

DEEPENING THE JAMES RIVER CHANNEL
REPORT OF THE
COMMISSION TO STUDY MATTERS
PERTAINING TO THE JAMES RIVER
to
THE GOVERNOR
and
THE GENERAL ASSEMBLY OF VIRGINIA



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Richmond, Virginia, December 6, 1963

To:

HONORABLE A. S. HARRISON, JR., GOVERNOR OF VIRGINIA

and

THE GENERAL ASSEMBLY OF VIRGINIA

INTRODUCTION

The James River from Richmond to Hampton Roads serves not only as a valuable artery of commerce for ship-borne freight to and from the ports of Hopewell and Richmond but, in the lower reaches, is the foundation of the State's oyster industry. Almost the entire supply of seed oysters comes from the lower part of the James River and seed oysters are essential to the commercial production of oysters.

The depth of the present channel is 25 feet. The Army Engineers have proposed that the channel be dredged to a depth of 35 feet and a width of 300 feet from Deepwater Terminal in Richmond to Hampton Roads. The dredging is contingent upon a commitment that the State or the city of Richmond hold the Army Engineers harmless from any damage caused in dredging the river; such assurance can only be given through legislation adopted by the General Assembly of Virginia.

At the 1958 Session of the General Assembly, legislation was adopted which, essentially, provided that the Commission of Fisheries would have to approve the dredging before it could be undertaken. Proposals were made at the 1960 and 1962 Sessions to remove this power from the Commission of Fisheries but these were not successful.

At the Session of 1962 Your Excellency stressed the importance to the State's industrial development of improving the James River channel. Accordingly, Senate Joint Resolution No. 36 was adopted creating a Commission to study the merits and demerits of dredging the river in the area indicated. This resolution follows:

SENATE JOINT RESOLUTION NO. 36

Creating a Commission to study matters pertaining to the James River.

Whereas, the James River has great potential as a vital artery of commerce between the City of Richmond and the sea; and

Whereas, the James River below the City of Richmond contains the most valuable oyster seed bed in America; and

Whereas, the General Assembly recognizes that the preservation and development of these assets is of great concern to the Commonwealth but that there are conflicting opinions concerning the effect of the development of this artery of commerce on the oyster seed beds and wishes to reach a conclusion on these questions which will be of maximum benefit to the Commonwealth; now, therefore, be it

Resolved by the Senate, the House of Delegates concurring, That a Commission be and is hereby created to evaluate and report on the information available on effects of past and proposed dredging on oyster seed beds.

If the available information is sufficient, the Commission shall recommend to the Governor the course it considers of maximum benefit to the Commonwealth, including evaluation of the relative merits and demerits of the dredging. If the available information is insufficient, the Commission shall recommend what other information is necessary as a basis for a sound conclusion, also the source, the cost, and the time involved in securing this information.

The Commission shall be composed of seven members, to be appointed by the Governor from the State at large, and shall hold such hearings, gather such evidence and conduct such investigations as may be necessary to enable it to complete its study and make its report. All agencies of the State shall assist the Commission in its study. The members of the Commission shall receive no compensation for their service. The Commission shall conclude its study and make its report to the Governor not later than November one, nineteen hundred sixty-three, but the Governor is authorized, in his discretion, to require an earlier report.

Following the adoption of the resolution, and shortly after the adjournment of the General Assembly, Your Excellency appointed the following to membership upon the Commission: Marvin L. Amory, former member, Hampton City Council, Hampton; Paul Brown, Civil Engineer, Honaker; Colonel Robert P. Carroll, Department of Biology, Virginia Military Institute, Lexington; Thomas N. DeLashmutt, Bank Director and Contractor, Aldie; Orval J. Hand, President, Virginia Water Pollution Control Association, Petersburg; Reuben B. Hicks, Engineer, and Manager, Prince William Electric Cooperative, Manassas; Dr. Percy H. Warren, Dean, Madison College, Biologist, Harrisonburg.

The Commission, at its organization meeting, assembled in the office of Your Excellency and discussed various aspects of the proposal with you. Thomas N. DeLashmutt was elected Chairman and Orval J. Hand was elected Vice-Chairman. John B. Boatwright, Jr. and F. W. Harkrader, Jr., served as Secretary and Recording Secretary, respectively, to the Commission. Mr. Harkrader left State employment and was succeeded by Charles A. Christophersen.

The Commission has consulted with many persons and groups having an interest in, or knowledge of, the problem under study. It held five public hearings, after considerable publicity and, in addition, invited several scientists to testify before it concerning certain technical aspects of the problem. Also, individual members consulted with scientists and marine biologists. Visits were made to the Army Engineers Waterways Experiment Station at Vicksburg, Mississippi, to see models first hand and how they are employed to gather data concerning various river and harbor problems involving siltation, circulation patterns, and changes in the physical condition of the water due to changes in the environment. A visit was also made to the United States Fisheries Laboratory at Beaufort, North

Carolina. After mature consideration of the suggestions made to us, the evidence presented, the available scientific and technical advice, and such knowledge and experience as we have been able to bring to bear upon the subject, we submit the following recommendations.

RECOMMENDATIONS:

1. A hydraulic model of the James River should not be constructed.
2. The James River between Richmond and Hampton Roads should be deepened and widened as proposed by the Corps of Army Engineers.
3. Consideration should be given to the repeal of § 28.1-147 of the Code of Virginia.
4. Consideration should be given to conferring on the city of Richmond the power it sought in 1958 to cooperate with the United States government and to give the required assurances in connection with dredging the James River channel.

We will now set forth the reasons for these recommendations. The reasons will be numbered to correspond therewith.

REASONS FOR RECOMMENDATIONS

As noted in the introduction, the James River is both a major artery of commerce for ship-borne traffic and almost the sole supply of seed oysters in this State; for economic reasons, the size of ships is increasing and the present 25-foot channel tends to limit, more and more, the number of vessels which can serve Hopewell and Richmond.

In order for Richmond and Hopewell to be served by ocean-going vessels, it is now necessary that the channel be dredged to a depth of 35 feet, widened accordingly and that certain sharp curves be eliminated in order for the ports at Hopewell and Richmond to be served by the vessels of today and the future; this will also aid in the location of industrial plants along the river.

In view of these conditions, the Corps of Army Engineers made studies during the 1950's of the cost and potential economic benefits involved in deepening the channel. In the course of the study, another federal agency, whose views had been sought, indicated a possibility that channel deepening might cause extensive damage to the seed oyster beds in the lower James River. Legislation was introduced at the 1958 Session of the General Assembly to enable the city of Richmond to cooperate in the channel deepening project. At hearings on this legislation, experts testified that deepening the channel would cause a change in water circulation patterns, that water of high salinity would go further up the river on and near the bottom and that there would be a change in the level of "no net motion"; all of these factors, it was said, might adversely affect the development of seed oysters. The General Assembly at that Session adopted legislation giving the Governor authority to approve the project provided he first received a recommendation that such be done from the Commissioner of Fisheries. Such recommendation has not been forthcoming.

At the 1962 Session of the General Assembly, Your Excellency stressed the importance of the improvement of the James River to the industrial development of the State. In February of 1962 the Board of Engineers for Rivers and Harbors recommended to the Congress the dredging of a channel 35 feet in depth and 300 feet wide from Hampton Roads to Deepwater Terminal at Richmond, with certain improvements

at Hopewell and Deepwater Terminal at an estimated cost to the federal government of \$39,000,000; on October 23, 1962, the President approved, and Congress authorized, expenditure of \$39,000,000 for the James River channel project (Public Law 87-874—87th Congress—76 Stat. 1173). This authorization will expire five years from the date of approval of the act by the President if the Governor has not endorsed the project by that time. The act recognized the possible adverse effects on said oyster production by requiring a report to the Congress as to the possible adverse

At the 1962 Session of the General Assembly the joint resolution set forth in the introduction to this Report had been adopted, and we were making the study therein set forth when Congress made the authorization referred to.

METHOD OF CONDUCT OF THE STUDY

The Commission was anxious to obtain information from all possible sources which might benefit the members and lead to a solution of the problem. Accordingly, hearings were held as indicated and considerable information was obtained in that manner. Working river models were observed in Vicksburg. The advice of scientists and marine biologists was sought and received. Statements and views from all those interested in submitting the same were requested and have been studied with care. A summary of the information presented to the Commission at the public hearings, and elsewhere, is attached to this Report as Appendix I. In addition, all the detailed information is on file in the office of the Secretary.

FINDINGS

(A). It is estimated that of the 18,400 acres of public oyster ground, only 65 acres would be removed as a result of dredging in this 8 mile reach of the channel. Of the total area of public oyster ground that would be destroyed, 30 acres would consist of productive oyster rock and 35 acres appear to contain insignificant oyster resources. We feel that this is a very small percentage of public oyster rock that would be affected. No evidence has been given to us indicating that the remaining area of seed oyster beds would be materially damaged. Many individuals appeared before the Commission and made claim that dredging would destroy or seriously affect the seed oyster beds. When they were pressed for specific instances in which dredging had brought about these results, no single instance was cited. To the contrary, the deepening of the channel in the James River which took place some 30 or 35 years ago does not seem to have affected, materially, the productivity of the seed oyster beds. Rather, other factors, unknown to us, and apparently unknown to those who appeared before us, affect seed oyster production.

It is our view that the Governor should insist upon a dredging method which will reduce siltation in those areas adjacent to the seedbeds to a minimum.

There is no evidence to indicate that either the temperature of the water or its salinity will be materially altered by deepening and widening the channel. These two factors, together with food, are the major factors in oyster production. While many of those who appeared before the Commission claimed that the deepening of the channel would lead to increased salinity in the entire area, they offered no proof of this and we have no

reason to believe that within the depths of water in which seed oysters grow best there will be any material change in salinity or temperature.

Concerning the possibility of destructive organisms being brought upstream, practically all of the evidence of this nature was based on opinion with little factual evidence to support it. While it is no doubt true that in the bottom of the channel for a distance upstream from Hampton Roads there may be increased salinity, this is not the area in which seed oysters grow; with the salinity of the water outside the channel area being substantially unchanged, there should not be an increased mortality of seed oysters from such organisms.

(B). While a model will be of value in solving some problems in the lower James, it will have no value whatsoever in giving an answer to whether or not the seed oyster beds in the lower James River will be substantially impaired by dredging. Without going into the cost—\$300,000, and the time involved—over three years, the model after the expenditure of such a sum as a minimum and the passage of that time, would leave Virginia knowing just as much about the effect of channel deepening on the seed oyster beds as we know today; and we are satisfied today that material damage to the seed oyster beds will not occur as a result of deepening the channel.

Why will a model not give the data which are required and which some allege it will furnish? The lower James River is a vast chemical laboratory in which many interrelated factors are constantly producing changing results. The salinity of the water, the temperature of the water, the amount of food for oysters in the water, the extent of pollution, sunlight, and the interplay of marine organisms in the water, are constantly producing a chemical reaction which goes on continuously. A model can give fairly definite answers as to current patterns, circulation patterns, erosions of the banks and other like physical factors. However, it cannot furnish answers to the chemical reaction which is constantly taking place simply because it is not possible to scale down, on the basis of our present knowledge, complex chemical processes of the nature of those taking place in the lower James River. For this reason, if the time and money were spent and we had all possible answers on changes in current patterns and related matters, we would still be faced with the necessity of finding out the change that would take place in the chemical balance of the river as a result of the dredging.

In our view, on the basis of the information we have, and from our conversations with marine biologists and other scientists with knowledge in the field, we are satisfied that the chemical balance will not be affected in such a way as to impair the valuable functions which the lower James River is serving as the seedbed and foundation of the oyster industry of this State.

(C). The economic well-being of this State, both present and future, is dependent upon attracting new industry to Virginia, and the expansion of existing industries. We are faced with a veritable flood of young people who will be hunting jobs in the '60's and '70's and if our rate of economic growth is not sustained and strengthened, we will not be able to provide

It goes without saying that a state cannot advance with any considerable number of unemployed in its midst. Not only are they nonproductive, but they depend upon the production of others. And more important are the human values involved in the worth and satisfaction of gainful employment in industry and satellite business instead of the deadening effect

of make-work programs which governments must devise if other employment is not available.

Deepening the James River will add materially to the chances of the Commonwealth to attract new industry and to have existing industry expand its operations. More and more the economies of ocean freight are coming to be recognized. These economies cannot be achieved without a channel in the river which can accommodate the larger vessels of today.

Virginia has a host of willing workers, it has ample supplies of water; its land, air, and highway facilities are excellent, but even with all these, industry likes to go to those areas which can be served by deepwater vessels. The deepening and widening of the James River will give fresh impetus to the controlled industrial development of Virginia which is taking place and which must go on if this State is to continue to occupy its rightful place in future years.

(D). The decline in the number of people engaged in the seafood industry will not be halted by refusing to deepen the channel of the James River. We are greatly concerned about this reduction because, in part, it reflects a declining seafood industry. This has been going on over a period of years and is the result of factors which have nothing to do with deepening of the channel in the James River.

Improved methods of oyster culture and particularly the trend towards more and more production from leased bottom which can be harvested by dredging, are reducing the number of people required to harvest oysters; the reason for the decline in the finfish and crabs are not known to us but the James River plays no significant part. The destruction by marine organisms of oyster beds in the more saline waters of the bay and in the mouths of the estuaries will not be changed by what is done with the James. The extension of the Wage Hour Law to the oyster shucking houses and to other aspects of the seafood industry has made it necessary to use more and more machinery to replace people. How far this process will go, we have no way of knowing; one thing is certain and that is this: as more and more people come to have and enjoy the better things of life, they are increasingly going into activities with a fairly steady income instead of depending upon the vagaries of nature. However, there will always be some who will make their living from the seafood industry.

We do not know what can be done to improve the lot of those who depend upon the seafood industry. We are certain that the proposals we make will not impair the seafood industry; at the same time we believe they have the probability of attracting new industry into the area in which those who have already been displaced from the seafood industry live and thus provide them gainful employment.

(E). The enlargement of the ports in Richmond and Hopewell is not likely to impair the operations of the Ports Authority in the Hampton Roads Area.

The cargoes which we believe are likely to come up as far as Richmond and Hopewell as a result of deepening the channel are bulk cargoes which would not require transshipment in the Hampton Roads Area.

We can understand, of course, the doubts of those in the Hampton Roads Area who fear that the mighty effort being made to attract new business to the ports of that area might be impaired. However, in our opinion, these fears are groundless.

Some have proposed that the York River be deepened and that a port be established at West Point. This matter is outside the scope of our study.

CONCLUSIONS AND REASONS SUPPORTING RECOMMENDATIONS

1. A hydraulic model of the James River should not be constructed because, as pointed out earlier, the information it can supply will only relate to circulation of the water, currents and the like. It would not provide answers to the biological and chemical questions of oyster reproduction as affected, if at all, by deepening the channel. In our opinion, based on our knowledge and upon the advice of marine biologists and other scientists, the effect of the deepening upon the chemical and biological characteristics of the river will be minimal and such as not to affect oyster reproduction.

2. The James River between Richmond and Hampton Roads should be deepened and widened as proposed by the Corps of Army Engineers in order to promote the industrial development of this area of Virginia and to ensure employment to the increasing number of our youth. We propose that the Governor be requested to consent to such dredging provided he is given assurances that this can be done with minimum damage to the seed oyster beds and that siltation will be held within reasonable limits under a method of dredging designed to ensure this. The Governor of Virginia can be depended upon to examine the matter in the light of the information we have presented and that from other sources. He will have material presented to him to establish the specifications which should be complied with in order to protect the seedbeds and to enable him to give his consent to the dredging. The Governor has at his command a vast array of technical and scientific talent in the State service. He can be relied upon to protect the interests not only of those who desire to protect the oyster beds but also the interests of those who desire to see the James River deepened. He can be the impartial arbiter in conflicts of opinion.

3. Consideration should be given to the repeal of § 28.1-147 of the Code which was enacted in 1958 and which renders the Governor powerless to consent to the dredging unless it is recommended by the Commission of Fisheries. We have no quarrel with the Commission of Fisheries. They look upon themselves as the trustees of the seafood industry of this State. They say, properly, that they do not believe they should recommend the dredging until they are assured beyond all question that the dredging will not harm the seed oyster beds. In the affairs of life, we never get such assurances. It is significant to note, however, that no scientist who appeared before us was able to state without reservation that the seedbeds would be destroyed or even to make a firm estimate as to the probable extent of damage, if any. They took the view that damage might occur but the weight of scientific evidence placed before us has convinced us that this is a remote possibility. If the 1958 legislation is not repealed, the Governor will be powerless to act. We leave to the consideration of the Governor whether or not he should recommend the repeal of this enactment.

4. Consideration should also be given to granting to the city of Richmond the powers it sought in 1958 to cooperate with the United States government and give the required assurances in connection with dredging the James River channel in order for the project to proceed when the Governor gives his consent thereto. The Corps of Army Engineers will not proceed unless they are saved harmless from any possible damage; they also require certain land areas where dredged material may be pumped. In addition, some part of the costs in connection with the entire project must be borne by some party other than the federal government. These assurances and moneys can come either from the State government or from a local government or combinations of local governments.

The city of Richmond sought these powers in 1958. Since they were then willing to cooperate in the project and to bear the nonfederal part of the cost, it is our view that no reason exists why this request should not be honored in the coming Session. By ordinance 58-153-118 the city of Richmond has assured the federal government of the city's cooperation in the entire length of the project. (See abstract of testimony of Robert S. Hopson, Director of Public Works, city of Richmond, in Appendix I). Accordingly, we propose, in order for the project to be made fully effective, that consideration be given to conferring the powers required upon the city of Richmond.

We have weighed and considered all of the available evidence presented relating to the probable physical, chemical and biological changes in the James River from deepening the channel and the probable economic advantages involved.

CONCLUSION

This has been a long and arduous study. It has involved consideration of a great number of scientific, technical and factual presentations, as well as like data obtained from other sources. We express our appreciation to the many groups and individuals who have assisted us and who have cooperated so wholeheartedly in supplying information and assistance. Especially do we wish to commend the assistance rendered by the Army Engineers, the Virginia Marine Fisheries Laboratory, the personnel of those agencies, and the officials in charge of the construction of the Chesapeake Bay Bridge-Tunnel.

Respectfully submitted,

THOMAS N. DeLASHMUTT, Chairman

ORVAL J. HAND, Vice-Chairman

PAUL BROWN

ROBERT P. CARROLL

REUBEN B. HICKS

PERCY H. WARREN

STATEMENT OF MARVIN L. AMORY

This Commission is charged with weighing the possible detriment to the natural oyster beds in the James River from deepening the channel against the possible economic benefit to the State from such dredging.

During the course of our study, we have heard more than one hundred and fifty people express their views either favoring or opposing the proposed dredging. A significant number of those testifying were people who have spent their entire lives making their living from the oyster business. These people with long experience and practical knowledge of the oyster industry have testified that further deepening of the channel will probably destroy an industry valued at more than \$250,000,000 and which employs over 14,000 people.

These individuals have seen areas which once produced oysters become nonproductive after dredging has occurred. The biologists who have appeared before the Commission can give us no definite answer as to why these areas are no longer suitable for oysters; this is true even though the Commission has had the benefit of the best information possible.

Dr. Harold H. Haskin, Oyster Investigation Specialist of Rutgers University states that "Natural oyster beds apparently have developed over the centuries in areas where currents pattern facilitate the concentration of the swimming larval and where salinity conditions have been such as to reduce predation and space competition pressures. No one, to my knowledge has ever established a seedbed where oysters had not grown in abundance before. The general point here is that natural seedbeds are of rare occurrence and when they are destroyed by pollution or other abuses, it is not possible to establish new ones in other locations. At the present time the James River seedbeds and the Delaware Bay beds are the only remaining extensive seedbeds on our East Coast."

In every instance, to my knowledge, where deep channels have been dredged either through, or adjacent to, seed oyster beds, the beds have been destroyed or severely damaged. I refer, for example, to Long Island Sound which was dredged approximately 5 years ago and was destroyed; to the Willapa Bay, Oregon which had the same experience; and to Delaware Bay which was severely damaged but is now showing some improvement.

Those whose livelihood depends upon oyster production have informed us that considerable damage would occur to the natural seed oyster beds from the salt water wedge penetrating further up the river and bringing with it borers, dermocystidium and MSX. The salt water wedge could also disrupt the delicate optimum mixing conditions of the salt and fresh water which is so essential to the proper setting of the oyster seed.

The Commission has information to the effect that there will be no damage from siltation due to the dredging. However, there was considerable damage to the privately owned oyster beds in Hampton Roads from the same type of dredging for the Hampton Roads Tunnel. The State paid eighty-five thousand dollars for damages to these planters; someone will be obligated for many times this amount in the lower James River area if siltation should occur.

The advantages or disadvantages of a model are difficult to ascertain. However, our officials at the Virginia Institute of Marine Science have told the Commission that the model would give a good picture of the physical changes in the river after dredging. Also they tell us that the

model could be used to study every phase of the seafood industry; it probably will have to be built to study future pollution and siltation problems.

Dr. D. W. Pritchard of the Johns Hopkins University is the foremost oceanographer in America and definitely states that an increase of 10 feet in channel depth will cause the salt water wedge to penetrate further upstream, bringing with it all the natural enemies of oysters and that the model basin is the only way to determine the amount of damage that can be anticipated.

The officials of the U. S. Army Corps of Engineers at Vicksburg, Mississippi state that in their opinion, a model study would be helpful in determining the damage that would occur from dredging.

Until proven otherwise, I believe that the Commonwealth of Virginia cannot risk irreparable damage to one of its greatest natural resources for the possible location of some industry on the banks of the James River.

The value of the oyster seedbeds in the James River is beyond calculation. They are the foundations upon which the entire oyster industry is based. Seed oysters taken from these areas, planted elsewhere and harvested at maturity assure a livelihood for thousands of people in a section of the State in which no other source of income is available. The James River seedbeds are the most productive in the entire world; they produce 85% of all seed oysters in Virginia, and 30 times as many as the entire Atlantic Coast, from Maine to Florida.

For the past 3 years, MSX, now a known protozoa, has killed as high as 80% of the deep water oysters planted in high salinity areas. A much smaller death rate has occurred in shoal areas, and none in areas with low salinity, such as the Rappahannock River upstream.

We now know that the James River seed area has been replenished with larval from mature oysters coming from the mouth of the James River, and probably from Hampton Roads, particularly the Hampton Bar mature beds, and that the devastating effect of MSX for the past 3 years has seriously affected the production in the natural seedbeds. The Virginia Commission of Fisheries has recently planted mature oysters in the Hampton Bar area and we have every reason to believe that this will materially increase the natural seed oyster production next year.

I realize that the oyster seedbeds have had two bad summers in a row from the standpoint of producing seed oysters. The oyster industry as a whole has been suffering from various causes such as MSX. These are temporary matters for the oyster industry has, in other years, had downward cycles and then come back even stronger than before. I therefore give no great credence to the claim that the oyster industry is on the way out. It will be here, and highly productive, when the members of this Commission have long since passed away, provided the channel of the river is not deepened.

I am sympathetic to the desire of Richmond and Hopewell to become inland ports and to their wish to attract thereby new industry. In passing, it should be noted that this will require large sums of public money to improve port facilities at these two areas, thereby duplicating what the Hampton Roads Area is already providing. I see no merit to spreading an already too small port business among more ports.

The resolution in my judgment lays the inescapable duty upon the Commission of determining whether a possibility is to be preferred over an existing fact. The possibility is that of industrial development which

may result from deepening of the James; the fact is the *actual* value of the oyster industry to a large segment of our population in an area where no other employment exists. We are being asked to throw away the bird in the hand for the two birds in the bush. This I am not ready to do.

The only marine biologist, Dr. J. G. Mackin of Texas, a professional consultant, who testified favorably concerning the deepening of the James was brought before us and paid by a group interested in deepening the channel. We all know that if you look long enough you can find an expert to testify, at your expense, and support your point of view. Marine biologists from other states who had no axe to grind opposed the deepening until much more information is available as to the possible effects on the oyster seedbeds; these men were paid by no one, not even expenses.

Dr. Jay D. Andrews, Marine Biologist, of Virginia Institute of Marine Science at Gloucester Point is recognized as the best authority on the James River seed oyster beds, in America. He stated that the report of Dr. J. G. Mackin which contends that the damage to the seed oyster beds resulting from the widening and deepening of the James River channel would be limited to the destruction of 5 or 10% of the beds is not factual and that he cannot agree with it. He stated that a model basin study would be of considerable help in determining the actual damage that could be expected. Dr. Andrews' views are supported by Dr. Victor Sprague of the University of Maryland; Dr. J. L. McHugh, Chief of biological research of the United States Government in Washington, D. C. (a former director of the Virginia Fisheries Laboratory); Dr. D. W. Pritchard, Director, Chesapeake Bay Institute of the Johns Hopkins University, Baltimore, Maryland; Dr. David H. Wallace, Chief, Marine Conservation Department, State of New York; Dr. Paul S. Goltsoff, Director, Woods Hole Laboratory, Massachusetts; and Dr. W. J. Hargis, Director, Virginia Institute of Marine Science.

The proposal of the majority, if adopted, should contain with it the appropriation of a large sum of money which will be required for years to come to support the people, dependent on the oyster business, who will have their livelihood cut off. An historic and lovely area of Virginia will be faced with an exodus of population as the inhabitants move elsewhere to gain a living when the oyster industry is destroyed through the deepening of the James.

While it is not fashionable to make such statements, I will point out in passing that the deepening of the channel will cost far more than the \$40 million estimated by the Army Engineers. The Army Engineers have a long record of underestimating costs and over-estimating benefits while at the same time minimizing detriments. In this last connection, it is clearly apparent that the engineers fear the destruction of the seedbeds because they require an assurance that they will be saved harmless from liability from the dredging, a somewhat unusual proceeding.

To recapitulate, disinterested parties oppose the deepening without further information, persons who are familiar with the oyster industry fear its destruction from the deepening, the models of other estuaries at the Waterways Experiment Station at Vicksburg demonstrate that deepening will bring the salt water wedge further up the channel, great sums of public money will be involved in additional port facilities without offsetting income, and Virginia will be throwing away a valuable economic resource for the mirage of a possible Ruhr along the James River. Surely, Virginia which has before it the depressed areas of the coal mining section does not want to see that misery reproduced in the areas in which the oyster industry is located. Yet, that is what the report of the majority will accomplish if adopted by the General Assembly.

I contend that the oyster industry in Virginia is at present a quarter of a billion dollar business, almost totally dependent on the continued high productivity of seed oysters of a relatively small area of the James River. Unless the proponents can prove beyond a reasonable doubt that this proposal will not reduce the seed oyster productivity of this river, any action to deepen the channel would be capricious and irresponsible. It would seriously injure an extremely valuable business which is a strongly ingrained way of life in all of Tidewater, Virginia, for the benefit of a few.

I challenge the proponents to show their proof of no damage—not by attacks on those who oppose them—but with factual documentation. This they cannot do.

Certainly Dr. J. G. Mackin does not do it. His statement is almost entirely an attempt to refute biological logic. He admits that increased salinity might bring MSX and all other predators in greater abundance, but tries to rationalize without any data and in direct opposition to the biological facts available, that larvae to repopulate the seedbeds in the James come from the creeks and not from the lower river spawning beds. He further states that “a downstream bed is subject to having its larvae washed further downstream”. No other marine biologist will agree with this statement. Both Dr. Pritchard and Dr. Andrews have concrete evidence of an upstream transport in the James.

I suggest that the proponents of this project should be the ones who should be demanding that a model be built. If they are sincere in their belief that the deepened channel will not damage the seed oyster beds, you would think they would jump at the chance to have some real proof, rather than having to depend upon repetition of conjectures until people believe them as facts.

I believe that the oyster industry will be willing to accept the results of a model study and the interpretations of the competent marine biologists, once they are completed. The industrialists should also be willing to do so, since I cannot visualize their desiring to damage or destroy a huge, successful business.

MARVIN L. AMORY

APPENDIX I

INTRODUCTION

In submitting this material, the editor makes the following points which to him appear important.

1. There is no impartial reporter. Every effort has been made, however, to suppress the editor's personal opinions.
2. Briefing always omits most of the spirit, the color, the speaker's confidence, which are present in the original.
3. Careful attention was paid to finding and summarizing every fact or purported fact (as opposed to the speaker's opinion) falling within the purport of the Senate's directive to the Commission.
4. The major benefit of this condensation will probably be to direct the Commissioners to specific references on subjects of major interest. These should be read in context.
5. The abbreviations C/E means "Corps of Engineers, U. S. Army."

Editor

**DIGEST OF MATERIAL PROVIDED TO
THE JAMES RIVER STUDY COMMISSION
CORPS OF ENGINEERS REVIEW REPORT**

The Corps of Engineers, United States Army, (C/E) presented a detailed recommendation for deepening and straightening the existing James River channel. The recommendation is for a 35' channel 300' wide from Richmond to the sea, with some cutoffs to shorten the present channel, all turns to be increased to a minimum of 3000' radius, a mooring basin, and increasing the Richmond turn basin.

Each point of the Report is extensively documented.

Such a channel, the C/E says, would cost nearly \$42 million, all but about \$2 million a Federal investment. Annual carrying charges are estimated at just under \$2 million, benefits at \$4 $\frac{1}{4}$ million, both representing additional cost above those involved in maintaining the present channel.

(NOTE: Benefits were later recalculated at \$2 $\frac{1}{2}$ million on the basis of loss of traffic to a new petroleum pipeline to Richmond. This is shown in correspondence below.)

First recorded improvement to the James River channel was a survey in 1836, with some work done in 1852-54, and more between then and 1884, when the present project was adopted. Up to 1884, a 12 $\frac{1}{2}$ ' channel with a minimum width of 100' was created. Since then, in several stages, a 25' channel has been provided, of 300' width to Hopewell and 200' between there and Richmond.

The economics considered included only benefits to water-borne freight. No allowance was made for benefits from industrial growth.

The C/E held hearings in 1955 and 1958, at which apparently the same arguments for and against the proposal were advanced, in some cases by the same people, as in the 1962 Hearings of the James River Study Commission. Appendix A is a good summary of the first two hearings held by the C/E; Appendix E, Exhibit 16, deals with the question of salinity, covering much of the same ground as the Study Commission's Saluda and Gloucester Point hearings.

The Report was signed by Colonel J. D. Snow, District Engineer. The date is carried on the cover as 12 January, 1962. Brigadier General T. H. Lipscomb, Division Engineer, transmitted it upward with his concurrence on 22 January; Major General Keith R. Barney, Chairman of the Board of Engineers for Rivers and Harbors, on 27 February, and Lieutenant General W. K. Wilson, Chief of Engineers, on 6 July, 1962.

Congressman Abbitt reported (Hopewell, p. 6) that the Bureau of the Budget had also approved it on or before September 11, 1962. This approval appears in full in the Senate hearings, below.

This report includes as paragraph 72, p. 64, an outline of the reasons C/E believes a model study "would not be justified."

Appendix B deals with the impact of the plan on the seed oyster beds. The original report of the Fish and Wildlife Service said the impact would be insignificant. This was dated November, 1957. A year later, by a letter, which is reproduced as the first item in the Appendix, this was revised, the effects would be harmful and construction would be "a gamble with the odds weighted heavily against the oyster industry."

US SENATE HEARINGS

The Senate hearings on the Omnibus Rivers and Harbors bill should be read.

They contain a brief summary of the C/E proposal, similar to that contained in the Review Report and its letters of endorsement, with further comments by the Bureau of the Budget on the oyster seedbed controversy. Colonel Marshall, speaking for the C/E, discussed this subject also.

Senator Young of Ohio wanted to know why the James needs a 35' channel when the St. Lawrence Seaway is only 27'.

REVIEW REPORT SUPPLEMENT

Pipeline Construction Impact

This consists of an exchange of correspondence between the District Engineer and the Congressman Downing. It related the steps taken by the C/E when it learned of the prospective pipeline. After talking with the pipeline people and the oil companies, the estimate was made that petroleum products moving in the James would be reduced 60%, and a corresponding reduction made in the benefit-cost ratio.

The Congressman asked the Engineer to read and comment on two magazine articles on the pipeline, one in *Oil and Gas Journal* and the other in *World Ports and Marine News*. One describes the pipeline, and the other its expected impact on the shipping industry; it is expected to displace 10 to 15 tankers.

The Engineer said that most new tankers will be able to use a 35' channel.

Challenges to Corp of Engineers Plan

Several witnesses expressed doubt that the plan of the Corps of Engineers for a 35' channel in the James River is sound, that the figures on which it is based are accurate, or that local interests involved were fully informed of their responsibilities.

At the Norfolk hearing, Chairman E. E. Ball of the Norfolk Marine Terminal Association said a James River channel would only shift business from one Virginia area—Hampton Roads, a natural port, to another, Richmond and Hopewell, an artificial port area. The expected industrialization could just as well come to the Norfolk area, he said, where he reported many industrial sites still available. In addition, he said his community's investment in terminals, a substantial one, is based on the expectation of continuing and expanding port activity. His testimony starts on p. 6.

Assistant General Manager, James N. Crumbley, Norfolk Port and Industrial Authority, said the benefit-cost ratio might decline to a minus figure with further technological changes, and doubted that the present estimates are conservative. Any benefits in the form of lower shipping costs, he said, would benefit the shipping companies and would not be passed along to Virginia consumers. In addition, the many small companies now engaged in trucking and shallow-draft transportation would be harmed.

Mr. Crumbley also agreed there would be no net increase in tonnage, merely in shifting from one part of Virginia to another. The same is true of industrial development, he said.

The proposed 35' channel, he said, is not adequate for modern ocean shipping.

His testimony begins on page 25 of the Norfolk transcript, and an 8-point summary begins on page 33.

Opponents of the C/E proposal, lead by Mr. Ball's Association, had a study made by three William and Mary professors. This report says the C/E figures are wrong on cost of interest and amount of petroleum trade, and the benefit-cost ratio is actually negative. The report, *Some Economic Aspects of a 35' Channel to Richmond*, is in the Norfolk supplementary material.

Frank Alspaugh, Executive Director of the Peninsula Port and Industrial Authority, a political subdivision of the Commonwealth of Virginia, was another challenging witness. In his statement beginning on page 20 of the Newport News hearing transcript, he questioned whether any studies have been made to substantiate the claim for industrial development following the channel dredging, doubted that the accuracy of the cost-benefit ratio had been proved, criticized the one-purpose nature of the plan, and said it was improper to undertake any public works to benefit any one part of the Commonwealth at the expense of any other.

At the Saluda hearings, three witnesses raised serious questions of this sort. First was John Garland Pollard, Jr., whose statement starts on page 94 of the transcript. He pointed to the great reduction in benefit cost ratio effected by the inclusion of the pipeline in the plans and the C/E figures, and said that many similar developments and technological changes could be expected—he cited pumping coal as sludge—which would further change it. He devoted careful attention to the C/E cost computations. He said a 35' channel may be obsolete before it can be constructed. Then he expressed doubt that Richmond citizens know what their Council has let them in for in the way of financial guarantees. In all, he listed 8 specific points in which he considers the C/E plan deficient.

General Puller, beginning on page 119, expressed the view that West Point would be a better seaport than Richmond. Other witnesses, including Delegate Gwathmey, agreed.

Charles M. Lewis, starting on page 133, also said a 35' channel is not adequate today, that "it is ridiculously absurd" to think of Richmond as a seaport.

Finally, in his summation at Saluda, which starts on page 140, Delegate Walther B. Fidler criticised the C/E plan from many angles—spoil disposal, responsibility of local interests, and costing, among others. This summation is detailed and extensive.

Previous Dredging

A number of witnesses alluded to the previous dredging of the James, but only a few dwelt upon it at length or gave facts, figures or personal experiences. Their reports differed sharply. Below they have been divided into classes; one witness is included in two classes.

Dredging was beneficial to the oyster industry:

Delegate C. Hardaway Marks, quoting Dr. D. W. Pritchard, Hopewell Hearing, p. 21.

Robert S. Hopson, speaking for Richmond City Manager Edwards, Richmond Hearing, p. 32.

Dr. John T. Mackin, Saluda, p. 186 (qualified).

Dredging did no harm to the industry:

Arthur B. Butterworth, Newport News Hearing, pp. 16, 19.
J. Malcolm Bridges, Richmond Hearing, p. 60.
Charles H. Robertson, Richmond Hearing, p. 79.
Dr. J. L. McHugh, Saluda Hearing, p. 77.
Dr. John Mackin, Saluda Hearing, pp. 186, 189.

Don't know:

Dr. James B. Engel, Saluda Hearing, p. 73.

Dredging was harmful:

O. A. Bloxom, Newport News Hearing, p. 38.
J. W. Ferguson, Sr., Saluda Hearing, p. 117.
Charles L. Lewis, Saluda Hearing, p. 135.

The supplementary material refers to the previous dredging, especially the paper provided by Dr. Mackin, in the Saluda-Gloucester Point material. The C/E Review report mentions it, as does the printed report of the Senate Hearings.

SALINITY

The hearings abound in reference to salinity. The opposing witnesses staked their main claim on the theory, advanced by many biologists, that the proposed dredging would cause salinity changes, of unknown extent and result. Proponents represented that weather and other factors influence salinity more than dredging. On this they based a request for delay. And the principal scientist-witness for the proponents challenged the assumption that the salinity changes predicted by the opponents would have any influence at all on the seedbeds.

Complete reference to all references to salinity would be so voluminous as to be unwieldy. However, the Saluda Hearing, especially Dr. Hargis' testimony and that of Dr. Mackin, and the entire Gloucester Point round-table, dealt with this subject in detail and exhaustively.

Both Dr. Hargis and Dr. Mackin submitted papers dealing extensively with this subject; they are included in the Saluda-Gloucester Point Supplementary material. *Past Positions of Marine Biologists*, same reference, is also interesting. The Fish and Wildlife Service report which says salinity changes would be insignificant, and the subsequent letter reversing this position, are both in Appendix B of the C/E Review Report.

The C/E Review Report, paragraphs 64 and 65, deal with this subject. Paragraph 65 quotes the Fish and Wildlife Service report, which is carried in full as Appendix B.

Also in the C/E report, (p. A-7) are notes on the Richmond remarks of Director McHugh, Virginia Fisheries Laboratory (later Virginia Institute of Marine Sciences).

Exhibit 16, Appendix E, is a report of a meeting in October 1958 to discuss the proposal to delay dredging until a model of the James can be built and tests run. This presented the same general material as the Study Commission's Saluda Hearing, to about the same conclusion. Colonel O. J. Pickard, District Engineer, conducted the meeting. In his opening remarks he said that the model study would add approximately \$300,000 and 4 to 5 years to the project.

He also said (Appendix E., Ex. 16, p. 2) that the question of a model study was not introduced by the Fish and Wildlife study, Appendix B.

As at Gloucester Point, Dr. Pritchard said that the model study would show only water circulation; the effect of the circulation changes on oyster setting could not be determined. He believed that the past channel dredging was beneficial (Appendix E., Ex. 16, p. 9). He added that there is a limit to future dredging, beyond which damage would occur.

Concluding the hearing, Colonel Pickard was reported as saying "that he is not convinced . . . that an evaluation can be made from the model study to indicate the economic or monetary loss to seed oyster production."

OVERALL EFFECT ON INDUSTRY

Much the same is true as to the effect of the dredging upon either the seedbeds or the oyster industry. Proponents claimed no damage would result to accelerate the decline in the industry; opponents saw stark ruin resulting.

The editor found no scientist who said that the dredging proposed by the Corps of Engineers would destroy the seedbeds. One, Dr. McHugh, said it might. Most of them specifically said it would not. Some said the results would be cumulatively harmful, but most said they know so little about the subject they cannot provide the information the Commission seeks.

POLLUTION AND SILTING

On the question of pollution and silting, again there was a sharp division of specialist opinion. General Puller and Dr. Mackin gave specific information at Saluda. So did Mr. Bloxom at Newport News.

One of the supplementary papers to Saluda-Gloucester Point is *B O D Assimilation Capacity of the Lower James River*.

EFFECT UPON THE HAMPTON ROADS PORTS

As with the question of salinity, and the overall effect of the dredging upon the oyster industry, opinion was sharply divided as to the effect of the proposed channel on the Hampton Roads Ports.

Proponents of the James River project generally said the net result would be helpful, opponents said it would be harmful.

In general, the Norfolk and Newport News Hearing had witnesses who feared harm to their areas—and two speakers at the Richmond Hearing also—and the Hopewell Hearing heard many who predicted benefits to the Hampton Roads Area from the James River development.

The study by three William and Mary professors, in the Norfolk supplementary material, touches on this subject, as does the resolution of the Longshoremen's local.

It appears from the record that a few individuals from the Hampton Roads Area who supported the James River development before the General Assembly's committee in 1958 have changed their minds or have now been repudiated by their sponsors and principals. Captain Massenberg is one such.

GOVERNMENT, BUSINESS AND PROFESSIONAL ENDORSEMENTS

During the Hopewell and Richmond Hearings, many government, business and similar groups were recorded as favoring the C/E proposal. In some cases they submitted statements to be read, without personal representation. In others, although their statements were read by the person marshalling the testimony, representatives of the groups were in attendance; some of them gave oral statements.

Organizations recorded as supporting the C/E plan, and the individuals representing them, were as follows:

Hopewell Hearing

Virginia State Ports Authority; Chairman Frank A. Ernst of the Board of Commissioners, 26.

Region 19, United Mine Workers of America, District 50; Robert R. Fohl, Regional Director; Nitrogen Local, President James; National Analine Local, President T. P. Hylton; Firestone Sythetics Local, Mr. Torrence; Continental Can Local, President James Nesbitt, 32.

City of Hopewell, Augustus Robbins, Jr., 34.

Hopewell Manufacturers Association, attorney James G. Harrison speaking for President E. H. Graves, 40.

Appomattox Basin Industrial Development Corporation, President Frank L. Wyche, 42 (See below, p. 68.)

City of Petersburg ("Many persons" reported in attendance), 46.

City of Hopewell, 47.

City of Colonial Heights, Mayor Shepherd and City Manager Smith in attendance, 49.

Chesterfield County, 50.

Dinwiddie County, 51.

Prince George County, read by Commonwealth's Attorney Frank L. Wyche; Clerk Kenneth L. Figg in attendance, 51.

Sussex County, supported in person by Clerk William B. Cocke, Jr., 54.

Surry County, supported in person by Commonwealth's Attorney Ernest W. Goodrich, 56.

Greensville County, 58.

Charles City County, supported in person by Chairman C. Hill Carter, Board of Supervisors, 59. (See also p. 98.)

Brown and Williamson Tobacco Corporation of Petersburg, 60.

Petersburg and Hopewell Gas Company, 61.

First Federal Savings and Loan Association, Petersburg, 62.

Farmers Bank of Dinwiddie, 63.

Petersburg Mutual Savings and Loan Association, 64.

First and Merchants National Bank of Richmond:
 Petersburg Savings Advisory Board, 64.
 Hopewell Advisory Board, 65.
 Colonial Heights Advisory Board, 65.
 Bank of Southside Virginia, 65.
 Bank of Waverly, 65.
 Prince George Ruritan Club, 65.
 Bank of McKenny, 66.
 Titmus Optical Company, Petersburg, 67.
 Appomattox Basin Industrial Development Corporation, J. J. O'Leary,
 Consultant, 68.
 James City County, 72.
 Virginia Manufacturers Association, Watkins Rhodes, Assistant Sec-
 retary, 72. Also C. H. Taylor, Executive Vice-President, 75.
 Petersburg Chamber of Commerce, Executive Vice-President Frank
 K. Martin, 76.
 Hopewell Chamber of Commerce, Lieutenant Colonel Louis H. Shirley,
 Executive Manager, 81.
 Division of Industrial Development and Planning Commonwealth of
 Virginia, Director Joseph G. Hamrick, 89.
 Charles City County Planning Commission, John C. Smith, 98.
 State-Planters Bank of Commerce and Trust, Hopewell Branch; As-
 sistant Vice-President and Branch Manager, Welmont L.
 Drake, 101.
 Port and Docks Commission, Hopewell, Secretary Gordon Harrison
 Streeter, 102.
 Dow Chemical Company, 109.
 Continental Can Company (Hopewell operation), Manager Edmund
 H. Graves, 112.
 Firestone Synthetic Fibers Company, Hopewell plant; Manager Wal-
 ter Smith, 114.
 Nitrogen Division, Allied Chemical Corporation, Acting Manager J.
 Shepard Mondy, 115.
 Marathon Oil Company and Delta Oil Sales Company, John D. Haire,
 Jr., 120.
 Lynchburg Chamber of Commerce (Supp.)

Richmond Hearing

Richmond Chamber of Commerce, President Roy E. McDaniel, 19.
 (See below, p. 48.)
 City of Richmond, Vice-Mayor, Phil J. Bagley, Jr., 21.
 City of Richmond, Public Works Department, Director Robert S.

immediate action, it says, then it reviews, in 8 steps, the legislative history of the project.

An extended background review of Richmond's past reliance upon the James River channel follows, then a history of the opposition.

This statement quotes the District Engineer as saying that "there is no evidence that this (1928-32 dredging) has resulted in any damage to the seed oyster beds. Actually the production of oysters on Rocklanding Shoal increased from 999,000 bushels in 1921 to 1,678,000 bushels in 1929, the year of the channel dredging."

A number of sources—newspaper editorials, industrialists and development associations, public bodies—are quoted in favor of the C/E project.

Tracing the inability of interested parties to co-operate, and outlining the several State agencies with interest in this field, the Chamber said it was time to give responsibility to one agency; it suggested that the Virginia Advisory Legislative Council study the situation and make a recommendation.

Richmond Chamber of Commerce Exhibits

Each of the several exhibits is preceded in the bound volume by a blue sheet containing a description of its intent or content.

The exhibits are:

1. Excerpts from "Report on the Potential for Waterborne Commerce at Richmond, Virginia (1956) Part V. Prepared by Dr. A. Stuart Campbell, Virginia State Ports Authority. (Historical.) (The full text is contained in the "Report on the 35' Channel", below.)
2. Clippings on Washington Hearings in 1955.
3. Statements by Hampton Roads representatives supporting the James development at C/E hearings in 1955. These are Hampton Roads Maritime Association, and Peninsula Industrial Committee.
4. Tabulation of State appropriations for Hampton Roads ports.
5. Statistics of the oyster industry, from US sources.
6. Excerpts from Annual Report of Commission of Fisheries—1960 and 1961 Fiscal years—appear to imply the James River seedbeds
7. Table of waterborne commerce at Virginia ports.
8. Part VI of No. 1 (reports on mail survey, listing products which Richmond might import or export.)
9. "Profile of Virginia's Urban Corridor;" the area from Northern Virginia to Richmond to the Coast. Figures on population, trade, manufacturing, etc.
10. "Research Bulletin" (113) by Richmond Chamber of Commerce. Extensively decorated with statistics.
11. A folder "Administration" with subtitle, "Richmond: Double Chemical Gateway."
12. Virginia Economic Review, March, 1962. "Importance of Retail and Wholesale Trade in the Virginia Economy." Page 7 discusses Richmond's position as first in wholesaling.
13. Maps of industrial sites.

Brochure "Port of Richmond"

Prepared by Richmond Waterfront Terminals, Incorporated, with help from the city's Chamber of Commerce; designed to attract maritime commerce to the present facilities. Strictly promotional.

Report on the 35' Channel Project

This is a collection of material favorable (or interpreted to be favorable) to the C/E proposal. The fly sheet has a table of contents which describes the separate items.

Parts II and III are extremely detailed studies, and review previous efforts to get the project into construction.

Part I, the Fish and Wildlife Study, does not include the letter amendment reversing the position (Paragraph 31, page 12) that changes would be insignificant to the oyster seedbeds. The 1958 amendment says the changes would cause damage.

Letters, Committee on Water Resources to Governor

These letters, in 1958, 1959 and 1961, request that the Governor take steps to get favorable and prompt action on the C/E proposal.

Resolution of Port of Richmond Advisory Commission

The statement by Vice-Mayor Bagley is carried in full in the text. There is attached, however, a resolution of the Port of Richmond Advisory Committee, August 13, 1962, authorizing appearance before the Study Commission on behalf of the C/E program and directing the City Manager to "make available to the Advisory Commission to carry out this directive a sum—not to exceed \$5,000."

Resolution, City Planning Commission

Favors the C/E project as a step toward the master plan for development adopted in 1945.

Resolution by Goochland County

Supports the C/E proposal to "enhance the economy of the Richmond Area."

Statement by Richmond City Manager

The full text of the statement itself is contained in the transcript. Attached to the written material, however, are the legislative enactments, State and city, referred to, which hold the US harmless from suits for damages.

Statement by Professor Northrup

In his oral presentation, Professor Northrup paraphrased his written presentation, covering all his points in different words.

The written statement contains extensive statistical presentations which orally were only summarized.

*Statement of Douglas W. Laird, for Virginia
Carolina Chemical Company and Chemical Industries*

This statement is paraphrased in the oral presentation in the transcript. The written statement is a little longer and slightly more detailed in a few particulars, but the oral statement covers the same points.

Statement by Potash Import and Chemical Corporation

In his presentation favoring the C/E proposal, on page 75 of the Richmond Hearing, Mr. Laird of Virginia-Carolina Chemical Company referred to this statement.

The statement records the company as favoring the C/E proposal. In 1961 it discharged 36 steamers at Richmond.

"Present draft limitations have complicated shipping arrangements. It has been necessary . . . to specify Richmond as last Port of Call, lightening steamers at other ports . . . Some steamers are chartered to lift cargoes during the winter months, and the absence of draft limitations would be helpful."

FOURTH HEARING

Richmond

October 5, 1962

This hearing followed the same pattern as that in Hopewell—extremely well managed, with elected officials appearing first and then business leaders.

One witness appeared in opposition on the basis of danger to sport fishing and the spawning habits of the rockfish, and two opposing witnesses made brief appearances toward the close, in amplification and to promise additional material later. One witness favored the channel on a flood-control basis.

The testimony related expected benefits to the Richmond Area and to the State from industrialization resulting from the proposed 35' channel.

Officials of the city of Richmond made clear that the city had undertaken financial responsibility for a great many things, including any damage to the oyster industry.

Oysters came in for considerable discussion, with no professed experts appearing but some scientific opinion being quoted.

In this hearing, as in that at Hopewell, a number of the presentations were detailed and documented. The editor found it difficult to convey the confidence and the comprehensive nature of these presentations in briefing. Those of Professor Northrup beginning on page 34, and Mr. Bridges starting on page 48, exemplify this difficulty.

The supplementary material is voluminous.

Delegate Edward M. Hudgins, representing Chesterfield County and Colonial Heights, coordinated early testimony at this hearing.

He feels that while Richmond has no expectation of rivaling the Hampton Roads ports it does expect a major stimulus in industrial activity from the C/E proposal. He compared Houston and Galveston in this respect.

Note: Delegate Hudgins' coordinating and introductory activities for other witnesses are omitted.

County Supervisor S. A. Burnette, Henrico County, speaking for the Board of Supervisors, pointed out the need for industrial growth to match population growth. His County imports 99% of its technical labor now, lacking training facilities. He presented a Board resolution favoring the C/E proposal.

Executive Secretary M. W. Burnette, Board of Supervisors, Chesterfield County, presented a supporting Board resolution. In spite of great industrial development in the County already, he feels more could be obtained if the channel were deepened. He fears that for Chesterfield County and for Virginia, without the C/E proposal the gag saying would apply: "Come weal, come woe, our status is quo."

Delegate Hudgins cited a resolution by the Board of Supervisors of Goochland County in favor of the C/E proposal. *Senator Lloyd C. Bird*, representing Chesterfield, Henrico and Colonial Heights, and *William Parkerson* of Henrico were present and in favor. *Delegates Bradshaw* of Chesterfield, Henrico and Colonial Heights; *Anderson* of Goochland, and *Gwathmey* of Hanover were absent but stated to be in favor.

Senator FitzGerald Bemiss, Richmond presented *Senator Edward Haddock* and *Delegates Edward Lane, T. Coleman Andrews, Harold Dervishian* and *Dave Satterfield*, all of Richmond (all implied to be favorable) and President *Roy McDaniel*, Richmond Chamber of Commerce, of Esso Standard Oil.

Note: Mr. McDaniel introduced several subsequent speakers; such introductory activities are omitted.

The Chamber, Mr. McDaniel said, has worked for years to modernize James River transportation. It strongly supports the C/E proposal. He cited a supporting statement from *Congressman Vaughan Gary* who could not attend.

Vice-Mayor *Phil J. Bagley, Jr.*, Chairman of the Industrial Development Committee of the City Council, Richmond, favored the C/E proposal, saying "In order to remain healthy, we must progress, for to remain static is to stagnate."

When Mayor Bagley was a member of the Richmond Ports Advisory Commission, discussions were held on prospects of locating a multi-million dollar sugar refinery in the Richmond Area. To questions on fresh water supply, rail truck and air transportation, electric power and labor market, satisfactory replies were made. But the project was dropped when it was evident that raw sugar in fully loaded Victory-Class C or Mariner Class ships could not come up the James.

He presented a Council resolution in favor of the C/E proposal.

Robert S. Hopson, Director of Public Works, Richmond, spoke for City Manager Horace Edwards. He traced the history of James River improvements for 150 years. In favoring the present C/E proposal, Richmond has made a \$7,000,000 financial commitment. The Commonwealth in 1927 guaranteed the Federal Government against claims from damage to seed oyster beds resulting from the dredging through the beds, and did the same in 1932.

In 1958, in arranging its necessary local cooperation for the C/E proposal, Richmond itself guaranteed the Federal Government against claims for seed oyster damage, thus in Mr. Hopson's opinion relieving the Commonwealth of this obligation.

He stated that after the dredging of the 22' Rocklanding Shoal Channel in 1927, production in the seed oyster beds "increased considerably" although he disclaimed a cause-and-effect relationship.

Professor *Herbert R. Northrup*, Wharton School of the University

of Pennsylvania, appearing for the Richmond Waterfront Terminals, private operator of city-owned facilities, made four main points:

1. The present channel is obsolete.
2. Failure to modernize would jeopardize a public investment of at least \$17,000,000 and probably much larger.
3. Modernization would be a boon to the entire State.
4. Modernization will not "hurt or substantially damage your fish, wildlife and tourist businesses."

Liberty Ships leaving Richmond with scrap iron can carry only 60% of a normal load, the Professor reported. He denied there is any trend to general cargo vessels larger than 35' draft.

Development of Trenton and Albany port facilities have helped Philadelphia and New York, he said; similarly, development of the James will benefit the Hampton Roads ports. Actually, the Hampton Roads Area now loses business because cargo that might use Richmond with a deeper channel is trucked to Baltimore, Philadelphia or New York.

On the subject of oysters, the Professor pointed out the divergence of views and the lack of precise information. Proponents, he said, claim the oyster industry improved after the last dredging. He pointed out that the C/E, under US Fish and Wildlife Service guidance, "will exercise every precaution to preserve what we have while building for our future." He cited the proposal "not to dredge in certain areas at times which are critical for oyster production and to dike proposed areas . . . to prevent reflexing of silt into open areas."

"On the other hand," he said, "if fear blocks improvement of the channel, we agree with the *Richmond Leader* editorial of February 28, 1958 that we will have bought ourselves the highest priced seed oysters in the world."

Executive Manager *J. Malcolm Bridges*, Richmond Chamber of Commerce, urged the Commission to favor the C/E proposal under its mandate to recommend the course "of maximum value to the Commonwealth." After 15 years of trying for a deeper channel on the James, the Chamber hopes soon to see "long effort translated into actual dredging." He made a detailed presentation of economic and labor-force benefits the C/E proposal would bring.

He cited support for the James River channel from *Harry Thompson* of the Hampton Roads Maritime Association and *Louis C. Purdy* of the Peninsula Industrial Committee in 1955, both of whom emphasized that helping the up-river area would also help Hampton Roads business.

Others he mentioned as favoring the C/E proposal in the 1955 hearings were:

Marion W. Caskie, Executive Vice President, Reynolds Metals Company

Captain G. A. Massenburg, President, Virginia Pilots Association

General H. B. Holmes, Commissioner of Water Resources

The late *Fred W. McWane*, Chairman, Virginia Ports Authority.

Regarding the seed oyster beds, Mr. Bridges recognized them "as among Virginia's valuable natural resources." He added, however, that

of the more than 18,000 acres of beds, only 35 productive acres will be taken away by the proposed channel. "No recorded damage has ever been done to these beds by past deepening projects," he said. "The question of . . . siltation . . . has apparently been settled to the satisfaction of all concerned."

He cited the C/E report that past dredging was far more significant to the seedbeds than the present proposal; over 5,000,000 yards of material were removed in earlier dredging against 2,600,000 in the present proposal; the 22' and 25' channels were completed "without damage to the oyster beds."

The question of salinity, he charged, was brought up when other questions were settled or refuted. If salinity should be proved to be no problem, "I am satisfied that another obstacle will be presented." He charged that "the basis of opposition has shifted more than the course of any real channel on record." (His analysis of the opposition is on page 61.)

The MSX infestation has caused "overproduction in the seed oyster beds in the James" as well as "deep concern for the very survival of the already rapidly depleting industry," Mr. Bridges continued. One of his five points of summation reads:

- "(4) That as regrettable as it is, there has been a drastic decline in the oyster industry in Virginia and that this decline continues; that additional job opportunities must be developed in this area for persons who have been and will continue to be displaced by this industry."

Mrs. Ruth Herrink, Member of the City Council and of its Industrial Development Committee, was introduced as in attendance.

Richard Maxwell, Assistant to the President, Reynolds Metals Company, added additional information on the benefits to Virginia from the C/E proposal.

John F. Meredith, Traffic Manager, Universal Leaf Tobacco Company, asserted that the C/E proposal would help the tobacco industry in its export program. (His name was omitted from the hearing Index).

Vice-President *Douglas Laird*, Virginia-Carolina Chemical Corporation, supported the deeper channel. His costs of shipping would rise 5% if he could not use water transportation, and his is a low-margin industry where 5% might be ruinous.

Vice-President *Charles H. Robertson*, Albemarle Paper Manufacturing Company and Vice-Chairman of the James River Basin Association, supported the C/E proposal in both capacities. Speaking of the oyster seedbeds, he said, "There is nothing to indicate that prior channel deepenings have affected the seed oyster bed production either beneficially or adversely." There is also no evidence, he said, that the present proposal will have any effect. Citing probable industrialization benefits, he added, "The possible damage to the seed oyster beds, if any, will be small by comparison."

Speaking as a member of the Port of Richmond Advisory Committee, *Senator Bemiss*, summed up 5 points of support.

Speaking for the Virginia Beach Anglers Club and the Norfolk County Anglers Club, *Mrs. Howard E. Albright* said the dredging proposed would be more detrimental to the Tidewater Area than beneficial to the Richmond

Area. She expressed worry that the striped bass might not be able to spawn in the James after dredging.

Chairman *E. E. Ball*, Norfolk Marine Terminal Association, said the economic study promised by his group for the Richmond Hearing would be submitted at a later date.

Executive Director *Robert L. Horn*, Richmond Regional Planning Commission, represented Chairman *L. McCarthy Downs* who could not attend. His Commission wants the C/E proposal realized, to round out its program of highways and other traffic arteries for the Richmond-Henrico-Chesterfield Area. He presented the Commission's favoring resolution.

President *James N. Crumbley*, Propeller Club, Norfolk, reiterated that a "sizeable portion" of the Norfolk port operation "is in jeopardy if this channel is deepened from 25 to 35 feet." The resolution of his Club cited "a strong probability of irreparable harm" to the oyster seed beds.

Executive Director *J. Frank Alspaugh* of the Peninsula Port and Industrial Authority, (who spoke at the Norfolk Hearing, pages 20-23), recalled the reference to 1955 testimony by *Lewis C. Purdy* of the Peninsula Industrial Committee, saying that Mr. Purdy must have spoken as an individual because the Committee minutes do not show any action either way at that time. He also denied that the Peninsula Area is losing manufacturing employment; it has added 5,000 to 6,000 workers in the past two years.

President *Nathan Sternheimer*, Sternheimer Brothers, recalled the floods formerly common in Richmond. It is much better now, because of improvements and channeling.

FIFTH HEARING

Saluda

November 1, 1962

This hearing, devoted to opponents of the C/E proposal until the concluding speaker, was also managed much as a lawyer prepares a case for jury or court consideration.

Most witnesses stressed the lack of definitive information on the effect of the C/E proposal on the seedbeds, and asked that the Study Commission recommend construction of a basin model.

In some cases there seemed to be more heat than light in the presentations—that of General Puller, for example.

This hearing was concerned almost entirely with the oyster industry, although General Puller, Mr. Pollard and Delegate Fidler all attacked the accuracy and propriety of the C/E proposal itself.

Qualified scientists appeared or were quoted at this hearing; all implied that the dredging would harm the oyster industry to some extent, but none could—or did—make any direct statement to that effect. Their consensus was that conditions which control oyster set would be changed; they could not say how much, or to what effect.

Experienced oystermen with no pretensions to being scientists cited their own experience as to the decline of the oyster industry.

The last witness, a marine scientist, spoke in marked contrast to his fellow biologists. His testimony, beginning on page 169, should be considered in connection with that of scientists at the Virginia Institute of Marine Science on the following day. The contrast is great, as to content, precision, directness and apparent self-confidence.

The subject of spoils disposal came up here. The point of burden of proof was emphasized.

Again some presentations did not lend themselves to briefing; the editor feels they lost much of their force or presentation in his treatment. This is especially true of the presentations of Mr. Boatwright starting on page 61 and Delegate Fidler on page 140.

Senator W. M. Minter, Matthews, believes that "dredging . . . the James River without clear proof that it will not endanger the oyster beds of that river is against the welfare . . . of the State of Virginia." He said he agreed largely with the *Richmond News-Leader* editorial of October 27, 1962. Statistics alone, he said, cannot show the total value of the sea-food and oyster industries to Virginia, and the James River seedbeds are the basic factor in the oyster industry; "without the James River there would not have been and would not now be any oyster industry in Virginia as we know it."

Admitting that the C/E proposal would be valuable to commerce, Senator Minter continued that the proponents cannot say "what, if any, industries this dredging will bring to the State of Virginia. Nor can they tell you whether or not those that do come, if any come, will come as a result of the proposed dredging." Therefore, he said, "the burden is upon the proponents . . . to show . . . that such dredging will not materially damage or destroy the oyster rocks . . ."

The oyster industry has been the mainstay of Tidewater Virginia for a century, the Senator said. Silting from dredging is a distinct danger to the beds; the C/E always insists upon a release from siltation damage before it starts any operation in any oyster waters. Salinity changes provide the second danger. The industry has always recovered from past dangers from drills, fungus and starfish. So long as there is doubt as to the damage possibilities, dredging should be suspended at least until a scale model of the James estuary has produced evidence to the contrary.

Attorney C. F. Hicks, Gloucester, reported on a meeting in Annapolis in connection with the Potomac River Compact. While there he talked with seven marine scientists who unanimously told him the James River dredging would materially affect the James River seedbeds, although they did not know how much they would be damaged. These scientists said the only way they could find out what would happen would be construction of a model. That would probably not provide all of the answers; "we know more about the far side of the moon than we know about the oyster."

A model would help answer other questions than the oyster propagation process; in pollution, in fresh-water supply, in currents for use if a nuclear accident occurs. The "orderly process is that we should have the model first."

"The cost is not too great," he continued, "when you figure . . . (that) the oyster industry and what it means to the economy of Tidewater Virginia is at stake."

Watermen, by and large, can't do any other work than oystering, fishing, crabbing, and farming. Their fathers for a hundred years have been watermen. The young people can take jobs in industry, but not the rest.

"Sooner or later the basin model will come," he said. "Let's have it now when we can use the information."

Director *William J. Hargis, Jr.*, Virginia Institute of Marine Science, endorsed the idea of model tests before dredging. It would greatly help VIMS in its basic responsibility, he said.

Industries based on natural marine resources are self-renewing; if handled wisely, "one can harvest and harvest and harvest again and expect that there will be some for next year."

Dr. Hargis said the oyster industry has a value of \$10 to \$14 million per year at-landing, representing a capitalization of \$140 million at 10%. In addition, there is substantial investment in plants and boats. All this is dependent upon the James River beds. "Without the James River seedbeds, there would be no Chesapeake Bay oyster industry. We have no alternative seedbeds—right now."

Larvae of the oyster are moved by a complicated, two-layer water movement made up of factors of tide, fresh-water runoff, salinity, temperature, bottom contours, and others, with mixing between the two main layers. The layers are not uniform, varying from one side of the river to the other. Predators and disease also are moved by such complex movements and conditions.

Dredging a deeper channel will change these factors, Dr. Hargis said, "but we don't know how much . . . to what degree, to what detail . . . These physical changes will have biological repercussions . . . The biological changes may—I underscore 'may'—adversely affect the James River seedbed."

Recently scientists have found that "there appears to be a threshold cross-section below which changes in . . . a river bed will have no significant effect . . . We would like to know whether the James . . . is at that stage right now. A model would help . . ."

Delegate Walther B. Fidler, Sharps, appeared for the Oyster Growers Dealers Association of Virginia, said the opponents of the dredging were hampered by lack of funds. So they telephoned "well over half" of the marine scientists on the East Coast. These out-of-state recognized experts said the VIMS people and Drs. Pritchard and Wallace, scheduled to appear, were the cream of the crop.

The Delegate introduced the following, present at the Hearing:

Senator Thomas H. Blanton, Caroline

Senator Blake T. Newton, Westmoreland

Senator Fred Bateman, Newport News

Senator Edward L. Breeden, Norfolk, who also opened the Norfolk hearing, discussed the economics of the seafood industry.

Two companies, J. H. Miles Company and Ballard Fish and Oyster Company get \$6 million a year in sales, around 90% from out-of-state. The two companies employ over 1,000 people. In five years the companies spent over \$7½ million for seed oysters; they spend \$275,000 a year for cans, boxes and barrels; the annual payroll is about \$2 million.

These two companies, he said, are representative of many others, all dependent upon the James River seedbeds.

Delegate Ralph James, Hampton, Chairman of the Committee on the Chesapeake, cautioned that the Commission ought to consider the dam-

age that may be done rather than benefits, for "no one has spoken of even probable benefits. They always speak of possible benefits."

Delegate John Cooke, Matthews, representing Gloucester, Middlesex and Matthews Counties, joined in the request that a model be constructed.

Senator Fred Bateman, Newport News, emphasized that the available information is scant. "Erasers were put on pencils to erase mistakes; . . . should you make a recommendation . . . and you found out afterward it was a mistake . . . where could you get an eraser?"

H. Lee Boatwright, Jr., Lancaster, pointed out there are hundreds of industrial sites already, but only one commercially productive oyster seed-bed in Virginia. He believes that a 35' channel and industrialization "would eventually destroy the oyster industry."

The 35 acres to be taken by the channel, Mr. Boatwright said, produce 50,000 to 70,000 bushels a year, against the average of 10,000 the C/E used. That would be a loss of something like \$500,000 a year. Watermen living when previous dredging was done "recall serious deleterious effects." Silting is not a permanent problem; beds can recover. But changes in salinity and industrial pollution produce permanent effects. The potential danger from the dredging was communicated to C/E by Federal Fish and Wildlife Service in 1958.

Scientists agree that a test model would provide better information, and Mr. Boatwright recommended one.

Summarizing, Mr. Boatwright said that "A 35' channel can be a calamity for the oyster industry." Then he compared the dollar value of the industry with the "dreamed-of" industrialization of the James. The latter, he said was worth \$584,700 a year according to the C/E benefit-cost ratio. The seedbeds produce \$2,875,000 to \$5,375,000 a year in oysters. But this is only the beginning, he said. With a harvest of 2,300,000 bushels of seed oysters, at one-for-one returns the crop harvested will bring around \$19,000,000. A 4-million-bushel year would bring \$39 million at retail. In this range is the value of the seedbeds to Virginia. This is money brought into the State, he stressed.

Oystering is intertwined with crabbing and farming. Oystermen must have all three pursuits to live.

The oyster industry, Mr. Boatwright continued, has great recuperative powers; six years ago hurricanes killed 80 to 90% of the oysters in Mr. Boatwright's beds. He had no insurance. Using James River seed, he rebuilt and now is in full operation, including a three-year-old shucking house. He employs 30 people with a six-months seasonal payroll of \$45,000.

Dr. James B. Engel, Director of the Biological Laboratory of the Bureau of Commercial Fisheries, Oxford, Maryland, supported the positions of preceding scientists. "We cannot say directly . . . that there is or is not a direct influence of the dredging." Chesapeake Bay produces one-third of the world's oyster crop.

Delegate Fidler read a statement from *Dr. J. L. McHugh*, Chief of the Division of Biological Research, Bureau of Commercial Fisheries, stressing the importance of the oyster industry. The annual retail value now, he said, is at least \$25 million; the 1890 crop, at today's prices, would have been worth more than \$200 million retail. Dredging will change the environmental situation of the seedbeds, he said, leading to an increase in salinity. "Similar changes . . . have occurred in the past . . . The channel has been dredged and deepened several times. Industrial devel-

opment of the river has increased steadily, and its waters are badly polluted in many sections . . . As yet, this has had no demonstrable effect upon the oyster resource . . . But this does not excuse nor endorse these developments. Each . . . may have negligible effects . . . But in the long run, the sum total . . . will destroy these resources."

"A measurable change will occur," the doctor continued. "This will have profound effects upon setting and survival of oysters, although we cannot predict the extent . . ."

W. D. Lawson, Bureau of Sport Fisheries and Wildlife, Raleigh, North Carolina, was concerned primarily with the effect of spoil upon wildlife. The spoil will require 3900 acres on land, 3800 acres on shallow water, and 2000 acres in deep water. Mostly the damage to wildlife habitat would be temporary, but about 1500 acres of waterfowl and fur-animal habitat would be destroyed.

President *T. D. McGuinnis*, Virginia Seafoods, Incorporated, Irvington, stressed the quality of Virginia oysters, and discussed the industry's economics. He listed 132,000 acres of private beds and 201,000 acres of State-owned beds. The private beds get 95% of the James River seed, and he reported that they harvest 4 times as many oysters as the larger State acreage. In 1960-61 there were 2857 licensed tonging boats, averaging three men. Patent-tong licenses numbered 95; the total employment is close to 9000. The total value of boats and equipment is \$4,295,000. In addition, there are 100 or more buy-boats. There are 116 shucking houses, worth from \$10,000 to \$1,500,000 according to State figures. The total is estimated at almost \$40 million in buildings, land and equipment.

Boats and dredging equipment owned by planters is estimated at \$4,548,500.

Planters pay an estimated average of \$3,730,053 for James River seed oysters, Mr. McGuinnis said. The average growing time is 3 years, so the average investment in seed is \$11,190,150, having a value after processing of \$41,445,000.

The 116 shucking houses have 5425 employees, with a payroll of \$271,250 a week in season.

The total investment, Mr. McGuinnis said, is just under \$60 million, employees 14,381.

The labor used is probably unemployable in any other work, he added. If any attempt were made to relocate them, the crabbing and fishing they do in other seasons would be discontinued, and will have ill effects on those industries.

John Garland Pollard, Jr., Lancaster, oyster planter, saw weakness in the C/E proposal in that changing conditions might seriously impair payout—the effect of the pipeline, for example. Moving coal overland as sludge is a strong probability.

Mr. Pollard attacked the C/E cost estimates as too low, and the interest rate as also below the present market. Dredging costs have been estimated at 43 cents per yard; current prices are \$1.30 to \$1.50. A 35' channel will not accommodate the supercarriers now being built. He wonders whether the taxpayers of Richmond know how much in the way of permits, leases, etc., has been promised in their name.

The C/E proposal is limited to navigation. He suggests delay for additional planning, to include recreation, conservation, water power, bank protection, etc.

Finally, Mr. Pollard cited the annual maintenance of close to \$2 million per year on the 35' channel. An expenditure of \$1 million a year on the public oyster grounds would return \$3 million, he said.

(Luncheon Recess)

After the recess, Mr. Fidler read a statement from Senator E. Almer Ames of Accomack, supporting the construction of a model to obtain additional information.

A letter from Colonel Jim Roberts, Norfolk member of the House of Delegates, advocated delay for additional study.

A telegram from Senator William B. Spong and Delegates Willard J. Moody and Donald H. Sandie from Portsmouth favored completion of the Hampton Roads port facilities before the James development, and delay to see what damage would result to the seafood industry.

A statement from Gene Paulette, Executive Vice-President and Cashier of the Bank of Middlesex, Urbanna, emphasized the dependence of Tidewater Virginia on the oyster industry, and he recommended construction of a model.

Resolutions from banks in the Northern Neck Clearing House Association favoring building a model were introduced; the following banks were represented:

People's Bank, Reedsville
Bank of Northumberland, Heathsville
People's Bank of White Stone
Lancaster National Bank, Irvington
Bank of Lancaster, Kilmarnock
Chesapeake Banking Company, Lively
Northern Neck State Bank, Warsaw
Bank of Westmoreland, Colonial Beach
South Side Bank, Tappahannock

The Northumberland Chamber of Commerce had a similar resolution.

Chairman J. W. Ferguson, Sr., of the Middlesex Board of Supervisors, Remlik, seafood producer and oyster planter, pointed out that, unlike many industries with a choice of supply sources, Virginia oyster planters have only the James River seedbeds for their raw materials; they can get nothing from the north, and pay a 58¢ tax on North Carolina seed oysters; South Carolina has a small supply but he has not had much success with them, and Florida has embargoed oysters.

Mr. Ferguson said he was tonging in the James before the 1930-31 dredging, he knows that about 20% of the production areas, measured in output, was destroyed. Before the dredging the average was 200 to 300 bushels per boat per day, a level maintained for years before. It never again reached that amount. And the area to be dredged out under the C/E proposal is most productive.

The swell from passing ships, Mr. Ferguson said, causes a current on the bottom even now; an increase in traffic would make it greater.

He submitted a resolution from the Board of Supervisors.

General L. B. Puller, USMC (Retired), Saluda, was opposed to any tampering with nature, feeling that the country is going to hell in a handbasket. He cited the case of a pulp mill on the York River which

killed all the oysters, polluted the air, and finally forced the townspeople to stop the dumping of waste. The come-back is very slow, the General said.

A statement read for *Jack Curtlett*, oyster planter, Morratico, (who was present), said the seed he bought from the James River beds during the dredging in the '30's died after planting because their gills were full of silt. A valuable oyster ground near Hampton was recently made worthless by silt from dredging a tunnel. A new crust will form and the bed will again be valuable, he said. But if silt is constantly stirred up by enormous ocean liners going up to Richmond or by the constant dredging necessary to keep the channel open, oysters will be injured.

On one occasion the owner of a neighboring oyster bed to Mr. Curtlett's was forced to use a large boat for planting seed oysters; the propellers stirred up enough silt so that the already planted oysters on Mr. Curtlett's bed were killed.

Charles M. Lewis, oyster planter of Tidewater, said a 35' channel is already obsolete. He expressed concern over contamination from industrial plants and its effect upon the seafood industries. He thinks Richmond is not properly located to be a deep seaport. He doubts that past dredging helped the oyster industry, remembering when there were about 20 oyster houses in the Norfolk Area where there are none now.

Bob Sterling represented the Virginia Oyster Association. He was concerned over the breakup of rocks in the James River beds due to dredging. Ships running at half speed pull a heavy sea, he said; he was once caught by a wake while cooking; the boat caught fire, but to avoid swamping he had to head for deep water with a fire aboard.

Delegate Fidler summed up with an extended statement. Although the oyster industry is sometimes reluctant to provide figures, being composed of individualists, it is far from moribund. In 20 years, for example, he pointed out that the number of acres leased to planters had almost exactly doubled. The James River seedbeds have produced 2 million bushels of seed a year; the whole remainder of the Atlantic and Gulf Coasts produces 100,000 bushels. The seed oysters bring \$2 million a year. At 4%, this represents a capitalization of "\$500 million" in Mr. Fidler's figures. (The editor makes it \$50 million.)

The C/E report, he says, shows that no study was made of possible oyster damage; they relied upon a statement by the Virginia Ports Commission. He calls the C/E explanation of its failure to recommend a test model ("Too many indeterminates . . . apparent inability of biologists to forecast . . . damage, if any") weak. He says the real reason is that C/E is afraid that tests would uncover possibility of seedbed damage, which would have to be entered as a cost, possibly upsetting the benefit-cost ratio, already narrow.

He further attacked the C/E report on spoil areas, saying they are undetermined and listed for planning purposes only. He said the prospects of destroying wildlife areas constituted a threat; other states have forbidden the filling of marshland. The burden which the city of Richmond has assumed in connection with the C/E proposal, Delegate Fidler feels, is enormous, and also a confession by the C/E that actual danger to the seedbeds really exists. Moving rock in dredging sometimes causes wells (on nearby land) to run dry, or artesian wells to become salty.

Mr. Fidler cast doubt on the accuracy of the revision made by C/E in the benefit-cost ratio when the pipeline computation was made.

He expressed resentment that so many non-oystermen purported to speak on the subject of damage to the seedbeds, citing Delegate Marks of Hopewell (who was in attendance), Mr. Bridges of the Richmond Chamber of Commerce, and Dr. Northrop of the Wharton School of Finance. Mr. Fidler pointed out that not a single "qualified person" had said there would be no damage.

The opposition to the dredging is not opposition to industry—Mr. Fidler made clear he backs the Governor's efforts in this field and wants industry for the Tidewater Area—but from honest and sincere worry about the effects of the oyster industry for years to come.

Mr. Fidler summarized with three recommendations:

1. That further study of the spoils areas be made with a view to maximum preservation of marshland.
2. That C/E list all items to be provided by local interests, not included in present costs, and include such cost in a new benefit-cost study.
3. That a basin model be constructed before decision is made.

Senator Blake Newton supported a model study.

Frank Wyche, President of the Appomattox Basin Industrial Development Corporation, organizer of a major part of the testimony at Hopewell, reminded the Commission that at the Hopewell Hearing he had promised for the proponents to provide qualified testimony on the oyster industry and its relation to the C/E proposal. He introduced his authority, *Dr. John T. Mackin* of Texas A&M, head of the Biology Department.

Dr. Mackin qualified himself by saying he had discovered and studied for many years the fungus disease in the James; "the same thing is true of the MSX organism." He has studied siltation in Louisiana and Texas, is familiar with all authorities, and once worked with the Virginia Fisheries Institute and on the James.

"It is not my belief that this dredging operation could in any way destroy . . . the James River seed industry or the industry of the entire State . . .", he said. "If there is any damage, it must be marginal."

The problem, as he saw it, is one of measuring the amount of **damage**, if any. The entire problem hinges on whether the dredging will increase the salinity "significantly".

Dr. Mackin said that a 5-point increase would be significant and would bring disease to the beds, and damage—but not destroy—the seedbeds. But the increase talked about by those who have studied the C/E proposal "is in the nature of a fraction of a part per thousand".

He continued, "It is my belief that this . . . increase would not have a measurable effect . . ."

The cross-section of the channel will be increased 2% to 4%. The salinity, he said, might be expected to increase by the same percentage—from 12 parts per thousand to 12.3 or 12.6 parts, for example.

Dr. Mackin interpreted Dr. Pritchard's statement on the salinity change from the C/E plan as saying that it would have no effect at all. He said the changes in currents forecast by Dr. Pritchard would "increase the set on the seedbeds, not decrease it."

On siltation, Dr. Mackin said "the silt which is carried away from a (suction) dredge would be negligible." In other words, suspended silt would have no effect on the beds. Spoil deposited on land will not harm the oyster beds, he said. But he said the best way to dispose of spoil is to spread it on soft bottom, now unusable. He quoted four other specialists as saying that suspended silt will not harm an oyster.

Dr. Mackin emphasized that the oyster industry is declining world-wide, giving figures for Louisiana and Maryland, England and Holland. The only increasing industry in the US is in Washington, based on the Japanese oyster which he considers inferior. Virginia and Louisiana have maintained their industries after long and great declines. The Australian oyster industry is increasing, after a sharp decline.

The maintenance of production in Louisiana is characterized by the fact that the oil industry requires dredging "right through the beds. If they take care of their spoil, it has no effect on them whatsoever."

Responding to questions, Dr. Mackin said the Louisiana beds are comparable to those in the James—"tremendously good". Susceptibility to dermocystidium begins at the second year of an oyster's life and increases; "this may not be true of MSX." Young oysters are more susceptible to drills, because of thinner shell.

Regarding pollution, he calls the Houston Ship Canal "heavily polluted industrially . . . Galveston Bay is the most polluted of all the bays in Texas. It also produces the most oysters." This pollution is both sewage and industrial. Sewage pollution has closed many of the beds in Galveston Bay. "Industrial pollution appears to play out close to the end of the Ship Canal."

If anything—pollution or any other agent—removes oxygen from a bed "you would most certainly kill it. I haven't seen any area where you would get an effect 40 or 50 miles away. I doubt whether you would get an effect that far down in any estuary . . . too great a volume of water." He said long-distance pollution sometimes happens, but he has never seen it happen with industrial pollution.

The Louisiana seedbeds have been estimated between 50,000 and 100,000 acres. All areas have a little dermocystidium. Seed oysters have long been taken with heavy dredges; "it doesn't seem to hurt the beds."

Dr. Mackin said the season, or amount of current, is unimportant in siltation damage; "if you pump this spoil to land, you don't have to worry about it . . . we get almost no effect at all within 10 feet of the cutter head of a suction dredge."

The cause of the world decline in oystering, Dr. Mackin said, may be disease. Until world-wide seaborne commerce started, diseases tended to be local. But "oysters have a habit of attaching themselves to the bottom of boats" thus spreading disease, which will develop any place conditions are right. He drew a parallel with syphilis, unknown in Europe until Columbus took it back with him.

The Commission asked a specific question. Quoting Dr. McHugh, "Since the oyster industry began, the channel has been dredged and deepened several times. And yet this has had no demonstrable effect on the oyster resources." Does Dr. Mackin concur?

"Yes, I do," he answered. Figures of production of James River seed oysters, by ten-year intervals, show that "after the dredging, production increased." He said the increase might have been because of economic

factors. The figures do mean, he insisted, that "you can't say the dredging was deleterious . . ."

Reliance may not always have to be placed on seed, Dr. Mackin said. He thinks he could develop an industry in Virginia or Louisiana without a seedbed. He described the method used in Holland, which is much more expensive than natural methods. It is easier to treat some diseases in such production methods, he implied.

Dr. Mackin repeated that the increases in production following dredging probably had an economic cause—people willing to work for a dollar a day. All the figures mean, he repeated, "is that the dredging of the . . . channel did not hurt the industry."

SIXTH HEARING

Gloucester Point

November 2, 1962

This hearing was much less formal than the others.

Scientists of the Virginia Institute of Marine Science and invited fellow scientists discussed the life cycle of the oyster, the factors which favor its health and those which threaten harm, all tied in with the C/E proposal.

Without exception, the scientists favored a model study to develop more and better information.

In general, no scientist here said the seedbeds would be destroyed, none said positively they would suffer material harm; all said they did not know.

The exchange between *Colonel Carroll* and *Dr. Warren* on one hand and *Dr. Pritchard* on the other, on page 233, seemed to the editor to epitomize the day's discussion.

The following marine scientists participated in a roundtable discussion:

Dr. D. W. Pritchard, Johns Hopkins University

Dr. David H. Wallace, New York University, former President, Oyster Institute of America

Dr. William J. Hargis, Director, Virginia Institute of Marine Science

Dr. Jay Andrews, Chief Oyster Researcher, VIMS

Dr. Haven, oyster researcher, VIMS

Dr. Wood, Assistant Director, VIMS

Mr. Nichols, Oceanographer, VIMS

Dr. Brehmer, in charge of College of Pollution Department, VIMS

Dr. Pritchard said that because of increased knowledge, his statements now vary from those he made in 1958 on the same subject. He described in detail the oscillatory circulation and tidal cycles of the James River, emphasizing that there are two layers, two flows, one above the other, with different circulation characteristics. There is a turbulent motion which sometimes carries particles from one stream to the other.

Salinity, he said greatly influences these circulation factors.

Propagation of oysters in the James seedbeds depends upon these circulation factors to move larvae or spat from mature beds to the seedbed areas. If the currents are not propitious the larvae will drop short or carry beyond, with strong risk of dying without attaching and developing. The deeper the water, the more salinity; sometimes the salinity of the surface layer decreases with greater depth under it.

Dr. Andrews pointed out that the seed oyster beds are mostly at 10' to 12' depth, some almost out of water but mostly in areas of lower salinity.

Dr. Pritchard said temperature in an estuary has less effect than salinity; contrary to the case in oceans. The salinity effect is determined largely by the depth rather than the area covered. Deepening the channel makes for a steadier flow, with less temporary variation, but smaller net movement than at present. There will be less mixing between layers. "There would be less volume (of salt) going upstream if you deepen the channel." (*Commissioner Brown*, as a question with affirmative answer.)

The salt intrusion in the lower level, however, would extend farther upstream, he said. But he was reluctant to give precise figures.

Dr. Pritchard said the change in salinity will be a maximum of 2/1000, probably under 1/1000.

He added that a model study would give precise figures.

The James estuary, he said, is the best oyster seedbed area in the US. He believes this is because of the characteristics of salinity and water circulation there, especially the mixing factor. The balance, he feels, is delicate, and deepening the channel might disturb it.

Oxygen in suspension will also decrease, at lower levels, if the channel is deepened.

Dr. Pritchard concluded by saying "I am not saying that all these things will happen to a degree which will affect the oysters. That is not my area of specialty."

A model to provide usable results would have to simulate the area from several miles outside Point Comfort to at least six miles above the extreme intrusion of sea water. Models for other areas have provided some usable information, applicable to the James, he said, but a local model is the only way to get precise local data.

"Models cannot simulate biological phenomena," he said. "The model is simply to get the physical and chemical part of the picture." *Colonel Carroll* derived from this that if a model were prepared "we wouldn't know one darned bit more than we knew to start with about the oyster."

Dr. Pritchard said the change in flow would change the siltation rate, but "I can't say how." Deepening other channels have resulted in changes of shoal areas. Siltation is less of a problem with higher salinity, but the question as to whether it is significant "has really not been answered."

According to *Dr. Hargis*, small organisms like oyster larvae and plankton move with the circulatory patterns of their ambient water. *Dr. Pritchard* said a tracer dye in a model could tell much about larval movements. He could not say why the Federal Government, although paying for other models, wants Virginia to pay if a James model is constructed. There would be advantages of experience, facilities and space in having any model at Vicksburg. A model could provide valuable information to the State on pollution and water diversion.

The difference in salt-water intrusion if the channel is deepened would be one or two miles.

Dr. David Wallace said the James River beds produce $1\frac{1}{2}$ to 2 million bushels of seed oysters a year, resulting in 2 to 3 million bushels of market oysters. These are worth \$10-\$15 million annually to the oystermen, \$20 million after processing. This represents an equivalent capitalization of \$250 million. He thinks that present production, under proper management, could be doubled or tripled.

Pollution from industrial development, *Dr. Wallace* feels, would be an important factor in the oyster industry, and so would the continuing maintenance of the proposed channel.

The factors involved in oyster larvae setting are complicated and nicely balanced—zone of mixing, changes in oxygen content, the food of the larvae—all are “delicate and subtle”. Any change of any great magnitude “could be just the trigger that would change the James River from the finest seed grounds in the world to one which would be of minor importance. I don’t believe any change of this type is going to eliminate setting in the James River.”

“But the difference between having a good seed area and one which is not producing the seed to supply the industry is a very subtle, fine point—this is potentially a very dangerous situation we are facing here.”

Borers and dermocystidium, and oyster drills, might penetrate farther upstream, possibly presenting a greater hazard, if salinity is increased.

Seed oysters are being produced now under controlled conditions, in tanks, commercially; one Long Island company, *Dr. Wallace* reported, is producing 12,000 to 15,000 bushels a year. These oysters sell for \$12 to \$14 per bushel. Japan is also producing by this method. However, the Virginia price is \$4 to \$5 per bushel.

Seedbeds and transplanting are necessary to sustain the Virginia oyster industry, *Dr. Wallace* continued. “Natural reproduction is not adequate.” Natural reproduction inevitably results in an ever-declining industry and an eventual low level. This is true throughout the world—Japan, for example, has increased by controls from 12 million to 48 million bushels a year in 20 years; and Japanese oysters can now be marketed frozen in the US.

Dr. Andrews discussed the spawning process of oysters. They can move up and down, but can make little or no headway against any current. Setting decreases, normally, with distance upriver. Dermocystidium and MSX have no known effect upon larvae. Sets are higher on one side of the river than the other, heavier in some areas than others. The most and best sets are usually in 10'-12' of water.

Apparently predators and MSX use the same travel means as the oyster spat. Predators and disease attack older oysters more than seed oysters. Most James River seed oysters are disease-free when transplanted.

High salinities in the fall, *Dr. Wallace* said, favor setting, and low salinities in the spring help control disease and predators. There is a greater difference in salinity between top and bottom in the fall than in the spring.

For two years there has been a low set in the James River; *Dr. Andrews* said the scientists do not know why.

SALUDA AND GLOUCESTER POINT HEARINGS
SUPPLEMENTARY MATERIAL

Statement of Senator W. M. Minter

In his oral testimony Senator Minter covered the same points as in this written statement. The oral presentation departs substantially in order and in style of presentation, as well as in language.

The tenor of both is that the seafood industry is highly important, that it is threatened, that no precise information is available on whether or not the dredging would cause damage, and the solution would be a scale model study.

No Harm Meant: Editorial From News Leader

This editorial, introduced by Senator Minter, says that if the C/E proposal cannot be accomplished without harm to the seedbeds, "the project will have to be abandoned."

It favors model study.

Letter from Waterways Experiment Station

This letter provides cost information regarding model construction. The writer says that, while he knows of no model having been used in connection with information regarding oyster seedbeds, he believes that "the chance of developing economic solutions would be excellent."

Presentation by Virginia Seafoods Incorporated

Mr. McGuinness used all of this material in his presentation. The statistics are easier to read in this tabular form than in the transcript.

Statistics, Commission of Fisheries

These statistics, sent to the Commission July 6 and July 11, 1962, describe the scope of the oyster industry.

This material was used in part by Mr. McGuinnis starting on page 83 of the Saluda Hearing.

Treasures from the Sea

This booklet is a report of the economic importance of the seafood industry.

Statement of Jack Curlette

The prepared statement offers to provide on request, the name of the planter referred to.

Statement of West Point Delegation

This statement favors the development of the York instead of the James as a water commerce artery for the Richmond Area.

Letter from Delegate Gwathmey

Favors development of the York River as an alternative, partly on the basis of danger to the oyster industry.

*Resolution, Northern Neck Regional Planning
and Economic Development Council*

This resolution opposes action until after scale model tests.

Resolution, Essex County

This resolution opposes the C/E proposal on the ground of potential damage to the oyster industry.

*Resolutions, Northumberland Chamber of Commerce
and Northern Neck-Essex Clearinghouse Association*

These resolutions favor delay for model studies. They were accurately briefed by Delegate Fidler on pages 111 and 112 of the Saluda transcript.

*Resolutions by Gloucester, Richmond,
Accomack and Middlesex Counties
and Middlesex Ruritan Club*

These resolutions are almost identical in wording. They ask for delay "until definite proof has been established that said dredging will not endanger the James River oyster beds."

Testimony on the James River Navigation Project

This prepared statement was covered, point by point, in Dr. Hargis' oral testimony. The oral material contains a great many interpolations which are not carried in the prepared statement. The latter is probably a little easier to read because it contains subheads.

COMMENTS ON THE HYDROGRAPHY AND BIOLOGY
OF THE JAMES RIVER ESTUARY

In this supplementary statement Dr. Hargis repeats with great emphasis his oral testimony at Saluda. The information and opinions were shared generally by the scientists at Gloucester Point.

He states definitely that certain physical changes—in salinity, and the layering of the water—will result from the C/E proposal. The change in salinity will be 0-2 points per thousand in the lower layer, he believes and 0-1 point in the upper. Changes in the depth of the level on no-net-motion "probably will be slight," Dr. Hargis says, and estimates of changes in rate of flow of the layers and levels of dissolved oxygen "are not possible".

As to the biological effects of these physical changes, he says it is "certain" that biological phenomena are affected by these physical factors, and that "organisms whose power of locomotion are poor to nonexistent are most severely affected by changes in their physical environments." He says that "Biological changes will result" from changes in depth.

He listed as possible dangers the same points as in his oral testimony—reduced number of larvae carried by reduced flow to the seedbeds, poor condition because of decreased oxygen or increased travel time, reduced mixing between layers. This, he said, is the most serious of the possibilities for damage to the seedbeds.

He expressed the belief that increased salinity could increase the range of disease and predators. This would be especially detrimental to

beds in high-salinity depths, below 10-15 feet. He cited one rock now producing 50,000 bushels a year as being in this lower level.

Dr. Hargis listed 6 possible adverse effects:

1. Alteration in the upstream movement of larvae.
2. Alteration in movement to upper layers and outward to the shallows.
3. Changes in oxygen content in the lower level. (These three he considered *most serious*).
4. Dredging of 30-60 acres of seedbed.
5. Increase in drills and other pests below 10-15 feet.
6. Increased upriver range of pests.

"Much remains to be learned," Dr. Hargis stated. A model study "will disclose what physical changes will result from channel deepening . . . It will also be possible to learn . . . the effect . . . on oyster larvae." This information must be accompanied by special laboratory and field studies, he said.

Although the C/E proposal is delayed because of consideration of biological effects, a model would also be useful in studying "pollution, habitat destruction, shoreline change."

ANALYSIS OF THE FACTORS WHICH MAY RESULT FROM DEEPENING OF THE JAMES RIVER

This supplementary statement by Dr. Mackin repeats the main points made in his testimony beginning on page 169 of the transcript. In addition, he refutes some of the points made at Gloucester Point and at Saluda by scientists testifying for those favoring delay.

On the question of siltation, he says again that siltation from dredging is not a serious problem and need not be considered. So far as destruction of wetlands is concerned, he recognizes that spoil areas will "displace" wildlife; in his mind the thing to do is "balance possible gains against possible losses." He says some form of wildlife will return or establish itself on the spoil.

The problem of danger from increased salinity, he insists, does not exist.

In his discussion of the salinity question, Dr. Mackin first assumed for discussion purposes that a significant increase in salinity would result from the channel deepening. In that case, he said, the seedbeds would be moved upriver, to be approximately the same as now. "It is certain that complete destruction would not occur," even in areas in which MSX might intrude. He points out that the Brown Shoals seedbeds, now in the MSX area, is "still useful". Salinity equal to the present degree at Brown Shoals could not be attained over the seedbeds in the James River, because of periodic flushing in rainy seasons.

He feels that the MSX infestation is declining in Virginia as it has in Delaware, where the extension almost to the seedbeds occurred without significant change in salinity.

Dr. Mackin quotes the Andrews-Wood paper of July, 1962, (Included in this supplementary material, "Oyster Disease Discussion") as supporting his contention that "it is difficult to take MSX in the seedbeds seriously.

Dermocystidium is also "highly susceptible to flushing action" and "probably could not maintain itself in the seedbeds even with a relatively high salinity." Even if it could, Dr. Mackin continued, "this fungus could be widely distributed over all the seedbeds without any significant mortality taking place" because young oysters "are not very susceptible."

Drills, too, would be subject to flushing; "they could not become numerous enough under the circumstances to do much damage."

After this hypothetical discussion, Dr. Mackin returned to his insistence, as in his oral testimony, that "no salinity change will occur at all over the seedbeds." He quotes Dr. Pritchard in his February letter to Dr. Hargis (included in this supplementary material, "Past Position of Marine Biologists,") as supporting this position. If there is any change he maintained that it will be under 2 parts per thousand, and probably under 1 part per thousand, under the worst conditions, and that these extremes could not be attained under natural conditions of mixing and dilution.

In his paper Dr. Mackin attacks the hypothesis of Dr. Hargis and others that oyster larvae are carried from downriver beds to the seedbeds; he says that for the most part they come from up-river creeks.

The vertical movement of larvae from deep-water beds is just as necessary now as if the channel were deepened, he said.

Dr. Mackin maintained, as orally, that the previous dredging did no harm to the seedbeds. Increased production, "larger quantities than had ever been demanded previously," were taken immediately after the previous dredging; this would have been impossible "if the seed oysters had not been in the river and available in very large quantities."

He ended this point by saying "It is my opinion, therefore, that the previous history of dredging provides the very best clue possible in predicting what will happen after another dredging."

Dr. Mackin deprecated the value of a basin model in obtaining information about oyster setting. Such a model, he said would "provide some very interesting data. It is not so clear that the data would be applicable to biological problems of the complexity of the present . . ." He then continued "after working with a model for several years, no better data would be at hand than are already available. One cannot beat previous experience in such a study as this, and previous dredgings have already set up as near perfect an experiment as possible . . . There is scant reason to believe that the proposed dredging would harm the seedbeds."

PAST POSITION OF MARINE BIOLOGISTS ON C/E PROPOSAL

This compendium came from Dr. Hargis on February 8, 1962, and should be considered in connection with his statement which starts on page 31 of the Saluda Hearing. It covers the same subjects and arrives at the same conclusions.

The first element of this supplementary material is a report by Dr. Hargis, summarizing the history of efforts to obtain a model study in connection with the C/E proposal. It is admirably summed up in the memo with which Dr. Hargis transmitted it.

Next unit is a summary of the meeting August 27, 1958, called by the Virginia States Ports Authority, aboard the yacht SEALEVEL.

Third is a letter from Dr. Pritchard, in February, 1962, stating his position almost exactly as he later stated it to the Commission. He transmitted a copy of his more extended remarks before the General Assembly committee in 1958, which forms the next unit.

Then comes the statement by Dr. Galtsoff of Woods Hole; he was a little more sure, apparently, than his fellow biologists that the C/E proposal would cause damage to the seedbeds from siltation, increased salinity and intrusion of predators.

The final unit in this compendium is a statement by Dr. McHugh before the same Assembly committee. Dr. McHugh concluded by saying:

"America has been careless in the management of her natural resources. Most of our losses . . . could have been prevented if the necessary knowledge had been available in time, if existing knowledge had been applied intelligently, and if all aspects of the situation had been examined carefully before adverse conditions were established . . . We have considerable knowledge that causes us to be pessimistic about the effects of this project upon valuable fishery resources. These should not be sacrificed lightly in the interest of industrial development."

OYSTER DISEASE DISCUSSION

This is a collection of technical papers dealing with oyster diseases and what is being done about them. The authors vary but are leaders in the fields discussed. The papers are:

A Summary of Disease Conditions in Virginia Oysters—MSX in Virginia (1962) This says that seed oysters in Brown Shoals are infected, and some at Wreck Shoal, but mortality at the latter is light.

Summary of Disease Studies in Virginia for 1961

Status of Diseases of Oysters in Chesapeake Bay (1961) Seed above Wreck Shoal is free from MSX.

Memorandum to Oystermen

Describes research objectives and urges support.

Oyster Mortalities in Delaware and Chesapeake Bays (1960) A detailed roundup of disease incursion by areas, what is known about diseases, and the outlook.

Letter from Dr. Hargis, August 14, 1962

This letter deals with MSX and should be considered with "Past Statements of Marine Scientists" and "Oyster Disease Discussion," both included with this supplementary material.

This letter says that MSX is a protozoan, not a virus, and that work in developing immune strains is in preliminary stages. After listing five sources of information on MSX, Dr. Hargis pointed out that "oyster populations have suffered epidemics in the past and recovered from (them), as have humans. In all probability this will eventually occur in the present instance. Science's chief job is to hasten recovery."

Apparent Increase in Incidence of MSX

This technical paper reports University of Maryland studies at the Chesapeake Biological Laboratory at Solomons. As the letter of transmittal points out, not a great deal of progress resulted.

One fairly definite conclusion was that salinity increases bring on increases in the incidence of MSX. They did not seem to increase the intensity of the infection, however.

Press Release, VIMS, *Spatfall Fails in James River*

This release tells of the failure of oysters to set on the James River beds in 1962, for the first time in 20 years although in 1961 there was a "near failure." Virginia Institute of Marine Science is unable to define the cause, although it feels that disease and predators decimating the parent stock may be related. It rules out "climatological factors."

WATER POLLUTION PROBLEMS

In this testimony given May 29, 1963, to a Congressional Committee, Dr. McHugh restates his position on salinity as expressed in his statement to the Commission at Saluda and as expressed by most of the marine scientists who appeared before the Commission.

In brief, he says, speaking of the C/E proposal, that "The change will be in an adverse direction, we know. But we do not know whether the adverse effects . . . will be insignificant or substantial."

He also related the proposed industrial development, expected to follow the James deepening, to water pollution.

Dr. Hargis expressed his views on salinity here in brief, nontechnical language; it is easily readable.

BOD Assimilation Capacity of the Lower James River

This is a highly technical paper on water pollution. It was prepared by Donald J. O'Connor for the State Water Control Board.

It deals primarily with the Hopewell Area.

Your editor doesn't have the slightest idea what this paper says. It appears to be a theoretical study of how to measure pollution. From the measurements, presumably the types of corrective measures might be suggested.

LET'S BE OYSTER FARMERS

This 1958 pamphlet is an exhaustive treatise, in layman's language, of the oyster industry. Its chapter headings in the Table of Contents give a good idea of the scope of the book. It contains nontechnical material on oyster pests and diseases.

An Act to Promote the Production of Oysters

Approved in August, 1962, this law authorizes the Secretary of Interior to acquire resistant brood stock in areas of disease and distribute them to places of need.

It also provides grants for research to develop resistant strains.

The House report is interesting; it struck out a proposed program of loans to producers. Hearings on the bill begin on page 58 and end on page 91 of the bound volume.

Richmond Waterfront Terminals, Professor Herbert R. Northrup, Wharton School, University of Pennsylvania, 34.

Richmond Chamber of Commerce, Executive Manager Malcom Bridges, 48.

Industrial Development Committee, City Council, Richmond, Mrs. Ruth Herrink (arose for identification), 65.

Reynolds Metal Company, Richard Maxwell, Assistant to the President, 65.

Universal Leaf Tobacco Company, Traffic Manager John F. Meredith, 69.

Virginia-Carolina Chemical Corporation, Vice-President Douglas Laird, 73.

Albemarle Paper Manufacturing Company, Vice-President Charles H. Robertson, 77.

James River Basin Association, (Mr. Robertson, above, is Vice-Chairman), 77.

Richmond Regional Planning Commission, Executive Director Robert L. Horn, 88.

Sternheimer Brothers, Nathan Sternheimer, President, 96.

Goochland County (Supp.)

Committee on Water Resources (Supp.)

Richmond City Planning Commission (Supp.)

Potash Import and Chemical Company (Supp.)

BUSINESS AND PROFESSIONAL REQUESTS FOR DELAY FOR MODEL STUDY

Few witnesses directly opposed the C/E proposal, but many said present information is insufficient for basing a decision on its effect upon the oyster industry. Almost without exception, the opponents of the plan asked for additional study, and most of them specifically recommended construction of a basin model and studies conducted with it.

The first witness to mention the model was Judge Herbert C. Smith, whose testimony starts on page 24 of the Newport News Hearing transcript. However, at the Norfolk Hearing the Hampton Roads Maritime Association advocated "thorough study and re-evaluation". The C/E Review Report also has paragraph 72, page 64, on the subject of model study. Appendix E, Exhibit 16, deals at length with model studies.

Other business and professional leaders supporting the idea of a model study were all at the Saluda and Gloucester Point Hearings. They were:

Name and page number:

Senator W. M. Minter, Matthews, 8.

Attorney C. F. Hicks, Gloucester, 20.

Dr. William J. Hargis, Jr., Director, Virginia Institute of Marine Science, 31.

H. Lee Boatwright, Jr., Lancaster, 61.

T. D. McGuinnis, Irvington, 83.

John Garland Pollard, Jr., Lancaster, 94.

Gene Paulette, Executive Vice-President and Cashier, The Bank of Middlesex, Urbanna, (in a statement read by Delegate Fidler), 109.

J. W. Ferguson, Sr., Remlik, 113.

Delegate Walther B. Fidler, Sharps, as attorney or manager, for opposing witnesses, 140.

Dr. D. W. Pritchard, Johns Hopkins University, 195.

Dr. David H. Wallace, New York University, 243.

Dr. Jay Andrews, Virginia Institute Marine Science, 249.

The following were recorded as opposed to the channel or favoring delay.

Oysters Growers and Dealers Association of Virginia, 44.

J. H. Miles Company and Ballard Fish and Oyster Company, 49.

Virginia Seafoods, Inc., 83.

Bank of Middlesex, 109.

Northern Neck Clearing House Association:

Peoples Bank, Reedsville; Bank of Northumberland, Heathsville; Peoples Bank of White Stone; Lancaster National Bank, Irvington; Bank of Lancaster, Kilmarnock; Chesapeake Banking Company, Lively; Northern Neck State Bank, Warsaw; Bank of Westmoreland, Colonial Beach; South Side Bank, Tappahannock, 112.

Northumberland Chamber of Commerce, 113.

Middlesex County, 113.

Propeller Club of Norfolk, Richmond Hearing, 91.

Norfolk Marine Terminal Association, Richmond Hearing, 87.

Battery Park Fish and Oyster Company, Newport News Hearing, 38.

City of Hampton (Supp.)

City of Newport News (Supp.)

American Merchant Marine Institute (Supp.) (Opposed only deepening—wants widening, straightening, etc.)

Izaak Walton League (Supp.)

Norfolk Anglers Club (Supp.)

Peninsula Committee for Parks and Planning (Supp.)

Peninsula Chamber of Commerce (Supp.)

Northern Neck Regional Planning and Economic Development Council (Supp.)

Essex County (Supp.)

Gloucester County (Supp.)
Richmond County (Supp.)
Accomack County (Supp.)
Middlesex Ruritan Club (Supp.)

ELECTED OFFICIALS

National and State elected officials appeared to express their views on the C/E proposal. Asterisk (*) indicates statements read. They were:

Favoring:

Hopewell Hearing

Senator Garland Gray, 4.
Congressman Watkins M. Abbit*, 6.
Senator John H. Temple, 9.
Delegate Roy Smith*, 10.
Delegate Arthur H. Richardson, 10.
Delegate Lyman C. Harrell, Jr., 12.
Delegate Llewellyn H. Irby*, 16.
Delegate C. Hardaway Marks, 16.
Senator Joseph C. Hutcheson, 24.

Richmond Hearing

Delegate Edward M. Hudgins, 6.
Senator Lloyd C. Bird, 16.
Delegate William Parkerson, 16.
Delegate Junie Bradshaw*, 16.
Delegate Matthew Anderson*, 16.
Delegate Robert Gwathmey*, 111, 16.
Senator Fitzgerald Bemiss, 17, 82.
Senator Edward Haddock, 17.
Delegate Edward Lane, 18.
Delegate T. Coleman Andrews, Jr., 18.
Delegate Harold Dervishian, 16.
Delegate Dave Satterfield, 18.
Delegate George Allen, 18.
Congressman Vaughn Gary*, 19 and Supp.

Elected Officials Favoring Model Study

As with proponents, a number of opposition witnesses were elected public officials. In almost every case, they favored delay, sometimes specifically a model study, rather than specific opposition. Asterisk (*) indicates a statement read instead of a personal appearance.

In order of appearance at the Saluda meeting, they were:

Senator W. M. Minter, 8.

Delegate Walther B. Fidler, 44.

Senator Edward L. Breeden, 47. (See also Norfolk Hearing, 3)

Delegate Ralph James, 53.

Senator Fred Bateman, 59.

Delegate (Colonel) Jim Roberts*, 106.

Senator William B. Spong*, 108. }
Delegate Willard J. Moody*, 108. } Joint message. (Supp.)
Delegate Donald H. Sandie*, 108. }

Senator Blake Newton

Senator Edward L. Breeden appeared at the Norfolk Hearing.

Delegate Robert Gwathmey, III, Saluda Hearing and supplementary material, favored development of the York.

FIRST HEARING

Norfolk

September 5, 1962

Most of the witnesses at Norfolk appeared in opposition to the C/E proposal, representing business groups associated with the Hampton Roads ports. Two of the witnesses said the channel would take business away from the Hampton Roads ports; that the James River development would not add to Virginia's business, merely redistribute it.

One witness, however, said that whatever helps Richmond and Hopewell also helps Norfolk.

Concerning the oyster industry, one witness said it had been in a long-term decline; another saw grave danger to the seed oyster beds if dredging takes place.

The Quittmeyer Report, *Some Economic Consequences of a 35' Channel to Richmond*, appears in the Supplementary Material. It is the principal rebuttal by opponents to the C/E proposal.

Senator Edward L. Breeden, Jr., Norfolk

Virginia has money invested in port facilities in the Norfolk area, some of which are still under construction. Should the State invest in other facilities until these are tested?

The petroleum pipeline will compete with water-borne traffic and its effect must be studied.

Norfolk packs oysters, and the results of proposed dredging on that business are a matter of concern. "We ask you to give it very mature and careful consideration. It is not all a blessing."

*E. E. Ball, Chairman, Norfolk Marine
Terminal Association and Vice President
Elizabeth River Terminals, Incorporated*

He said his Association represents the four public marine terminal operators of the Port of Norfolk.

The proposed James River channel, he said, would not add to the total business of Virginia but merely shift some of the volume from the Norfolk area to the Richmond area.

In addition, it would imperil the seed oyster business and its \$30 million annual volume.

By eliminating some of the land-borne and local water-borne transportation, the proposal would mean a net loss to Virginia.

He reported that port facilities in the Hampton Roads Area are operating at only 60% of capacity, and new facilities are under construction. He was especially concerned about general cargo.

The area has experienced substantial population growth in the past 10 to 15 years, and has undertaken substantial debt for transportation facilities. These were based on the expectation of increased development of the Norfolk port. Development of the James could imperil the economic soundness of these improvements.

Until the Hampton Roads Area has "reached the saturation point in port-oriented industrial development," any economic advantage to the James River area (from such development) must be negated by the economic loss to the Hampton Roads Area.

The Tidewater Virginia Development Council claims to have available now, "a multitude" of sites for industries of any type.

Additional industrial sites could be made available by extending or deepening the branches of the Elizabeth River, without possibility of damage to the seed oyster beds.

If additional fresh water is the objective, it could be brought to the port more cheaply than to bring the port to fresh water.

G. A. Massenburg, President, Hampton
Roads Maritime Association, Norfolk

He presented a resolution of the Association advocating "thorough study and re-evaluation".

W. B. Shafer, retired, Norfolk

He said anything that helps Richmond, or Virginia, will help Norfolk. "We have got to love one another and not fight one another."

(Appears to favor a canal from Norfolk to Elizabeth City.)

J. H. Fleming, Jr., Portsmouth

Inherited his father's oyster business, which has been in a decline for 50 years. In 1898 there were 28 oyster packing houses in Norfolk; now there are 2, both closed.

When the Lafayette River was dredged, an oyster planter sued and obtained \$35,000 damages for covering up oysters.

Years ago a boat would take 45 bushels of oysters; it dropped to 25, "and that is when I noticed the depletion".

The destruction of the oyster beds has meant the destruction of the fish business. Croaker was once the poor man's fish; now it is not seen in the markets.

William P. Ballard, President
Ballard Fish and Oyster Company

He spoke also for the J. H. Miles Company and opposed the dredging because of the "probably disastrous effect it will have on the seedbeds".

These seedbeds, he said, are the only hope of the industry's survival. Dredging will increase salinity and the invasion of marine predators.

About 90% of the oysters planted by the two companies were lost to predators ("this protozoa").

Before the disease incursion, the two companies had about 1,000 employees; now they have about 100.

James N. Crumbley, Assistant General Manager
Norfolk Port and Industrial Authority

He gave a history of the James River channel, and a summary of the C/E figures on present proposal, including pipeline revision.

On the basis of present studies, reduction of petroleum volume to 81% would bring the benefit-cost ratio to 1/1.

It is possible the result of the proposal would be a net loss to the State of Virginia. He cited the gain to out-of-State oil companies, and reduction in local Virginia petroleum transport.

The trade area of any port on the James River would be limited and is already in the Hampton Roads hinterland.

A deeper channel would divert tonnage already moving through Hampton Roads, or change it from shallow-draft to deep-draft vessels. Local truck and rail carriers would suffer loss of business.

Hampton Roads port terminals are not now used to capacity. The present 40' main ship channels are not adequate for modern bulk carriers.

Industrial sites are available on the York River, which already has a depth of 40' or more.

If heavy industry would locate along the James River it would be of benefit to the State's economy. For heavy industries that require large amounts of raw materials delivered by bulk carriers, a 35' channel is not adequate. For example, the US Steel Company plant at Morrisville, Pennsylvania finds the present 35' channel inadequate, and the 40' channel now nearly completed is still inadequate. The new coal-trade vessels will require 44'6" channel. Baltimore is deepening its 40' channel to 42' and now wants 45'.

Hampton Roads, the State's main port, needs money to deepen its channel to 45'; diversion of funds to other projects places the usefulness of the primary ports in jeopardy.

In summary, Mr. Crumbley listed the following:

1. The benefit-cost ratio is marginal and, depending upon the use made of the pipeline, may become submarginal.
2. There will be no net economic gain to the State insofar as additional cargo is concerned.
3. A deepwater port at Richmond would have a fatal impact on small towing and barge companies now on the James.

4. Revenues of rail and truck lines would be reduced.
5. The trade area that would use Richmond and other James River ports is part of the Hampton Roads hinterland and any business they would develop would be at the expense of Hampton Roads.
6. Millions have been invested by private, State and Federal sources in the primary ports to serve a large area. No case can be made for developing a port 82 miles away.
7. It is doubtful that a 35' channel would be adequate to accommodate heavy industry requirements.
8. Construction and maintenance of a deeper channel would forever compete for the limited funds available to the Norfolk district for these purposes.

NORFOLK SUPPLEMENTARY MATERIAL

Some Economic Consequences of a 35' Channel to Richmond

This hard-hitting report challenges the economics of the C/E proposal. It was prepared for the Norfolk Marine Terminal Association by a team of three William and Mary professors, headed by the head of the Department of Business Administration.

The "conclusions" provided by the authors provide an excellent summary of their report.

The main points covered are:

1. The C/E proposal would result in only diversion of shipping from Hampton Roads to Richmond, not new business, and the loss to the Roads ports in dollars and jobs would be substantial.
2. The C/E cost figures, especially on interest, are not realistic; and the effects of the pipeline have not been accurately calculated. This study concludes that the annual benefits would be less than the annual cost.
3. Hampton Roads has plenty of industrial sites still available.

The study is the main rebuttal of opponents of the C/E proposal to the claims advanced by proponents.

Following release of this study, reactions were received from those who supported and those who opposed the report's conclusions.

The Peninsula Port and Industrial Authority reported it sponsored and partly financed the study and agrees with its conclusions, and wants it considered as a supplement to the material the Authority submitted at Newport News.

The Port of Richmond Advisory Commission, on the other hand, expressed dismay that the material should be accepted so late, that it appeared to be "a device for pursuing the argument in the press," and offered to provide any surrebuttal which might be indicated.

Similarly, the Appomattox Basin Industrial Development Corporation decried the study, saying the figures may be misleading; so far as the "ratio of return" within 1/10th of one percent of the established requirement. "We look at this askance."

AMERICAN MERCHANT MARINE INSTITUTE LETTER

This letter, dated January 23, 1963, reverses the previous position of the Institute in favor of the C/E proposal; it now favors deferring deepening until the effects of the pipeline can be determined.

The letter stipulates, however, that the objection is only to the deepening. The other features, the Institute strongly emphasized, should be accomplished without delay—straightening, widening, easing the bends, mooring basin, enlarging the turn basin. "It is a matter of record that the narrowness of the present channel, its sharp bends and limited space for turning have been the cause of a considerable number of ship groundings, collisions or near collisions and delays . . . The accomplishment of the above authorized improvements would alleviate this situation . . ."

IZAAK WALTON LEAGUE

The League opposes dredging until more information is available on damage to the seafood industry and to waterfowl population, on pollution, on recreational values, on possible multiple use, and on the possibility of York River development as an alternative.

NORFOLK CHAMBER OF COMMERCE RESOLUTION

The Chamber is opposed to the C/E proposal, on the dual ground of damage to the seafood industry and detriment to Hampton Roads shipping volume.

INTERNATIONAL LONGSHOREMEN'S ASSOCIATION RESOLUTION

This resolution by the Norfolk local, ILA, opposes the C/E proposal, saying that it would result in shifting shipping business away from the Hampton Roads Area rather than providing any net increase; that Hampton Roads ports are operating far below capacity; that ample industrial sites are available there; that diversion of shipping would cause great unemployment in the Roads Area; that the James River improvement would take away money needed for Roads improvements; that the James River should be saved to serve as a source of fresh water for industry.

SECOND HEARING

Newport News
September 5, 1962

Witnesses at this hearing touched on many subjects. They were divided, some supporting and some opposing the C/E proposal, and some wanting additional study or wider scope.

Two witnesses were concerned with preservation of beauty and sport fishing, one with traffic on the James River Bridge, one with development of the York.

One witness said the earlier dredging had not hurt the oyster industry and quoted a long-time oysterman as saying the new dredging would help the industry. (A newspaper clipping in the supplementary material gives this man's views.)

Another long-time oysterman, however, said the industry had declined seriously since the dredging and he believes because of it. He said increased salinity was the overriding cause.

Representatives of Hampton Roads business opposed the proposal, saying the burden of proof is on the proponents and saying conclusive evidence is not available that the oyster industry will not be harmed. They fear, also, that development of upriver ports will hurt their port volume.

Presentation of testimony here was not managed in any way.

First speaker was Senator Victor Wilson, who spoke in welcome without commenting on the subject of the inquiry; Senator Fred Bateman and Delegate Lewis McMurran did the same.

Mrs. Sandridge Evans, Hampton, Executive Vice-President of the Peninsula Committee for Parks and Planning, was greatly concerned lest industrialization and its pollution mar the natural beauty of the James. She urged a river-basin approach to the James River development, rather than merely navigation.

Mrs. B. Z. Henry, Hampton, speaking for the Peninsula Council of Garden Clubs, was concerned about the effect of pollution on all fish and shellfish, including sport fishing, and the tourist trade.

Arthur B. Butterworth, Rushmere, reviewed the history of dredging in the James. He said the oyster industry "certainly suffered no ill effects in 1929, 1930 and again in 1931 and 1932 when the channel was deepened to 25' . . . I have been a . . . waterman, boatman for the past 55 years . . . After conversing with many oystermen and fishermen, I am convinced opening this new channel over 30 years ago has not harmed, disturbed or affected in any way this valuable oyster bed. Therefore, I'm certain that further improving the channel will not."

Mr. Butterworth analyzed and denigrated the opposition to the C/E plan.

He said a recent Norfolk newspaper article quoted his next-door neighbor, App Marshall, as saying that this dredging will help the oyster industry.

Executive Director J. Frank Alsbaugh, Peninsula Port and Industrial Authority, presented the Authority's resolution that it "declines to advocate or sponsor" the proposed deepening of the James River. Further, the Authority "expresses its opposition to the proposal."

The resolution further stressed the economic importance of the seedbeds and the oyster industry, and said the "burden of proof" is with the C/E proponents, not the seafood industry.

The Authority expressed the fear that development of Hopewell and Richmond as ports would be detrimental to the Hampton Roads ports business.

Further, it wants study of the effect of the C/E proposal on the long-range plan to use the James as a source of fresh water for the Hampton Roads Area.

Judge Herbert C. Smith (retired), wants a completion of the Hampton Roads harbor and channel plans before new undertakings start. He felt that marine biologists think the C/E proposal, by affecting salinity, would be harmful to the seedbeds.

He favored construction of a James River Basin model, to attempt to answer some of the questions regarding the oyster industry. He cited Dr. Pritchard, Dr. Paul Galstaff, and Dr. McHugh at the 1958 House of Delegates Hearing.

Percy Smith of Newport News suggested that consideration be given to the additional delay to traffic on the James River Bridge if more vessels use the waterway, necessitating opening the bridge for each one.

F. R. Murray, Newport News, advocated additional study before starting the C/E proposal.

J. L. Morewitz advocated development of the York as well as the James. He also suggested a pipeline between Richmond and Yorktown. He further suggested a conciliation session between Richmond and Hampton Roads protagonists, "rather than coming before you and making faces at one another".

O. A. Bloxom, Battery Park Fish and Oyster Company has been in the oyster business for 70 years. He protested when the previous dredging was under consideration. In a compromise, oysters were shifted from one area to another at that time. "In my judgment, it's hurt a lot of our oyster rocks since that channel has been there. All of our lower rocks don't produce nothing like as many oysters today as they did before that channel was dug."

He believes that the C/E proposal would seriously injure the seedbeds, bringing in predators and disease. Citing figures comparing catches before 1930 and now, he expressed the view that increased salinity was the cause.

The oystermen did not oppose the Hampton Roads dredging, he said, because it was outside the major oyster beds; the James channel would be through them. The pollution has cleared up, he said, and he can "go back in the creeks and rivers where pollution was".

NEWPORT NEWS SUPPLEMENTARY MATERIAL

Resolution, Newport News City Council

This resolution, after opposing the C/E proposal as "not necessary and contrary to the best interests of the people of this area, State and nation," says that "an emergency is hereby declared to exist".

Brief, Newport News

The city of Newport News opposes the C/E proposal, on 5 grounds:

1. Unnecessary use of Federal money.
2. Excessive cost.
3. Damage to seedbeds.
4. Need for first improving existing ports.
5. Welfare of nation and State paramount to Richmond's.

Resolution of Hampton City Council

Based on possible danger to the oyster beds, and the existence of "ample areas" for port facilities in the Hampton Roads Area, the Hampton City Council requests delay for "a complete study of the effect on the seed oyster beds".

Statement of Arthur B. Butterworth

In his oral testimony Mr. Butterworth covered almost all of this statement, in most cases verbatim and sometimes slightly paraphrasing.

Clipping, *Newport News Daily Press*, September 2, 1962
(Introduced by Mr. Butterworth, p. 19)

This is what journalists call a feature piece on an oldtimer. The pertinent remarks are in Column 1, page 2 of the clipping. Mr. Marshall says "if it is done right . . . it (proposed dredging—ed.) wouldn't hurt the oyster beds and public rocks one bit . . . it would be of benefit." He would limit dredging to early spring. "It would be of greater benefit than harm and could very well be just the thing that is needed to raise the standards of the oyster industry to the level where a man can make a profitable living from it."

He had other recommendations for the well-being of the oyster industry, which did not seem to be within the Commission's scope.

Statement of O. A. Bloxom

This statement is essentially paraphrased in the oral testimony by Mr. Bloxom. In brief, he feels that dredging in the past hurt the oyster beds, and the proposed dredging would destroy them. Damage would be caused, he said, by intrusion of predators.

Letter From Peninsula Committee for Parks and Planning

This letter covers much the same ground as the testimony of the Committee's Executive Vice-Chairman, Mrs. Evans, beginning on page 6 of the Newport News Hearing; and it makes the same point, that the C/E project is single-purpose and should be delayed for full planning for the rounded James River development.

Some of the language of the letter is vigorous:

" . . . You are in the same position as a . . . surgeon . . . called upon to consider amputation of a toe without first examining and diagnosing the patient."

"The potential value of increased industrialization of the James is anybody's guess—and guess it must remain unless and until the River is planned."

"Would it not be well within the province of this Commission . . . it may possibly be a required conclusion of this Commission . . . to recommend to the Legislature that a potentially drastic change in the James River should not be contemplated unless and until a plan for development of the entire watershed is arrived at?"

"The whole point of the proposal before you is to open up the James . . . open up the James to *what?*"

Statement of Peninsula Chamber of Commerce

This statement is carried almost in full in the Newport News transcript in the remarks of Judge Smith, beginning on page 24. Judge Smith had a slightly different introduction, but picks up the text with the second paragraph of the statement.

He omitted, however, the third paragraph which states that the Great Lakes-St. Lawrence Seaway project has a 25' channel.

In the fourth paragraph of the prepared statement, the word "expected" is used although the hearing reporter used "second". On page 25, Judge Smith did not include hydrographers as among those in testimony before the C/E and the General Assembly; the statement does.

Tear Sheet, *Daily Press*, February 28, 1961

This feature article, by the head of the Newport News Rotary Club Community Planning Committee, deals with a dam across the lower James—several optional sites are shown—primarily to assure a supply of fresh water for the Hampton Roads Area.

The author says that "The city of Richmond has long desired a deeper and improved channel, 'but' recent history of river traffic apparently has failed to justify this project."

He says his proposed dam would "raise the water level above the dam 10 feet or more to provide required channel to Richmond" and stimulate industrial development all along the river. He then describes the virtues of industrial development.

THIRD HEARING

Hopewell

October 4, 1962

This hearing was devoted entirely to proponents of the C/E proposal, and was smartly managed. It was divided roughly into three sections. They were:

1. Elected public officials, State and national.
2. Hopewell public, business and labor leaders.
3. Leaders of business in the area back of Hopewell.

Many witnesses spoke of the oyster industry, but none advanced any specialist qualifications.

It was difficult to brief some of the well-prepared, detailed presentations. That of Director Hamrick beginning on page 89 is a good example.

Much of this testimony deals with navigation, much with expected industrializations; and the intimate connection between the two is carefully drawn and documented.

In general, the proponents of the proposal developed at this hearing a strong case for expecting industrialization from the 35' channel, bringing great benefits to the entire Commonwealth, including Hampton Roads ports.

Delegate Marks discussed the effect of dredging on the oyster beds; others mentioned it.

Senator Garland Gray, 6th District, coordinated the presentation by supporting witnesses.

In his own introductory statement, the Senator reviewed the importance of the Hopewell Area from 1613. The area, he said, "is blessed with an inexhaustible supply of fresh water, with a pleasant and mild climate, with industrious and intelligent people, and with all the modes of transportation needed for industry and commerce, except for a deeper channel in the James River to accommodate the larger ships of today . . . City Point is ideal for an inland port. There is deep water close to shore; there is a wide expanse of river where it would be easy to dredge a turn basin; there is good location for docks and warehouses . . . It could resume as a port for all of the areas south and southwest, as it was in colonial days."

This would benefit his District, the Senator continued, and adjoining districts, without hurting any other place or economic element. It would bring in new industry, thus benefiting the State. Time's running out, he thinks.

Then *Senator Gray* read a statement from *Congressman Abbitt*. The Congressman wrote that he is "very, very much in favor" of the proposed 35' channel, having been working on it since the 50's. He reported information from the White House that the Budget had cleared the C/E proposal. He said Congress will approve the project if "the proper action is taken by the Commonwealth of Virginia." The C/E proposal requires such approval within 5 years, he said.

He commended the State for seeking industrial development and the Governor for leadership in this field. The C/E proposal, he believes, would be the greatest possible stimulus to this drive. All sections of Virginia, the Congressman believes, would have industrial development as a direct result of the proposal. "I am convinced that the benefits will far outweigh the small damages that could possibly occur."

Senator John H. Temple of Petersburg, introduced as proponents' first witness, endorsed the C/E proposal and repeated the industrialization benefits to be expected.

Senator Gray then read a statement from *Delegate Roy Smith* of Petersburg, also endorsing the C/E proposal.

Note: No further mention will be made of Senator Gray's introductions.—Ed.

Next witness was *Delegate Arthur H. Richardson* from Dinwiddie County and Petersburg. He endorsed the C/E proposal, adding "I would not want to see anything done to destroy the seed oysters . . . I do not feel that this dredging will affect them."

The Delegate's father's people were oystermen in New Kent County. An industrial plant on the York River destroyed (the beds there).

Delegate Lyman C. Harrell of Emporia, representing Greensville and Sussex Counties, said the deepening of the James River channel "is not only necessary and desirable, but it is of vital importance to the economic growth and industrial development of a large area of the Commonwealth . . . It has been too long a time under consideration." Failure to deepen the channel has "stifled trade and commerce." The C/E proposal would "give impetus" to Governor Harrison's program in "presenting the case for Virginia throughout the nation." His two counties do not touch upon the James, Delegate Harrell said, but he expects them to benefit directly from industrial development.

Delegate Llewellyn H. Irby, representing Nottoway, Lunenburg and Amelia Counties, reported by telephone that he wholeheartedly endorses the C/E proposal.

Delegate C. Hardaway Marks, representing Prince George and Surry Counties and Hopewell, said one reason Hampton Roads port facilities are below capacity is that they are used almost entirely for export; the extra 100 miles of water transportation in the C/E proposal will help attract import tonnage. He cited the Atlantic States Marine Fisheries report, in the *Richmond Times-Dispatch* on September 29, saying the Commission represents states competing with Virginia.

He then took up the subject of the effect of dredging upon the seed oyster beds. On the objection that increasing the depth might increase

salinity, he cited a paper by the US Fish and Wildlife Service, Atlanta: "Changes in salinity and current pattern that may result . . . are assumed to be insignificant in their effect upon the production of seed oysters." The Service reported a consensus that a salinity increase would result.

Salinity figures, and depths near the seedbeds, were cited. The Service statement cited a statement by *Captain Massenburg* that he did not think the small increase in the cross-sectional area of the river would cause harm to the oysters. *Dr. McHugh* was reported as saying that he could not know all effects that might take place but some would be harmful, but "he could not definitely say that the dredging would be adverse to the seed oyster." The Delegate quoted from the report, "*Dr. Pritchard* continued by saying that he personally believed that the past channel dredging was beneficial."

Delegate Marks quoted a fourth-generation oysterman as saying that every time the channel was dredged or cleaned, the quality of oysters improved for four or five years. He then returned to the Fish and Wildlife Service report, quoting *Dr. Pritchard* that he could not say that further channel deepening (citing 40' as a possibility) would be detrimental.

Then the Delegate quoted Chief Oyster Biologist, *Dr. J. D. Andrews* of the Virginia Institute of Marine Science that the reason for 1962's serious seed-oyster failure cannot be defined; it might be MSX, or low salinity in 1960-61.

He considered the 1928-35 experience from dredging "not valid" and subject to precautions for eliminating danger, but he did not state what that experience was.

He concluded by expressing the opinion that the total damage to seed oysters would be the loss of 65 acres actually dredged out. (See supplementary material.)

Senator Joseph C. Hutcheson, Lawrenceville, representing Brunswick, Lunenburg and Mecklenburg Counties, endorsed the C/E proposal.

Frank A. Ernst was introduced as Chairman of the Board of Commissioners of the Virginia State Ports Authority; former General Manager of Allied Chemicals, Hopewell; and first President of the Appomattox Basin Industrial Development. Declining to comment on the effect of the C/E proposal on the oyster industry, he said the coming of the pipeline would not mean the end of tanker traffic on the James. The pipeline normal traffic is only 32% of the present tanker traffic.

He said the benefit-cost ratio was enough to justify approval, but his Commission feels that industrial development along the James will be of even greater benefit. He cited a study made for the Commission in 1952 by consulting engineers; that report stressed that the prosperity of any port lies in a prosperous tributary area; he felt this answers the fears of Hampton Roads people that the C/E proposal might injure the economy of that area.

He thinks that failure to improve the James would set back the economic development of the Commonwealth for two decades. (See supplementary material, "Cloverdale and Colpetts Report.")

Robert R. Fohl, Director, Region 19, United Mine Workers of America, District 50, represented 5000 to 6000 organized workers in the Hopewell Area. He introduced President James of the Nitrogen local, about 1400 members; President T. P. Hylton of the National Analine local, about 1700 members; Mr. Torrence from Firestone Synthetics; Vice-President James Nesbitt of the Continental Can group.

The work force of Virginia will increase by 248,000 by 1970, Mr. Fohl said, and it will be necessary to provide job opportunities for them; otherwise, these new workers will move to areas of faster industrialization. He cited the James River as a natural resource which Virginia must utilize, along with water, coal, climate and strategic location. He cited the European Common Market and the Reciprocal Trade program as reasons for industrialization efforts.

Former Editor *Augustus Robbins* of the *Hopewell News*, representing the city of Hopewell by appointment of *Mayor Neal* reviewed the long history of the Hopewell Area, showing its close relationship through the years to water shipping. With the increase in size of vessels, the area's importance as a port declined. He cited the case of a freighter which loaded 15,000 tons at the Allied Chemical docks in September, 1962, but had to pick up the rest of its 20,000-ton cargo at Norfolk, to which it was shipped by rail. The ship could not carry a full load in the present 25' channel. He said the 35' channel would result in Hopewell resuming its former importance as a port.

Attorney *James G. Harrison*, of Hopewell presented a statement prepared by President *E. H. Graves*, Hopewell Manufacturing Association. The companies which make up the Association, he said, employ some 6000 workers at an annual payroll of \$35,000,000 and have sales of \$202,000,000 a year. On their behalf, the Association endorses the C/E proposal.

With this witness *Senator Gray* concluded his morning's presentation and introduced President *Frank L. Wyche* of the Appomattox Basin Industrial Development Corporation and Commonwealth's Attorney for Prince George County. Mr. Wyche traced the origin and scope of his Corporation and endorsed the C/E proposal. His organization does not offer tax concessions or other monetary inducements in trying to attract industry. He believes the C/E proposal would provide a better attraction.

He then presented many expressions of approval for the C/E proposal from varied types of groups in the area.

Note: Mr. Wyche read many of the resolutions he presented, and introduced those individuals who appeared in person; his activities as manager of the testimony is omitted.—Ed.

The following groups appeared in general and specific support:

City Council, Petersburg.

City of Hopewell.

City of Colonial Heights. (*Mayor Shepherd* and *City Manager Smith* personally attended the hearing.)

Board of Supervisors, Chesterfield County.

Board of Supervisors, Dinwiddie County.

Board of Supervisors, Prince George County. (Clerk *Kenneth L. Figg* and Chairman *J. L. Thacker* personally attended.)

Board of Supervisors, Sussex County. (Clerk *William B. Cocke* spoke briefly.)

Board of Supervisors, Surry County. (*Ernest W. Goodrich*, Commonwealth's Attorney for Surry County and President of the Bank of Surry, amplified this Resolution for the Supervisors. He pointed out that Surry County has a very long shoreline on the James. Lumber was shipped 40 or 50 years ago, nothing since. It has

no railroad. He wants the channel deepened. He thinks the Norfolk attitude "shortsighted" because "if you can be where there is a lot of money moving around, you are bound to get a little bit of it.")

Board of Supervisors, Greenville County. (Chairman *C. Hill Carter*, said his County has no place of more than 30 people; its only industries are a few sawmills and a charcoal plant. It has the fifth highest tax rate and is almost at the bottom in taxable wealth. He thinks the C/E proposal would help.)

Brown and Williamson Tobacco Company, Petersburg.

Petersburg and Hopewell Gas Company.

First Federal Savings and Loan Association, Petersburg.

Farmers Bank of Dinwiddie.

Petersburg Mutual Savings and Loan Association, Petersburg.

State Planters Bank of Commerce and Trusts, Petersburg.

Petersburg Savings Advisory Board, First and Merchants National Bank, Richmond.

Hopewell Advisory Board of the same bank.

Colonial Heights Advisory Board of the same bank.

The Bank of Southside Virginia, operating in Prince George, Dinwiddie, Sussex and Greenville Counties.

Bank of Waverly.

Prince George Ruritan Club. (Here Mr. Wyche explained that Ruritan Clubs are "the country Chambers of Commerce".)

Bank of McKenny.

Titmus Optical Company, Petersburg. ("One of the largest optical manufacturing companies in the US").

Chairman *DeLashmutt* introduced Commissioner of Fisheries, *Milton Hickman*, and Commission Attorney, *Lewis Jones*.

Mr. Wyche resumed his presentation by introducing Consultant *J. J. O'Leary* of the Appomattox Basin Industrial Development Corporation, recently retired as production manager for Allied Chemicals in Hopewell.

Mr. O'Leary reported his experience in trying to induce "large companies in good financial condition, who would not compete with local industry" to locate in the Hopewell Area. When he approached a large designing corporation to recommend the banks of the James for a petro-chemical plant, he was told the channel is too shallow; but the contact predicted a great future if the channel would serve present-day ships. He reported that inland-waterway ton-miles had increased 1,300 percent from 1930 to 1960.

When he called upon *Howard Westlow* of the General American Transportation Corporation, now considering locations for bulk storage, Westlow asked the depth of the present channel and commented "Too shallow. Let me know when you have 35' and we will come down and look at your sites."

Mr. O'Leary said his Corporation is considering bringing in two specialists to study the effect of the C/E proposal on the seed oyster beds.

He further said that for a 2-week period when the wind was from the east and there was little rainfall, the salinity of the James River at Hopewell increased tenfold, pointing out that other factors than dredging influence it.

Assistant Secretary *Watkins Rhodes*, Virginia Manufacturers Association, cited his Association's support for the Hampton Roads port facilities, and said it is "no less interested" in the C/E proposal. The same arguments now used against the 35' channel could also have been used against the present 25' channel, which he says is now "obsolete". (See supplementary material.)

Executive Vice-President *C. H. Taylor* of the Virginia Manufacturers Association also endorsed the proposal.

Executive Vice-President *Frank K. Martin*, Petersburg Chamber of Commerce, read his Chamber's resolution that Petersburg, although not on the James, nevertheless believes the C/E proposal would benefit it.

Lieutenant Colonel *Louis H. Shirley*, Executive Manager, Hopewell Chamber of Commerce, said his Chamber had previously reported on 31 sites available for industry if the C/E proposal is put into effect. He reported population and other figures in detailed support of the C/E proposal.

(*Recess for luncheon.*)

(Senator Gray resumed as marshall of supporting testimony.)

Director *Joseph C. Hamrick*, Division of Industrial Development and Planning, Richmond, cited the Governor's interest in industrial development of Virginia. The C/E proposal would be a great help in his Commission's program. The proposal needs to be judged by looking 20 to 40 years ahead, he said. If Virginia does not grasp the present opportunity, other states will. The Hampton Roads deep-water sites are too few to meet the future needs of Virginia. Good sites are available all along the James River channel. He listed many types of industry which might be attracted to the James: chemical, sugar refinery, magnesium reduction (in a specific case, he found himself able to offer low-cost power, one essential, but could not offer water transportation.) A corporation founded in Virginia 80 years ago will build an appliance manufacturing plant on the Mississippi River because of the availability of water transportation.

Other possibilities for plants using imported materials are gypsum board and other building materials, rubber products, furniture, food processing of coffee, tea, cocoa, assembly yard for imported dimension stone. Export industries would also be attracted, the Director said.

At 1955 hearings on James improvement the Executive Vice-President of Reynolds Metals said his company could use the river for exports. In late September, he and the Governor had lunch with the chief executive of a major corporation who reported that many shipments are half loaded out up the river and topped off at Hampton Roads; "on one shipment the excess cost was \$25,000."

He cited the Trade Expansion Bill as an opportunity for expanded trade, which the C/E proposal would facilitate. Then he reported that before World War I Houston's population was 60% of Richmond's; now it is four times as large. Lake Charles, Louisiana is another example of a city made prosperous by water commerce from a dredged channel.

J. W. Enochs, Jr., representing Mayor Neal of Hopewell, supervised the balance of the afternoon presentation. He first introduced *J. H. Smith*,

Charles City County Planning Commission. Mr. Smith presented figures to show how rural his County is, and how it is trying to find a remedy in industrialization.

The salinity of the James River is controlled "mostly by the weather, not by the depths of your channel." He said in dry years, 1954 through 1960, there were brackish water and barnacle beds as far upstream as Hopewell. East wind brings higher salinity; northwest wind decreases it.

Note: Mr. Enoch introduced the following speakers. His activities are omitted to save space.

Welmont Drake, Vice-President and General Manager of the Hopewell Branch, State-Planters Bank of Commerce and Trusts, endorsed the C/E proposal.

Secretary *Harrison Streeter*, Port and Docks Commission, City of Hopewell, presented his Commission's endorsement. He cited tonnage figures on water-borne commerce.

Mr. Enochs reviewed the day's testimony (pages 104-105) and went on to show the effect of stable industry on Hopewell's employment situation and economy. Then he introduced a letter from the Dow Chemical Company, in hearty endorsement. Dow, the letter said, has invested more than \$10,000,000 in a 600-acre plant site at Lee Hall, because of the potential of deep-water transportation. The company has chartered two chemical tankers which cannot use the present channel but could use the 35' proposed channel.

Manager *Edward H. Graves*, Continental Can Company, also endorsed the proposal.

Plant Manager *Walter Smith*, Firestone Synthetics Fibers Company, said any decision to use land owned by his company alongside Bailey's Creek would be greatly influenced by the availability of a deep water channel.

Assistant Manager *J. Shepard Mondy*, Nitrogen Division, Allied Chemical Corporation, likes Hopewell and hopes his plant there can expand. But without deep-water transportation, it cannot. In the year ended September 1, 1962, 46 ocean-going vessels were loaded at the Company's Hopewell docks; "all were penalty vessels" because of channel limitations. Not only is the channel too shallow, but it is useful only in daylight and other vessels must clear; the delay "averages 12 hours". Quotations on a 30,000-ton order met price acceptance but the excess transportation cost was a barrier. The present 571-foot pier can handle modern deep-draft vessels.

The "Southampton" loaded at Hopewell September 22-26, 1962; it has a draft fully loaded of 33'10". Over 8,000 tons had to be left off until the vessel cleared the James. The extra costs were 7% of the value of the cargo. The extra cost to the Company of doing business on a 25' channel compared with one of 35' is \$750,000 a year.

John D. Haire, Jr., Delta Oil Sales Company, Petersburg, read a letter from the Marathon Oil Company. It is changing to larger vessels which cannot use a 25' channel efficiently. It estimates that, since pipeline rates are about the same as those by tanker, there will be little disturbance of James River tanker traffic when the new pipeline opens. If the James River channel is not deepened, there will ensue an economic waste of \$1,500,000 a year.

HOPEWELL HEARING SUPPLEMENTARY MATERIALS

Statement of Delegate C. Hardaway Marks

The transcript includes the full text of this statement. It omits, however, two subheads which make the text more intelligible. The first is "Point 2 Silting," which the written statement includes ahead of the third line from the bottom of page 22. The other is "Point 3" which in the statement precedes the first complete paragraph on page 23.

Excerpts, Cloverdale and Colpitts Report

Mr. Ernst referred to this report on page 29.

The summary provided by Admiral Clark well covers matters of special concern to the Commission.

The general subject is the relation between port facilities and industrial development. It shows how each benefits from the other, and stimulates the other.

Statement by J. J. O'Leary

The transcript is paraphrased from the written statement.

Statement of Watkins Rhodes

The statement of Watkins Rhodes is carried in full in the transcript. On page 74, third line from the bottom, the second word is "view" in the written statement; the reporter made it "knew".

Report of VMA Special Committee on Acquisition of Hampton Roads Port Facilities by Virginia Ports Authority

This report was included to show past support by the Virginia Manufacturers Association for the Hampton Roads ports, to indicate that VMA in supporting the James River development, has a State-wide motivation.

The report favors legislation to permit the Ports Authority to purchase the Norfolk and Western general-cargo facilities at Norfolk and that negotiations leading to similar arrangements with Chesapeake and Ohio and Atlantic Coast Line be continued.

Telegram, Lynchburg Chamber of Commerce

This telegram supports the C/E proposal; "all citizens of Virginia will be directly or indirectly affected."

Resolution of Sussex County Supervisors

Supports C/E proposal, as important to industrial development.

Resolution of Dinwiddie County

Favors C/E proposal: "Vital importance to future industrial devel-

James City County Resolution

Favors the C/E proposal for "bringing more industry to the State in general and James City County in particular."

*Statements of Petersburg First Federal Savings
And Loan Association and Farmer's Bank of Dinwiddie*

Favors C/E proposal on grounds of "economic growth" and "indus-

*Resolution of Petersburg Advisory Board
State-Planters Bank of Commerce and Trust*

Approves C/E proposal—"will economically benefit this area."

Resolution of Bank of Southside, Virginia

Favors C/E proposal; "will result in future years in a tremendous industrial development."

*Resolutions of Petersburg, Hopewell and Colonial Heights
Advisory Boards, First and Merchants National Bank, Richmond*

All favor C/E proposal, on grounds of industrial development.

Marathon Oil Company Letter

Material in the letter pertinent to the Commission's study is reproduced in full in the transcript. The attachment is a somewhat more detailed statement supporting the C/E proposal, submitted to the C/E 1958 hearing.

Brief of Hopewell Chamber of Commerce

This brief supports strongly the C/E proposal on the basis of industrial stimulation.

The first page is an excellent summary, and the tabs provide ease of finding references. The brief is detailed and documented.

Various units are: Resolutions of the Chamber, a brochure on Hopewell, another on industrial sites available, advertisements for the "Top of the South" about "Waterways of the U. S." and a U. V. Newsletter on population changes. (Only 5 copies of "Waterways of the U. S." are available.)

RICHMOND HEARING SUPPLEMENTARY MATERIAL

Statement by Congressman J. Vaughan Gary

This reviews the Congressman's long support for the C/E project in Congress.

The Congressman compared the James River development with the Delaware and the Houston Ship Canal. He pointed out that in 8 years the Delaware tonnage increased 52%, and a large number of large new industrial plants, dependent on water shipping, have been and now are being constructed above Philadelphia.

Development traceable to the Houston Ship Canal has been even more spectacular, he reported, listing many new industrial plants and expansion of previous plants.

Statement by Richmond Chamber of Commerce

This statement, made in February, 1960, reviews support of the city for the C/E proposal and decries the opposition. All proponents urge