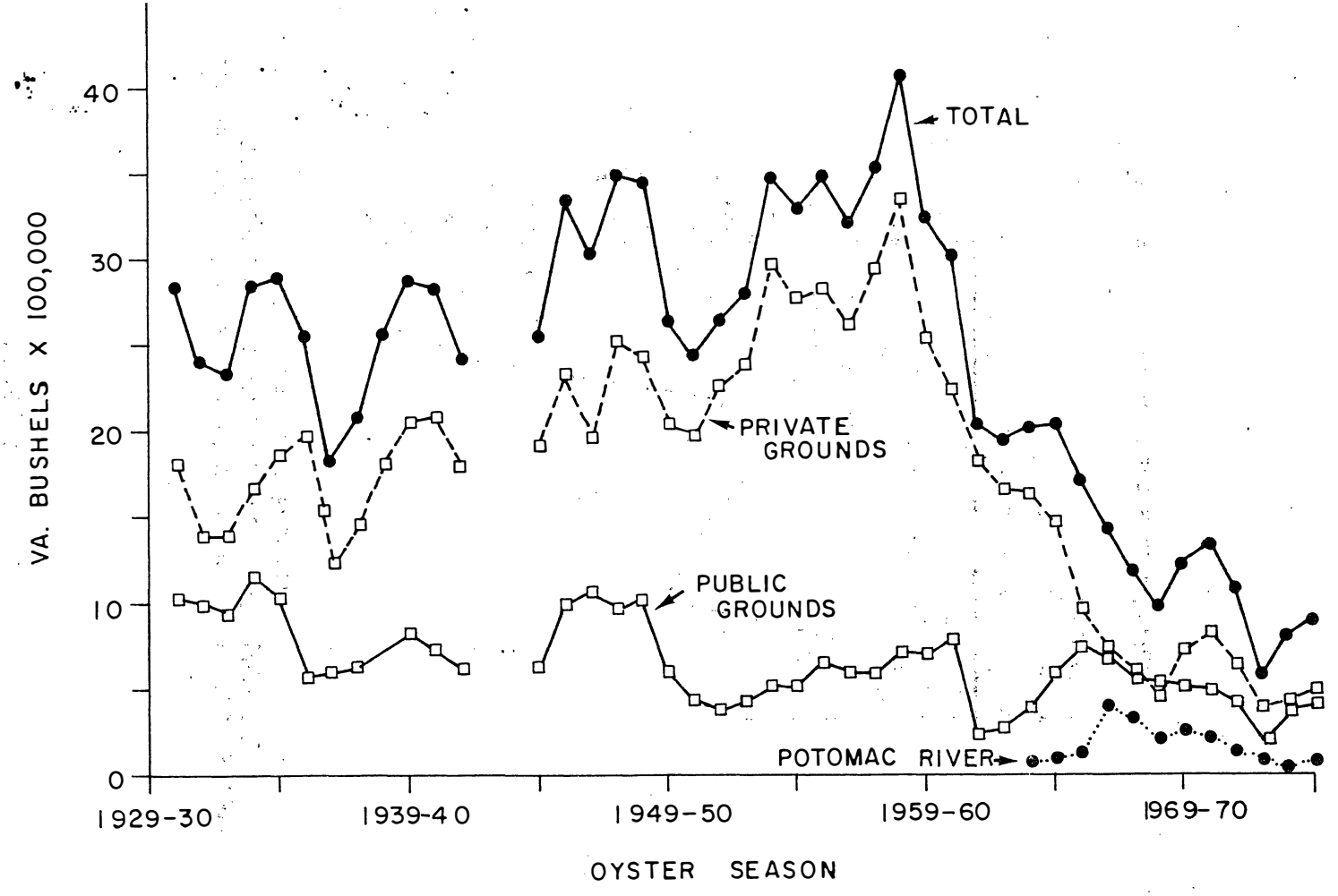
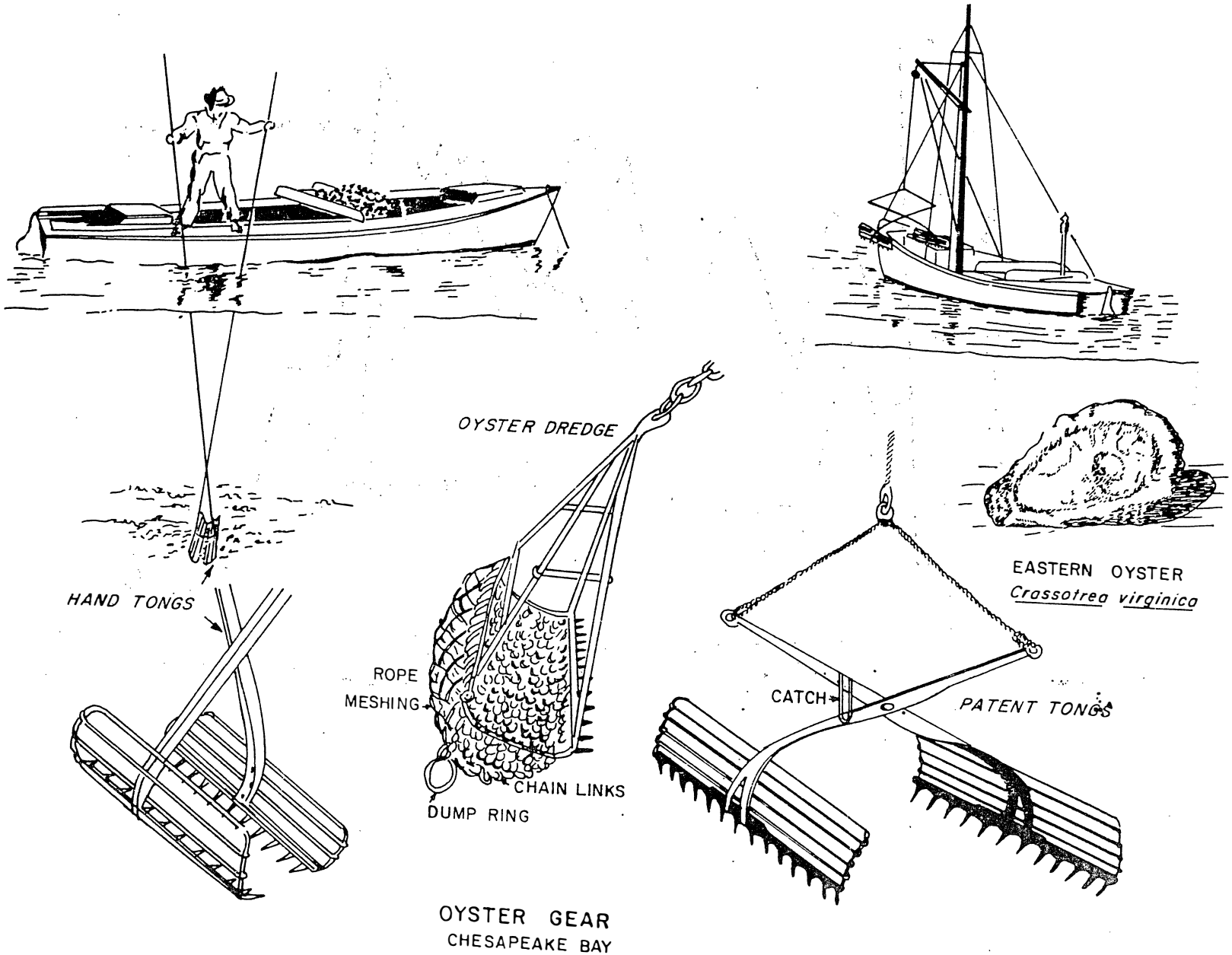

VA. BUSHELS X 100,000
40
30
20
10
0
TOTAL
PRIVATE GROUNDS
PUBLIC GROUNDS
POTOMAC RIVER
1929-30
1939-40
1949-50
1959-60
1969-70
OYSTER SEASON

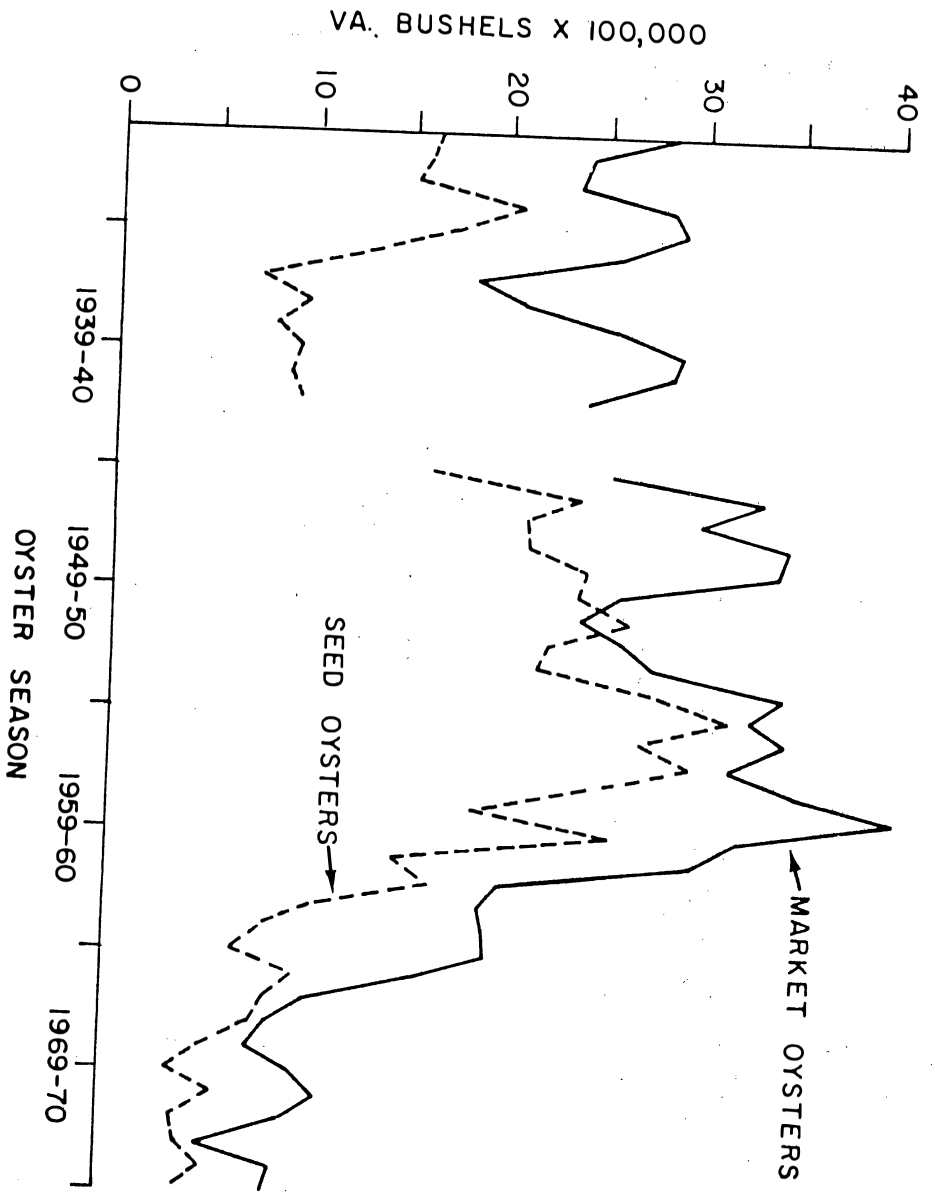
FIGURE 2

FIGURE 3

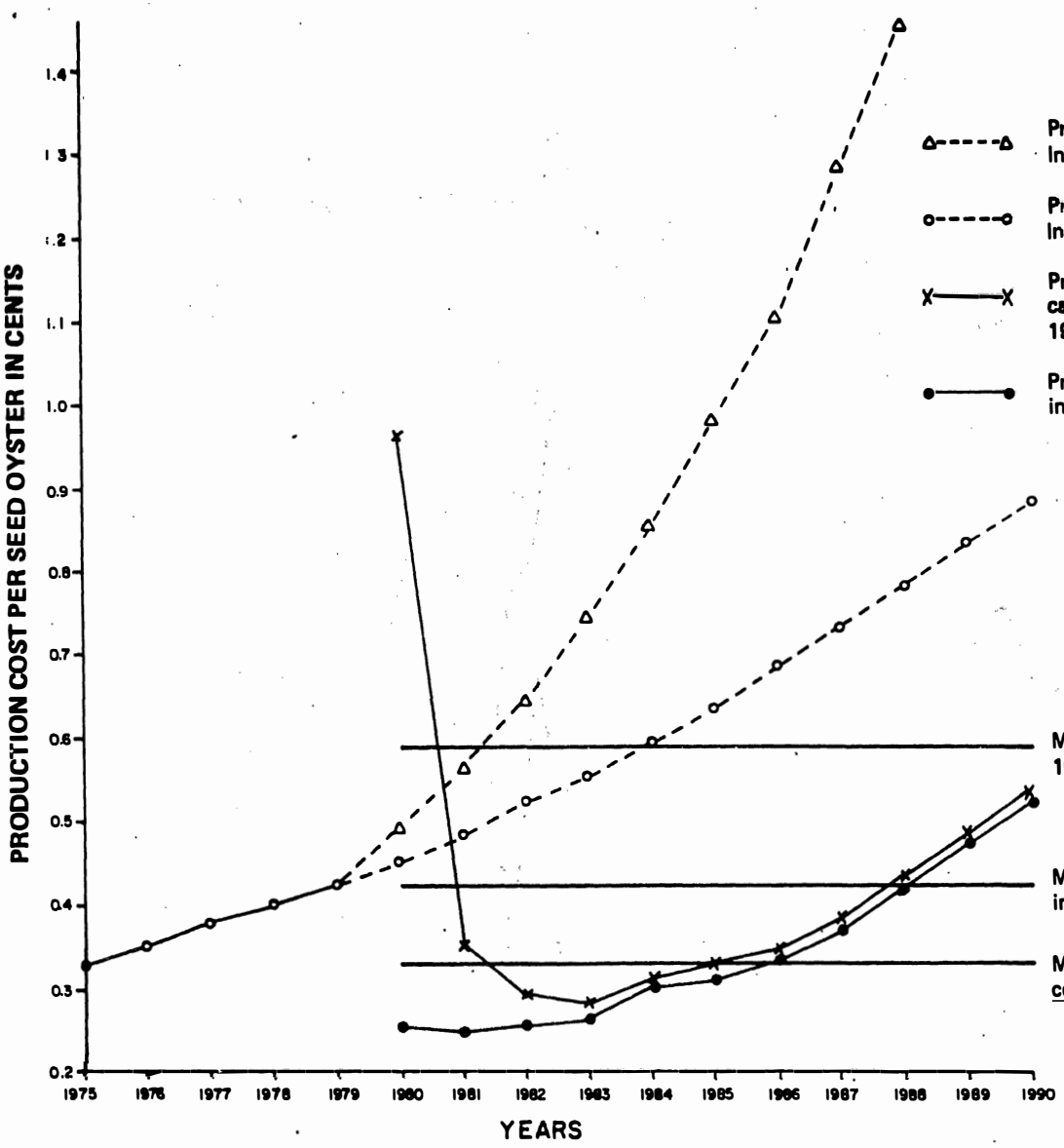


OYSTER GEAR
CHESAPEAKE BAY

FIGURE 4


VA. BUSHELS X 100,000
0
10
20
30
40
1939-40
1949-50
1959-60
1969-70
OYSTER SEASON
SEED OYSTERS
MARKET OYSTERS

COMPARISON OF COST OF PRODUCTION OF JAMES RIVER SEED AND HATCHERY SEED



Production cost of single seed oyster from James River with 15% inflationary increase per year (projected 1980 - 1989).

Production cost of single seed oyster from James River with 7% inflationary increase per year (1975 - 1989).

Production cost of single seed oyster from hatchery including capital investment and 15% inflationary increase per year (1980 - 1989).

Production cost of single seed oyster from hatchery with 15% inflationary increase per year (1980 - 1989).

Mean production cost of single seed oyster from James River over 10 year period 0.58 cents.

Mean production cost of single seed oyster from Hatchery including amortization of capital investment. 0.42 cents.

Mean production cost of single seed oyster from Hatchery 0.33 cents.

FIGURE 5

APPENDIX A

Memo

To: The Honorable Evelyn M. Hailey, Chairman, Joint Legislative Committee on the Study of the Shellfish Industry of Virginia
From: Dr. Herbert Austin, Dr. John L. Dupuy, and Professor Dexter Haven
Subj: Comparative Cost Analysis of James River and Hatchery Seed
Date: July 17, 1979

As requested we have finalyzed projections for the comparative study of the cost of production of James River oyster seed (1/2" to 2 1/2") and hatchery oyster seed (3/4" to 1").

The analysis of the production cost for both types of seed is summarized in the accompanying graph and indicates that oyster hatchery seed costs less than James River oyster seed.

1. Cost projections for 1979 through 1989 for James River seed were calculated for both 7% and 15% inflationary increase levels during this period. The mean cost of production of James River seed was based on the 7% inflationary level spiral. The basic data was obtained from the report "The Oyster Industry of Virginia, Its Statis Problems and Promise", and actual present (1979) costs of James River seed (0.42 cents). The mean cost was calculated to be 0.58 cents per seed oyster.

2. Cost projections for 1979 through 1989 for hatchery oyster seed were obtained from a detailed itemized budget calculated for each year for a ten year period which included the amortization of capital investment and a 15% inflationary spiral level for salaries, wages, and overhead. These calculations were for a production seed hatchery that produced 100,000,000 seed oysters per year and excluded research costs. The production costs for the last year, we found to be in agreement with several operating hatcheries on the West Coast and one hatchery in France. The mean cost was calculated to be 0.42 cents per seed oyster with amortization of capital investment and 0.33 cents when capital investment was excluded.

In summary while James River seed is larger than hatchery seed, the cost of hatchery seed is lower than James River seed, even though hatchery seed is disease resistant, better shaped and more uniform in size. These three characteristics would allow the planting of resistant seed at a lower cost of handling in areas where James River seed will not survive.

cc: Dr. William J. Hargis, Jr., Director

JLD:seg